

AWARD/CONTRACT

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1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING
2. CONTRACT NO. NRC-04-96-060	3. EFFECTIVE DATE 09/23/96	4. REQUISITION/PROJECT NO. RS-RES-96-060
5. ISSUED BY Code: U.S. Nuclear Regulatory Commission Division of Contracts Tech. Acquisition Branch No. 1 Washington, DC 20555		6. ADMINISTERED BY Code: (If other than Item 5) U.S. Nuclear Regulatory Commission Division of Contracts Tech. Acquisition Branch No. 1 Washington, DC 20555
7. NAME AND ADDRESS OF CONTRACTOR Scientech, Inc. 11140 Rockville Pike Suite 500 Rockville, MD 20852 Principal Investigator/Technical Contact: Leonard W. Ward Telephone No: (301) 468-6425		8. DELIVERY [] FOB ORIGIN [X] OTHER (See below) 9. DISCOUNT FOR PROMPT PAYMENT N/A
10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN ITEM: 6		
11. SHIP TO/MARK FOR CODE US Nuclear Regulatory Commission Division of Systems Technology Attn: David Ebert, MS T10-G6 Washington, DC 20555-0001		12. PAYMENT WILL BE MADE BY CODE U.S. Nuclear Regulatory Commission Division of Accounting and Finance GOV/COM Accounting Section Washington, DC 20555
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION [] 10 U.S.C. 2304(c) [] [] 41 U.S.C. 253(c) []		
14. ACCOUNTING AND APPROPRIATION DATA APPN: 31X0200.660 B&R No: 66015115005 BOC: 252A JCN: W6667 RES ID: RESC96-095 Obligated: \$100,000.00		
15A. ITEM NO.	15B. SUPPLIES/ SERVICES	15C. QUANTITY 15D. UNIT 15E. UNIT PRICE 15F. AMOUNT
The NRC hereby accepts the contractor's technical proposal dated 6/20/96, for the effort entitled, "Maintenance of TRAC-BWR Thermal-Hydraulic Simulation Computer Code for Reactor Transients," which is hereby incorporated by reference and made part of this cost-reimbursement contract.		
15G. TOTAL AMOUNT OF CONTRACT		\$528,503.00

EXCEPTION TO STANDARD FORM SF26 (REV.4-85)
FAR(48 CFR) 53.214(a)

Prescribed by GSA

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AWARD/CONTRACT

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DESCRIPTION

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- A SOLICITATION/CONTRACT FORM
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CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. ☒ CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 2 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

18. ☐ AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

19A. NAME AND TITLE OF SIGNER

(Type or print)

DOUGLAS A. KNIGHT

MANAGER OF CONTRACTS AND ADMINISTRATION

19B. NAME OF CONTRACTOR

by

(Signature of person authorized to sign)

19C. DATE SIGNED

7-13-76

20A. NAME OF CONTRACTING OFFICER

Mary H. Mace

20B. UNITED STATES OF AMERICA

by

(Signature of Contracting Officer)

20C. DATE SIGNED

7/13/76

EXCEPTION TO STANDARD FORM 26 (REV. 4-85)

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PART I - THE SCHEDULE

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

B.1 PROJECT TITLE

The title of this project is as follows:

Maintenance of TRAC-BWR Thermal-Hydraulic Simulation
Computer Code for Reactor Transients

[End of Clause]

B.2 BRIEF DESCRIPTION OF WORK (MAR 1987)

The Contractor shall provide the personnel, supervision, and facilities to update, maintain, distribute, and provide user support for the TRAC-BWR thermal-hydraulic simulation computer code for reactor transients.

[End of Clause]

B.3 CONSIDERATION AND OBLIGATION--COST PLUS FIXED FEE
(JUN 1988) ALTERNATE I (JUN 1991)

- (a) The total estimated cost to the Government for full performance of this contract is \$528,503.00, of which the sum of \$494,016.00 represents the estimated reimbursable costs, and of which \$34,487.00 represents the fixed fee.
- (b) In the event that the option to extend the services to include Task 5b is exercised, the total estimated cost to the Government for full performance of Optional Task 5b under the base year of the contract is \$236,966.00, of which the sum of \$221,501.00 represents the estimated reimbursable costs, and of which \$15,465.00 represents the fixed fee.
- (c) The Government reserves the right to exercise the following options under this contract at the total estimated cost indicated for full performance of each.

Option Year 1 -	Reimbursable Costs:	\$543,040.82
	Fixed Fee:	37,919.45
	Est. Cost Recovery:	(75,000.00)
	Total Est. Cost:	\$505,960.27

Optional Task 5b -	Reimbursable Costs:	\$244,303.08
(Opt. Yr. 1)	Fixed Fee:	17,058.56

B.3 (Continued)

	Total Est. Cost:	\$261,361.64
Option Year 2 -	Reimbursable Costs:	\$552,481.09
	Fixed Fee:	38,590.15
	Est. Cost Recovery:	(75,000.00)
	Total Est. Cost:	\$516,071.24
Optional Task 5b - (Opt. Yr. 2)	Reimbursable Costs:	\$247,715.74
	Fixed Fee:	17,302.23
	Total Est. Cost:	\$265,017.97
Option Year 3 -	Reimbursable Costs:	\$552,582.09
	Fixed Fee:	38,600.81
	Est. Cost Recovery:	(75,000.00)
	Total Est. Cost:	\$516,182.90
Optional Task 5b - (Opt. Yr. 3)	Reimbursable Cost:	\$245,809.45
	Fixed Fee:	17,170.74
	Total Est. Cost:	\$262,980.19
Option Year 4 -	Reimbursable Cost:	\$566,404.48
	Fixed Fee:	39,566.32
	Est. Cost Recovery:	(75,000.00)
	Total Est. Cost:	\$530,970.80
Optional Task 5b - (Opt. Yr. 4)	Reimbursable Cost:	\$251,226.68
	Fixed Fee:	17,549.10
	Total Est. Cost:	\$268,775.78

- (d) There shall be no adjustment in the amount of the Contractor's fixed fee by reason of differences between any estimate of cost for performance of the work under this contract and the actual cost for performance of that work.
- (e) The amount currently obligated by the Government with respect to this contract is \$100,000.00, of which the sum of \$93,457.94 represents the estimated reimbursable costs, and of which \$6,542.06 represents the fixed fee.
- (f) It is estimated that the amount currently allotted will cover performance through 12/23/96.

[End of Clause]

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 BACKGROUND

The Division of Systems Technology, Office of Nuclear Regulatory Research (RES), has three principal thermal-hydraulic codes and one code with 3D neutronics which are used for reactor safety analyses for improving the safety of nuclear power plants throughout the world. These codes are the RELAP5/MOD3 in conjunction with a nuclear plant analyzer (NPA) and an INEL modified version of xmgr5 (a graphics plotting package), TRAC-PF1, TRAC-BF1, and RAMONA.

The TRAC-PF1/MOD2, a best-estimate thermal-hydraulic code, is used for large-break LOCA's and for analysis of multidimensional effects which may arise in SBLOCA's and other transients in pressurized water reactors (PWRs). The TRAC-PF1/MOD2 code is being developed and maintained at Los Alamos to analyze large break LOCAs in PWRs. A version of this code was used to develop TRAC-BF1 code for analysis of LOCAs and system transients in boiling water reactors (BWRs) (TRAC-BWR). The TRAC-BWR code is being maintained and improved for the NRC by Penn State University.

This requirement is for continuation of the TRAC-BWR code maintenance, documentation, improvement, developmental assessment, and user support.

The TRAC-BWR code also is being used by other international organizations performing reactor safety studies. The NRC benefits from this exchange by receiving cash contributions from these organizations to defray some of the cost associated with code development and the conduct of two international workshops to discuss issues related to the code.

The availability of these codes to international agencies through the International Code Applications and Maintenance Program (CAMP) will continue to support the agency's interest in cooperation which improves the safety of nuclear plants throughout the world.

TRAC-BWR code is currently provided to U.S. users on a cost-recovery basis. Both domestic users and CAMP members continue to assess the code against reactor operational and experimental data. As a result of these comparisons and through use of the code for plant safety assessment, many changes to the code are suggested each year. When sufficient changes have been made to the code, it is frozen for a suitable period and thus providing the users with an unchanging code which can be assessed.

C.1 (Continued)

Since the TRAC-PF1 and TRAC-BWR codes embody similar characteristics and diverge only on some models designed to address specific safety issues, e.g., modeling attributes to address BWR specific component, e.g. steam separator, or specific phenomena, e.g., BWR instability, a plan is being developed to consolidate the two codes.

C.2 OBJECTIVE

The first objective of this effort is to provide code configuration control, correction of code errors, code improvements, developmental assessment, documentation updates and user support to NRC, its contractors, CAMP members and domestic users of TRAC-BWR. The contractor shall provide the personnel, facilities, and equipment required to accomplish these objectives.

The second objective of this contract is to implement a plan (to be provided by NRC to the contractor) to combine the TRAC-PF1/MOD2 and TRAC-BWR codes into a single code that has all of the capabilities of the individual codes. If acceptable to NRC, Task 5B (Optional) may be authorized to implement the plan.

Technical and Other Special Qualifications Required

This project requires computer programmers who have experience and knowledge of the TRAC-BWR code (hereinafter referred to as the code), and analysts who have experience and knowledge of thermal-hydraulic and reactor physics principles, numerical methods, and modeling which are applicable to transient and accident analyses of both operating and advanced reactors. In addition, capability to develop, validate, and assess code changes in a timely and cost effective manner is required. Finally, there must also be diversity in the computer code capability to match systems used by most of the code users (i.e., SUN, IBM, DEC workstations). See Section L.8(e)(4) for additional personnel qualifications/experience required.

C.3 SCOPE OF WORK

Tasks to accomplish the first objective shall be apportioned into three broad Task Areas with Subtasks delineated for each Task Area as appropriate. Task Area 3 requires the contractor to apportion his costs for services to domestic code users on a cost recovery basis.

All software development, modification, maintenance or documentation shall conform to the following requirements:

Format of software deliverables is specified in NRC Bulletin 0904-4. If any deliverable is provided on magnetic media, the magnetic media shall be scanned for viruses by the contractor and verified to be free of viruses prior to delivery to the NRC or its contractors.

All software development, modification, maintenance or documentation tasks shall follow general guidance in NUREG/BR-0167; Software Quality Assurance Program and Guidelines and ANSI/ANS-10.3-1995; Documentation of Computer Software, as well as any additional guidance given by the NRC Project Manager.

Task Area 1

Provide a single point of contact for satisfying the TRAC-BWR code users requests for documentation, code versions or updates, modeling changes, improved code user convenience, assistance and diagnosis of user difficulties with the code, corrections of coding "bugs", and updating of code documentation. During the execution of code improvements, adequate measures must be taken to ensure the integrity of the code. The updated code must ensure backward compatibility with plant input decks that were developed for old versions of the code e.g., provide "translators" to modify the input decks.

Subtask 1.1

Maintain configuration control, and a tape library of code versions including ancillary data files and plotting routines. Restrict READ/WRITE access to limited, key employees.

Subtask 1.2

Distribute code versions to NRC-approved users in a form compatible with the user's computer system, and in "user friendly" installation packages. The NRC will provide a list of all the approved users.

Subtask 1.3

Provide telephone assistance during regular business hours, e.g. 8:00 a.m. to 5:00 p.m., local time, Monday through Friday, to users to diagnose their difficulties with the code.

Subtask 1.4

Maintain separate files of user trouble reports and user change requests for each code. On a quarterly basis, the contractor shall provide to the NRC Project Officer a proposed prioritization schedule, and estimated staff effort to meet these requests.

Subtask 1.5

On a quarterly basis, publish a newsletter to all the code users that will share users' experiences, not otherwise reported, and advise them of code updates, documentation changes, workshops and other items of interest to the users.

Subtask 1.6

On a yearly basis, the contractor shall provide one training workshop for 20- 25 novice and advanced users of the code. The location of the workshop shall be alternated each year between the U.S. and Europe. The costs for the first year will be reimbursed by the NRC (see Section L.8(d)(6) for a description of reimbursible workshop costs), and every course thereafter will be on a cost recovery basis.

Subtask 1.7

On a quarterly basis, the contractor shall meet with the NRC Project Officer. The location of the meetings shall alternate each quarter between NRC Headquarters in Rockville, MD, and the contractor's site. The meetings shall be for 1-2 days, to discuss the progress of the contract and any other technical details.

Task Area 2

Perform code maintenance and upgrades for the TRAC-BWR code with strict adherence to applicable standards* (see footnote at the end of the task) so as to assure code portability, code accuracy by quality assurance testing, documentation of code improvements, and code integrity by traceability procedures. The work is to be performed in a quality assurance (QA) environment.

Subtask 2.1

Perform engineering analyses of user-reported errors and document those analyses, the safety significance of the problem and their priority. Based on a priority assigned jointly by the contractor and the NRC Project Officer, correct errors found by code users, by giving highest priority to those of great safety significance and low cost, and low priority to those of small safety significance. If error corrections require significant resources (more than one staff month) to correct, the contractor shall provide to the NRC Project Officer a written evaluation and proceed with error correction only after written approval from the NRC Project Officer. Carry out all code configuration controls according to applicable IEEE quality assurance standards* (see footnote at the end of the task) or comparable standards. Define QA for error corrections and code improvements and submit a report describing these procedures.

Subtask 2.2

Code improvements and improvements in user convenience features will be required throughout the contract period. However, these cannot be defined in advance, but deficiencies will be identified by NRC, its contractors, CAMP members or other users. As directed by the NRC Project Officer, these shall be evaluated to determine their importance and estimated cost to improve and implement, but will be implemented only upon written approval of the NRC Project Officer.

Subtask 2.3

Code improvements which take advantage of advances in computer capabilities, new experimental and assessment results shall be evaluated and recommendations made to NRC concerning their implementation, including schedule and cost.

Subtask 2.4

Maintain and improve a formal process for developmentally assessing the code against new experimental data and/or when modifications are made to the code. The process shall be structured and automated to the extent practical and shall contain assessment cases sufficient to test and verify the code capabilities and the impact of code changes.

There are three goals to be achieved by TRAC-BWR developmental assessment associated with development of audit capability for BWR. They are:

- (1) Assessment of models being modified or added to the code via comparison to applicable separate effects experiments and conceptual problems.
- (2) Assessment of the code capability to model phenomena or processes deemed to be highly ranked in Phenomena Identification and Ranking Tables (PIRT) via comparison to applicable separate effects experiments.
- (3) Assessment of the code capability to perform a variety of analyses (most importantly full plant transients). This is to assure that nothing unexpected was "broken" during the model improvement process. That is, the "robustness" of the code was maintained or improved.

Assessment related to the first goal should be a continuing effort as the new models are implemented. That is, the developmental assessment (code validation) of the new models should proceed immediately after or in parallel with the programmer's assessment (code verification) has been undertaken. It should not wait for the "final" code version prior to general release. However, the assessment should be repeated for the "final" version.

To address the second goal, a review of the relevant models and correlations in TRAC-BWR and ranges of conditions over which they apply must be undertaken. Based on this review, relevant separate effects and integral facility tests must be identified and a comprehensive assessment matrix similar to that proposed by the OECD/CSNI must be constructed and delivered to the NRC 6 months from award of the contract. The proposed assessment matrix will be reviewed by a group of NRC thermal-hydraulic consultants.

The integral assessment using integral test data and other assessments completes the requirement to assure robustness as sought in the third goal.

Subtask 2.5

Prior to release of new versions of the code, the contractor shall perform developmental assessment using a wide range of test cases, with particular attention to cases which test the acceptability of model changes made since the last released version. This assessment shall be documented with an evaluation of each assessment case as well as a comparison of standard assessment cases for the current and prior versions of the code. The developmental assessment comparisons shall be automated to ensure that each new version of the code has gone through all development assessment cases. The assessment data base shall be expanded with applicable test cases as appropriate.

Subtask 2.6

Existing code manuals shall be maintained and updated when improvements or error corrections are made and concurrent with the release of a new version of the code. The manuals shall be maintained in an electronic format as well as being submitted to the NRC Project Officer for publication as NUREG/CR reports. In addition, the contractor shall maintain any released engineering analysis files of documents controlling the changes to the code for each version.

*IEEE 7-4.3.2, NUREG/BR-0617 and ANSI/ANS 10.3

Task Area 3

CAMP Support, National, and International Interactions.

Support shall be provided to code users under this Task Area. The NRC will provide a list (and periodic updates to the list) of all current code users which will be divided into two groups; Group 1 will include users working on NRC programs and international users who are CAMP members, and Group 2 users shall include all other users. All efforts performed on behalf of the Group 2 users shall be performed on a cost recovery basis only. User support shall include assistance with diagnosis of code problems, code distribution, engineering analyses, code changes, documentation and testing, and meetings (see Section L.8(d)(6) for estimated meetings and travel).

Subtask 3.1

Provide members with user support required by the CAMP agreements, e.g., by providing the latest version of the code and documentation, answering user questions and concerns, and distribute the quarterly newsletter.

Subtask 3.2

Participate in and make presentations at CAMP semi-annual meetings, and prepare CAMP and Technical Program Committee (TPC) meeting minutes.

Subtask 3.3

Provide on a cost recovery basis CAMP members support not specifically covered by numerous international agreements, e.g., workshops, training, etc. It is understood that the rates shall be the same as charged to the Government.

Subtask 3.4

Evaluate CAMP member assessment reports (submitted as in-kind contributions under terms of the CAMP agreement) and submit them to the NRC Project Officer for publication as NUREG-IA reports.

Subtask 3.5

Prepare Annual Summary Reports of Independent Assessments performed by CAMP participants for the code.

Subtask 3.6

Maintain cognizance of national and international developments in the area of thermal-hydraulic codes/experiments to ensure that the NRC code remains state-of-the-art.

Task Area 4

The contractor shall assure that the code properly utilizes state-of-the-art workstation capabilities and maintains compatibility with the workstations used by NRC, its contractors, and CAMP members (i.e., UNIX).

The contractor shall perform an annual review of the computing equipment being utilized in performance of the contract and identify any upgrades or replacements which will be needed to meet the above requirements of this task. Requests for upgrades and/or replacement hardware shall be presented to the NRC Project Officer and purchases made only after prior written approval of the NRC Contracting Officer.

Task Area 5A

The NRC is currently studying the feasibility of consolidating the TRAC-PF1 and TRAC-BWR codes that embody the same characteristics and address specific safety issues related to BWRs and PWRs into one code. To that end, the NRC intends to assemble a group of thermal-hydraulic code users to define future computing needs. The contractor shall develop the cost, schedule, and approach to combine modeling attributes, that are common across the TRAC-PF1 and TRAC-BWR codes while addressing specific phenomena and plant designs. The plan shall include an assessment of each code objective to better match today's and future needs. The code must not involve reactor design information that is proprietary and must be capable of performing accident and transient analyses for operating reactors as well as advanced reactors. The code shall be easy to modify to incorporate new models. The code shall include point and 1-D, 3-D reactor kinetics to address different stability problems encountered in BWRs. The code shall use numeric solution schemes, programming language, and graphical user interface that achieve the best trade-off between code readability, maintainability, ease of use, robustness, speed and accuracy. A data base shall be constructed to exploit modern computer technology/architectures (e.g., parallel processing), as well as take advantage of developments in two-phase fluid dynamics. Every effort should be made to make the consolidated code backwardly compatible with the input decks developed for the code under discussion.

Based upon the findings of the plan in Task Area 5A, the NRC will conduct a peer review of the plan to determine if work will proceed as described below in Task Area 5B (Optional).

Task Area 5B (Optional)

In the event that this optional task is exercised, the contractor shall be required to implement the plan developed under Task Area 5A to develop a single version of TRAC that would be applicable to

all current light-water reactor designs as well as the advanced passive LWRs.

It should be noted that the team required to consolidate and improve the computer codes will require additional talent and expertise than that needed for maintaining the TRAC-BWR code. The team will require the experience, knowledge, and capability to develop innovative numerical schemes to solve complex multiphase fluid dynamic and neutronic problems associated with modeling of nuclear reactor accidents.

The deliverable under this task shall be the consolidated version of the TRAC code.

NOTE: For estimation purposes, if the optional task is exercised this will be done within the base year of the contract. In addition, if exercised, this task shall be performed in conjunction with Task Areas 1 through 4.

C.4 OPTION PERIOD

The term of this effort may be extended at the option of the Government for four additional 1-year periods. The effort to be performed under the option periods shall consist of Tasks 1 through 4. Optional Task 5B shall be performed in conjunction with Tasks 1 through 4 during the option periods only if it has been exercised under the base period of performance and incorporated into the scope of work by contract modification.

C.5 NRC FURNISHED MATERIAL

1. Current versions of the TRAC-BWR, and TRAC-PF1/MOD2 codes, PIRTs, TRAC-PF1 and TRAC-BWR consolidation plan, code documentation, and OECD/CSNI assessment Matrix within two weeks of contract startup.
2. A list of approved users (and periodic updates to the list) for TRAC-BWR to whom the contractor shall supply services described above will be provided to the contractor within 60 days from contract award.
3. Approval or rejection of the contractor's choice of independent tester for each code version to be released.
4. Approval or rejection before release of each "frozen version" of a code.

[End of Clause]

C.6 NRCAR 2052.215-83 TRAVEL APPROVALS (JAN 1993)

- (a) All domestic travel requires the prior approval of the project officer.
- (b) All foreign travel must be approved in advance by the NRC on NRC Form 445 and must be in compliance with FAR 52.247-63 Preference for U.S. Flag Air Carriers. Foreign travel approval must be communicated in writing through the contracting officer.

[End of Clause]

SECTION D - PACKAGING AND MARKING

D.1 PACKAGING AND MARKING (MAR 1987)

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 Interstate Commerce Commission Regulations, Uniform Freight Classification Rules, or regulations of other carriers as applicable to the mode of transportation. On the front of the package, the Contractor shall clearly identify the contract number under which the product is being provided.

[End of Clause]

SECTION E - INSPECTION AND ACCEPTANCE

E.1 52.252-2 CLAUSES INCORPORATED BY REFERENCE (JUN 1988)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

NUMBER	TITLE	DATE
52.246-5	INSPECTION OF SERVICES - COST-REIMBURSEMENT	APR 1984

[End of Clause]

E.2 PLACE OF INSPECTION AND ACCEPTANCE (MAR 1987)

Inspection and acceptance of the deliverable items to be furnished hereunder shall be made by the Project Officer at the destination.

[End of Clause]

SECTION F - DELIVERIES OR PERFORMANCE

F.1 52.252-2 CLAUSES INCORPORATED BY REFERENCE (JUN 1988)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

NUMBER	TITLE	DATE
52.242-15	STOP-WORK ORDER Alternate I (APR 1984)	AUG 1989

[End of Clause]

F.2 NRCAR 2052.212-70 PREPARATION OF TECHNICAL REPORTS (JAN 1993)

All technical reports required by Section C and all Technical Reports required by Section F are to be prepared in accordance with the attached Management Directive 3.8, "Unclassified Contractor and Grantee Publications in the NUREG Series." Management Directive 3.8 is not applicable to any Contractor Spending Plan (CSP) and any Financial Status Report that may be included in this contract. (See Section J for List of Attachments).

[End of Clause]

F.3 NRCAR 2052.212-71 TECHNICAL PROGRESS REPORT

The contractor shall provide a monthly Technical Progress Report to the project officer, and the contracting officer. The report is due within 15 calendar days after the end of the report period and must identify the title of the project, the contract number, job code number, project manager and/or principal investigator, the contract period of performance, and the period covered by the report. Each report must include the following for each discrete task/task order:

- (a) A listing of the efforts completed during the period, and milestones reached or, if missed, an explanation provided;
- (b) Any problems or delays encountered or anticipated and recommendations for resolution. If the recommended resolution involves a contract modification, e.g., change in work

F.3 (Continued)

requirements, level of effort (cost) or schedule delay, the contractor shall submit a separate letter to the contracting officer identifying the required change and estimated cost impact.

- (c) A summary of progress to date; and
- (d) Plans for the next reporting period.

[End of Clause]

F.4 NRCAR 2052.212-72 FINANCIAL STATUS REPORT (DEC 1995)

The Contractor shall provide a monthly Financial Status Report to the project officer and the contracting officer. Also, whenever the report references the acquisition of, or changes in status of property valued at the time of purchase at \$50,000 or more, send a copy of the report to the Chief, Property Management Branch, Division of Facilities and Property Management, Office of Administration. The report is due within 15 calendar days after the end of the report period and shall identify the title of the project, the contract number, job code, project manager and/or principal investigator, the contract period of performance, and the period covered by the report. Each report shall include the following for each discrete task:

- (a) Total estimated contract amount.
- (b) Total funds obligated to date.
- (c) Total costs incurred this reporting period.
- (d) Total costs incurred to date.
- (e) Detail of all direct and indirect costs incurred during the reporting period for the entire contract or each task, if it is a task ordering contract.
- (f) Balance of obligations remaining.
- (g) Balance of funds required to complete contract.
- (h) Contractor Spending Plan (CSP) status:
 - (1) Projected percentage of completion cumulative through the report period for the project/task order as reflected in the current CSP.
 - (2) Indicate if there has been a significant change in the original CSP projection in either dollars or percentage of completion. Identify the change, the reasons for the change, whether there is any projected overrun, and when additional funds would be required. If there have been no changes to the original NRC-approved CSP projections, a written statement to that effect is sufficient in lieu of submitting a detailed response to item h.
 - (3) A revised CSP is required with the Financial Status Report

F.4 (Continued)

whenever the contractor or the contracting officer has reason to believe that the total cost for performance of this contract will be either greater or substantially less than what had been previously estimated.

(i) Property Status:

- (1) List property acquired for the project during the month with an acquisition cost of \$500 or more and less than \$50,000. Give the item number for the specific piece of equipment.
- (2) List property acquired for the project during the month with an acquisition cost of \$50,000 or more. Provide the following information for each item of property: item description or nomenclature, manufacturer, model number, serial number, acquisition cost, and receipt date. If no property was acquired during the month, include a statement to that effect. Note: The same information shall be provided for any component or peripheral equipment which is part of a "system or system unit."
- (3) For multi-year projects, in the September monthly financial status report provide a cumulative listing of property with an acquisition cost of \$50,000 or more (\$5,000 or more if purchased prior to October 1, 1995) showing the above information.
- (4) In the final monthly status report provide a closeout property report containing the same elements as described above for the monthly financial status reports, for all property purchased with NRC funds regardless of value unless title has been vested in the contractor. If no property was acquired under the contract, provide a statement to that effect. The contractor shall note any property requiring special handling for security, health, safety, or other reasons as part of the report.

(j) Travel status:

List the starting and end dates for each trip, the starting point and destination, and the traveler(s) for each trip.

(k) Training Seminar Cost Recovery:

Provide a cumulative total of training seminar costs incurred to date. Provide a list of sources from which costs have been recovered, the amount recovered from each source, and a cumulative total of costs recovered to date.

If the data in this report indicates a need for additional funding

F.4 (Continued)

beyond that already obligated, this information may only be used as support to the official request for funding required in accordance with the Limitation of Cost (LOC) Clause (FAR 52.232-20) or the Limitation of Funds (LOF) Clause (FAR 52.232-22).

(End of Clause)

F.5 PLACE OF DELIVERY--REPORTS (JUN 1988)

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

(a) Project Officer (2 copies)

US Nuclear Regulatory Commission
ATTN: Dave Ebert
Division of Systems Technology, MS T10-G6
Office of Nuclear Regulatory Research
Washington, DC 20555-0001

(b) Contracting Officer (1 copy)

[End of Clause]

**F.6 DURATION OF CONTRACT PERIOD (MAR 1987)
ALTERNATE 2 (MAR 1987)**

This contract shall commence on 09/23/96 and will expire on 9/22/97. The term of this contract may be extended at the option of the Government for four additional 1-year option periods.

[End of Clause]

F.7 ADDITIONAL REPORTING REQUIREMENTS/DELIVERABLES

1. On a quarterly basis, commencing on the effective date of the contract, the contractor shall provide to the NRC Project Officer (PO) a report which includes user troubles and change requests for the code. The report shall provide a prioritization schedule and estimate of staff effort required to meet the requests (Task Area 1).
2. On a quarterly basis, commencing on the effective date of the contract, the contractor shall publish a newsletter to the NRC PO and code users that includes users' experiences, not otherwise reported, and advises them of code updates, documentation changes, workshops, and other items of interest to the users (Task Area 1).

F.7 (Continued)

3. On a quarterly basis, commencing on the effective date of the contract, the contractor shall provide to the NRC PO a technical report which describes how error corrections and code improvements will be made. The report shall include a description of the procedures used for quality assurance for error corrections and code improvements (Task Area 2).
4. Within 6 months of the contract effective date, the contractor shall provide the NRC PO the plan for developmentally assessing the code against new experimental data/and or when modifications are made to the code; and an assessment matrix based on a review of the relevant models and correlations in TRAC-BWR and ranges of conditions over which they apply (Task Area 2).
5. On an annual basis (to commence 1 year from the effective date of the contract), the contractor shall provide to the NRC PO a report of Independent Assessments of the code performed by CAMP participants (Task Area 3).
6. Within 6 months from the effective date of the contract, the contractor shall provide to the NRC PO a plan outlining the cost, schedule, and approach to combine modeling attributes that are common across the TRAC-PF1 and TRAC-BWR codes, and to address specific phenomena and plant designs (Task Area 5A).
7. On an annual basis (to commence 1 year from the effective date of the contract), the contractor shall provide to the NRC PO, a letter report outlining the assessment of computing equipment capabilities, performed as required under Task Area 4, and any upgraded and/or replacement hardware being requested.
8. Prior to the release of any revised versions of the code, the contractor shall submit to the NRC PO, for review and approval, all documentation that reflects the changes made to the code including assessments and user guidance.
9. All NRC approved released versions of the code (software) shall be provided to the NRC PO.

F.8 RESOLVING NRC CONTRACTOR DIFFERING PROFESSIONAL VIEWS (DPVs)

The Nuclear Regulatory Commission's (NRC) policy is to support the contractor's expression of professional health and safety related concerns associated with the contractor's work for NRC that (1) may differ from a prevailing NRC staff view, (2) disagree with an NRC decision or policy position, or (3) take issue with proposed

F.8 (Continued)

or established agency practices. An occasion may arise when an NRC contractor, contractor's personnel, or subcontractor personnel believes that a conscientious expression of a competent judgement is required to document such concerns on matters directly associated with its performance of the contract. The procedure that will be used provides for the expression and resolution of differing professional views (DPVs) of health and safety related concerns associated with the mission of the agency by NRC contractors, contractor personnel or subcontractor personnel on matters directly associated with its performance of the contract, may be found in Section J, as Attachment 5. The contractor shall provide a copy of the NRC DPV procedure to all of its employees performing under this contract and to all subcontractors who shall, in turn, provide a copy of the procedure to its employees. NOTE: The prime contractor or subcontractor shall submit all DPV's received but need not endorse them.

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 NRCAR 2052.215-71 PROJECT OFFICER AUTHORITY
(JAN 1993)

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

Name: Dave Ebert

Address: US Nuclear Regulatory Commission
Division of Systems Technology, MS T10-G6
Office of Nuclear Regulatory Research
Washington, DC 20555-0001

Telephone Number: (301) 415-6501

- (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, fills in details, or otherwise serves to accomplish the contractual statement of work.
- (2) Provide advice and guidance to the contractor in the preparation of drawings, specifications, or technical portions of the work description.
- (3) Review and, where required by the contract, approval of technical 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 "Charges" clause of this contract.
- (3) In any way causes an increase or decrease in the total

G.1 (Continued)

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.
- (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 there to is subject to FAR 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.

G.1 (Continued)

- (2) Assist the contractor in the resolution of technical problems encountered during performance.
- (3) Review all costs requested for reimbursement by the contractor and submit to the contracting officer recommendations for approval, disapproval, or suspension of payment for supplies and services required under this contract.

[End of Clause]

G.2 NRCAR 2052.215-82 TRAVEL REIMBURSEMENT
- ALTERNATE 1 (JAN 1993)

- (a) The contractor is encouraged to use Government contract airlines, AMTRAK rail services, and discount hotel/motel properties in order to reduce the cost of travel under this contract. The contracting officer shall, upon request, provide each traveler with a letter of identification which is required in order to participate in this program. The Federal Travel Directory (FTD) identifies carriers, contract fares, schedules, payment conditions, and hotel/motel properties which offer their services and rates to Government contractor personnel traveling on official business under this contract. The FTD, which is issued monthly, may be purchased from the U.S. Government Printing Office, Washington, DC 20402.
- (b) The contractor will be reimbursed for reasonable travel costs incurred directly and specifically in the performance of this contract. The cost limitations for travel costs are determined in accordance with the specific travel regulations cited in FAR 31.205-46, as are in effect on the date of the trip. Travel costs for research and related activities performed at State and nonprofit institutions, in accordance with Section 12 of Pub. L. 100-679, shall be charged in accordance with the contractor's institutional policy to the degree that the limitations of Office of Management and Budget (OMB) guidance are not exceeded. Applicable guidance documents include OMB Circular A-87, Cost Principles for State and Local Governments; OMB Circular A-122, Cost Principles for Nonprofit Organizations; and OMB Circular A-21, Cost Principles for Educational Institutions.
- (c) When the Government changes the Federal Travel Regulations, or other applicable regulations, it is the responsibility of the contractor to notify the contracting officer in accordance with the Limitations of Cost clause of this contract if the contractor will be unable to make all of the approved trips and remain within the cost and fee limitations of this contract due to the changes.

G.2 (Continued)

(End of Clause)

G.3 NRCAR 2052.216-71 INDIRECT COST RATES (JAN 1993)

- (a) Pending the establishment of final indirect rates which must be negotiated based on audit of actual costs, the contractor shall be reimbursed for allowable indirect costs as follows:

- (b) The contracting officer may adjust the above rates as appropriate during the term of the contract upon acceptance of any revisions proposed by the contractor. It is the contractor's responsibility to notify the contracting officer in accordance with FAR 52.232-20, Limitation of Cost, or FAR 52.232-22, Limitation of Funds, as applicable, if these changes affect performance of work within the established cost or funding limitations.

[End of Clause]

G.4 USE OF AUTOMATED CLEARING HOUSE (ACH)
ELECTRONIC PAYMENT

It is the policy of the U.S. Nuclear Regulatory Commission to pay Government vendors by the Automated Clearing House (ACH) electronic funds transfer payment system in lieu of a U.S. Treasury check. The electronic system is known as Vendor Express. Payment shall be made in accordance with FAR 52.232-28, entitled "Electronic Funds Transfer Payment Methods."

To receive payment by Vendor Express, the contractor shall complete the "Company Information" portion of Form SF 3881, entitled "Payment Information Form - ACH Vendor Payment System" found in Section J. The contractor shall take the form to the ACH Coordinator at the financial institution that maintains its company's bank account. The contractor shall discuss with the ACH Coordinator how the payment identification information (addendum record) will be passed to them once the payment is received by the financial institution. The contractor must ensure that the

G.4 (Continued)

addendum record will not be stripped from the payment. The ACE Coordinator will fill out the "Financial Institution Information" portion of the form and return it to the Office of the Controller at the following address: Nuclear Regulatory Commission, ATTN: ACH/Vendor Express, Division of Accounting and Finance, Mailstop T-9-E-2, Washington, DC 20555. Once the Office of the Controller has processed the contractor's sign-up form, the contractor will begin to receive payments electronically via Vendor Express/ACH.

If the offerors/bidders have questions concerning ACH/Vendor Express, they may call the Commercial Payments staff on (301) 415-7520.

[End of Clause]

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 NRCAR 2052.209-73 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.

H.1 (Con inued)

- (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, 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

H.1 (Continued)

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

H.1 (Continued)

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

H.1 (Continued)

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.

[End of Clause]

H.2 NRCAR 2052.210-71 DRAWINGS, DESIGNS, SPECIFICATIONS, AND OTHER DATA (JAN 1993)

All drawings, sketches, designs, design data, specifications, notebooks, technical and scientific data, and all photographs, negatives, reports, findings, recommendations, other data and memoranda of every description relating thereto, as well as all copies of the foregoing relating to the work or any part thereof, are subject to inspection by the Commission at all reasonable times. Inspection of the proper facilities must be afforded the Commission by the contractor and its subcontractors. These data are the property of the Government and may be used by the Government for any purpose whatsoever without any claim on the part of the contractor and its subcontractors and vendors for additional compensation and must, subject to the right of the contractor to retain a copy of the material for its own use, be delivered to the Government, or otherwise disposed of by the contractor as the contracting officer may direct during the progress of the work or upon completion or termination of this contract. The contractor's right of retention and use is subject to the security, patent, and use of information provisions, if any, of this contract.

[End of Clause]

H.3 NRCAR 2052.215-70 KEY PERSONNEL (JAN 1993)

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

H.3 (Continued)

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 or his/her authorized representative shall evaluate the request and promptly notify the contractor of his or her approval or disapproval 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]

H.4 NRCAR 2052.235-70 PUBLICATION OF RESEARCH RESULTS (JAN 1993)

- (a) The principal investigator(s)/contractor shall comply with the provisions of NRC Handbook 3.8 (formerly MC 3202) and NRC Manual Chapter 3206 regarding publication in refereed scientific and engineering journals or dissemination to the public of any information, oral or written, concerning the work performed under this contract. Failure to comply with this clause shall be grounds for termination of this contract.
- (b) The principal investigator(s)/contractor may publish the

H.4 (Continued)

results of this work in refereed scientific and engineering journals or in open literature and present papers at public or association meetings at interim stages of work, in addition to submitting to NRC the final reports and other deliverables required under this contract. However, such publication and papers shall focus on advances in science and technology and minimize conclusions and/or recommendations which may have regulatory implications.

- (c) Prior to any such publication, the contractor shall submit the proposed publication to the NRC Contracting Officer and Project Officer for review and approval.

[End of Clause]

H.5 MINIMUM INSURANCE COVERAGE

The Contractor shall obtain and maintain insurance coverage as follows for the performance of this contract:

- (a) Worker's compensation and employer's liability insurance as required by applicable federal and state worker's compensation and occupational disease statutes. If occupational diseases are not compensable under those statutes, they shall be covered under the employer's liability section of the insurance policy, except when contract operations are so commingled with the Contractor's commercial operations that it would not be practical. The employer's liability coverage shall be at least \$100,000, except in States with exclusive or monopolistic funds that do not permit workers' compensation to be written by private carriers.
- (b) Comprehensive general (bodily injury) liability insurance of at least \$500,000 per occurrence.
- (c) Motor vehicle liability insurance written on the comprehensive form of policy which provides for bodily injury and property damage liability covering the operation of all motor vehicles used in connection with performing the contract. Policies covering motor vehicles operated in the United States shall provide coverage of at least \$200,000 per person and \$500,000 per occurrence for property damage. The amount of liability coverage on other policies shall be commensurate with any legal requirements of the locality and sufficient to meet normal and customary claims.

H.5 (Continued)

- (d) Comprehensive general and motor vehicle liability policies shall contain a provision worded as follows:

"The insurance company waives any right of subrogation against the United States of America which may arise by reason of any payment under the policy."

[End of Clause]

H.6 **CONTRACTOR ACQUIRED GOVERNMENT EQUIPMENT/PROPERTY
(NOV 1994)**

- (a) The Contractor is authorized to acquire and/or fabricate the equipment/property listed below for use in the performance of this contract.

*

- (b) In the event that, during contract performance, the contractor determines that the acquisition cost for the above item(s) is expected to exceed the amount(s) contained in the contractor's proposal, the contractor shall refer to the Limitation of Cost or Funds Clause when either is included in the contract.

- (c) Only the equipment/property listed above, in the quantities shown, will be acquired by the contractor. Additional equipment/property valued at \$500 or more may be acquired only after contracting officer approval is authorized by an amendment to this clause. The above listed equipment/property is subject to the provisions of the "Government Property" clause.

[End of Clause]

*To be incorporated by modification.

PART II - CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

I.1 52.252-2 CLAUSES INCORPORATED BY REFERENCE (JUN 1988)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

NUMBER	TITLE	DATE
52.202-1	DEFINITIONS	OCT 1995
52.203-3	GRATUITIES	APR 1984
52.203-5	COVENANT AGAINST CONTINGENT FEES	APR 1984
52.203-6	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT	JUL 1995
52.203-10	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY	SEP 1995
52.203-12	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS	JAN 1990
52.204-4	PRINTING/COPYING DOUBLE-SIDED ON RECYCLED PAPER	JUN 1996
52.209-6	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT	JUL 1995
52.215-2	AUDIT AND RECORDS--NEGOTIATION	AUG 1996
52.215-22	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA	OCT 1995
52.215-24	SUBCONTRACTOR COST OR PRICING DATA	OCT 1995
52.215-27	TERMINATION OF DEFINED BENEFIT PENSION PLANS	MAR 1996
52.215-33	ORDER OF PRECEDENCE	JAN 1986
52.215-39	REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS OTHER THAN PENSIONS (PRB)	MAR 1996
52.215-40	NOTIFICATION OF OWNERSHIP CHANGES	FEB 1995
52.216-7	ALLOWABLE COST AND PAYMENT	AUG 1996
52.216-8	FIXED FEE	APR 1984
52.219-8	UTILIZATION OF SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS CONCERNS	OCT 1995
52.219-14	LIMITATIONS ON SUBCONTRACTING	JAN 1991

I.1 (Continued)

NUMBER	TITLE	DATE
52.219-16	LIQUIDATED DAMAGES--SUBCONTRACTING PLAN	OCT 1995
52.222-3	CONVICT LABOR	AUG 1996
52.222-26	EQUAL OPPORTUNITY	APR 1984
52.222-28	EQUAL OPPORTUNITY PREAWARD	APR 1984
52.222-35	CLEARANCE OF SUBCONTRACTS AFFIRMATIVE ACTION FOR SPECIAL DISABLED AND VIETNAM ERA VETERANS	APR 1984
52.222-36	AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS	APR 1984
52.222-37	EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA	JAN 1988
52.223-2	CLEAN AIR AND WATER	APR 1984
52.223-6	DRUG-FREE WORKPLACE	JUL 1990
52.223-14	TOXIC CHEMICAL RELEASING REPORTING	OCT 1995
52.225-11	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES	MAY 1992
52.227-1	AUTHORIZATION AND CONSENT	JUL 1995
52.227-2	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT	AUG 1996
52.228-7	INSURANCE - LIABILITY TO THIRD PERSONS	MAR 1996
52.232-17	INTEREST	JUN 1996
52.232-22	LIMITATION OF FUNDS	APR 1984
52.232-23	ASSIGNMENT OF CLAIMS	JAN 1986
52.232-25	PROMPT PAYMENT	MAR 1994
52.232-28	ELECTRONIC FUNDS TRANSFER PAYMENT METHODS	APR 1989
52.233-1	DISPUTES	OCT 1995
52.233-3	PROTEST AFTER AWARD Alternate I (JUN 1985)	OCT 1995
52.237-3	CONTINUITY OF SERVICES	JAN 1991
52.242-1	NOTICE OF INTENT TO DISALLOW COSTS	APR 1984
52.242-3	PENALTIES FOR UNALLOWABLE COSTS	OCT 1995
52.242-13	BANKRUPTCY	JUL 1995
52.243-2	CHANGES - COST-REIMBURSEMENT Alternate I (APR 1984)	AUG 1987
52.244-2	SUBCONTRACTS (COST-REIMBURSEMENT AND LETTER CONTRACTS)	MAR 1996
52.244-5	COMPETITION IN SUBCONTRACTING	JANUARY 1996
52.245-5	GOVERNMENT PROPERTY (COST-REIMBURSEMENT, TIME-AND-MATERIAL, OR LABOR-HOUR CONTRACTS)	JAN 1986
52.249-6	TERMINATION (COST-REIMBURSEMENT)	SEP 1996
52.249-14	EXCUSABLE DELAYS	APR 1984
52.253-1	COMPUTER GENERATED FORMS	JAN 1991

I.1 (Continued)

NUMBER

TITLE

DATE

[End of Clause]

I.2 52.203-9 REQUIREMENT FOR CERTIFICATE OF PROCUREMENT
INTEGRITY--MODIFICATION (SEP 1995)

- (a) Definitions. The definitions set forth in FAR 3.104-4 are hereby incorporated in this clause.
- (b) The Contractor agrees that it will execute the certification set forth in paragraph (c) of this clause when requested by the Contracting Officer in connection with the execution of any modification of this contract.
- (c) Certification. As required in paragraph (b) of this clause, the officer or employee responsible for the modification proposal shall execute the following certification. The certification in paragraph (c)(2) of this clause is not required for a modification which procures commercial items.

CERTIFICATE OF PROCUREMENT INTEGRITY--
MODIFICATION (NOV 1990)

(1) I, [Name of certifier] _____, am the officer or employee responsible for the preparation of this modification proposal and hereby certify that, to the best of my knowledge and belief, with the exception of any information described in this certification, I have no information concerning a violation or possible violation of subsection 27(a), (b), (d), or (f) of the Office of Federal Procurement Policy Act, as amended* (41 U.S.C. 423), (hereinafter referred to as "the Act"), as implemented in the FAR, occurring during the conduct of this procurement (contract and modification number).

(2) As required by subsection 27(e)(1)(B) of the Act, I further certify that to the best of my knowledge and belief, each officer, employee, agent, representative, and consultant of [Name of Offeror] _____ who has participated personally and substantially in the preparation or submission of this proposal has certified that he or she is familiar with, and will comply with, the requirements of subsection 27(a) of the Act, as implemented in the FAR, and will report immediately to me any information concerning a violation or possible violation of subsections 27(a), (b), (d), or (f) of the Act, as implemented in the FAR, pertaining to this procurement.

I.2 (Continued)

(3) Violations or possible violations: (Continue on plain bond paper if necessary and label Certificate of Procurement Integrity--Modification (Continuation Sheet), ENTER NONE IF NONE EXISTS)

[Signature of the officer or employee responsible for the modification proposal and date]

[Typed name of the officer or employee responsible for the modification proposal]

* Subsections 27(a), (b), and (d) are effective on December 1, 1990. Subsection 27(f) is effective on June 1, 1991.

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER TITLE 18, UNITED STATES CODE, SECTION 1001.

- (d) In making the certification in paragraph (2) of the certificate, the officer or employee of the competing Contractor responsible for the offer or bid, may rely upon a one-time certification from each individual required to submit a certification to the competing Contractor, supplemented by periodic training. These certifications shall be obtained at the earliest possible date after an individual required to certify begins employment or association with the contractor. If a contractor decides to rely on a certification executed prior to the suspension of section 27 (i.e., prior to December 1, 1989), the Contractor shall ensure that an individual who has so certified is notified that section 27 has been reinstated. These certifications shall be maintained by the Contractor for a period of 6 years from the date a certifying employee's employment with the company ends or, for an agency, representative, or consultant, 6 years from the date such individual ceases to act on behalf of the contractor.

I.2 (Continued)

- (e) The certification required by paragraph (c) of this clause is a material representation of fact upon which reliance will be placed in executing this modification.

[End of Clause]

I.3 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 1989)

- (a) The Government may extend the term of this contract by written notice to the Contractor within 60 days; provided, that the Government shall give the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.
- (b) If the Government exercises this option, the extended contract shall be considered to include this option provision.
- (c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 5 years.

[End of Clause]

I.4 52.222-2 PAYMENT FOR OVERTIME PREMIUMS (JUL 1990)

- (a) The use of overtime is authorized under this contract if the overtime premium cost does not exceed \$0.00 or the overtime premium is paid for work--
- (1) Necessary to cope with emergencies such as those resulting from accidents, natural disasters, breakdowns of production equipment, or occasional production bottlenecks of a sporadic nature;
 - (2) By indirect-labor employees such as those performing duties in connection with administration, protection, transportation, maintenance, standby plant protection, operation of utilities, or accounting;
 - (3) To perform tests, industrial processes, laboratory procedures, loading or unloading of transportation conveyances, and operations in flight or afloat that are continuous in nature and cannot reasonably be interrupted or completed otherwise; or
 - (4) That will result in lower overall costs to the Government.
- (b) Any request for estimated overtime premiums that exceeds the

I.4 (Continued)

amount specified above shall include all estimated overtime for contract completion and shall--

- (1) Identify the work unit; e.g., department or section in which the requested overtime will be used, together with present workload, staffing, and other data of the affected unit sufficient to permit the Contracting Officer to evaluate the necessity for the overtime;
- (2) Demonstrate the effect that denial of the request will have on the contract delivery or performance schedule;
- (3) Identify the extent to which approval of overtime would affect the performance or payments in connection with other Government contracts, together with identification of each affected contract; and
- (4) Provide reasons why the required work cannot be performed by using multishift operations or by employing additional personnel.

[End of Clause]

PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

SECTION J - LIST OF ATTACHMENTS

J.1 ATTACHMENTS (MAR 1987)

<u>Attachment Number</u>	<u>Title</u>
01	Billing Instructions
02	NRC Contractor Organizational Conflicts of Interest
03	NRC Handbook 3.8
04	Contractor Spending Plan (CSP) Instructions
05	ACH Vendor Payment Information Form Standard Form SF 3881
06	Procedures for Resolving NRC Contractor Differing Professional Views