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SECTION A – ADDENDA OF SUPPLIES OR SERVICES AND PRICE/COSTS

A.1 PROJECT TITLE

Office of Nuclear Regulatory Research (RES) Analytical Support for Thermal Hydraulics and Severe Accidents

A.2 BRIEF DESCRIPTION OF WORK

The Contractor shall provide support to include; 1) severe accident sensitivity calculations for the ESBWR 4500 design using MELCOR in the area of in-vessel and ex-vessel phenomena; 2) analytical support to RES during its review of several thermal-hydraulic and severe accident topical reports as submitted by FANP for EPR pre-application review; and 3) provide technical support to NRC in its interaction with EPRI/MUG during the development of the MAAP Application Users' Guide and detailed review of the MAAP Application Users' Guide.

A.3 SCHEDULE

A.3.1 SCHEDULE OF PRICING

(September 30, 2006 – December 31, 2006 [ERI Fiscal Year 2006 Pricing])

CLIN 001 - TASK 1 ESBWR Severe Accident Analyses using MELCOR

Labor Category	Rate \$	Hours	Dollars
Executive	[REDACTED]	[REDACTED]	\$9,609.60
Senior Engineer/Scientist	[REDACTED]	[REDACTED]	\$13,656.60
Engineer/ Scientist	[REDACTED]	[REDACTED]	\$561.20
Subtotal		[REDACTED]	\$23,827.40

CLIN 002 - TASK 2 Analytical Support for Staff Review of EPR Topical Reports

Labor Category	Rate	Hours	Dollars
Executive	[REDACTED]	[REDACTED]	\$4,118.40
Senior Engineer/Scientist	[REDACTED]	[REDACTED]	\$6,448.95
Engineer/ Scientist	[REDACTED]	[REDACTED]	\$561.20
Subtotal		[REDACTED]	\$11,128.55

CLIN 003- TASK 3a Technical support to NRR/RES in its interaction with EPRI/MUG

Labor Category	Rate	Hours	Dollars
Executive	[REDACTED]	[REDACTED]	\$8,236.80
Senior Engineer/Scientist	[REDACTED]	[REDACTED]	\$2,276.10

Engineer/ Scientist	[REDACTED]	0	\$0
Subtotal	[REDACTED]		\$10,512.90

CLIN 004- TASK 3b Detailed review of the MAAP Application Users' Guide

Labor Category	Rate	Hours	Dollars
Executive	[REDACTED]	[REDACTED]	\$6,864.00
Senior Engineer/Scientist	[REDACTED]	[REDACTED]	\$9,483.75
Engineer/ Scientist	[REDACTED]	[REDACTED]	\$561.20
Subtotal	[REDACTED]	[REDACTED]	\$16,908.95

A.3.2 SCHEDULE OF PRICING

(January 1, 2007 – October 31, 2007 [ERI Fiscal Year 2007 Pricing])

CLIN 005 - TASK 1 ESBWR Severe Accident Analyses using MELCOR

Labor Category	Rate \$	Hours	Dollars
Executive	[REDACTED]	[REDACTED]	\$28,418.00
Senior Engineer/Scientist	[REDACTED]	[REDACTED]	\$42,406.20
Engineer/ Scientist	[REDACTED]	[REDACTED]	\$2,323.20
Subtotal	[REDACTED]	[REDACTED]	\$73,147.40

CLIN 006 - TASK 2 Analytical Support for Staff Review of EPR Topical Reports

Labor Category	Rate	Hours	Dollars
Executive	[REDACTED]	[REDACTED]	\$12,788.10
Senior Engineer/Scientist	[REDACTED]	[REDACTED]	\$20,810.45
Engineer/ Scientist	[REDACTED]	[REDACTED]	\$1,161.60
Subtotal	[REDACTED]	[REDACTED]	\$34,760.15

CLIN 007- TASK 3a Technical support to NRR/RES in its interaction with EPRI/MUG

Labor Category	Rate	Hours	Dollars
Executive	[REDACTED]	0	0
Senior Engineer/Scientist	[REDACTED]	0	0
Engineer/ Scientist	[REDACTED]	0	0

Subtotal		0	0
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CLIN 008- TASK 3b Detailed review of the MAAP Application Users' Guide

Labor Category	Rate	Hours	Dollars
Executive	[REDACTED]	[REDACTED]	\$46,889.70
Senior Engineer/Scientist	[REDACTED]	[REDACTED]	\$70,284.35
Engineer/ Scientist	[REDACTED]	[REDACTED]	\$3,484.80
Subtotal		[REDACTED]	\$120,658.85

OPEN MARKET ITEMS:

Open Market Items	Subtotal	Total \$
1. Other Direct Costs		
a) Printing/Reproduction	[REDACTED]	
b) Courier	[REDACTED]	
c) Postage	[REDACTED]	
d) Telephone/Teleconference	[REDACTED]	
ODC Total:		\$2,400.00
2. Travel:	\$4,500.00	\$4,500.00
Travel (Cost Reimbursable) The government will pay up to the rates specified in the Government Federal Travel Regulations (FTR) for travel destination. Hotel reservations will be made by the contractor and will be reimbursed for actual costs only, with back up documentation/ receipts attached to the invoice. NO PAYMENT WILL BE MADE WITHOUT BACK UP DOCUMENTATION/ RECEIPTS.		
TOTAL		\$6,900.00

GRAND TOTAL ---
 \$297,844.20
 =====

A.4 CONSIDERATION AND OBLIGATION--DELIVERY ORDERS (JUN 1988)

(a) The total estimated amount of this contract (ceiling) for the products/services ordered, delivered, and accepted under this contract is \$297,844.20. The Contracting Officer may unilaterally increase this amount as necessary for orders to be placed with the contractor during the contract period provided such orders are within any maximum ordering limitation prescribed under this contract.

(b) The amount presently obligated with respect to this contract is \$296,022.40. The Contracting Officer may issue orders for work up to the amount presently obligated. This obligated amount may be unilaterally increased from time to time by the Contracting Officer by written modification to this contract. The obligated amount shall, at no time, exceed the contract ceiling as specified in paragraph a above. When and if the amount(s) paid and payable to the Contractor hereunder shall equal the obligated amount, the Contractor shall not be obligated to continue performance of the work unless and until the Contracting Officer shall increase the amount obligated with respect to this contract. Any work undertaken by the Contractor in excess of the obligated amount specified above is done so at the Contractor's sole risk.

A.5 DURATION OF CONTRACT PERIOD (MAR 1987)

This contract shall commence on September 30, 2006 and will expire October 31, 2007.

SECTION B - CONTINUATION BLOCK

B.1 STATEMENT OF WORK

1.0 BACKGROUND

The Office of Nuclear Regulatory Research (RES) is providing support to the Office of Nuclear Reactor Regulation (NRR) in several of its regulatory programs including (1) ESBWR Design Certification Application (DCA) review for severe accidents, (2) EPR pre-application review, and (3) interaction with EPRI/MUG during the development of the MAAP Application Users' Guide. This SOW describes the analytical support work for these three activities.

During 2005, General Electric (GE) submitted the Economic Simplified Boiling Water Reactor (ESBWR) 4500 design to NRC for certification, which is undergoing review by NRC staff. RES is supporting NRR in reviewing the GE design submittal. In the severe accident area, this review effort includes preparation of a MELCOR plant deck and performing severe accident calculations. Under an existing contract, the baseline calculations are being performed by a contractor. RES plans to perform additional sensitivity calculations.

NRC policy encourages early discussions (prior to a license application) between NRC and potential applicants, such as utilities and reactor designers, to identify and resolve potential licensing issues early in the licensing process. During this pre-application period for a design certification, the NRC holds public meetings with potential applicants and conducts reviews of limited scope, to identify (i) major safety issues that could require commission policy guidance to the staff, (ii) major technical issues that the staff could resolve under existing regulations or NRC policy, and (iii) the research needed to resolve identified issues.

Currently, Framatome ANP (FANP), a subsidiary of Areva, is undergoing pre-application review of the Evolutionary Power Reactor (EPR). During the course of the EPR pre-application review, FANP will submit several thermal-hydraulic and severe accident topical reports describing analytical methods, supporting testing, and the results of the representative analytical evaluations. RES is supporting NRR in reviewing the severe accident topical report.

EPRI (via the MAAP Users' Group (MUG)) has initiated efforts to develop a MAAP Application Users' Guide that is expected to consist of two major elements: (1) guidance on appropriate use of the code for various sequences and limitations of the code, and (2) a compendium of MAAP benchmarks against existing experiments and analyses. This future guide can provide a critical link in improving the quality of the MAAP code and document its capabilities. Given the increased focus on risk-informing the regulations and on the PRA quality needed to support associated PRA applications, a framework for regulatory acceptance of MAAP analyses in support of risk-informed applications is needed.

2.0 OBJECTIVES

To obtain a Contractor to provide qualified, competent, and fully trained personnel to perform the support activities delineate under this contract, which include:

- (1) Perform severe accident sensitivity calculations for the ESBWR 4500 design using MELCOR in the area of in-vessel and ex-vessel phenomena.

(2) Provide analytical support to RES during its review of several thermal-hydraulic and severe accident topical reports as submitted by FANP for EPR pre-application review.

(3) Provide technical support to NRC in its interaction with EPRI/MUG during the development of the MAAP Application Users' Guide and detailed review of the MAAP Application Users' Guide.

3.0 SCOPE OF WORK

The Contractor shall support RES in meeting the objectives discussed above by providing support, as detailed below:

3.1 Task 1: ESBWR Severe Accident Analyses using MELCOR (Job Code N6336)

The contractor shall perform calculation for accident sequences using the MELCOR code to address open issues in the course of the GE design review. The calculations will cover in-vessel melt progression, lower head behavior, lower head failure, ex-vessel phenomena including core-concrete interaction, and source term. The contractor shall provide a final report documenting ESBWR severe accident analyses using MELCOR. The contractor shall provide consultation and support (including peer-review for ESBWR severe accident analyses).

Estimated Level of Effort: 6.0 staff-months (1040 staff-hours)
Estimated Completion Date: September 30, 2007

3.2 Task 2: Analytical Support for Staff Review of EPR Topical Reports (Job Code N6259)

The contractor shall provide analysis in specific severe accident topics to support the staff review of the EPR topical report. The topics include accident analysis code applicability, and severe accident issues such as direct containment heating (DCH), combustible gas control, steam explosion, core coolability, melt spreading, and core-concrete interaction. The contractor shall perform confirmatory calculations to verify the data and results presented in the topical report. Particular attention should be paid to EPR-specific severe accident design mitigation features (e.g., core catcher and core spreader). The contractor shall submit a letter report documenting the analysis and technical review.

Estimated Level of Effort: 3.0 staff-months (500 staff-hours)
Estimated Completion Date: September 30, 2007

3.3 Task 3: Technical support to NRR/RES in its Interaction with EPRI/MUG and Detailed Review of the MAAP Application Users' Guide

3.3.1 Task 3a: Technical support to NRR/RES in its interaction with EPRI/MUG (Job Code N6041)

The contractor shall provide expert technical advice to the NRR/RES team under this task. This activity shall involve participating in a small NRR/RES team with the specific

objective of working with EPRI/MUG to assure that the Users' Guide addresses issues, applications, and scenarios of particular concern to NRC. The focus of the effort will be on the use of the code to support risk-informed applications, with an emphasis on establishing PRA success criteria, and estimating the timing of key events in accident progression.

Estimated Level of Effort: 0.5 staff-months (90 staff-hours)

Estimated Completion Date: September 30, 2006 (tentative, contingent on EPRI/MUG schedule)

3.3.2 Task 3b: Detailed review of the MAAP Application Users' Guide (Job Code N6041)

The contractor shall assist RES in reviewing the benchmarking portion of the Users' Guide (along with any referenced materials) to determine if the MAAP code, when properly applied, provides a reasonable representation of plant behavior for sequences of potential interest in risk-informed applications, and shall identify potential gaps, and recommendations to resolve those issues.

Estimated Level of Effort: 8.5 staff-months (1470 staff-hours)

Estimated Completion Date: July 31, 2007 (tentative, contingent on EPRI/MUG schedule)

4.0 REPORTING REQUIREMENTS

4.1. The contractor shall prepare technical reports as described under "Deliverables and Delivery Schedule."

4.2. Monthly Letter Status Report (MLSR)

A MLSR is to be submitted to the NRC Project Officers and the Contracting Officer by the 20th of the month following the month to be reported with copies provided to the following. The MLSR will identify the title of the project, the job code, the Principal Investigator, the period of performance, the reporting period, summarize each month's technical progress, list monthly spending, total spending to date, and the remaining funds. Any administrative or technical difficulties which may affect the schedule or costs of the project shall be immediately brought to the attention of the NRC project manager.

5.0 DELIVERABLES AND DELIVERY SCHEDULE

5.1. (Task 1) Draft report of ESBWR SA Analyses using MELCOR due 6 months after contract initiation.

5.2. (Task 1) Final report of ESBWR SA Analyses using MELCOR due 1 month after receipt of NRC comments. Contractor shall submit 4 original hard copies of final report.

5.3. (Task 2) Draft letter report documenting analyses supporting topical report review due on July 31, 2007 (tentative).

- 5.4. (Task 2) Final letter report documenting analyses supporting topical report review due 1 month after receipt of NRC comments. Contractor shall submit 3 original hard copies of final report.
- 5.5. (Task 3b) Draft report documenting results of detailed review of MAAP Users Guide due by May 2007 (tentative).
- 5.6. (Task 3b) Final report documenting results of detailed review of MAAP Users Guide due 1 month after receipt of NRC comments. Contractor shall submit 3 original hard copies of final report.

Input decks developed under these tasks are to be prepared and provided to the staff.

6.0 PERSONNEL QUALIFICATIONS-

6.1. Senior Project Manager

Description: Provide direction and management to contract team.

Qualifications: At least 15 years experience in the subject areas listed in Section 7.0; application and knowledge of various NRC and industry severe accident codes; minimum of a BS degree in related field.

6.2. Principal Engineer

Description: Determine methods and solutions for complex engineering, architecture, and technical problems and select the most efficient and economical manner to meet the project objectives.

Qualifications: At least 10 years experience with BS degree in related field.

Experience should include severe accident model development and applications, and knowledge of various NRC and industry severe accident codes.

6.3. Engineering Analyst -

Description: Assist the principal Engineer and participate in analysis and review activities.

Qualifications: At least 5 years experience in thermal hydraulics and related fields, with a BS degree.

6.4. Senior Consulting Engineer -

Description: Provide technical support to the senior project manager.

Qualifications: Experience in review activities related to NRC and industry methods and tools.

7.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

The contractor shall provide personnel that are experienced in thermal hydraulics, severe accident analyses, risk assessment, MELCOR input deck development, code assessment, and applications to Advanced LWRs (e.g., ESBWR).

It is the responsibility of the contractor to assign technical staff, employees, subcontractors, or specialists who have the required educational background, experience, or combination thereof

to meet the technical objectives of the work specified in this SOW. The NRC will rely on representations made by the contractor concerning the qualifications of the personnel assigned to this task order including assurance that all information contained in the technical and cost proposal, including resumes, is accurate and truthful. In addition, the contractor and personnel assigned to this work must be approved for handling and working with proprietary information.

The use of key personnel and any proposed change to key personnel on this contract is subject to the NRC Project Manager's approval. This includes proposed use of principal persons (i.e., key contributors) during the life of the contract.

For any work to be subcontracted or performed by consultants the contractor shall obtain the NRC Project Manager's written approval of the subcontractor or consultant prior to initiation of the subcontract effort. Conflict of interest considerations shall apply to any subcontracted effort.

8.0 MEETINGS AND TRAVEL REQUIREMENTS

The contractor should plan on attending several meetings with NRC staff at NRC Headquarters in Rockville, Maryland, or at the contractor's office. Travel such as to domestic technical professional society meetings to present papers may be considered if needed, but must be approved by the NRC Project Manager.

9.0 PLACE OF PERFORMANCE

All work performed under this contract shall be performed primarily at the contractor's site, except when the contractor needs to be on-site at NRC Headquarters in Rockville, MD, for facilitation services, and off-site locations designated by NRC Project Officer.

10.0 PUBLICATIONS

RES encourages the publication of the scientific results from RES sponsored programs in refereed scientific and engineering journals as appropriate. If the laboratory proposes to publish in the open literature or present the information at meeting in addition to submitting the required technical reports, approval of the proposed article or presentation should be obtained from the NRC Project Manager. The RES Project Manager shall either approve the material as submitted, approve it subject to NRC suggested revisions, or disapprove it. In any event, the RES Project Manager may disapprove or delay presentation or publication of papers on information that is subject to Commission approval that has not been ruled upon or which has been disapproved. Additional information regarding the publication of NRC sponsored research is contained in NRC Management Directives 3.8, "Unclassified Contractor and Grantee Publications in the NUREG Series," and 3.9, "NRC Staff and Contractor Speeches, Papers, and Journal Articles on Regulatory and Technical Subjects."

If the presentation or paper is in addition to the required technical reports and the RES Project Manager determines that it will benefit the RES project, the Project Manager may authorize payment of travel and publishing costs, if any, from the project funds. If the Project Manager determines that the article or presentation would not benefit the RES project, the costs associated with the preparation, presentation, or publication will be borne by the contractor. For

any publication or presentations falling into this category, the NRC reserves the right to require that such presentation or publication will not identify the NRC's sponsorship of the work.

NEW STANDARDS FOR CONTRACTORS WHO PREPARE NUREG-SERIES MANUSCRIPTS

The U.S. Nuclear Regulatory Commission (NRC) began to capture most of its official records electronically on January 1, 2000. The NRC will capture each final NUREG-series publication in its native application. Therefore, commencing January 1, 2000, please submit your final manuscript that has been approved by your NRC Project Officer in both electronic and camera-ready copy.

All format guidance, as specified in NUREG-0650, Revision 2, will remain the same with one exception. You will no longer be required to include the NUREG-series designator on the bottom of each page of the manuscript. The NRC will assign this designator when we send the camera-ready copy to the printer and will place the designator on the cover, title page, and spine. The designator for each report will no longer be assigned when the decision to prepare a publication is made. The NRC's Publishing Services Branch will inform the NRC Project Officer for the publication of the assigned designator when the final manuscript is sent to the printer.

For the electronic manuscript, prepare the text in WordPerfect 8 (or more recent), and use any of the following file types for charts, spreadsheets, and the like.

File Types to be Used for NUREG-Series Publications	
File Type	File Extension
WordPerfect®	.wpd
Microsoft® PowerPoint®	.ppt
Corel® QuattroPro®	.wb3
Corel® Presentations	.shw
Lotus® 1-2-3	.wk4
Portable Document Format	.pdf

This list is subject to change if new software packages come into common use at NRC or by our licensees or other stakeholders that participate in the electronic submission process. If a portion of your manuscript is from another source and you cannot obtain an acceptable electronic file type for this portion (e.g., an appendix from an old publication), the NRC can, if necessary, create a tagged image file format (file extension.tif) for that portion of your report.

Note that you should continue to submit original photographs, which will be scanned, since digitized photographs do not print well.

If you chose to publish a compact disk (CD) of your publication, place on the CD copies of the manuscript in both (1) a portable document format (PDF); (2) a WordPerfect 8/9 file format, and

(3) an Adobe Acrobat Reader, or, alternatively, print instructions for obtaining a free copy of Adobe Acrobat Reader on the back cover insert of the jewel box.

11.0 QUALITY ASSURANCE

Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554) directs the Office of Management and Budget (OMB) to issue government-wide guidelines (FR Vol. 67, No. 36, pp. 8452-8460) that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by federal agencies." NRC Information Quality Guidelines are provided in FR Vol. 67, No. 190, pp. 61695-61699.

The Contractor shall cite contractor quality assurance procedures used in the conduct of this work that provide for compliance with OMB and NRC guidelines.

12.0 NRC-FURNISHED MATERIALS

The NRC will provide to the contractor information on earlier work on ESBWR severe accident analyses using MELCOR, the EPR topical report and any related submittals, and the MAAP Users' Guide and related material

Proprietary submitted documentation will be provided by the NRC in the form of CD-ROMs.

13.0 LICENSE FEE RECOVERY

The work specified in this SOW is fee billable.

SECTION C - DELIVERY ORDER TERMS AND CONDITIONS

NOT SPECIFIED IN THE CONTRACT

C.1 PROJECT OFFICER AUTHORITY (FEB 2004)

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

Name: Imtiaz K. Madni
Address: U.S. Nuclear Regulatory Commission
Mail Stop: T-10-F13A
Washington, DC 20555
Telephone Number: (301) 415-5021
Email: IXM@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 (SOW) or changes to specific travel identified in the SOW), fills in details, or otherwise serves to accomplish the contractual SOW.

(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, approval of technical reports, drawings, specifications, and technical information to be delivered by the contractor to the Government under the contract.

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

(1) Constitutes an assignment of work outside the general scope of the contract.

(2) Constitutes a change as defined in the "Changes" clause of this contract.

(3) In any way causes an increase or decrease in the total estimated contract cost, the fixed fee, if any, or the time required for contract performance.

(4) Changes any of the expressed terms, conditions, or specifications of the contract.

(5) Terminates the contract, settles any claim or dispute arising under the contract, or issues any unilateral directive whatever.

(d) All technical directions must be issued in writing by the project officer or must be confirmed by the project officer in writing within ten (10) working days after verbal issuance. A copy of the written direction must be furnished to the contracting officer. A copy of NRC Form 445, Request for Approval of Official Foreign Travel, which has received final approval from the NRC must be furnished to the contracting officer.

(e) The contractor shall proceed promptly with the performance of technical directions duly issued by the project officer in the manner prescribed by this clause and within the project officer's authority under the provisions of this clause.

(f) If, in the opinion of the contractor, any instruction or direction issued by the project officer is within one of the categories 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.

(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 thereto 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.

(4) Assist the contractor in obtaining the badges for the contractor personnel.

(5) 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."

(6) 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.

C.2 2052.215-70 KEY PERSONNEL (JAN 1993)

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

Executive:

[REDACTED] ar

Senior Engineer/Scientist:

[REDACTED]

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.

C.3 2052.209-72 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST (JAN 1993)

(a) Purpose. The primary purpose of this clause is to aid in ensuring that the contractor:

(1) Is not placed in a conflicting role because of current or planned interests (financial, contractual, organizational, or otherwise) which relate to the work under this contract; and

(2) Does not obtain an unfair competitive advantage over other parties by virtue of its performance of this contract.

(b) Scope. The restrictions described apply to performance or participation by the contractor, as defined in 48 CFR 2009.570-2 in the activities covered by this clause.

(c) Work for others.

(1) Notwithstanding any other provision of this contract, during the term of this contract, the contractor agrees to forego entering into consulting or other contractual arrangements with any firm or organization the result of which may give rise to a conflict of interest with respect to the work being performed under this contract. The contractor shall ensure that all employees under this contract abide by the provision of this clause. If the contractor has reason to believe, with respect to itself or any employee, that any proposed consultant or other contractual arrangement with any firm or organization may involve a potential conflict of interest, the contractor shall obtain the written approval of the contracting officer before the execution of such contractual arrangement.

(2) The contractor may not represent, assist, or otherwise support an NRC licensee or applicant undergoing an NRC audit, inspection, or review where the activities that are the subject of the audit, inspection, or review are the same as or substantially similar to the services within the scope of this contract (or task order as appropriate) except where the NRC licensee or applicant requires the contractor's support to explain or defend the contractor's prior work for the utility or other entity which NRC questions.

(3) When the contractor performs work for the NRC under this contract at any NRC licensee or applicant site, the contractor shall neither solicit nor perform work in the same or similar technical area for that licensee or applicant organization for a period commencing with the award of the task order or beginning of work on the site (if not a task order contract) and ending one year after completion of all work under the associated task order, or last time at the site (if not a task order contract).

(4) When the contractor performs work for the NRC under this contract at any NRC licensee or applicant site,

(i) The contractor may not solicit work at that site for that licensee or applicant during the period of performance of the task order or the contract, as appropriate.

(ii) The contractor may not perform work at that site for that licensee or applicant during the period of performance of the task order or the contract, as appropriate, and for one year thereafter.

(iii) Notwithstanding the foregoing, the contracting officer may authorize the contractor to solicit or perform this type of work (except work in the same or similar technical area) if the contracting officer determines that the situation will not pose a potential for technical bias or unfair competitive advantage.

(d) Disclosure after award.

(1) The contractor warrants that to the best of its knowledge and belief, and except as otherwise set forth in this contract, that it does not have any organizational conflicts of interest as defined in 48 CFR 2009.570-2.

(2) The contractor agrees that if, after award, it discovers organizational conflicts of interest with respect to this contract, it shall make an immediate and full disclosure in writing to the contracting officer. This statement must include a description of the action which the contractor has taken or proposes to take to avoid or mitigate such conflicts. The NRC may, however, terminate the contract if termination is in the best interest of the Government.

(3) It is recognized that the scope of work of a task-order-type contract necessarily encompasses a broad spectrum of activities. Consequently, if this is a task-order-type contract, the contractor agrees that it will disclose all proposed new work involving NRC licensees or applicants which comes within the scope of work of the underlying contract. Further, if this contract involves work at a licensee or applicant site, the contractor agrees to exercise diligence to discover and disclose any new work at that licensee or applicant site. This disclosure must be made before the submission of a bid or proposal to the utility or other regulated entity and must be received by the NRC at least 15 days before the proposed award date in any event, unless a written justification demonstrating urgency and due diligence to discover and disclose is provided by the contractor and approved by the contracting officer. The disclosure must include the statement of work, the dollar value of the proposed contract, and any other documents that are needed to fully describe the proposed work for the regulated utility or other regulated entity. NRC may deny approval of the disclosed work only when the NRC has issued a task order which includes the technical area and, if site-specific, the site, or has plans to issue a task order which includes the technical area and, if site-specific, the site, or when the work violates paragraphs (c)(2), (c)(3) or (c)(4) of this section.

(e) Access to and use of information.

(1) If in the performance of this contract, the contractor obtains access to information, such as NRC plans, policies, reports, studies, financial plans, internal data protected by the Privacy Act of 1974 (5 U.S.C. Section 552a (1988)), or the Freedom of Information Act (5 U.S.C. Section 552 (1986)), the contractor agrees not to:

(i) Use this information for any private purpose until the information has been released to the public;

(ii) Compete for work for the Commission based on the information for a period of six months after either the completion of this contract or the release of the information to the public, whichever is first;

(iii) Submit an unsolicited proposal to the Government based on the information until one year after the release of the information to the public; or

(iv) Release the information without prior written approval by the contracting officer unless the information has previously been released to the public by the NRC.

(2) In addition, the contractor agrees that, to the extent it receives or is given access to proprietary data, data protected by the Privacy Act of 1974 (5 U.S.C. Section 552a (1988)), or the Freedom of Information Act (5 U.S.C. Section 552 (1986)), or other confidential or privileged technical, business, or financial information under this contract, the contractor shall treat the information in accordance with restrictions placed on use of the information.

(3) Subject to patent and security provisions of this contract, the contractor shall have the right to use technical data it produces under this contract for private purposes provided that all requirements of this contract have been met.

(f) Subcontracts. Except as provided in 48 CFR 2009.570-2, the contractor shall include this clause, including this paragraph, in subcontracts of any tier. The terms contract, contractor, and contracting officer, must be appropriately modified to preserve the Government's rights.

(g) Remedies. For breach of any of the above restrictions, or for intentional nondisclosure or misrepresentation of any relevant interest required to be disclosed concerning this contract or for such erroneous representations that necessarily imply bad faith, the Government may terminate the contract for default, disqualify the contractor from subsequent contractual efforts, and pursue other remedies permitted by law or this contract.

(h) Waiver. A request for waiver under this clause must be directed in writing to the contracting officer in accordance with the procedures outlined in 48 CFR 2009.570-9.

(i) Follow-on effort. The contractor shall be ineligible to participate in NRC contracts, subcontracts, or proposals therefor (solicited or unsolicited), which stem directly from the contractor's performance of work under this contract. Furthermore, unless so directed in writing by the contracting officer, the contractor may not perform any technical consulting or management support services work or evaluation activities under this contract on any of its products or services or the products or services of another firm if the contractor has been substantially involved in the development or marketing of the products or services.

(1) If the contractor, under this contract, prepares a complete or essentially complete statement of work or specifications, the contractor is not eligible to perform or participate in the initial contractual effort which is based on the statement of work or specifications. The contractor may not incorporate its products or services in the statement of work or specifications unless so directed in writing by the contracting officer, in which case the restrictions in this paragraph do not apply.

(2) Nothing in this paragraph precludes the contractor from offering or selling its standard commercial items to the Government.

C.4 52.232-7 PAYMENTS UNDER TIME-AND-MATERIALS AND LABOR-HOUR CONTRACTS (AUG 2005)

The Government will pay the Contractor as follows upon the submission of invoices or vouchers approved by the Contracting Officer:

(a) Hourly rate. (1) The amounts shall be computed by multiplying the appropriate hourly rates prescribed in the Schedule by the number of direct labor hours performed. The rates shall include wages, indirect costs, general and administrative expense, and profit. Fractional parts of an hour shall be payable on a prorated basis. Vouchers may be submitted once each month (or at more frequent intervals, if approved by the Contracting Officer), to the Contracting Officer or designee. The Contractor shall substantiate vouchers by evidence of actual payment and by individual daily job timecards, or other substantiation approved by the Contracting Officer. Promptly after receipt of each substantiated voucher, the Government shall, except as otherwise provided in this contract, and subject to the terms of (e) below, pay the voucher as approved by the Contracting Officer.

(2) Unless otherwise prescribed in the Schedule, the Contracting Officer may unilaterally issue a contract modification requiring the Contractor to withhold amounts from its billings until a reserve is set aside in an amount that the Contracting Officer considers necessary to protect the Government's interests. The Contracting Officer may require a withhold of 5 percent of the amounts due under paragraph (a), but the total amount withheld for the contract shall not exceed \$50,000. The amounts withheld shall be retained until the Contractor executes and delivers the release required by paragraph (f) of this clause.

(3) Unless the Schedule prescribes otherwise, the hourly rates in the Schedule shall not be varied by virtue of the Contractor having performed work on an overtime basis. If no overtime rates are provided in the Schedule and overtime work is approved in advance by the Contracting Officer, overtime rates shall be negotiated. Failure to agree upon these overtime rates shall be treated as a dispute under the Disputes clause of this contract. If the Schedule provides rates for overtime, the premium portion of those rates will be reimbursable only to the extent the overtime is approved by the Contracting Officer.

(b) Materials and subcontracts. (1) The Contracting Officer will determine allowable costs of direct materials in accordance with Subpart 31.2 of the Federal Acquisition Regulation (FAR) in effect on the date of this contract. Direct materials, as used in this clause, are those materials that enter directly into the end product, or that are used or consumed directly in connection with the furnishing of the end product.

(2) The Contractor may include reasonable and allocable material handling costs in the charge for material to the extent they are clearly excluded from the hourly rate. Material handling costs are comprised of indirect costs, including, when appropriate, general and

administrative expense allocated to direct materials in accordance with the Contractor's usual accounting practices consistent with Subpart 31.2 of the FAR.

(3) The Government will reimburse the Contractor for supplies and services purchased directly for the contract when the Contractor--

(i) Has made payments of cash, checks, or other forms of payment for these purchased supplies or services; or

(ii) Will make these payments determined due-- (A) In accordance with the terms and conditions of a subcontract or invoice; and (B) Ordinarily within 30 days of the submission of the Contractor's payment request to the Government.

(4)(i) The Government will reimburse the Contractor for costs of subcontracts that are authorized under the subcontracts clause of this contract, provided that the costs are consistent with paragraph (b)(5) of this clause.

(ii) The Government will limit reimbursable costs in connection with subcontracts to the amounts paid for supplies and services purchased directly for the contract when the Contractor has made or will make payments determined due of cash, checks, or other forms of payment to the subcontractor-- (A) In accordance with the terms and conditions of a subcontract or invoice; and (B) Ordinarily within 30 days of the submission of the Contractor's payment request to the Government.

(iii) The Government will not reimburse the Contractor for any costs arising from the letting, administration, or supervision of performance of the subcontract, if the costs are included in the hourly rates payable under paragraph (a)(1) of this clause.

(5) To the extent able, the Contractor shall-

(i) Obtain materials at the most advantageous prices available with due regard to securing prompt delivery of satisfactory materials; and

(ii) Take all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and other benefits. When unable to take advantage of the benefits, the Contractor shall promptly notify the Contracting Officer and give the reasons. The Contractor shall give credit to the Government for cash and trade discounts, rebates, scrap, commissions, and other amounts that have accrued to the benefit of the Contractor, or would have accrued except for the fault or neglect of the Contractor. The Contractor shall not deduct from gross costs the benefits lost without fault or neglect on the part of the Contractor, or lost through fault of the Government.

(c) Total cost. It is estimated that the total cost to the Government for the performance of this contract shall not exceed the ceiling price set forth in the Schedule and the Contractor agrees to use its best efforts to perform the work specified in the Schedule and all obligations under this contract within such ceiling price. If at any time the Contractor has reason to believe that the hourly rate payments and material costs that will accrue in performing this contract in the next succeeding 30 days, if added to all other payments and costs previously accrued, will exceed 85 percent of the ceiling price in the Schedule, the Contractor shall notify the Contracting Officer giving a revised estimate of the total price to the Government for performing this contract with

supporting reasons and documentation. If at any time during performing this contract, the Contractor has reason to believe that the total price to the Government for performing this contract will be substantially greater or less than the then stated ceiling price, the Contractor shall so notify the Contracting Officer, giving a revised estimate of the total price for performing this contract, with supporting reasons and documentation. If at any time during performing this contract, the Government has reason to believe that the work to be required in performing this contract will be substantially greater or less than the stated ceiling price, the Contracting Officer will so advise the Contractor, giving the then revised estimate of the total amount of effort to be required under the contract.

(d) Ceiling price. The Government shall not be obligated to pay the Contractor any amount in excess of the ceiling price in the Schedule, and the Contractor shall not be obligated to continue performance if to do so would exceed the ceiling price set forth in the Schedule, unless and until the Contracting Officer shall have notified the Contractor in writing that the ceiling price has been increased and shall have specified in the notice a revised ceiling that shall constitute the ceiling price for performance under this contract. When and to the extent that the ceiling price set forth in the Schedule has been increased, any hours expended and material costs incurred by the Contractor in excess of the ceiling price before the increase shall be allowable to the same extent as if the hours expended and material costs had been incurred after the increase in the ceiling price.

(e) Audit. At any time before final payment under this contract the Contracting Officer may request audit of the invoices or vouchers and substantiating material. Each payment previously made shall be subject to reduction to the extent of amounts, on preceding invoices or vouchers, that are found by the Contracting Officer not to have been properly payable and shall also be subject to reduction for overpayments or to increase for underpayments. Upon receipt and approval of the voucher or invoice designated by the Contractor as the "completion voucher" or "completion invoice" and substantiating material, and upon compliance by the Contractor with all terms of this contract (including, without limitation, terms relating to patents and the terms of (f) and (g) below, the Government shall promptly pay any balance due the Contractor. The completion invoice or voucher, and substantiating material, shall be submitted by the Contractor as promptly as practicable following completion of the work under this contract, but in no event later than 1 year (or such longer period as the Contracting Officer may approve in writing) from the date of completion.

(f) Assignment. The Contractor, and each assignee under an assignment entered into under this contract and in effect at the time of final payment under this contract, shall execute and deliver, at the time of and as a condition precedent to final payment under this contract, a release discharging the Government, its officers, agents, and employees of and from all liabilities, obligations, and claims arising out of or under this contract, subject only to the following exceptions:

(1) Specified claims in stated amounts, or in estimated amounts if the amounts are not susceptible of exact statement by the Contractor.

(2) Claims, together with reasonable incidental expenses, based upon the liabilities of the Contractor to third parties arising out of performing this contract, that are not known to the Contractor on the date of the execution of the release, and of which the Contractor gives notice in writing to the Contracting Officer not more than 6 years after the date of the release or the

date of any notice to the Contractor that the Government is prepared to make final payment, whichever is earlier.

(3) Claims for reimbursement of costs (other than expenses of the Contractor by reason of its indemnification of the Government against patent liability), including reasonable incidental expenses, incurred by the Contractor under the terms of this contract relating to patents.

(g) Refunds. The Contractor agrees that any refunds, rebates, or credits (including any related interest) accruing to or received by the Contractor or any assignee, that arise under the materials portion of this contract and for which the Contractor has received reimbursement, shall be paid by the Contractor to the Government. The Contractor and each assignee, under an assignment entered into under this contract and in effect at the time of final payment under this contract, shall execute and deliver, at the time of and as a condition precedent to final payment under this contract, an assignment to the Government of such refunds, rebates, or credits (including any interest) in form and substance satisfactory to the Contracting Officer.

(h) Interim payments. (1) Interim payments made prior to the final payment under the contract are contract financing payments. Contract financing payments are not subject to the interest penalty provisions of the Prompt Payment Act.

(2) The designated payment office will make interim payments for contract financing on the 30TH day after the designated billing office receives a proper payment request. In the event that the Government requires an audit or other review of a specific payment request to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the specified due date.

C.5 NRC Acquisition Clauses - (NRCAR) 48 CFR Ch. 20

C.6 Other Applicable Clauses

See Addendum for the following in full text (if checked)

52.216-18, Ordering

52.216-19, Order Limitations

52.216-22, Indefinite Quantity

52.217-6, Option for Increased Quantity

52.217-7, Option for Increased Quantity Separately Priced Line Item

52.217-8, Option to Extend Services

52.217-9, Option to Extend the Term of the Contract

C.7 SEAT BELTS

Contractors, subcontractors, and grantees, are encouraged to adopt and enforce on-the-job seat belt policies and programs for their employees when operating company-owned, rented, or personally owned vehicles.

SECTION D - CONTRACT DOCUMENTS, EXHIBITS, OR ATTACHMENTS

D.1 BILLING INSTRUCTION FOR LABOR HOUR TYPE CONTRACTS

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

Number of Copies: An original and three copies, including supporting documentation shall be submitted. A copy of all supporting documents must be attached to each copy of your voucher/invoice. Failure to submit all the required copies will result in rejection of the voucher/invoice as improper.

Designated Agency Billing Office: Vouchers/invoices shall be submitted to the following address:

U.S. Nuclear Regulatory Commission
Division of Contracts
Mail Stop T-7-I-2
Washington, D.C. 20555

HAND DELIVERY OF VOUCHERS/INVOICES IS DISCOURAGED AND WILL NOT EXPEDITE PROCESSING BY NRC. However, should you choose to deliver vouchers/invoices by hand, including delivery by any express mail services or special delivery services which use a courier or other person to deliver the voucher/invoice in person to the NRC, such vouchers/invoices must be addressed to the above Designated Agency Billing Office and will only be accepted at the following location:

U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike - Mail Room
Rockville, MD 20852

HAND-CARRIED SUBMISSIONS WILL NOT BE ACCEPTED AT OTHER THAN THE ABOVE ADDRESS.

Note that the official receipt date for hand-delivered vouchers/invoices will be the date it is received by the official agency billing office in the Division of Contracts and Property Management.

Agency Payment Office: Payment will be made by the following office:

U.S. Nuclear Regulatory Commission
Division of Accounting and Finance GOV/COMM
Mail Stop T-9-H4
Washington, DC 20555

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

Format: Claims should be submitted in the format depicted on the attached sample form entitled "Voucher/Invoice for Purchases and Services Other Than Personal" (see Attachment) or a similar format. **THE SAMPLE FORMAT IS PROVIDED FOR GUIDANCE ONLY AND IS NOT REQUIRED FOR SUBMISSION OF A VOUCHER/INVOICE. ALTERNATE FORMATS ARE PERMISSIBLE PROVIDED ALL REQUIREMENTS OF THE BILLING INSTRUCTIONS ARE ADDRESSED.**

Billing of Costs After Expiration of Contract/Purchase Order: If the costs are incurred during the purchase order period and claimed after the purchase order has expired, the period during which these costs were incurred must be cited. To be considered a proper voucher/invoice, the contractor shall clearly mark it "EXPIRATION VOUCHER" OR "EXPIRATION INVOICE".

Currency: Billings may be expressed in the currency normally used by the contractor in maintaining his accounting records; payments will be made in that currency. However, the U.S. dollar equivalent for all vouchers/invoices paid under the purchase order may not exceed the total U.S. dollars authorized in the purchase order.

ATTACHMENT-SAMPLE FORMAT

**INVOICE/VOUCHER FOR PURCHASES
AND
SERVICES OTHER THAN PERSONAL**

(SAMPLE FORMAT - COVER SHEET)Official Agency Billing Office

U.S. Nuclear Regulatory Commission

Division of Contracts and Property

Management MS: T-7-I2

Washington, DC 20555-0001

(a) Purchase Order No: _____

(b) Voucher/Invoice No: _____

(c) Date of Voucher/Invoice: _____

Payee's Name and Address

(d) Individual to Contact Regarding Voucher/Invoice

Name: _____

Telephone No: _____

(e) This voucher/invoice represents reimbursable costs for the billing period
_____ to _____.

	<u>Current Period</u>	<u>Amount Billed</u>	<u>Cumulative</u>
(f) <u>Direct Costs:</u>			
(1) Direct Labor*	\$ _____		\$ _____
(2) Travel*	\$ _____		\$ _____
Total Direct Costs:	\$ _____		\$ _____

* The contractor shall submit as an attachment to its invoice/voucher cover sheet a listing of labor categories, hours billed, fixed hourly rates, total dollars, and cumulative hours billed to date under each labor category, authorized under the purchase order for each of the three activities to be performed under the purchase order. In addition, the contractor shall include travel costs incurred with the required supporting documentation, as well as, the cumulative total of travel costs billed to date by activity.