

AWARD/CONTRACT

Page 1 of 2

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING
2. CONTRACT NO. NRC-08-97-302	3. EFFECTIVE DATE See box 19c	4. REQUISITION/PROJECT NO. OIP-97-302
5. ISSUED BY Code: U.S. Nuclear Regulatory Commission Division of Contracts Contract Management Branch 2 Mail Stop - T-712		6. ADMINISTERED BY Code: (If other than Item 5)
7. NAME AND ADDRESS OF CONTRACTOR SCIEN TECH, Inc. 11140 Rockville Pike, Suite 500 Rockville, Maryland 20852 TIN: 82-0381275 Principal Investigator/Technical Contact: Dr. John Bickel Telephone No: (619) 436-1131		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 U.S. Nuclear Regulatory Commission Attn: Dr. Hans Schechter OIP/BCA, Mail Stop - O-4E3 Washington, DC 20555-0001	12. PAYMENT WILL BE MADE BY CODE Division of Accounting and Finance Office of the Controller T-9 E2 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001	
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 B&R:77G-60-817-005, JOB CODE: E-7103, APPN NO.: 31X0200.77G BOC NO.: 252A, OBLIGATED AMOUNT \$169,347		
15A. ITEM NO.	15B. SUPPLIES/ SERVICES	15C. QUANTITY 15D. UNIT 15E. UNIT PRICE 15F. AMOUNT
Technical Assistance to the NRC Office of International Programs contract. This is a CPFF (Completion Form) contract.		
270061		15G. TOTAL AMOUNT OF CONTRACT \$526,928.00

EXCEPTION TO STANDARD FORM SF26 (REV.4-85)

Prescribed by GSA

FAR(48 CFR) 53.214(a)

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PDR CONTR
NRC-08-97-302 PDR



X SEC	16. TABLE OF CONTENTS DESCRIPTION	PAGE(S)
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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 02 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)

Melissa H. Aufmuth
Contracts Manager

20A. NAME OF CONTRACTING OFFICER

Elois J. Wiggins

19B. NAME OF CONTRACTOR

by Melissa H. Aufmuth
(Signature of person authorized to sign)

20B. UNITED STATES OF AMERICA

by Elois J. Wiggins
(Signature of Contracting Officer)

19C. DATE SIGNED

6/24/97

20C. DATE SIGNED

6/24/97

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:

Regulatory Assistance and Support to the Regulatory Bodies of a Selected number of Central and East European (CEE) Countries (Lithuania, Bulgaria, Czech Republic, Hungary, and Slovakia) and of the Former Soviet Union (FSU).

[End of Clause]

B.2 BRIEF DESCRIPTION OF WORK (MAR 1987)
ALTERNATE 1 (JUN 1988)

(a) Brief description of work:

The Contractor shall provide technical expertise to assist the Office of International Programs in accomplishing their missions and associated programs and activities as described in the Statement of Work.

- (b) Orders will be issued for work required by the NRC in accordance with 52.216-18 - Ordering. Only Contracting Officers of the NRC or other individuals specifically authorized under this contract may authorize the initiation of work under this contract. The provisions of this contract shall govern all orders issued hereunder.

[End of Clause]

B.3 CONSIDERATION AND OBLIGATION--TASK ORDERS (AUG 1989)
ALTERNATE 1 (JUN 1991)

- (a) The Maximum Ordering Limitation (MOL) for products and services ordered, delivered and accepted under this contract is \$526,928. The Contracting Officer may place orders with the contractor during the contract period provided the aggregate amount of such orders does not exceed the MOL.
- (b) The guaranteed minimum obligated by the Government under this contract is \$169,347.

B.3 (Continued)

- (c) A total estimated cost as well as any fee, if any, will be negotiated for each task order and will be incorporated as a ceiling in the resultant task order. The Contractor shall comply with the provisions of 52.232-20 - Limitation of Cost for fully funded task orders and 52.232-22 - Limitation of Funds for incrementally funded task orders, issued hereunder.

[End of Clause]

**B.4 CONSIDERATION AND OBLIGATION -- TASK ORDERS (AUG 1989)
ALTERNATE 1 (JUN 1991) OPTION PERIOD**

- (a) The maximum ordering limitation (MOL) for products and services ordered, delivered and accepted under this contract is \$278,061. The Contracting Officer may place orders with the contractor during the contract period provided the aggregate amount of such orders does not exceed the MOL.
- (b) A total estimated cost as well as any fee, if any, will be negotiated for each task order and will be incorporated as a ceiling in the resultant task order. The Contractor shall comply with the provisions of 52.232-20 - Limitation of Cost for fully funded task orders and 52.232-22 - Limitation of Funds for incrementally funded task orders, issued hereunder.

B.5 MINIMUM AND MAXIMUM QUANTITIES

It is anticipated that approximately 4 task orders will be issued during the two-year base period of performance and that approximately 3 task orders will be issued during the one thirty-six month option period. The minimum quantity that the Government will order and the Contractor shall furnish will be at least 15% of the mutually agreed upon ceiling amount of the Base Period of the contract. The maximum quantity the Government will order and the Contractor shall furnish is the mutually agreed upon ceiling amount of the resultant contract. (Reference also the Articles on Ordering and Indefinite Quantity contracts.)

[End of Clause]

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT**C.1 STATEMENT OF WORK****C.1.1 BACKGROUND**

The U.S. Nuclear Regulatory Commission provides regulatory assistance and support to the regulatory bodies of a selected number of Central and East European (CEE) countries (Lithuania, Bulgaria, Czech Republic, Hungary, and Slovakia) and of the Former Soviet Union (FSU).

The general areas where NRC has focused its technical assistance and training efforts include the following:

1. Developing and implementing nuclear safety regulations and nuclear safety standards for Soviet-design reactors.
2. Developing and implementing nuclear safety inspection programs for Soviet-design reactors patterned after NRC practices and methodology.
3. Transferring, and helping to implement, NRC nuclear safety evaluation practices and procedures for the review and licensing of Soviet-design reactors.

Continuation of these types of programs is anticipated for the coming years, and new needs will likely arise as a result of ongoing safety Assessments of Soviet-design reactors. Accordingly, NRC's Office of International Programs (OIP) is seeking to simplify internal administrative work by creating a general contracting instrument to obtain a wide variety of technical support services from a single contracting source.

At the present time only the work scope for the Lithuanian assistance effort is fairly well defined, and partial funding through USAID is already in place. Availability of funding for additional work in other countries is not yet assured, and may in fact not materialize.

C.1.2 CONTRACT OBJECTIVES

The Contractor shall provide personnel with a wide range of technical and scientific disciplines on a task-ordering basis to assist the NRC's Office of International Programs (OIP) staff in accomplishing their work-related activities aimed at providing continuing and uninterrupted transfer of NRC regulatory and safety methodology to the countries with

C.1.2 (Continued)

ongoing USNRC assistance programs. Additionally, the contractor shall provide USNRC with the flexibility to deal in the future with similar requests from the CEE and FSU countries.

C.1.3 WORK REQUIREMENTS

As noted in C.1.2, the Contractor's personnel shall be responsible for assisting OIP staff with work activities which support the Office's goal of providing continuing and uninterrupted technical training and assistance to the CEE countries with ongoing USNRC assistance programs.

All work will be ordered on a task-ordering basis in accordance with the Task Ordering procedures found in Section G, Subsection G.6. It is likely that a number of task orders may be in place simultaneously. The completion schedule will be determined for each task order when the task is issued.

As noted in C.1.1, contractor assistance is required for, but not limited to the following:

1. Developing and implementing nuclear safety regulations and nuclear safety standards for Soviet-design reactors.
2. Developing and implementing nuclear safety inspection programs for Soviet-design reactors patterned after NRC practices and methodology.
3. Transferring, and helping to implement, NRC nuclear safety evaluation practices and procedures for the review and licensing of Soviet-design reactors.

C.1.4 TECHNICAL PERSONNEL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

All personnel performing work under this contract, including Principal Investigators and team members involved in the performance of task orders, shall have pertinent technical experience in the disciplines listed in the description of Technical Qualifications for Contractor Personnel identified in Attachment No. 9.

The contractor shall designate one Senior Technical Expert with the capability to address highly complex technical issues such as those listed in Attachment No. 10, has a thorough knowledge of the NRC's approach to performing safety reviews and evaluations, and has the capability to serve as a Principal Investigator under the contract. Such Senior Expert shall be considered key personnel and is considered to be critical to this contract. Removal of these personnel from the contract shall be performed in accordance with the Key Personnel Clause in Section H, Subsection H.2.

C.1.4 (Continued)

The Contractor shall provide a Program Manager who shall also be considered as key personnel under the contract. The Contractor's Program Manager shall have the following responsibilities:

1. Oversight responsibility for all task orders placed under any resulting contract;
2. Oversight responsibility for the efforts of the contractor's team assembled for each task order placed under any resulting contract;
3. Performance of other project management duties necessary for successful completion of task orders and overall contract requirements;
4. Ensuring the quality of deliverables so that all information and data are accurate and complete. In addition, the Program Manager shall be responsible for assuring that work done for the NRC is performed adequately and the contractor's methods and approaches of executing the work are integrated to include all the appropriate and relevant technical disciplines.

C.1.5 ASSISTANCE COORDINATION

The Contractor shall assist the OIP Project Manager in coordinating U.S. activities and interests with those performed by other Western Countries and Technical Support Organizations. This assistance shall include, among other things, accompanying the OIP Project Manager to meetings held in Europe with representatives of other donor countries. The Contractor shall be responsible for keeping the OIP Project Manager fully informed on important activities/issues that come up in technical discussions with other countries, and in recommending changes in work scope, as appropriate.

C.1.6 MEETINGS AND TRAVEL

Specific meeting and travel requirements will be identified in the specific task order statements of work. Travel Approvals are required in accordance with Section G, Subsection G.4.

C.1.7 NRC-FURNISHED MATERIALS

Any reports, documents, equipment, and other materials that the contractor will require to perform the work will be stated in the "Work Requirements" section of the task order statement of work.

[End of Clause]

C.2 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 REPORTS, DOCUMENTATION AND OTHER DELIVERABLE END ITEMS

F.2.1. MONTHLY BUSINESS LETTER REPORT REQUIREMENTS

A Monthly Business Letter Report (MBLR) will be submitted by the 15th of each month to the Technical Assistance Project Manager, OIP. A copy is to be provided to the Contracting Officer, Division of Contracts, NRC.

Each report will contain four sections as described below. Information in Section F.2.2 and F.2.3 will be provided for each task order.

F.2.2 WORK PROGRESS STATUS SECTION

a. Task Order Identification Information

- The JCN, the task order number and title.
- The Principle Investigator(s) and telephone number(s).
- The NRC Technical Monitor(s) and telephone number(s).
- The Authorized Ceiling amount for the task order.
- The total cost for the period and cumulative to date;

Task	Completion Date	Completion Date
Provide a brief summary of the work; reports or travel.	The day, month, and year scheduled for completion, or time-frame if a date is not known or projected.	The revised day, month and year based on a change. The reason for the change must be given in the "Problem/Resolution" section below.

c. Work Performed During the Period

This section should contain a clear, succinct discussion of the work performed on each task order during the period. As a minimum, these discussions should support the costs reported for the period. Verbiage such as "worked on all tasks," or "continued to work on Task 1.a" are not particularly useful and reduce the effectiveness of the monthly report as a management tool and for historical documentation.

Any travel taken during the reporting period should also be summarized in this section of the report. Each travel summary should identify the persons traveling, the duration of the travel, the purpose of the travel, and any work/accomplishments not reflected elsewhere.

d. Problem/Resolution

- All problems encountered during the period should be clearly and succinctly identified and stated. Then, the resolution or the proposed solution should be briefly described. It should be clearly evident, from a reading of the description, who has the action to resolve the problem, should it still exist at the time the report is written.
- Notwithstanding type status of the problem at the time the MBLR is written, problems should be recorded in the "Problem/Resolution" section of the MBLR for documentation/historical purposes. If the problem still exists in a subsequent month, in whole or in part, it should be described as it currently exists; otherwise, it should be deleted from the report.
- Problems or circumstances that require a change in the level of effort/costs, scope, or travel requirements are to be described in the MBLRs for documentation purposes but are to be dealt with separately in a letter addressed and sent to the NRC Contracting Officer with a copy to the NRR Project Manager.

e. Plans for Next Period

Provide a brief description of the work to be performed/accomplished during the next reporting period. If a milestone is expected to be completed during the next report period, so state.

F.2.3 FINANCIAL STATUS SECTION

a. Provide the total direct staff use and the amount of funds expended (costed) during the period and total cumulative fiscal year to date in the following categories for each task order:

	Current Month	FY to Date
1. Direct Labor (hours)		
(1) Management		
(2) Technical		
(3) Support		
Total		
Subcontractor hours		
2. Labor Costs		
(1) Direct Labor Costs		
(2) Indirect Labor Costs		
(3) Project Management Cost		
Subtotal		
3. Other Direct Costs		
(1) Subcontractor/Consultant Cost		
(2) Material and Services Costs		
(3) Computer Usage Costs		
(4) Travel		
(a) Domestic		
(b) Foreign		
Total Travel		
Subtotal Other		
Direct Costs		
4. G&A Costs		
Total Reimbursable		
Costs		

5. Fee

Total Costs

b. For each JCN, provide the following summary table:

JCN: X-XXXX

Total Obligations to Date	\$
Incremental Funding	\$
Total Costs to Date	\$
Balance	\$

Tasks	Authorized Ceiling	Cost to Date
X X	\$	\$
X X	\$	\$
Totals	\$	\$

c. Provide the following information:

Total Contract Ceiling	Total Obligations To Date	Percent of Contract Ceiling
------------------------	---------------------------	-----------------------------

F.2.4 MONTHLY EXPENSE FORECAST

A Contractor Spending Plan (CSP) shall be completed for each task order expected to exceed \$100,000 and for which the period of performance is expected to exceed 6 months. See Attachment No. 5, CSP Instructions.

F.2.5 DELIVERABLES DURING PERIOD

A table should summarize the deliverables submitted during the period in the following format:

JCN	T.O.#	TAC/Inspect Report	Type of Report	Title of Submittal
-----	-------	--------------------	----------------	--------------------

F.2.6 TECHNICAL REPORTING REQUIREMENTS

Technical reporting requirements will be specified to each task order. Some reports may be submitted in the form of computer files or on computer diskettes.

a. Technical reporting requirements and other deliverables will consist of:

1. Identifying to whom the report is addressed, who should be on distribution, and how many copies each addressee should receive.
2. The type of report that is to be prepared, i.e.:
 - Technical Evaluation Report (TER). Requests for this type of report are made when a formal report is required but the distribution is limited.
 - NUREG/ER Report: This is the most formal contractor report and is requested when there is significant and important compilation of information and wide distribution of the report as a stand-alone document is required, and when the staff believes the document will be referenced frequently. NUREG/CR reports require the completion/execution of an NRC Form 426A, to be completed by the contractor and sent to the Project Manager for processing. For further information, refer to Management Directive 3.8 (formerly NRC Manual Chapter 3202).
 - Trip Report: In general, every trip for which results are not directly incorporated into either of the above two types of reports, except for inspections (see paragraph below), should be documented in a short, concise trip report.
 - Technical Letter Report: All other reports and documents and other information (e.g., requests for additional information (RAIs), computer software inspection report inputs) due to be delivered by the contractor under the contract that do not fall under the other types of reports listed above are transmitted as or under the cover of a "Technical Letter Report."
3. The format and content of each report will be specified. The report should reference the contract number, the Financial Identification Number (FIN), the task order assignment number, and the Technical Assignment Control (TAC) or inspection report number, as applicable. Other sections such as "Abstract," "Executive Summary," "References," and any appendices will be specified.
4. If draft reports are required, the number of drafts expected will be stated.
5. If proprietary or other sensitive information will be included in the report the means of handling this information will be specified.

Presentations or publication in the open literature of papers or data based on reports already approved for publication by NRC as final reports do not require NRC approval. Conversely, any document containing predecisional or draft material must be approved by NRC prior to release. Management Directive 3.8 (formerly NRC Manual Chapter 3202) provides further information. Requests for NRC approval for other than approved reports are to be forwarded to the Project Officer for coordination and NRC approval.

[End of Clause]

F.3 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)

U. S. Nuclear Regulatory Commission
ATTN: Dr. Hans Schechter
OIP/BCA, Mail Stop - O-4E3
Washington, DC 20555-0001

(b) Contracting Officer (1 copy)

[End of Clause]

**F.4 DURATION OF CONTRACT PERIOD (MAR 1987)
ALTERNATE 4 (JUN 1988)**

The ordering period for this contract shall commence on the award date of the contract and will expire after two (2) years. Any orders issued during this period shall be completed within the time specified in the order, unless otherwise specified herein (See 52.216-18 - Ordering). The term of this contract may be extended at the option of the Government for one (1) additional three-year option period.

[End of Clause]

**F.5 RESOLVING NRC CONTRACTOR DIFFERING PROFESSIONAL
VIEWS (DPVs)**

The Nuclear Regulation 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 or established agency practices. An occasion may arise

F.5 (Continued)

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 of the solicitation. 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 by need not endorse them.

[End of Clause]

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: Dr. Hans Schechter

Address: U. S. Nuclear Regulatory Commission
OIP/BCA, Mail Stop - O-4E3
Washington, DC 20555-0001

Telephone Number: (301) 415-2775

- (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 "Changes" 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 thereto 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.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]

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- (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:

	Rate	Base	Period
Overhead Costs		Eastern Region Labor	6/97- 6/2002
Fringe Benefit		Full Fringe Benefit	6/97- 6/2002
G & A		Corporate/Regional	6/97- 6/2002
FCCM			
Eastern			6/97- 6/98
Labor O/H			6/98- 6/99
			6/99- 6/2002
G&A Corp.		Corporate FCCM	6/97- 6/98
			6/98- 6/99
			6/99- 6/2002

- (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 NRCAR 2052.216-74 TASK ORDER PROCEDURES (JAN 1993)

- (a) Task order request for proposal. When a requirement within the scope of work for this contract is identified, the contracting officer shall transmit to the contractor a Task

G.4 (Continued)

Order Request for Proposal (TORP) which includes the following, as appropriate:

- (1) Scope of work/meetings/travel and deliverables;
 - (2) Reporting requirements;
 - (3) Period of performance - place of performance;
 - (4) Applicable special provisions;
 - (5) Technical skills required; and
 - (6) Estimated level of effort.
- (b) Task order proposal. By the date specified in the TORP, the contractor shall deliver to the contracting officer a written proposal that provides the following technical and cost information, as appropriate:
- (1) Technical proposal content;
 - (i) A discussion of the scope of work requirements to substantiate the contractor's understanding of the requirements of the task order and the contractor's proposed method of approach to meet the objective of the order.
 - (ii) Resumes for professional personnel proposed to be utilized in the performance of any resulting task order. Include educational background, specific pertinent work experience, and a list of any pertinent publications authored by the individual.
 - (iii) Identification of administrative support personnel and/or facilities that are needed to assist the professional personnel in completing work on the task order.
 - (iv) Identification of "Key Personnel" and the number of staff hours that will be committed to completion of work on the task order.
 - (2) Cost proposal. The contractor's cost proposal for each task order must be prepared using Standard Form 1411, Contract Pricing Proposal cover sheet. A copy of the form and instructions are attached to this contract. Each task order cost proposal must be fully supported by cost and pricing data adequate to establish the reasonableness of the proposed amounts. When the contractor's estimated cost for the proposed task order exceeds \$100,000 and the

G.4 (Continued)

period of performance exceeds six months, the contractor may be required to submit a Contractor Spending Plan (CSP) as part of its cost proposal. The TORP indicates if a CSP is required.

- (c) Task order award. The contractor shall perform all work described in definitized task orders issued by the contracting officer. Definitized task orders include the following:
- (1) Statement of work/meetings/travel and deliverables;
 - (2) Reporting requirements;
 - (3) Period of performance;
 - (4) Key personnel;
 - (5) Applicable special provisions; and
 - (6) Total task order amount including any fixed fee.

[End of Clause]

**G.5 NRCAR 2052.216-75 ACCELERATED TASK ORDER PROCEDURES
(JAN 1993)**

- (a) The NRC may require the contractor to commence work before receipt of a definitized task order from the contracting officer. Accordingly, when the contracting officer verbally authorizes the work, the contractor shall proceed with performance of the task order subject to the monetary limitation established for the task order by the contracting officer.
- (b) When this accelerated procedure is employed by the NRC, the contractor agrees to begin promptly negotiating with the contracting officer the terms of the definitive task order and agrees to submit a cost proposal with supporting cost or pricing data. If agreement on a definitized task order is not reached by the target date mutually agreed upon by the contractor and contracting officer, the contracting officer may determine a reasonable price and/or fee in accordance with Subpart 15.8 and Part 31 of the FAR, subject to contractor appeal as provided in 52.233-1, Disputes. In any event, the contractor shall proceed with completion of the task order, subject only to the monetary limitation established by the contracting officer and the terms and conditions of the basic contract.

(End of Clause)

G.6 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 52.232-33, entitled "Mandatory Information for Electronic Funds Transfer Payment."

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 addendum record will not be stripped from the payment. The ACH 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 (Continued)

- (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 209.570-2, 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 209.570-9.
- (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 2052.215-70 KEY PERSONNEL (JAN 1993)

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

Dr. John H. Bickel, Tech. Dir. and Program Manager
Mr. Randy Baker, Mechanical Engineer and Proj. Mgr
Mr. Ed Wenzinger, Electrical Engineer

The contractor agrees that personnel may not be removed from the contract work or replaced without compliance with paragraphs (b) and (c) of this section.

- (b) If one or more of the key personnel, for whatever reason, becomes, or is expected to become, unavailable for work under this contract for a continuous period exceeding 30 work days, or is expected to devote substantially less effort to the work than indicated in the proposal or initially anticipated, the contractor shall immediately notify the contracting officer and shall, subject to the concurrence of the contracting officer, promptly replace the personnel with personnel of at least substantially equal ability and qualifications.
- (c) Each request for approval of substitutions must be in writing and contain a detailed explanation of the circumstances necessitating the proposed substitutions. The request must also contain a complete resume for the proposed substitute and other information requested or needed by the contracting officer to evaluate the proposed substitution. The contracting officer 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

H.2 (Continued)

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.3 NRCAR 2052.235-72 SAFETY, HEALTH, AND FIRE PROTECTION (JAN 1993)

The contractor shall take all reasonable precautions in the performance of the work under this contract to protect the health and safety of its employees and of members of the public, including NRC employees and contractor personnel, and to minimize danger from all hazards to life and property and shall comply with all applicable health, safety, and fire protection regulations and requirements (including reporting requirements) of the Commission and the Department of Labor. In the event that the contractor fails to comply with these regulations or requirements, the contracting officer may, without prejudice to any other legal or contractual rights of the Commission, issue an order stopping all or any part of the work; thereafter, a start order for resumption of work may be issued at the discretion of the contracting officer. The contractor shall make no claim for an extension of time or for compensation or damages by reason of, or in connection with, this type of work stoppage.

[End of Clause]

H.4 GOVERNMENT FURNISHED EQUIPMENT/PROPERTY - NONE PROVIDED (JUN 1988)

The Government will not provide any equipment/property under this contract.

[End of Clause]

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	JAN 1996
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	MAR 1997
52.216-8	FIXED FEE	MAR 1997
52.219-16	LIQUIDATED DAMAGES--SUBCONTRACTING PLAN	OCT 1995
52.223-6	DRUG-FREE WORKPLACE	JAN 1997
52.223-14	TOXIC CHEMICAL RELEASING REPORTING	OCT 1996
52.225-7	BALANCE OF PAYMENTS PROGRAM	APR 1984

I.1 (Continued)

NUMBER	TITLE	DATE
52.225-11	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES	OCT 1996
52.227-14	RIGHTS IN DATA - GENERAL	JUN 1987
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	MAY 1997
52.232-33	MANDATORY INFORMATION FOR ELECTRONIC FUNDS TRANSFER PAYMENT	AUG 1996
52.233-1	DISPUTES	OCT 1995
52.233-3	PROTEST AFTER AWARD Alternate I (JUN 1985)	AUG 1996
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)	FEB 1997
52.244-5	COMPETITION IN SUBCONTRACTING	DEC 1996
52.248-1	VALUE ENGINEERING	MAR 1989
52.249-6	TERMINATION (COST-REIMBURSEMENT)	SEP 1996
52.249-14	EXCUSABLE DELAYS	APR 1984
52.253-1	COMPUTER GENERATED FORMS	JAN 1991

[End of Clause]

I.2 52.216-18 ORDERING (OCT 1995)

- (a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from date of contract award through contract expiration date.
- (b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.
- (c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

[End of Clause]

I.3 52.216-19 ORDER LIMITATIONS (OCT 1995)

- (a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than \$78,552, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.
- (b) Maximum order. The Contractor is not obligated to honor--
 - (1) Any order for a single item in excess of the ceiling amount of the contract;
 - (2) Any order for a combination of items in excess of the ceiling amount of the contract; or
 - (3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.
- (c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.
- (d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 15 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

[End of Clause]

I.4 52.216-22 INDEFINITE QUANTITY (OCT 1995)

- (a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.
- (b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum." The Government shall order at least the quantity of supplies or services designated in the Schedule as

I.4 (Continued)

the "minimum."

- (c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.
- (d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after 3 months after the contract expiration date.

[End of Clause]

I.5 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.6 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 accident: 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,

I.6 (Continued)

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 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]

I.7 52.229-8 TAXES--FOREIGN COST-REIMBURSEMENT CONTRACTS
(MAR 1990)

- (a) Any tax or duty from which the United States Government is exempt by agreement with the Government of any CEE or FSU, or from which the Contractor or any subcontractor under this contract is exempt under the laws of any CEE or FSU, shall not constitute an allowable cost under this contract.

I.7 (Continued)

- (b) If the Contractor or subcontractor under this contract obtains a foreign tax credit that reduces its Federal income tax liability under the United States Internal Revenue Code (Title 26, U.S.C.) because of the payment of any tax or duty that was reimbursed under this contract, the amount of the reduction shall be paid or credited at the time of such offset to the Government of the United States as the Contracting Officer directs.

[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	Standard Form 1411 with Instructions
05	Contractor Spending Plan (CSP) Instructions
06	Subcontracting Plan
07	Payment Information Form SF 3381 - ACH Payment System
08	Procedures for Resolving NRC Contractor Differing Professional Views
09	Technical Qualifications for Contractor Personnel
10	Safety Panel Report
11	Request for Approval of Official Foreign Travel - NRC FORM 445

(MARCH 1996)
Page 1 of 10

BILLING INSTRUCTIONS FOR
COST REIMBURSEMENT TYPE CONTRACTS

General: The contractor shall prepare vouchers/invoices for reimbursement of costs in the manner and format described herein. **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 - T-7-I-2
Washington, DC 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.

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

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS -
(Page 2 of 10)

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 1**). The sample format is provided for guidance only. The format is not required for submission of a voucher/invoice. Alternate formats are permissible provided all requirements of the billing instructions are addressed. The instructions for preparation and itemization of the voucher/invoice are included with the sample form.

Task Ordering Contracts: If the contractor bills for more than one task order under a voucher/invoice, detailed cost information for each individual task order shall be submitted, together with a cumulative summary of all charges billed on the voucher/invoice. This includes all applicable cost elements discussed in paragraphs (a) through (n) of the attached instructions.

Fee Recovery Billing: Pursuant to the provisions of 10 CFR Part 170 and 171 on license fees, the NRC must recover the cost of work performed. Accordingly, the contractor must provide the total amount of funds billed during the period, fiscal year to date and the cumulative total for each task or task assignment by facility or report. The fee recovery billing reports shall be on a separate page, and shall be in the format provided in **Attachment 2**. The billing period for fee recovery costs should be from the first day of each calendar month to the last day of the same month. Each separate fee billing report must be attached to the monthly invoice and cover the same period as the invoice.

Each report will contain a docket number or other unique identifier. The NRC will provide a unique identifier for all work performed. Costs should be reported as whole number to the nearest cent. For work that involves more than one facility at the same site, each facility should be listed separately and the costs should be split appropriately between the facilities. Common costs, as defined below, shall be identified as a separate line item in the fee recovery billing report each month.

Common costs are those costs that are not licensee unique and associated with the performance of an overall program that benefit all similar licensees covered under that program or that are required to satisfactorily carry out the program. Common costs include costs associated with the following: preparatory or start-up efforts to interpret and reach agreement on methodology, approach, acceptance criteria, regulatory position,

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS -
(Page 3 of 10)

or technical reporting requirements; efforts associated with the "lead plant" concept that might be involved during the first one or two plant reviews; meetings and discussions involving the above efforts to provide orientation, background knowledge or guidance during the course of a program; any technical effort applied to a docket or other unique identifier; and project management. Common costs must be reporting monthly for each docket or unique identifier. Common costs must be computed based on the proportion of direct costs incurred against each docket or unique identifier for the billing period.

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

Final vouchers/invoices shall be marked "FINAL VOUCHER" or "FINAL 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 contract may not exceed the total U.S. dollars authorized in the contract.

Supersession: These instructions supersede any previous billing instructions.

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (Page 4 of 10) - ATTACHMENT 1

INVOICE/VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

(SAMPLE FORMAT)

Official Agency Billing Office
U.S. Nuclear Regulatory Commission
Division of Contracts MS: T-7-1-2
Washington, DC 20555-0001
Payee's Name and Address

(a) Contract Number _____

Task Order No. (If Applicable) _____

(b) Voucher/Invoice # _____

(c) Date of Voucher/Invoice _____

Individual to Contact
Regarding this Voucher
Name: _____

(d) Fixed Fee _____

Tel. No.: _____

(e) This voucher represents reimbursable costs for the

		<u>Amount Billed</u>	<u>Current Period</u>
<u>Cumulative</u>			
(f)	<u>Direct Costs</u>		
(1)	Direct labor*.....		
(2)	Fringe benefits (% if computed as percentage).....		
(3)	Capitalized nonexpendable equipment (\$50,000 or more see instructions)*.....		(4) Non-capitalized equipment,
	materials, and supplies.....		(5) Premium pay (NRC approved
	overtime).....	(6) Consultants*.....	
(7)	Travel*.....	(8) Subcontracts*.....	
(9)	Other costs*.....		
			Total Direct
<u>Costs</u>			
(g)	<u>Indirect Costs</u>		
(A)	Overhead % of		

_____ (Indicate Base)..... _____

(B) General & Administrative Expense
_____ % of Cost Elements

Nos. _____

Total Direct & Indirect Costs _____

(h) Fixed-Fee (Cite Formula):

(i) Total Amount Billed..... (j) Adjustments.....

(k) Grand Totals.....

* (Requires Supporting Information -- See Attached)

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (Page 5 of 10 (Cont.) - ATTACHMENT 1

SAMPLE SUPPORTING INFORMATION

1) Direct Labor - \$2400

Cumulative Billed	Labor Category	Hours		Rate	Total	Hrs.
		Billed				
	Senior Engineer I	100		\$14.00	\$1400	975
	Engineer	50		\$10.00	\$500	465
	Computer Analyst	100		\$5.00	\$500	320
					\$2400	

3) Capitalized Non-Expendable Equipment

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

4) Non-capitalized Equipment, Materials, and Supplies

10 Radon tubes @ \$110.00 = \$1100.00

6 Pairs Electrostatic gloves @ \$150.00 = \$900.00

\$2000.00

5) Premium Pay

Walter Murphy - 10 hours @ \$10.00 Per Hour = \$100
(This was approved by NRC in letter dated 3/6/95).

6) Consultants' Fee

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

7) Travel

<u>Start Date</u>	<u>Destination</u>	<u>Costs</u>
3/1/89	Wash., DC	\$200

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (Page 6 of 10)
ATTACHMENT 1 (Cont.)

INSTRUCTIONS FOR PREPARING
COST INFORMATION FOR NRC CONTRACT VOUCHERS/INVOICES

Preparation and Itemization of the Voucher/Invoice: In order to constitute a proper invoice, the contractor shall furnish all the information set forth below. These notes are keyed to the entries on the sample voucher/invoice.

Official Agency Billing Office: Address the original and 3 copies of the voucher/invoice, together with supporting documentation attached to each copy to: U.S. Nuclear Regulatory Commission, Division of Contracts, MS: T-7-I-2, Washington, DC 20555-0001.

Vouchers/invoices delivered by hand, including delivery by express mail or special delivery services which use a courier or other person to deliver the voucher/invoice in person to the NRC, should be addressed in accordance with the foregoing and delivered to: U. S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike - Mail Room, Rockville, Maryland 20852. Hand-delivered vouchers/invoices will not be accepted at other than the above address. Note, however, 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.

Payee's Name and Address. Show the name of the contractor as it appears in the contract and its correct address. When an approved assignment has been made by the contractor, or a different payee or addressee has been designated, insert the name and address of the payee. Indicate the name and telephone number of the individual responsible for answering any questions that the NRC may have regarding the invoice. The following guidance corresponds to the entries required on the sample form.

(a) **Contract Number.** Insert the NRC contract number.

Task Order Number, if applicable. Insert the task order number.

(b) **Voucher/invoice number.** The appropriate sequential number of the voucher/invoice, beginning with 001 should be designated. Contractors may also include an individual internal accounting number, if desired, in addition to the 3-digit sequential number.

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (Page 7 of 10)
ATTACHMENT 1 (Cont.)

- (c) **Date of Voucher/Invoice.** Insert the date the voucher/invoice is prepared.
- (d) **Fixed-Fee.** Insert total fixed-fee. Include this information as it applies to individual task orders as well.
- (e) **Billing Period.** Insert the beginning and ending dates (day, month, year) of the period during which costs were incurred and for which reimbursement is claimed.
- (f) **Direct Costs -** Insert the amount billed for the following cost elements, adjustments, suspensions, and total amounts, for both the current billing period and for the cumulative period (from contract inception to end date of this billing period).
- (1) **Direct Labor.** This consists of salaries and wages paid (or accrued) for direct performance of the contract itemized as follows:
- | Labor | Hrs. | | | Cumulative |
|----------|--------|------|-------|------------|
| Category | Billed | Rate | Total | Hrs.Billed |
- (2) **Fringe Benefits.** This represents fringe benefits applicable to direct labor and billed as a direct cost. Where a rate is used indicate the rate. Fringe benefits included in direct labor or in other indirect cost pools should not be identified here.
- (3) **Capitalized Non Expendable Equipment.** List each item costing \$50,000 or more and having a life expectancy of more than one year. List only those items of equipment for which reimbursement is requested. For each such item, list the following (as applicable): (a) the item number for the specific piece of equipment listed in the property schedule of the contract; or (b) the Contracting Officer's approval letter if the equipment is not covered by the property schedule.

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (Page 8 of 10) -
ATTACHMENT 1 (Cont.)

(4) **Non-capitalized Equipment, Materials, and Supplies.** These are equipment other than that described in (3) above, plus consumable materials, supplies. List by category. List items valued at \$500 or more separately. Provide the item number for each piece of equipment valued at \$500 or more.

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

(6) **Consultants.** The supporting information must include the name, hourly or daily rate of the consultant, and reference the NRC approval (if not specifically approved in the original contract).

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

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

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

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

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

(h) **Fixed Fee.** If the contract provides for a fixed fee, it must be claimed as provided for by the contract. Cite the formula or method of computation. The contractor may bill for fixed fee only up to 85% of total fee.

(i) **Total Amount Billed.** Insert the total amounts claimed for the current and cumulative periods.

**BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (Page 9 of 10) -
ATTACHMENT 1 (Cont.)**

(j) **Adjustments.** For cumulative amount, include outstanding suspensions.

(k) **Grand Totals.**

Further itemization of vouchers/invoices shall only be required for items having specific limitations set forth in the contract.

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (Page 10 of 10) -
ATTACHMENT 2 (Cont.)

FEE RECOVERY BILLING REPORT

FIN: _____

Facility Name or Report Title:

TAC or Inspection Report Number:

(or other unique identifier)

Docket Number (if applicable): _____

Cost Categories	Period Amt.	Period Cost Incurred	Fiscal Year To Date Costs	Total Cumulative Costs
Labor				
Materials				
Subcontractor/ Consultant				
Travel				
Other (specify)				
Common Costs				
Total				

Remarks:

R:\BILLING.396

NUCLEAR REGULATORY COMMISSION ACQUISITION REGULATION

2009.570 NRC organizational conflicts of interest.

§2009.570-1 Scope of policy.

(a) It is the policy of NRC to avoid, eliminate, or neutralize contractor organizational conflicts of interest. The NRC achieves this objective by requiring all prospective contractors to submit information describing relationships, if any, with organizations or persons (including those regulated by the NRC) which may give rise to actual or potential conflicts of interest in the event of contract award.

(b) Contractor conflict of interest determinations cannot be made automatically or routinely. The application of sound judgment on virtually a case-by-case basis is necessary if the policy is to be applied to satisfy the overall public interest. It is not possible to prescribe in advance a specific method or set of criteria which would serve to identify and resolve all of the contractor conflict of interest situations which might arise. However, examples are provided in these regulations to guide application of this policy guidance. The ultimate test is as follows: Might the contractor, if awarded the contract, be placed in a position where its judgment may be biased, or where it may have an unfair competitive advantage?

(c) The conflict of interest rule contained in this subpart applies to contractors and offerors only. Individuals or firms who have other relationships with the NRC (e.g., parties to a licensing proceeding) are not covered by this regulation. This rule does not apply to the acquisition of consulting services through the personnel appointment process, NRC agreements with other Government agencies, international organizations, or state, local, or foreign Governments. Separate procedures for avoiding conflicts of interest will be employed in these agreements, as appropriate.

§2009.570-2 Definitions.

As used in §2009.570:

Affiliates means business concerns which are affiliates of each other when either directly or indirectly one concern or individual controls or has the power to control another, or when a third party controls or has the power to control both.

Contract means any contractual agreement or other arrangement with the NRC except as provided in §2009.570-1(c).

Contractor means any person, firm, unincorporated association, joint venture, co-sponsor, partnership, corporation, affiliates thereof, or their successors in interest, including their chief executives, directors, key personnel (identified in the contract), proposed consultants or subcontractors, which are a party to a contract with the NRC.

Evaluation activities means any effort involving the appraisal of a technology, process, product, or policy.

Offeror or prospective contractor means any person, firm, unincorporated association, joint venture, co-sponsor, partnership, corporation, or their affiliates or successors in interest, including their chief executives, directors, key personnel, proposed consultants, or subcontractors, submitting a bid or proposal, solicited or unsolicited, to the NRC to obtain a contract.

Organizational conflicts of interest means that a relationship exists whereby a contractor or prospective contractor has present or planned interests related to the work to be performed under an NRC contract which:

(1) May diminish its capacity to give impartial, technically sound, objective assistance and advice, or may otherwise result in a biased work product; or

(2) May result in its being given an unfair competitive advantage.

Potential conflict of interest means that a factual situation exists that suggests that an actual conflict of interest may arise from award of a proposed contract. The term potential conflict of interest is used to signify those situations that—

(1) Merit investigation before contract award to ascertain whether award would give rise to an actual conflict; or

(2) Must be reported to the contracting officer for investigation if they arise during contract performance.

Research means any scientific or technical work involving theoretical analysis, exploration, or experimentation.

Subcontractor means any subcontractor of any tier who performs work under a contract with the NRC except subcontracts for supplies and subcontracts in amounts not exceeding the small purchase threshold.

Technical consulting and management support services means internal assistance to a component of the NRC in the formulation or administration of its programs, projects, or policies which normally require that the contractor be given access to proprietary information or to information that has not been made available to the public. These services typically include assistance in the preparation of program plans, preliminary designs, specifications, or statements of work.

§2009.570-3 Criteria for recognizing contractor organizational conflicts of interest.

(a) General.

(1) Two questions will be asked in determining whether actual or potential organizational conflicts of interest exist:

(i) Are there conflicting roles which might bias an offeror's or contractor's judgment in relation to its work for the NRC?

(ii) May the offeror or contractor be given an unfair competitive advantage based on the performance of the contract?

(2) NRC's ultimate determination that organizational conflicts of interest exist will be made in light of common sense and good business judgment based upon the relevant facts. While it is difficult to identify and to prescribe in advance a specific method for avoiding all of the various situations or relationships that might involve potential organizational conflicts of interest, NRC personnel will pay particular attention to proposed contractual requirements that call for the rendering of advice, consultation or evaluation activities, or similar activities that directly lay the groundwork for the NRC's decisions on regulatory activities, future procurements, and research programs. Any work performed at an applicant or licensee site will also be closely scrutinized by the NRC staff.

(b) Situations or relationships. The following situations or relationships may give rise to organizational conflicts of interest:

(1) The offeror or contractor shall disclose information, that may give rise to organizational conflicts of interest under the following circumstances. The information may include the scope of work or specification for the requirement, being performed, the period of performance, and the name and telephone number for a point of contact at the organization knowledgeable about the commercial contract.

(i) Where the offeror or contractor provides advice and recommendations to the NRC in the same technical area where it is also providing consulting assistance to any organization regulated by the NRC.

(ii) Where the offeror or contractor provides advice to the NRC on the same or similar matter on which it is also providing assistance to any organization regulated by the NRC.

(iii) Where the offeror or contractor evaluates its own products or services, or has been substantially involved in the development or marketing of the products or services of another entity.

(iv) Where the award of a contract would result in placing the offeror or contractor in a conflicting role in which its judgment may be biased in relation to its work for the NRC, or would result in an unfair competitive advantage for the offeror or contractor.

(v) Where the offeror or contractor solicits or performs work at an applicant or licensee site while performing work in the same technical area for the NRC at the same site.

(2) The contracting officer may request specific information from an offeror or contractor or may require special contract clauses such as provided in §2009.570-5(b) in the following circumstances:

(i) Where the offeror or contractor prepares specifications that are to be used in competitive procurements of products or services covered by the specifications.

(ii) Where the offeror or contractor prepares plans for specific approaches or methodologies that are to be incorporated into competitive procurements using the approaches or methodologies.

(iii) Where the offeror or contractor is granted access to information not available to the public concerning NRC plans, policies, or programs that could form the basis for a later procurement action.

(iv) Where the offeror or contractor is granted access to proprietary information of its competitors.

(v) Where the award of a contract might result in placing the offeror or contractor in a conflicting role in which its judgment may be biased in relation to its work for the NRC or might result in an unfair competitive advantage for the offeror or contractor.

(c) Policy application guidance. The following examples are illustrative only and are not intended to identify and resolve all contractor organizational conflict of interest situations.

(1) (i) Example. The ABC Corp., in response to a Request For Proposal (RFP), proposes to undertake certain analyses of a reactor component as called for in the RFP. The ABC Corp. is one of several companies considered to be technically well qualified. In response to the inquiry in the RFP, the ABC Corp. advises that it is currently performing similar analyses for the reactor manufacturer.

(ii) Guidance. An NRC contract for that particular work normally would not be awarded to the ABC Corp. because the company would be placed in a position in which its judgment could be biased in relationship to its work for the NRC. Because there are other well-qualified companies available, there would be no reason for considering a waiver of the policy.

(2) (i) Example. The ABC Corp., in response to an RFP, proposes to perform certain analyses of a reactor component that is unique to one type of advanced reactor. As is the case with other technically qualified companies responding to the RFP, the ABC Corp. is performing various projects for several different utility clients. None of the ABC Corp. projects have any relationship to the work called for in the RFP. Based on the NRC evaluation, the ABC Corp. is considered to be the best qualified company to perform the work outlined in the RFP.

(ii) Guidance. An NRC contract normally could be awarded to the ABC Corp. because no conflict of interest exists which

could motivate bias with respect to the work. An appropriate clause would be included in the contract to preclude the ABC Corp. from subsequently contracting for work with the private sector that could create a conflict during the performance of the NRC contract. For example, ABC Corp. would be precluded from the performance of similar work for the company developing the advanced reactor mentioned in the example.

(3) (i) Example. The ABC Corp., in response to a competitive RFP, submits a proposal to assist the NRC in revising NRC's guidance documents on the respiratory protection requirements of 10 CFR Part 20. ABC Corp. is the only firm determined to be technically acceptable. ABC Corp. has performed substantial work for regulated utilities in the past and is expected to continue similar efforts in the future. The work has and will cover the writing, implementation, and administration of compliance respiratory protection programs for nuclear power plants.

(ii) Guidance. This situation would place the firm in a role where its judgment could be biased in relationship to its work for the NRC. Because the nature of the required work is vitally important in terms of the NRC's responsibilities and no reasonable alternative exists, a waiver of the policy, in accordance with §2009.570-9 may be warranted. Any waiver must be fully documented in accordance with the waiver provisions of this policy with particular attention to the establishment of protective mechanisms to guard against bias.

(4) (i) Example. The ABC Corp. submits a proposal for a new system to evaluate a specific reactor component's performance for the purpose of developing standards that are important to the NRC program. The ABC Corp. has advised the NRC that it intends to sell the new system to industry once its practicability has been demonstrated. Other companies in this business are using older systems for evaluation of the specific reactor component.

(ii) Guidance. A contract could be awarded to the ABC Corp. if the contract stipulates that no information produced under the contract will be used in the contractor's private activities unless this information has been reported to the NRC. Data on how the reactor component performs, which is reported to the NRC by contractors, will normally be disseminated by the NRC to others to preclude an unfair competitive advantage. When the NRC furnishes information about the reactor component to the contractor for the performance of contracted work, the information may not be used in the contractor's private activities unless the information is generally available to others. Further, the contract will stipulate that the contractor will inform the NRC contracting officer of all situations in which the information, developed about the performance of the reactor component under the contract, is proposed to be used.

(5) (i) Example. The ABC Corp., in response to a RFP, proposes to assemble a map showing certain seismological features

of the Appalachian fold belt. In accordance with the representation in the RFP and §2009.570-3(b)(1)(i), ABC Corp. informs the NRC that it is presently doing seismological studies for several utilities in the eastern United States, but none of the sites are within the geographic area contemplated by the NRC study.

(ii) Guidance. The contracting officer would normally conclude that award of a contract would not place ABC Corp. in a conflicting role where its judgment might be biased. Section 2052.209-73(c) Work for Others, would preclude ABC Corp. from accepting work which could create a conflict of interest during the term of the NRC contract.

(6) (i) Example. AD Division of ABC Corp., in response to a RFP, submits a proposal to assist the NRC in the safety and environmental review of applications for licenses for the construction, operation, and decommissioning of fuel cycle facilities. ABC Corp. is divided into two separate and distinct divisions, AD and BC. The BC Division performs the same or similar services for industry. The BC Division is currently providing the same or similar services required under the NRC's contract for an applicant or licensee.

(ii) Guidance. An NRC contract for that particular work would not be awarded to the ABC Corp. The AD Division could be placed in a position to pass judgment on work performed by the BC Division, which could bias its work for NRC. Further, the Conflict of Interest provisions apply to ABC Corp. and not to separate or distinct divisions within the company. If no reasonable alternative exists, a waiver of the policy could be sought in accordance with §2009.570-9.

7(i) EXAMPLE The ABC Corp. completes an analysis for NRC of steam generator tube leaks at one of a utility's six sites. Three months later, ABC Corp. is asked by this utility to perform the same analysis at another of its sites.

(ii) GUIDANCE §2052.290-73(c)(3) would prohibit the contractor from beginning this work for the utility until one year after completion of the NRC work at the first site.

8(i) EXAMPLE ABC Corp. is assisting NRC in a major on-site analysis of a utility's redesign of the common areas between its twin reactors. The contract is for two years with an estimated value of \$5 million. Near the completion of the NRC work, ABC Corp. requests authority to solicit for a \$100K contract with the same utility to transport spent fuel to a disposal site. ABC Corp. is performing no other work for the utility.

(ii) GUIDANCE The Contracting Officer, would allow the contractor to proceed with the solicitation because A) it is not in the same technical area as the NRC work and B) the potential for technical bias by the contractor because of financial ties to

the utility is slight due to the relative value of the two contracts.

9(i) EXAMPLE The ABC Corp. is constructing a turbine building and installing new turbines at a reactor site. The contract with the utility is for five years and has a total value of \$100 million. ABC Corp. has responded to an NRC Request For Proposal requiring the contractor to participate in a major team inspection unrelated to the turbine work at the same site. The estimated value of the contract is \$75K.

(ii) GUIDANCE An NRC contract would not normally be awarded to ABC Corp. since these factors create the potential for financial loyalty to the utility that may bias the technical judgment of the contractor.

(d) Other considerations.

(1) The fact that the NRC can identify and later avoid, eliminate, or neutralize any potential organizational conflicts arising from the performance of a contract is not relevant to a determination of the existence of conflicts prior to the award of a contract.

(2) It is not relevant that the contractor has the professional reputation of being able to resist temptations which arise from organizational conflicts of interest, or that a follow-on procurement is not involved, or that a contract is awarded on a competitive or a sole source basis.

§2009.570-4 Representation.

(a) The following procedures are designed to assist the NRC contracting officer in determining whether situations or relationships exist which may constitute organizational conflicts of interest with respect to a particular offeror or contractor. The procedures apply to small purchases meeting the criteria stated in the following paragraph (b) of this section.

(b) The organizational conflicts of interest representation provision at §2052.209-72 must be included in solicitations and unsolicited proposals, (including those for task orders and modifications for new work) for:

- (1) Evaluation services or activities;
- (2) Technical consulting and management support services;
- (3) Research; and

(4) Other contractual situations where special organizational conflicts of interest provisions are noted in the solicitation and would be included in the resulting contract. This representation requirement also applies to all modifications for additional effort under the contract except those issued under the "Changes" clause. Where, however, a statement of the type required by the organizational conflicts of interest representation provisions has previously been submitted with regard to the contract being modified, only an updating of the statement is required.

(c) The offeror may, because of actual or potential organizational conflicts of interest, propose to exclude specific kinds of work contained in a RFP unless the RFP specifically prohibits the exclusion. Any such proposed exclusion by an offeror will be considered by the NRC in the evaluation of proposals. If the NRC considers the proposed excluded work to be an essential or integral part of the required work and its exclusion would be to the detriment of the competitive posture of the other offerors, the NRC shall reject the proposal as unacceptable.

(d) The offeror's failure to execute the representation required by paragraph (b) of this section with respect to an invitation for bids is considered to be a minor informality. The offeror will be permitted to correct the omission.

§2009.570-5 Contract clauses.

(a) General contract clause. All contracts and small purchases of the types set forth in §2009.570-4(b) must include the clause entitled, "Contractor Organizational Conflicts of Interest," set forth in §2052.209-73.

(b) Other special contract clauses. If it is determined from the nature of the proposed contract that an organizational conflict of interest exists, the contracting officer may determine that the conflict can be avoided, or, after obtaining a waiver in accordance with §2009.570-9, neutralized through the use of an appropriate special contract clause. If appropriate, the offeror may negotiate the terms and conditions of these clauses, including the extent and time period of any restriction. These clauses include but are not limited to:

(1) Hardware exclusion clauses which prohibit the acceptance of production contracts following a related non-production contract previously performed by the contractor;

(2) Software exclusion clauses;

(3) Clauses which require the contractor (and certain of its key personnel) to avoid certain organizational conflicts of interest; and

(4) Clauses which provide for protection of confidential data and guard against its unauthorized use.

§2009.570-6 Evaluation, findings, and contract award.

The contracting officer shall evaluate all relevant facts submitted by an offeror and other relevant information. After evaluating this information against the criteria of §2009.570-3, the contracting officer shall make a finding of whether organizational conflicts of interest exist with respect to a particular offeror. If it has been determined that real or potential conflicts of interest exist, the contracting officer shall:

(a) Disqualify the offeror from award;

(b) Avoid or eliminate such conflicts by appropriate measures; or

(c) Award the contract under the waiver provision of §2009.570-9.

§2009.570-7 Conflicts identified after award.

If potential organizational conflicts of interest are identified after award with respect to a particular contractor, and the contracting officer determines that conflicts do exist and that it would not be in the best interest of the Government to terminate the contract, as provided in the clauses required by §2009.570-5, the contracting officer shall take every reasonable action to avoid, eliminate, or, after obtaining a waiver in accordance with §2009.570-9, neutralize the effects of the identified conflict.

§2009.570-8 Subcontracts.

The contracting officer shall require offerors and contractors to submit a representation statement from all subcontractors (other than a supply subcontractor) and consultants performing services in excess of \$10,000 in accordance with §2009.570-4(b). The contracting officer shall require the contractor to include contract clauses in accordance with §2009.570-5 in consultant agreements or subcontracts involving performance of work under a prime contract.

§2009.570-9 Waiver.

(a) The contracting officer determines the need to seek a waiver for specific contract awards, with the advice and concurrence of the program office director and legal counsel. Upon the recommendation of the Procurement Executive, and after consultation with legal counsel, the Executive Director for Operations may waive the policy in specific cases if he determines that it is in the best interest of the United States to do so.

(b) Waiver action is strictly limited to those situations in which:

(1) The work to be performed under contract is vital to the NRC program.

(2) The work cannot be satisfactorily performed except by a contractor whose interests give rise to a question of conflict of interest.

(3) Contractual and/or technical review and surveillance methods can be employed by the NRC to neutralize the conflict.

(c) For any waivers, the justification and approval documents must be placed in the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

§2009.570-10 Remedies.

In addition to other remedies permitted by law or contract for a breach of the restrictions in this subpart or for any intentional misrepresentation or intentional nondisclosure of any relevant interest required to be provided for this section, the NRC may debar the contractor from subsequent NRC contracts.

U.S. NUCLEAR REGULATORY COMMISSION**DIRECTIVE TRANSMITTAL**

TN: DT-95-12

To: NRC Management Directives Custodians

Subject: Transmittal of Directive 3.8, "Unclassified Contractor and Grantee Publications in the NUREG Series"

Purpose: Directive and Handbook 3.8 are being revised in their entirety to update information, to include editorial changes, and to add information about references. Specifically, the directive and handbook are being revised to specify that NRC must obtain prior approval from the Institute of Nuclear Power Operations (INPO) before referencing INPO documents and to explain how to reference proprietary reports.

Office and Division of Origin: Administration, Freedom of Information and Publications Services

Contact: Juanita Beeson, 415-7166

Date Approved: June 17, 1991 (Revised: July 9, 1995)

Volume: 3 Information Management

Part: 1 Publications, Mail, and Information Disclosure

Directive: 3.8 Unclassified Contractor and Grantee Publications in the NUREG Series

Availability: U.S. Government Printing Office, (202) 512-2409

Unclassified Contractor and Grantee Publications in the NUREG Series

***Directive
3.8***

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U. S. Nuclear Regulatory Commission

Volume: 3 Information Management

Part: 1 Publications, Mail, and Information
Disclosure

ADM

Unclassified Contractor and Grantee Publications in the NUREG Series Directive 3.8

Policy (3.8-01)

U.S. Nuclear Regulatory Commission policy requires that the following publications published by NRC adhere to the documentation and production requirements, standards, and practices specified in this directive and handbook: (1) unclassified NRC contractor, consultant, or grantee formal reports, books, and international agreement reports in the NUREG/CR (contractor reports), NUREG/GR (grant reports), and NUREG/IA (international agreement reports) series; (2) reports and books by contractors of the U.S. Department of Energy (DOE); and (3) publications prepared for NRC under memoranda of understanding and interagency agreements.

Objectives (3.8-02)

- To ensure the production and dissemination of information and publications as required by the Energy Reorganization Act of 1974 and the Freedom of Information Act. (a)
- To ensure technical staff and management reviews of formal reports and books before publication. (b)
- To ensure that national security, patent rights, copyrights, proprietary rights, and rights in other sensitive unclassified information, including those specified in interagency and international agreements and memoranda of understanding, are not compromised by the release or publication of information by NRC. (c)

Objectives

(3.8-02) (continued)

- To ensure that all unclassified NRC contractor or grantee publications in the NUREG series carry the registered Government identification NUREG/CR-0000, NUREG/GR-0000, or NUREG/IA-0000, with the exception of some publications prepared by grantees, and indicate the availability of source material used in these publications. (d)
- To ensure that NRC-sponsored book manuscripts receive proper peer review from experts within and outside NRC. (e)
- To provide uniform procedures for publishing formal reports and books prepared by NRC contractors or grantees. (f)

Organizational Responsibilities and Delegations of Authority

(3.8-03)

Executive Director for Operations (EDO)

(031)

Delegates to the Deputy Executive Directors for Operation decisionmaking authority for the resolution of differences between NRC and contractors about the contents of publications, about granting contractors permission to publish NRC-sponsored information in the open literature, and about permitting contractors to issue press or other media releases concerning NRC-sponsored information.

Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations and Research (DEDR)

(032)

As delegated from the EDO, makes final decisions in the following areas for the Office of Nuclear Reactor Regulation, the Office of Nuclear Regulatory Research, and regional offices:

- When an office director refuses to publish an NRC-sponsored document because of irreconcilable differences between himself or herself and the author about the contents of the document. (a)

**Deputy Executive Director for Nuclear
Reactor Regulation, Regional Operations
and Research (DEDR)**

(032) (continued)

- When an office director refuses to permit a contractor's principal investigator to publish NRC-sponsored information in the open literature. (b)
- When an office director refuses to permit a contractor to issue a press or other media release about an NRC-sponsored publication. (c)

**Deputy Executive Director for
Nuclear Materials Safety, Safeguards,
and Operations Support (DEDS)**

(033)

As delegated from the EDO, makes final decisions in the following areas for the offices reporting to the DEDS:

- When an office director refuses to publish an NRC-sponsored document because of irreconcilable differences between himself or herself and the author about the contents of the document. (a)
- When an office director refuses to permit a contractor's principal investigator to publish NRC-sponsored information in the open literature. (b)
- When an office director refuses to permit a contractor to issue a press or other media release about an NRC-sponsored publication. (c)

Office Directors

(034)

- Ensure that publications will be reviewed in draft for acceptability before final printing and distribution by determining that they are consistent with agency policy, management decisions, and that they raise no significant legal issues. (a)
- Ensure that statements of work on contracts* include a requirement that contractors comply with this directive and handbook and with Government Printing and Binding Regulations. (b)

*"Contract" in this context encompasses the "Standard Order for DOE Work" (NRC Form 173), interagency and international agreements, and grants.

**Volume 3, Part 1 – Publications, Mail, and Information Disclosure
Unclassified Contractor and Grantee Publications in the NUREG Series
Directive 3.8**

Office Directors
(034) (continued)

- Sign, or delegate signature authority for, the NRC Form 426A, "Release to Publish Unclassified NRC Contractor, Consultant, or Conference Proceedings Reports" (Exhibit 1 of Handbook 3.8), and for memoranda requesting reprints of contractor publications. (c)

Director, Office of Administration (ADM)
(035)

As delegated from the DEDS, administers NRC's programs and policies for publishing unclassified contractor and grantee reports and books in the NUREG series.

**Director, Division of Freedom of
Information and Publications
Services, (DFIPS), ADM**
(036)

- Develops and administers, as delegated from the Director, ADM, NRC's program and policies for publishing unclassified contractor, consultant, and grantee formal reports, books, and international agreement reports in the NUREG/CR, NUREG/GR, and NUREG/IA series. (a)
- Applies the policy, procedures, standards, and guides for the documentation, formatting, composition, printing, and dissemination of NRC-sponsored publications in the NUREG series consistent with the mission of the agency and in accordance with the requirements of the Government Printing and Binding Regulations issued by the Joint Committee on Printing, U.S. Congress. (b)
- Develops and administers the central agency publication numbering system for identifying, producing, and retrieving unclassified NRC-sponsored publications in the NUREG series. (c)

Director, Division of Contracts (DC), ADM
(037)

Ensures that those requests for proposals, invitations for bids, and grant proposals, and the ensuing contracts and grants that require

Director, Division of Contracts (DC), ADM
(037) (continued)

publications as deliverables include provisions requiring that contractors comply with this directive and handbook and with Government Printing and Binding Regulations.

Applicability
(3.8-04)

Employees
(041)

All NRC employees shall follow the policy and guidance specified in this directive and handbook.

Other Publications
(042)

The provisions of this directive and handbook do not apply to NRC staff publications in the NUREG series, NRC docket material, or documents created by NRC boards, panels, advisory committees, or offices that report to the Commission.

Handbook
(3.8-05)

Handbook 3.8 gives detailed guidelines for preparing unclassified contractor and grantee publications in the NUREG series.

References
(3.8-06)

A Manual of Style, University of Chicago Press.

Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.).

"Copyrights," Title 17, *United States Code*.

"Cost Principles for State and Local Governments," OMB Circular A-87, Office of Management and Budget, January 1981.

Energy Reorganization Act of 1974, as amended (42 U.S.C. 5801 et seq.).

References

(3.8-06) (continued)

“Federal Grant and Cooperative Agreement Act,” Pub. L. 95-224, February 3, 1978.

“Federal Regulation Requirements,” Executive Order 12291, February 17, 1981 (5 U.S.C. 5601 Note).

Freedom of Information Act (5 U.S.C. 552).

Government Printing and Binding Regulations, Pub. L. 101-9, February 1990.

“Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations,” OMB Circular A-110, Office of Management and Budget, July 1976.

Memorandum of Understanding Between the Department of Energy and the U.S. Nuclear Regulatory Commission, February 24, 1978.

Memorandum of Agreement Between the Institute of Nuclear Power Operations and the U.S. Nuclear Regulatory Commission, dated September 17, 1993.

NRC Management Directive 3.9, “NRC Staff and Contractor Speeches, Papers, and Journal Articles on Regulatory and Technical Subjects.”

— 3.11, “Conferences and Conference Proceedings.”

— 12.2, “NRC Classified Information Security Program.”

— 12.6, “NRC Sensitive Unclassified Information Security Program.”

NUREG-0650, Revision 1, “Publishing Documents in the NUREG Series,” November 1990.

NUREG/BR-0075, Revision 2, “NRC Field Policy Manual,” Field Policy Manual No. 9, dated March 22, 1993.

“Public Printing and Documents,” Title 44, Chapter 3, Government Printing Office, *United States Code*.

U.S. Government Printing Office Style Manual, 1984.

Unclassified Contractor and Grantee Publications in the NUREG Series

**Handbook
3.8**

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2. NRC Form 335, "Bibliographic Data Sheet" 33
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Part I

Introduction

This handbook specifies the procedures that the Nuclear Regulatory Commission (NRC) contractors and grantees need to follow when preparing the following publications for the NRC: (A)

- Final NUREG reports (1)
- International agreement reports (2)
- Books (3)
- Grant publications (4)

The handbook is divided into six major parts and includes a glossary and exhibits. Part II provides general information for staff consideration in preparing **statements of work**. Parts III, IV, V, and VI provide publishing guidelines specific to, respectively, **contractor reports, international agreement reports, books, and grantee publications**. (B)

Contractor means a private contractor, consultant, expert, another State or Federal agency working under an interagency agreement, or a Department of Energy (DOE) facility or subcontractor, such as a national laboratory, working under the DOE/NRC Memorandum of Understanding of February 24, 1978, and any subcontractors of these organizations. (C)

This directive and handbook, as well as a copy of "Publishing Documents in the NUREG Series" (NUREG-0650, Revision 1), must be included or referenced in all contracts, interagency and international agreements, and grants for which the publications previously listed are contract deliverables or grant obligations. In addition to the guidelines specific to each type of publication that appear in subsequent parts of this handbook, all statements of work must contain the applicable guidelines outlined in Part II. (D)

Part II

Preparing Publication Requirements for Statements of Work for Contracts

Specifying Publication Requirements (A)

List and describe the type of technical reports required from each project, task, or subtask, as applicable. State when, how many, and to whom the reports should be submitted and the scope of information they should contain. These reports may be unclassified, sensitive unclassified, or classified. For guidelines and requirements covering sensitive unclassified and classified publications, refer to Management Directive (MD) 12.2, "NRC Classified Information Security Program," and MD 12.6, "NRC Sensitive Unclassified Information Security Program." (1)

This directive and handbook pertain to publications that will be issued in the NUREG/CR, NUREG/IA, and NUREG/GR series. (2)

Publishing Formal Reports (B)

NUREG series reports will be printed and distributed by NRC from camera-ready copy submitted by the contractor to the Publications Branch, Mailstop T-6 E7, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. The camera-ready copy is to be prepared in accordance with the provisions of this handbook. Recommended guidelines for the organization and format of formal reports are specified in "Publishing Documents in the NUREG Series" (NUREG-0650, Revision 1). (1)

When the report contains sensitive unclassified or classified information, the contractor must comply with MD 12.2. (2)

Publishing Formal Reports (B) (continued)

If a draft is desired before completing a final report, specify in the statement of work (SOW) the due date for delivering the final camera-ready copy after receiving comments from NRC staff or participants (if applicable) on the draft. State that all draft material be submitted to the cognizant NRC contact. (3)

When the contractor is to submit draft material for comment before preparing the final report, state that the contractor will be asked to make changes if there are comments from NRC staff or participants. If agreement on the changes is reached, the NRC contact will authorize the contractor to prepare the final copy and submit it to the NRC contact if it is a letter report or input to a Safety Evaluation Report or an Environmental Statement, or to the Director, Division of Freedom of Information and Publications Services (DFIPS) if it is a camera-ready copy for printing and distribution. This procedure will ensure proper publication, handling, distribution and, among other things, preclude further changes that might nullify the agreement. (4)

If **special caveats** were agreed to between the contractor and the NRC contact, the caveats should accompany the NRC Form 426A (Exhibit 1) for approval when it is sent to the NRC contact. A copy of special caveats should also accompany the camera-ready copy sent to DFIPS. (5)

If **agreement on changes** to a formal technical report to be issued in the NUREG/CR series is not reached, the NRC contact may request the contractor to prepare the camera-ready copy with, in addition to the standard disclaimer required on all contractor formal reports (see Section (F), Part III of this handbook), any caveats deemed necessary to cover NRC objections. These caveats may range from "The views expressed in this report are not necessarily those of the U.S. Nuclear Regulatory Commission" to the addition of a preface setting forth the NRC opinion or footnotes at appropriate locations within the text. (6)

If **NRC objections** cannot be covered in this manner, NRC can refuse to publish the report. In the case of DOE/national laboratory reports, the DOE Operations Office Manager responsible for the laboratory should be informed by the NRC office director or regional administrator of the decision and the reasons therefor. A copy of the decision should be sent to the laboratory director. In the case of another Federal agency, a State, or a private contractor, the person who entered into the contract should similarly be informed by the

Publishing Formal Reports (B) (continued)

NRC contracting officer. The contractor is then free to publish the report without identifying NRC as the funding sponsor of the report and without the NRC disclaimer. Decisions by the office director or designee may be appealed to the appropriate Deputy Executive Director for Operations. (7)

Publishing Unclassified Information in the Open Literature and Presenting Papers (C)

Specify whether the contractor's principal investigator is permitted to publish in the **open literature** instead of submitting a final report and/or to present papers at public or association meetings during the course of the work. If this arrangement is authorized, add the following statement to the SOW: (1)

The principal investigator may publish the results of this work in the open literature instead of submitting a final report or may present papers at public or association meetings at interim stages of the work.

If the NRC contact wants to review the paper or journal article before presentation or submission for publication, so state in the SOW, as follows: (2)

The principal investigator may publish the results of this work in the open literature instead of submitting a final report or may present papers at public or association meetings at interim stages of the work if the article or paper has been reviewed by the NRC contact in draft form and agreement has been reached on the content.

If agreement is not reached, NRC may also require that the paper include in addition to the standard statement "Work supported by the U.S. Nuclear Regulatory Commission," any caveats deemed necessary to cover NRC objections. If NRC objections cannot be covered in this manner, NRC may refuse to authorize publication in the open literature and/or presentation of papers. (3)

In the latter case, NRC will inform the contractor of the decision, as previously stated. The contractor is then free to publish without identifying NRC as the funding sponsor of the information. Decisions by office directors or designees may be appealed to the appropriate NRC Deputy Executive Director for Operations. (4)

Publishing Unclassified Information in the Open Literature and Presenting Papers (C) (continued)

If the contractor proposes to publish in the **open literature** or present the information at meetings *in addition* to submitting the required technical reports, approval of the proposed article or presentation should be obtained from NRC. NRC shall approve the material as submitted, approve it subject to NRC-suggested revisions, or disapprove it. In any event, NRC may disapprove or delay presentation of papers on information that is subject to the Commission's approval that has not been ruled upon or that has been disapproved. (5)

If the contractor requests permission to publish in the open literature even though the contract does not explicitly provide for this type of publication, the contract can be modified to provide for such presentations. (6)

When the contractor submits journal articles for publication, each must be accompanied by the following statement: (7)

The submitted manuscript has been authored by a contractor of the U.S. Government under Contract* No. _____. Accordingly, the U.S. Government has a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes.

All published papers and articles must include the following disclaimer: (8)

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use or the results of such use, of any information, apparatus, product, or process disclosed in this report, or represents that its use by such third party would not infringe privately owned rights. The views expressed in this paper are not necessarily those of the U.S. Nuclear Regulatory Commission.

*For DOE work orders, the appropriate job code number is applicable.

Publishing Unclassified Information in the Open Literature and Presenting Papers (C) (continued)

If the contractor is requested by the journal or other publisher to transfer the copyright, the contract author will respond to the journal or other publisher in writing in accord with the sample letter shown as follows: (9)

Dear (Copyright Holder's Name):

We recently received a document for signature assigning copyright and republication rights in the submitted article (title) to (name of publication). This letter is offered in lieu of the document as a means of completing the transfer of ownership. Accordingly, we hereby expressly transfer and assign our rights of ownership in the above-cited work to (name of publisher).

You are advised, however, that the above assignment and any publication or republication of the above-cited work is subject to the following Government rights:

The submitted manuscript has been authored by a contractor of the U.S. Government under Contract No. _____. Accordingly, the U.S. Government has a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes.

Sincerely,

If NRC approves open literature publication and page charges and travel costs are required for the presentation of papers, see MD 3.9, "NRC Staff and Contractor Speeches, Papers, and Journal Articles on Regulatory and Technical Subjects." (10)

Reports Containing Sensitive Unclassified and Classified Information (D)

Examples of the proper marking of reports designated Official Use Only, Limited Official Use, Proprietary Information, Safeguards Information, and classified (CONFIDENTIAL, SECRET, and TOP SECRET) are specified in MD 12.2.

Conference and Workshop Proceedings (E)

If NRC approves publication of compilations of papers presented at NRC-sponsored or cosponsored meetings, conferences, and symposia, see MD 3.11, "Conferences and Conference Proceedings."

Distribution of Reports to Contractors (F)

Up to 50 copies of printed unclassified NUREG/CR, NUREG/GR, and NUREG/IA reports will be bulk shipped to the contractor by NRC. (The Joint Committee on Printing's *Government Printing and Binding Regulations* permit contractors to receive free of charge up to 50 copies of reports they have produced for NRC.) If fewer than 50 copies are needed, indicate the desired quantity on NRC Form 426A (Exhibit 1). Contractors requesting single copies for specific individuals in organizations other than the contractor's organization who are not included in the distribution requested by the NRC contact may address such a request, with written justification, to the NRC contact. If the additional distribution is approved by the NRC contact, the contractor shall send address labels with the camera-ready copy to the Publications Branch, DFIPS, USNRC, Washington, DC 20555-0001, and that distribution will be made along with the standard distribution.

Coordinating Contractor Press or Other Media Releases of Information (G)

A contractor may request permission to issue a press or other media release on the work being done. That request must be made to the NRC office director or designee, who will consult with the staff of the Office of Public Affairs. The contractor must not issue a press release on nonroutine information without this prior approval. This approval may be obtained by a telephone call to the office director or designee to expedite the request. The contractor may appeal decisions not to authorize the release of information or delays in handling the request to the appropriate Deputy Executive Director for Operations.

Part III

Draft and Final NUREG Reports

Identification Information (A)

NUREG Number (1)

Each contractor report published by NRC must be identified by a unique alphanumeric designation controlled and maintained by the Division of Freedom of Information and Publications Services (DFIPS). To obtain an NRC report number, call the Publications Branch, DFIPS, at (301) 415-7008. (a)

The NRC identification numbers will have one of the following forms: (b)

- NUREG/CR-0000
- NUREG/GR-0000
- NUREG/IA-0000

CR indicates **contractor report**, GR indicates **grant report**, and IA indicates **international agreement report**. The contractor report number, if any, will be placed below the NUREG number on the title page and cover. (c)

When a report consists of more than one volume or binding, or is issued in more than one edition, an appropriate volume, number, supplement, part, addendum, or revision designation must appear immediately below the NRC report number and the contractor's report number, if any. (d)

Authors' Names (2)

Authors' names must appear on the report cover and title page, unless placing them there is impractical, as for an annual report having many contributors. Editors or compilers with subject-area expertise may also be identified as such on the cover and title page. The authors'

Identification Information (A) (continued)

Authors' Names (2) (continued)

affiliation need not be listed unless it differs from the organization creating the report.

Organizational Identification (3)

The Publications Branch, DFIPS, prepares the covers and title pages for all reports and will list information about the organization that created the report as it is provided.

Previous Reports in Series (4)

If the report being prepared is one in an ongoing series, list all previous reports in the series. Include report numbers and issuance dates. Place this list on the back of the title page. If this list cannot be placed on a single page, place the pages at the end of the front matter rather than on the back of the title page.

Report Dates (5)

The report dates are shown on the title page. These dates include the month and year the report is completed and the month and year it is published.

Report Organization and Components (B)

The organization and components of contractor reports vary, depending on their purpose and scope. Recommended format and organizational guidelines appear in "Publishing Documents in the NUREG Series" (NUREG-0650, Revision 1). (1)

Each draft and final report prepared for NRC must include an abstract of 200 words or less that appears on a separate page preceding the table of contents. The abstract also must appear on the "Bibliographic Data Sheet," NRC Form 335 (Exhibit 2). Instructions for completing NRC Form 335 appear on the back of the form. Guidelines on the special writing requirements for preparing abstracts appear in Section 5.5 of NUREG-0650, Revision 1. (2)

Pre-Publication Reviews (C)

Patent Review (1)

Patent implications must be considered before approval of reports for public release so that disclosure will not adversely affect the patent

Pre-Publication Reviews (C) (continued)

Patent Review (1) (continued)

rights of NRC or the contractor. If the work being reported is contractually managed through another Government agency (e.g., DOE national laboratories), the contractor should request that Government agency to perform the patent review. The result of the review must be reported on NRC Form 426A under item 8 (see Exhibit 1). (a)

If NRC directly administers the contract, or the contractor is unable to obtain a patent clearance from the Government agency administering the contract, the responsible NRC contracting officer must be consulted, and the responsible NRC technical contact shall consider the patent implications. If the report does not require a patent review because the report does not contain any description of novel technical developments that may be of an inventive nature, mark "N/A" on the NRC Form 426A in the space for the Patent Counsel's signature. If a possibility exists that developments of an inventive nature are disclosed, the contracting officer shall request assistance from the NRC Assistant General Counsel for Administration, Office of the General Counsel, on (301) 415-1553. (b)

Security Review (2)

If a report of sensitive unclassified or classified work is required, the NRC contact must work with the NRC Division of Security to establish the appropriate procedures and inform the contractor of these procedures through the contracting officer. The standards for marking and handling these reports are given in Management Directive (MD) 12.2, "NRC Classified Information Security Program."

Copyright Review (3)

Copyrighted material must not appear in NRC-sponsored publications without written permission from the copyright holder. See Section 3.4 of NUREG-0650, Revision 1, for information about obtaining copyright permission.

Color Printing (D)

Regulations issued by the Joint Committee on Printing (JCP) restrict the use of color in printed materials to those uses that are of demonstrable value. JCP regulations specify that "demonstrably valuable multicolor printing" includes the following categories: (1)

Color Printing (D) (continued)

- Maps and technical diagrams for which additional color is necessary for clarity. (a)
- Object identification (medical specimens, diseases, plants, flags, uniforms, etc.). (b)
- Safety programs, fire prevention, savings bonds programs, and competitive areas of personnel recruiting. (c)
- Areas wherein clearly identifiable savings in costs can be soundly predicated on multicolor use. (d)
- Printing for programs required by law, whose relative success or failure is in direct ratio to the degree of public response, and for which that response can be logically attributable to the number of colors planned and the manner in which they are proposed to be used. (e)
- Color for promotional or motivational purposes, such as programs concerning public health, safety, and consumer benefits, or to encourage utilization of Government facilities, such as programs for Social Security, Medicare, and certain areas of need for veterans. (f)

The regulations indicate that the following categories do not meet the "demonstrable value" criteria: (2)

- Printed items wherein additional color is used primarily for decorative effect. (a)
- Printed items for which additional color is used primarily in lieu of effective layout and design. (b)
- Printed items for which additional color is used excessively, that is, four colors when two or three will fulfill the need, three colors when two are adequate, two colors when one is adequate. (c)
- Printed items wherein the inclusion of multicolor does not reflect careful, competent advance planning that recognizes the contribution that the use of color is expected to make to the ultimate end-purpose. (d)

Color Printing (D) (continued)

If color printing is anticipated when the statement of work or standard order for DOE work is being prepared, contact the Publications Branch, DFIPS. Prior approval must be granted by the Director of DFIPS. If a requirement for color printing arises as the report is being prepared, submit a written justification for its use to the Director of DFIPS. (3)

Microfiche (E)

NRC contractors and DOE laboratories submitting microfiche with reports must submit a hard copy of each microfiche, include headers on each microfiche as shown in Exhibit 3, and conform to the following NRC specifications.*

- Microfiche must conform to either the 24/98 format for source documents with 14 columns and 7 rows (reduction ratio of 1 to 24) or the 48/270 format for computer output microfilm with 18 columns and 15 rows (reduction ratio of 1 to 48). (1)
- The microfiche sheet must be standard 105 mm by 148 mm. (2)
- The microfiche must be either a silver-halide master or a black or blue-black diazo placed in acid-free envelopes. (3)
- The microfiche must contain headers as shown in the sample in Exhibit 3. Specifically, the first block of the header must contain the NUREG number (include volume or revision, if applicable), the contractor identification number, and the classification (e.g., unclassified, proprietary). The second block must contain the description of the microfiche and may include the contractor's name. The third block must contain the publication date and the sheet identification. (4)
- The header information must be eye readable on a clear background. (5)
- A foldout page must be microfilmed in sections if the page is too large to be microfilmed in a double frame. No less than 25-mm overlap of original material is acceptable. (6)

*With the exception of items (3), (4), and (8), these specifications are consistent with the American National Standards Institute "Standard for Micrographics-Microfiche, ANSI/AIIM MS5-1985." Copies of this standard are available from the American National Standards Institute, ATTN: Sales Department, 11 West 42nd Street, 13th floor, New York, NY 10036 (212) 642-4900, or from the Association for Information and Image Management, ATTN: Publications Section, 1100 Wayne Avenue, Silver Spring, MD 20910 (301) 587-8202.

Microfiche (E) (continued)

- The first frame must be blank (on the first sheet only), and the second frame must contain the National Institute of Standards and Technology's (NIST's) Reference Material resolution target in Microcopy Test Charts (NBS SRM 1010A). (7)
- Jacketed microfiche is unacceptable. (8)

Disclaimers (F)

The following notice will be added by the Publications Branch, DFIPS, before the printing process on the inside front cover: (1)

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use, or the results of such use, of any information, apparatus, product, or process disclosed in this report, or represents that its use by such third party would not infringe privately owned rights.

The branch will print the additional statement, "The views expressed in this report are not necessarily those of the U.S. Nuclear Regulatory Commission," below the standard disclaimer, if appropriate. Other qualifying statements may be added, if needed. (2)

Availability Information (G)

Reference Material (1)

Reports or other documents referenced in text, reference sections, bibliographies, and appendixes of unclassified regulatory and technical reports in the NUREG series must be available to the public either in the public domain (as in a public library, at the Government Printing Office (GPO), at the National Technical Information Service (NTIS), or at other reference or sales outlets) or in the NRC Public Document Room (PDR). This means that references should not be made to personal communications and interviews, unpublished information and information with restricted distribution (e.g., proprietary, National Security, and Official Use Only). If the un retrievable information is important and unrestricted, quote it in

Availability Information (G) (continued)

Reference Material (1) (continued)

the text or in footnotes. Provide any credit due to individuals in the text or in an acknowledgment section. Availability may be stated collectively for all entries. (a)

Although proprietary reports may not be included in a list of references, listing or identification of proprietary reports may be included in an appendix or in a separate listing following the reference section titled "Proprietary Sources of Information." (b)

In addition, reference to Institute of Nuclear Power Operations (INPO) documents may **not** be made without prior approval from INPO. Approval to reference INPO documents must be stated on the NRC Form 426A. (c)

Guidelines for developing and presenting reference material are provided in NUREG-0650, Revision 1. (d)

Reports (2)

Most final reports are sold by GPO and NTIS. A statement indicating this availability is added to each report, as appropriate, by the Publications Branch staff before the report is printed. (a)

Draft reports for which comments are requested are typically announced in the *Federal Register* as being available from the NRC. These reports are not sold at GPO or at NTIS. (b)

Forms (H)

Bibliographic Data Sheet (NRC Form 335) (1)

All published NRC reports must include an NRC Form 335 as the final right-hand page of the manuscript. Instructions for completing the NRC Form 335 appear on the back of the form. A completed NRC Form 335 must be submitted to the Technical Publications Section, DFIPS, with the camera-ready copy of the report. Exhibit 2 shows a completed NRC Form 335.

Release To Publish Unclassified NRC Contractor, Consultant, or Conference Proceedings Reports (NRC Form 426A) (2)

The NRC contact must submit a completed NRC Form 426A (see Exhibit 1) with the camera-ready copy of the report to the Technical Publications Section, DFIPS. NRC Form 426A must be signed by the staff member designated by the appropriate office director.

Printing and Reprinting (I)

The Publications Branch, DFIPS, will review the camera-ready report submitted for printing for its adherence to the standards and requirements set forth in this directive and handbook, as well as any relevant guidelines from NUREG-0650, Revision 1. Unsatisfactory manuscripts will be returned to the NRC contractor for appropriate action. (1)

Submit a memorandum requesting a **reprint** to the Director, DFIPS, or designee, for approval. Include with the request a written justification and the approval of the office director or designee for reprinting. Also provide address labels for recipients not on NRC standard distribution lists. (2)

Distribution (J)

The Publications Branch, DFIPS, will arrange distribution for all copies of unclassified formal contractor reports in accordance with instructions on NRC Form 426A (Exhibit 1). The Publications Branch will also arrange automatic distribution of these reports to NRC NUDOCs, the NRC PDR, NTIS, GPO, and the GPO Federal Depository Library Program. (1)

Sensitive unclassified and classified reports will be distributed by the NRC sponsoring office on a case-by-case basis. (2)

Part IV

International Agreement Reports

Background and Rationale (A)

NRC has cooperative nuclear safety research programs that involve either or both foreign governments and organizations and U.S. industry. These programs include monetary contributions, information exchange, and comments on program plans and results as authorized in the Energy Reorganization Act of 1974. To this end, international and U.S. industry agreements have been signed that provide for transmitting unclassified technical information from foreign participants to NRC. These procedures apply only to NRC-managed work. (1)

The interests of all NRC international nuclear safety research program participants are served best by formal dissemination of information on these programs or codes developed for or in cooperation with NRC. (2)

Identification Information (B)

Cover and Title Page (1)

The cover and title page will contain a title, a subtitle (if appropriate), the names of the authors, the performing organization, and the NRC office sponsoring the project. The cover and title page will be prepared by the Publications Branch, Division of Freedom of Information and Publications Services (DFIPS).

NRC Report Number (2)

Each report must be identified by an NRC-controlled alphanumeric number as the prime number unique to that report. The centralized document control system for unique identification is maintained by DFIPS. Numbers may be obtained by calling the Publications Branch at (301) 415-7008. (a)

Identification Information (B) (continued)

NRC Report Number (2) (continued)

The NRC identification number will have the form "NUREG/IA-000," where IA indicates "international agreement." The foreign participant's report number, if any, may be inserted below the NUREG number on the cover, if desired. (b)

When a report consists of more than one volume or binding or is issued in more than one edition, include an appropriate volume, number, supplement, part, addendum, or revision designation below the report number and the foreign participant's report number, if any. (c)

Previous Reports in Series (3)

If the report being prepared is one in an ongoing series, list all previous reports in the series. Include report numbers and issuance dates. Place this list on the back of the title page. If this list cannot be placed on a single page, place the pages at the end of the front matter rather than on the back of the title page.

Report Organization and Components (C)

The organization and components of cooperative agreement reports vary somewhat, depending on their purpose and scope. Each of these reports must include an abstract of 200 words or less that appears on a separate page before the table of contents. The abstract must also appear on the "Bibliographic Data Sheet," NRC Form 335 (Exhibit 2). Instructions for completing NRC Form 335 appear on the back of the form (Exhibit 2). Guidance on the special writing requirements for preparing abstracts appears in Section 5.5 of NUREG-0650, Revision 1.

Availability Information (D)

References and Bibliographies (1)

Reports or other documents referenced in text, reference sections, bibliographies, and appendixes of unclassified regulatory and technical reports in the NUREG series must be available to the public either in the public domain (as in a public library, at the Government Printing Office (GPO), at the National Technical Information Service (NTIS), or at other reference or sales outlets) or in the NRC Public Document Room. This means that references should not be made to personal communications, interviews, and unpublished information with restricted distribution (e.g., proprietary, National Security, Official Use Only). If the unretrievable information is important and

Availability Information (D) (continued)

References and Bibliographies (1) (continued)

unrestricted, it can be quoted in the text, in footnotes, or in appendixes. If the title of a document containing proprietary information is unclassified, it can also be quoted in the text or in a footnote. If credit is due to individuals, they can be mentioned in the text or in an acknowledgment section. Availability may be stated collectively for all entries. (a)

Although proprietary reports may not be included in a list of references, listing or identification of proprietary reports may be included in an appendix or in a separate listing following the reference section titled "Proprietary Sources of Information." (b)

In addition, reference to Institute of Nuclear Power Operations (INPO) documents may **not** be made without prior approval from INPO. Approval to reference INPO documents must be stated on the NRC Form 426A. (c)

Guidelines for developing and presenting reference material are provided in NUREG-0650, Revision 1. (d)

Reports (2)

These reports will be made available for sale by GPO and NTIS.

Disclaimer (E)

The following notice will be added by the Publications Branch, DFIPS, on the inside front cover before printing.

NOTICE

This report was prepared under an international cooperative agreement for the exchange of technical information. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use, or the results of such use, of any information, apparatus, product, or process disclosed in this report, or represents that its use by such third party would not infringe privately owned rights.

Forms (F)

Bibliographic Data Sheet (NRC Form 335) (1)

Submit a typed NRC Form 335 (Exhibit 2) with the camera-ready copy to the Technical Publications Section, DFIPS, as the final right-hand page.

Release to Publish Unclassified NRC Contractor, Consultant, or Conference Proceedings Reports (NRC Form 426A) (2)

An NRC Form 426A (Exhibit 1) must be completed and signed by the office director or designee and submitted with the camera-ready copy of the report to the Technical Publications Section, DFIPS.

Classified or Sensitive Unclassified Information (G)

The NRC contact should refer to Management Directive 12.2 or call the Division of Security for answers to questions about the status of classified or sensitive unclassified information in NUREG/IA reports.

Part V

Books

General (A)

These guidelines apply to books written by contractors and grantees that are printed by NRC. See Part VI of this handbook for guidance on publications, including books, by grantees.

Definition (B)

A book refers to a publication intended as a permanent reference or as a textbook or major critical review of a technical or regulatory topic.

Format (C)

Books are usually 6 by 9 inches in trim size, but size will be based on requirements such as ease of use and legibility for graphics, foldouts, and the like. The binding (casebound or paperback) will be chosen according to the need for durability. Additional guidance on manuscript preparations can be found in the *U.S. Government Printing Office Style Manual* and the Chicago University's *A Manual of Style*. Refer also to NRC's "Publishing Documents in the NUREG Series" (NUREG-0650, Revision 1). (1)

The contractor shall submit to the NRC project manager the typeset (photocomposed) manuscript suitable for printing. The NRC contact shall submit the manuscript to the Chief, Publications Branch, Division of Freedom of Information and Publications Services, (DFIPS), where it will be reviewed for adherence to the standards set forth and referenced in this directive and handbook. The manuscript will also be reviewed for printing acceptability by the Printing and Mail Services Branch, DFIPS. Unsatisfactory manuscripts will be reported to the NRC contact for appropriate contractual action by the NRC contracting officer or, in the case of Government agency or interagency agreement work, the publications manager of the performing organization. (2)

Format (C) (continued)

DFIPS will approve the design of the cover and title page containing appropriate information concerning—(3)

- Authors' names (a)
- Organizational identification (b)
- Public availability and sales (c)

All books must include a comprehensive subject index of the book's contents, unless the book is made up almost exclusively of graphical or tabular matter. See NUREG-0650, or *The Chicago Manual Style* (13th ed.) for guidelines on creating an index. (4)

NRC Document Number (D)

Each book must be identified by an NRC-controlled alphanumeric code unique to that book. The alphanumeric code will have the form NUREG/CR for books prepared by contractors and NUREG/GR for books prepared by grantees. (1)

When a book consists of more than one volume or binding, or is issued in more than one edition, include an appropriate volume, number, supplement, part, addendum, or revision designation directly below the document number. (2)

Numbers are assigned by the Publications Branch, DFIPS. The number may be obtained before the manuscript is submitted to DFIPS for printing by calling the Publications Branch at (301) 415-7166. The DFIPS staff will arrange to meet with the NRC contact for the project and, when appropriate, the author(s), to discuss the publication production requirements and the schedule for the book. (3)

Availability of Reference Materials (E)

The guidelines for availability of reference material given in Section G of Part III of this handbook also apply to books prepared by contractors and grantees that are published by NRC.

Reviews (F)

Peer (1)

Books published by NRC must undergo peer review by experts within and outside NRC. Peer review refers to a critical evaluation of the technical contents of a publication. These reviews may be conducted anonymously by reviewers from the author's own or a related field who are totally independent of the work leading to the manuscript. (a)

Reviewers should be chosen by the NRC office sponsoring the book from the potential audience for the publication and should provide an independent judgment about whether the publication successfully accomplishes the author's aims. Peer reviewers should be chosen for their expertise in the subject matter of the book. They may come from academia, the national laboratories, other Federal agencies, or from other research institutes or consulting firms. They may be identified from the membership rolls of professional societies, American National Standards Institute (ANSI) subcommittees, and the like. Do not choose more than one reviewer from the same organization. (b)

When assessing potential peer reviewers, screen for demonstrated competence and achievement in a specific discipline or research specialty. Assess competence based on the quality of research accomplished, publications in refereed journals, and other significant technical activities, achievements, and honors. Consider the judgment, perspective, and objectivity of reviewers. Consider also the personal integrity of those selected to ensure the confidentiality of information reviewed. Finally, avoid real or perceived conflicts of interest. Do not choose reviewers who are licensees or consultants to licensees, nor reviewers from intervenor groups. Likewise, do not choose reviewers who may profit financially from influencing the information reviewed. (c)

The services of reviewers from outside the agency may be acquired through consultant services contracts. The decision as to whether to reimburse peer reviewers should be made on a case-by-case basis, however. Recognize that reimbursing peer reviewers may give the appearance of a conflict of interest, suggesting to some that because NRC is paying for this service, the agency will seek only reviewers thought to be favorably disposed to the material reviewed. One way to offset this impression is to seek recommendations for peer reviewers from independent organizations, such as the American Physics

Reviews (F) (continued)

Peer (1) (continued)

Society, the American Nuclear Society, the American Society of Mechanical Engineers, or appropriate universities. Reimbursement could then be made to the organization. (d)

Copyright (2)

Copyrighted material must not be reproduced in NRC books without appropriate authority, usually written permission of the copyright holder. See Section 3.4 of NUREG-0650, Revision 1, for information about obtaining copyright permission.

Security (3)

On the basis of the knowledge of the information sources used, the author is responsible for ensuring that the manuscript does not contain classified or other access-controlled information. If uncertainty exists with respect to the security classification of a reference document or manuscript, an authorized classifier or the NRC Division of Security should be contacted for assistance. See also Management Directive 12.2, "NRC Classified Information Security Program."

Patent (4)

The patent review guidelines for draft and final formal reports specified in Section (C)(1) of Part III of this handbook also apply to books prepared by contractors and grantees.

Publishing Authorization Form (G)

A completed NRC Form 426A (Exhibit 1), signed by the office director or designee or by a DOE national laboratory authorized official if the publication is prepared for the Office of Nuclear Regulatory Research, must be submitted to DFIPS with the book manuscript.

Disclaimers (H)

The following standard U.S. Government notice will be added before printing: (1)

Disclaimers (H) (continued)

This document was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use, or the results of such use, of any information, apparatus, product, or process disclosed in this document, or represents that its use by such third party would not infringe privately owned rights.

The following additional statement may be printed below the standard disclaimer, if authorized by the NRC office director or designee: (2)

This document was prepared under U.S. Nuclear Regulatory Commission (NRC) Contract No. _____. The opinions, findings, conclusions, and recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the NRC.

Other qualifying statements may be added, if needed. (3)

Printing (I)

DFIPS will submit book manuscripts to GPO for printing. The printing cycle requires from 6 to 8 weeks.

Distribution and Sales (J)

The DFIPS staff will arrange distribution in accordance with distribution guidance provided by the NRC project manager on NRC Form 426A (Exhibit 1). (1)

Free distribution should be limited to those who contributed materially to the book or to those for whom the book's subject matter bears directly on their work at or for NRC. (2)

DFIPS will arrange to make the book available for sale through GPO. DFIPS also will arrange to have it made available at the NRC PDR and for the GPO Federal Depository Library Program. (3)

Part VI

Grant Publications

Background and Rationale (A)

The Nuclear Regulatory Commission funds grants for educational and nonprofit institutions, State and local governments, and professional societies for the expansion, exchange, and transfer of knowledge and ideas pursuant to the Atomic Energy Act of 1954, as amended, Sections 31.a and 141.b.

Publication of Results (B)

The grant will specify the publication requirements of the award. Grant results may be published by NRC, by the grantee, or in the open literature.

Publication by NRC (1)

This publication option must be governed by the guidelines specified in Part III of this handbook for reports or in Part V of this handbook for books, as appropriate. See "Identification Information," Section (C) of this part.

Publication by a Grantee (2)

When the grant specifies that the grantee is to publish the results of his or her work, the grantee must grant to the Government a royalty-free, nonexclusive, irrevocable license to reproduce, translate, publish, use, and dispose of all copyrightable material first produced or composed in the grantee's performance under the grant.

Publication by a Grantee in the Open Literature (3)

When the grantee submits journal articles for publication, each article must be accompanied by the following statement: (a)

Publication of Results (B) (continued)

Publication by a Grantee in the Open Literature (3) (continued)

The submitted manuscript has been authored by a grantee of the U.S. Government under Grant No. _____. Accordingly, the U.S. Government has a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes.

All open literature publications prepared under this grant must contain the following statement: (b)

This paper was prepared with the support of the U.S. Nuclear Regulatory Commission (NRC) under Grant No. _____. The opinions, findings, conclusions, and recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the NRC.

If the grantee is requested by the journal or other publisher to transfer the copyright, the grantee author will respond to the journal or other publisher in writing in accord with the sample letter shown as follows: (c)

Dear (Publisher's Name):

We recently received a document for signature assigning copyright and republication rights in the submitted article (title) to (name of publication). This letter is offered in lieu of the document as a means of completing the transfer of ownership. Accordingly, we hereby expressly transfer and assign our rights of ownership in the above-cited work to (name of publisher).

You are advised, however, that the above assignment and any publication or republication of the above-cited work is subject to the following Government rights:

The submitted manuscript has been authored by a grantee of the U.S. Government under Grant No. _____. Accordingly, the U.S. Government has a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes.

Sincerely,

Publication of Results (B) (continued)

Reprints of Open Literature Publications (4)

When any article resulting from work under the grant is published in a scientific, technical, or professional journal, two reprints of the publication must be sent to the cognizant NRC program officer, clearly labeled with the grant number and other appropriate identifying information.

Identification Information (C)

Each report or book published by NRC that results from a grant must be identified by an alphanumeric number, "NUREG/GR-000," where "GR" indicates "grant report." (1)

When the publication consists of more than one volume, number, supplement, part, or binding, or is issued in more than one edition, an appropriate volume, supplement, part, or revision designation must appear below the NUREG/GR number. (2)

Numbers may be obtained from the Publications Branch at (301) 415-7008. (3)

Pre-Publication Reviews (D)

The U.S. Congress characterizes the relationship between a Federal agency and a grant recipient as one in which "the recipient can expect to run the project without agency collaboration, participation, or intervention as long as it is run in accordance with the terms of the instrument."

Glossary*

Book. A publication intended as a permanent reference or textbook or as a major critical review of a technical or regulatory topic. It may be *casebound* (hardback) or paperbound.

Camera-Ready Copy. Pages ready for printing by the offset printing process. This is a colloquial term used even though the printing process may not involve the so-called copy camera (see also *reproducible masters*).

Casebound. Term denoting a book with a hard cover.

Compose. To arrange letters, in type or film, for printing. Usually synonymous with *typesetting*.

Composition. The process of setting type by hot-metal casting, phototypesetting, or electronic character generating devices (e.g., computers) for the purpose of producing *camera-ready copy*, negatives, a plate, or an image to be used in the production of *printing* or microform.

Contractor Report. Record of work done (a report) prepared in accordance with the provisions of a contract or under or pursuant to an interagency agreement.

Copyright. A form of protection provided by the laws of the United States (Title 17, U.S. Code), to the authors of "original works of authorship," including literary, dramatic, musical, artistic, and certain other intellectual works. This protection is available to both published and unpublished works. Generally, copyrighted material may not be reproduced without the permission of the author or the publisher.

Disseminate. To announce the publication of reports and make them available for free distribution, sale, or copying.

*Words in *italics* in definitions are also defined in the glossary.

Glossary (continued)

Distribution. Reports dispensed to specific organizations and individuals to ensure their participation in the regulatory process and support of research and technological investigations. Such distribution may be accomplished by the use of standard distribution lists established and maintained by the Division of Freedom of Information and Publications Services at the request of the originating office or region.

Documentation. Classification and associated markings required for classified or sensitive unclassified documents, the NRC report number unique to the report, title (and subtitle, if any), author or correspondent (if any), organization identification and contract number (or job code number), date, and availability.

Edition. All copies of a book printed from the same type. Edition also refers to format, such as *paperback*, *casebound*, or to the text, as revised, expanded, and so on. If extensive revisions have been made to the text and the book is reprinted, the revised version is the new edition.

Grant. A legal instrument which defines the relationship between the Government and a recipient for the transfer of money, property, services, or anything of value to the recipient for the accomplishment of a public purpose of support or stimulation authorized by law. A grant presumes a limited amount of involvement by the agency in the performance by the recipient.

Grant Report. A record of work done prepared in accordance with the provisions of the *grant*.

Index. An alphabetical list of all major topics discussed in a *book*. It cites the page numbers where each topic can be found. The index is the last section of a book.

International Agreement. Cooperative nuclear safety research programs that involve either or both foreign governments and organizations and U.S. industry. Such involvement, authorized under 42 U.S.C. 5801, includes monetary contributions, information exchanges, and comments on program plans and results.

International Agreement Report. A record of work done prepared in accordance with the provisions of an *international agreement*.

Glossary (continued)

Manuscript. A handwritten, typewritten, or *composed* version of a document, as distinguished from a printed copy.

NRC Project Manager. The NRC staff member responsible for the work performed by consultants or contractors and their subcontractors, or for work performed under or pursuant to an interagency agreement.

Paperback. A *book* with a flexible paper cover.

Peer Review. A critical evaluation of the technical contents of a publication. These reviews are conducted by reviewers from the author's own or a related field who are totally independent of the work leading to the *manuscript*. Reviewers should be chosen from the potential audience for the publication and should provide an independent judgment about whether the publication successfully accomplishes the author's aims.

Photocomposition. *Typesetting* performed when photosensitive paper or film is exposed to light in the form of letters and characters. Photocomposition is to be distinguished from hot-metal and typewriter *composition*.

Printing. As defined by the Joint Committee on Printing, includes and applies to the process of *composition*, platemaking, presswork, collating, and microform; the equipment used in such processes; or the end product produced by such processes and equipment.

Proprietary Information. Trade secrets; privileged or confidential research, development, commercial, or financial information exempt from mandatory disclosure under 10 CFR Part 2 (Sections 2.740 and 2.790) and under 10 CFR Part 9 (Section 9.17); and other information submitted in confidence to the NRC by a foreign source and determined to be unclassified by the NRC.

Public Domain. Materials for which a *copyright* never existed, such as U.S. Government publications, or for which a copyright has expired.

Publicly Available Documents. Information (reports and references) that is available in the NRC Public Document Room (PDR) for public inspection and copying or available in the *public domain*.

Glossary (continued)

Reproducible Masters. *Camera-ready copy* that includes (1) originals of line drawings (or prints that can be copied); (2) glossy prints of black and white photographs; (3) original *typeset* or printed text, tables, cover, title page, contents, and abstract; or (4) other forms of the materials that a printer can reproduce.

Trim Size. The final size of the whole page, margins included.

Typesetting. The placement of type on a page (letters, numbers, and other characters) in conformance with specific style and layout instructions.

Unique Identification. NRC identification (NUREG number) used on a report and its attachments, revisions, and supplements that is not used on any other publication.

Volume 3, Part 1 - Publications, Mail, and Information Disclosure
Unclassified Contractor and Grantee Publications in the NUREG Series
Handbook 3.8 Exhibits

Exhibit 1

NRC Form 426A, "Release to Publish Unclassified NRC Contractor, Consultant, or Conference Proceedings Reports"

NRC FORM 426A (2-89) NRCM 1102, 3202		U.S. NUCLEAR REGULATORY COMMISSION		1. REPORT NUMBER (if any) NUREG/CR-5627 BNL-NUREG-52257 <small>Obtain from NRC Technical Publications Section or NRC-7003</small>	
RELEASE TO PUBLISH UNCLASSIFIED NRC CONTRACTOR, CONSULTANT, OR CONFERENCE PROCEEDINGS REPORTS <small>(Please Type or Print)</small>					
2. TITLE AND SUBTITLE (Type in full as shown on document) Alternate Modal Combination Methods in Response Spectrum Analysis				3. FUND OR GRANT NUMBER (Do not list DOE contract number) A-3955	
4. AUTHORS (If more than three, name first author followed by "and others") P. Bezler and others					
5. CONTRACTOR Brookhaven National Laboratory Department of Nuclear Energy		MAILING ADDRESS (Number and Street, City, State and ZIP Code) Building 129 Upton, NY 11973		TELEPHONE NUMBER 666-2447	
6. TYPE OF DOCUMENT (Check appropriate box)					
<input checked="" type="checkbox"/> A. TECHNICAL REPORT <input checked="" type="checkbox"/> FORMAL <input type="checkbox"/> LETTER REPORT					
B. CONFERENCE PAPER (If so, complete items (1), (2), and (3) below)					
(1) TITLE OF CONFERENCE PAPER: (2) DATE(S) OF CONFERENCE: (3) LOCATION OF CONFERENCE:					
C. OTHER (Indicate type of item)					
7. DISTRIBUTION (For NRC distribution status. Provide mailing labels for special distribution not covered by NRC rules. If NRC staff, provide name and mail stop only. If external, provide complete mailing address.) RA 50 copies: Judy Liu, Technical Information Division, Bldg. 477B, Brookhaven National Laboratory, Upton, NY 11973 10 copies: Nilesh Chokshi, RES, NLS-217					
8. CERTIFICATION (ANSWER ALL QUESTIONS)					
YES	NO	A. REFERENCE AVAILABILITY - Is all material referenced in this document available to the public either through a public library, the Government Printing Office, the National Technical Information Service, or the NRC Public Document Room? If no, list the specific availability of referenced document with the reference being below.			
X		SPECIFIC AVAILABILITY			
	X	B. COPYRIGHTED MATERIAL - Does this report contain copyrighted material? If yes, attach a letter of release from the source that owns the copyright.			
	X	C. COMPUTER CODES - Does this report contain a computer code? If yes, does it comply with the standards in NRC Manual Chapter 0504, "Planning and Control of Automatic Data Processing (ADP) Resources"?			
	X	D. PATENT CLEARANCE - Does this report require patent clearance? If yes, the NRC Patent Counsel must sign below.			
		NRC PATENT COUNSEL (Type or Print Name)		SIGNATURE	
				DATE	
	X	E. INFORMATION REQUESTS - Does this report contain any questionnaires, surveys, or data collection requests?			
	X	F. LICENSING REQUIREMENTS - Does this report require requirements on license?			
9. AUTHORIZATION					
A. DOE LAB AUTHORIZING OFFICIAL (If applicable) (Type or print name) R.A. Bari		SIGNATURE <i>R.A. Bari</i>		DATE 9/25/90	
B. NRC RESPONSIBLE STAFF MEMBER (Type or print name) A. Murphy		SIGNATURE <i>A. Murphy</i>		OFF/DIV 442-3860 TELEPHONE NLS217A MAIL STOP 10/10/90 DATE	

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Handbook 3.8 Exhibits

Exhibit 2

NRC Form 335, "Bibliographic Data Sheet"

NRC FORM 335 <small>(2-89)</small>		U.S. NUCLEAR REGULATORY COMMISSION		1. REPORT NUMBER <small>(Assigned by NRC. Add Vol., Supp., Rev., and Addendum Numbers, if any.)</small> NUREG/CR-5603 EGG-2607					
BIBLIOGRAPHIC DATA SHEET <small>(See instructions on the reverse.)</small>				3. DATE REPORT PUBLISHED <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">MONTH</td> <td style="width: 50%; text-align: center;">YEAR</td> </tr> <tr> <td style="text-align: center;">October</td> <td style="text-align: center;">1990</td> </tr> </table>		MONTH	YEAR	October	1990
MONTH	YEAR								
October	1990								
2. TITLE AND SUBTITLE Pressure-Dependent Fragilities for Piping Components: Pilot Study on Davis-Besse Nuclear Power Station				4. FUNDING NUMBER B5699					
5. AUTHOR(S) D.A. Wesley, T.R. Kipp, D.K. Nakaki, H. Hadidi-Tamjed				6. TYPE OF REPORT Technical					
8. PERFORMING ORGANIZATION - NAME AND ADDRESS <small>(If NRC, provide Division, Office or Region. U.S. Nuclear Regulatory Commission, and mailing address; if contractor, grantee, and mailing address.)</small> ABB Impell Corporation 27401 Los Altos, Suite 480 Mission Viejo, CA 92691				Under contract to: Idaho National Engineering Laboratory EG&G Idaho, Inc. Idaho Falls, ID 83415					
9. SPONSORING ORGANIZATION - NAME AND ADDRESS <small>(If NRC, use "Same as above"; if contractor, grantee, and mailing address.)</small> Division of Safety Issue Resolution Office of Nuclear Regulatory Research U.S. Regulatory Commission Washington, D.C. 20555									
10. SUPPLEMENTARY NOTES									
11. ABSTRACT <small>(200 words or less)</small> The capacities of four, low-pressure fluid systems to withstand pressures and temperatures above the design levels were established for the Davis-Besse Nuclear Power Station. The results will be used in evaluating the probability of plant damage from Interfacing System Loss of Coolant Accidents (ISLOCA) as part of the probabilistic risk assessment of the Davis-Besse nuclear power station undertaken by EG&G Idaho, Inc. Included in this evaluation are the tanks, heat exchangers, filters, pumps, valves, and flanged connections for each system. The probabilities of failure, as a function of internal pressure, are evaluated as well as the variabilities associated with them. Leak rates or leak areas are estimated for the controlling modes of failure. The pressure capacities for the pipes and vessels are evaluated using limit state analyses for the various failure modes considered. The capacities are dependent on several factors, including the material properties, modeling assumptions, and the postulated failure criteria. The failure modes for gasketed-flange connections, valves, and pumps do not lend themselves to evaluation by conventional structural mechanics techniques and evaluation must rely primarily on the results from ongoing gasket research test programs and available vendor information and test data.									
12. KEY WORDS/DESCRIPTORS <small>(Use words or phrases that will assist researchers in locating the report.)</small> pressure-dependent fragilities piping components Interfacing System Loss of Coolant Accidents (ISLOCA) probabilistic risk assessment Davis-Besse Nuclear Power Station				13. AVAILABILITY STATEMENT Unlimited					
				14. SECURITY CLASSIFICATION <small>(This Page)</small> Unclassified <small>(This Report)</small> Unclassified					
				15. NUMBER OF PAGES					
				16. PRICE					

Exhibit 2 (continued)

DO NOT PRINT THESE INSTRUCTIONS AS A PAGE IN THE NUREG REPORT

INSTRUCTIONS

NRC FORM 335, BIBLIOGRAPHIC DATA SHEET, IS BASED ON GUIDELINES FOR FORMAT AND PRODUCTION OF SCIENTIFIC AND TECHNICAL REPORTS, ANSI Z39.18-1987 AVAILABLE FROM AMERICAN NATIONAL STANDARDS INSTITUTE, 1430 BROADWAY, NEW YORK, NY 10018. EACH SEPARATELY BOUND REPORT—FOR EXAMPLE, EACH VOLUME IN A MULTIVOLUME SET—SHALL HAVE ITS UNIQUE BIBLIOGRAPHIC DATA SHEET.

1. **REPORT NUMBER.** Each individually bound report must carry a unique alphanumeric designation (NUREG) assigned by the Regulatory Publications Branch, Division of Freedom of Information and Publications Services, in accordance with American National Standard ANSI Z39.23-1983, Standard Technical Report Number (STRN). Use uppercase letters, Arabic numerals, slashes, and hyphens only, as in the following examples: NUREG-0100, NUREG/CP-0010, NUREG/CR-0100, and NUREG/BR-0010. For reports in a series add Vol., Supp., Rev., and Addendum, when necessary. Add contractor cross-reference identification number (if any) below NUREG-series number, e.g., PNL-XXXX, SANDXX-XXXX, SAI-XXXX.
2. **TITLE AND SUBTITLE.** Title should indicate clearly and briefly the subject (coverage) of the report; including any subtitle to the main title. When a report is prepared in more than one volume, repeat the primary title, add volume number and include subtitle for the specific volume. Use upper and lower case letters, but capitalize computer code names. Do not use acronyms and initialisms in titles; may be added in parenthesis.
3. **DATE REPORT PUBLISHED.** Each report must carry a date indicating month and year published.
4. **FIN OR GRANT NUMBER.** Insert the FIN or grant number under which report was prepared.
5. **AUTHOR(S).** Give name(s) in conventional order (e.g., John R. Doe, J. Robert Doe). List author's affiliation if it is different from the performing organization.
6. **TYPE OF REPORT.** State draft, final, preliminary, topical, technical, regulatory, annual, quarterly, etc.
7. **PERIOD COVERED.** Add inclusive dates.
8. **PERFORMING ORGANIZATION NAME AND MAILING ADDRESS.** Give name, street, city, state, and ZIP code. List no more than two levels of an organizational hierarchy. Display the name of the organization exactly as follows: Division, Office, Organization or Government agency, and address.
9. **SPONSORING ORGANIZATION.** If NRC, type "Same as above"; if contractor, provide NRC Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address.
10. **SUPPLEMENTARY NOTES.** Enter information not included elsewhere but useful, such as: Prepared in cooperation with ... Presented at conference of ... To be published ... Docket No. ... When a report is revised, indicate whether the new report supersedes or supplements the older report.
11. **ABSTRACT.** Include a brief (200 words or less) factual summary of the most significant information contained in the report. If the report contains a significant bibliography or literature survey or multiple volumes, mention it here. Abstract is to be prepared by author or project manager.
12. **KEY WORDS/DESCRIPTORS.** Select from the Energy Data Base Subject Thesaurus, DOE/TIC-700R R-5, the proper authorized terms that identify the major concept of the research and are sufficiently specific and precise to be used as index entries for cataloging.
13. **AVAILABILITY STATEMENT.** Denote public releasability, for example "unlimited", or limitation for reasons other than security.
14. **SECURITY CLASSIFICATION.** Enter U.S. Security Classification in accordance with U.S. Security Regulations (i.e., unclassified).
15. **NUMBER OF PAGES.** Leave blank. (Added by NTIS)
16. **PRICE.** Leave blank. (Added by NTIS)

U.S. GOVERNMENT PRINTING OFFICE: 1986 9-844-864

Exhibit 3

Microfiche Sheet Sample

NUREG/CR-XXXX CONTRACTOR ID NO. CLASSIFICATION	DESCRIPTION OF MICROFICHE (e.g., Appendix A) CONTRACTOR NAME (Optional)	PUBLICATION DATE B1 of 09 (Sheet ID)

CONTRACT PRICING PROPOSAL COVER SHEET
(Cost or Pricing Data Required)

1. SOLICITATION/CONTRACT/MODIFICATION NUMBER

OMB No.: 9000-0013
Expires: 09/30/98

Public reporting burden for this collection of information is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (VRS), Office of Federal Acquisition Policy, GSA, Washington, DC 20405.

2a. NAME OF OFFEROR			3a. NAME OF OFFEROR'S POINT OF CONTACT		3c. TELEPHONE	
2b. FIRST LINE ADDRESS			3b. TITLE OF OFFEROR'S POINT OF CONTACT		AREA CODE NUMBER	
2c. STREET ADDRESS			4. TYPE OF CONTRACT ACTION (Check)			
2d. CITY			2e. STATE		2f. ZIP CODE	
5. TYPE OF CONTRACT (Check)			a. NEW CONTRACT		d. LETTER CONTRACT	
<input type="checkbox"/> FFP <input type="checkbox"/> CPFF <input type="checkbox"/> CPWF <input type="checkbox"/> CPAF <input type="checkbox"/> FPI <input type="checkbox"/> OTHER (Specify)			b. CHANGE ORDER		e. UNPRICED ORDER	
			c. PRICE REVISION/REDETERMINATION		f. OTHER (Specify)	
			6. PROPOSED COST (A + B = C)			
			A. COST		B. PROFIT/FEE	
					C. TOTAL	

7. PERFORMANCE

PLACE	a.		PERIOD	a.	
	b.			b.	

B. List and reference the identification, quantity and total price proposed for each contract line item. A line item cost breakdown supporting this recap is required unless otherwise specified by the Contracting Officer. (Continue on reverse, and then on plain paper, if necessary. Use same headings.)

a. LINE ITEM NO.	b. IDENTIFICATION	c. QUANTITY	d. TOTAL PRICE	e. PROP. REF. PAGE

9. PROVIDE THE FOLLOWING (If available)

NAME OF CONTRACT ADMINISTRATION OFFICE			NAME OF AUDIT OFFICE		
STREET ADDRESS			STREET ADDRESS		
CITY	STATE	ZIP CODE	CITY	STATE	ZIP CODE
TELEPHONE	AREA CODE	NUMBER	TELEPHONE	AREA CODE	NUMBER

10. WILL YOU REQUIRE THE USE OF ANY GOVERNMENT PROPERTY IN THE PERFORMANCE OF THIS WORK? (If "yes" identify)		11a. DO YOU REQUIRE GOVERNMENT CONTRACT FINANCING TO PERFORM THIS PROPOSED CONTRACT? (If "Yes," complete Item 11b)		11b. TYPE OF FINANCING (Check one)	
<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> ADVANCE PAYMENT <input type="checkbox"/> PROGRESS PAYMENTS <input type="checkbox"/> GUARANTEED LOANS	
12. HAVE YOU BEEN AWARDED ANY CONTRACTS OR SUBCONTRACTS FOR THE SAME OR SIMILAR ITEMS WITHIN THE PAST 3 YEARS? (If "Yes," identify item(s), customer(s) and contract number(s) on reverse of form.)		13. IS THIS PROPOSAL CONSISTENT WITH YOUR ESTABLISHED ESTIMATING AND ACCOUNTING PRACTICES AND PROCEDURES AND FAR PART 31, COST PRINCIPLES? (If "no," explain on reverse of form.)			
<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO			

14. COST ACCOUNTING STANDARDS BOARD (CASB) DATA (Public Law 91-379 as amended and FAR PART 30)

a. WILL THIS CONTRACT ACTION BE SUBJECT TO CASB REGULATIONS? (If "No," explain in proposal)		b. HAVE YOU SUBMITTED A CASB DISCLOSURE STATEMENT (CASB DS-1 or 2)? (If "Yes," specify in proposal the office to which submitted and if determined to be adequate)	
<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO	
c. HAVE YOU BEEN NOTIFIED THAT YOU ARE OR MAY BE IN NONCOMPLIANCE WITH YOUR DISCLOSURE STATEMENT OR COST ACCOUNTING STANDARDS? (If "Yes," explain in proposal)		d. IS ANY ASPECT OF THIS PROPOSAL INCONSISTENT WITH YOUR DISCLOSED PRACTICES OR APPLICABLE COST ACCOUNTING STANDARDS? (If "Yes," explain in proposal)	
<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO	

This proposal is submitted in response to the solicitation, contract, modification, etc., in Item 1 and reflects our estimate and/or actual costs as of the date and conforms with the instructions in FAR 15.804-6(b)(1), and Table 15-2. By submitting this proposal, the offeror, if selected for negotiation, grants the contracting officer and authorized representative(s) the right to examine, at any time before award, those records, which include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or any other form, or whether such supporting information is specifically referenced or included in the proposal as the basis for pricing, that will permit an adequate evaluation of the proposed price.

15. NAME OF OFFEROR (Type)	16. TITLE OF OFFEROR (Type)	18. NAME OF FIRM
17. SIGNATURE		18. DATE OF SUBMISSION

TABLE 15-2 INSTRUCTIONS FOR SUBMISSION OF A CONTRACT PRICING PROPOSAL WHEN COST OR PRICING DATA ARE REQUIRED

The SF 1411 provides a cover sheet for use by offerors to submit to the Government a pricing proposal of estimated and/or actual costs only when cost or pricing data are required.

1. The pricing proposal shall be segregated by contract line item with sufficient detail to permit cost analysis. Attach cost-element breakdowns, using the applicable formats prescribed in Item 8A, B, or C of this section, for each proposed line item. These breakdowns must conform to the instructions in the solicitation and any specific requirements established by the contracting officer. Furnish supporting breakdowns for each cost element, consistent with the offeror's cost accounting system.

When more than one contract line item is proposed, summary total amounts covering all line items must be furnished for each cost element. If agreement has been reached with Government representatives on use of forward pricing rates/factors, identify the agreement, include a copy, and describe its nature. Depending on offeror's system, breakdowns shall be provided for the following basic elements of cost, as applicable:

Materials—Provide a consolidated priced summary of individual material quantities included in the various tasks, orders, or contract line items being proposed and the basis for pricing (vendor quotes, invoice prices, etc.). Include raw materials, parts, components, assemblies, and services to be produced or performed by others. For all items proposed, identify the item and show the source, quantity, and price.

Competitive Methods—For those acquisitions (e.g., subcontracts, purchase orders, material orders, etc.) exceeding the pertinent threshold set forth at 15.804-2(a)(1) priced on a competitive basis, also provide data showing degree of competition, and the basis for establishing the source and reasonableness of price. For interorganizational transfers priced at other than cost of the comparable competitive commercial work of the division, subsidiary, or affiliate of the contractor, explain the pricing method (see 31.205-26(e)).

Established Catalog or Market Prices or Prices Set by Law or Regulation or Commercial Item Not Covered By Another Exception—When an exception from the requirement to submit cost or pricing data is requested, whether the item was produced by others or by the offeror, provide justification for the exception as required by 15.804-1(d).

Noncompetitive Methods—For those acquisitions (e.g., subcontracts, purchase orders, material orders, etc.) exceeding the pertinent threshold set forth at 15.804-2(a)(1) priced on a noncompetitive basis, also provide data showing the basis for establishing source and reasonableness of price. For standard commercial items fabricated by the offeror that are generally stocked in inventory, provide a separate cost breakdown if priced based on cost. For interorganizational transfers priced at cost, provide a separate breakdown of cost by elements. As required by 15.806-2(a), provide a copy of cost or pricing data submitted by the prospective source in support of each subcontract, or purchase order that is either: (i) \$1,000,000 or more, or (ii) both more than the pertinent threshold set forth in 15.804-2(a)(1)(iii) and (iv) and more than 10 percent of the prime contractor's proposed price. The contracting officer may require submission of cost or pricing data in support of proposals in lower amounts. Submit the results of the analysis of the prospective source's proposal as required by 15.806. When the submission of a prospective source's cost or pricing data is required as described above, it shall be included as part of the offeror's initial pricing proposal.

Direct Labor—Provide a time-phased (e.g., monthly, quarterly, etc.) breakdown of labor hours, rates, and cost by appropriate category, and furnish bases for estimates.

Indirect Costs—Indicate how offeror has computed and applied offeror's indirect costs, including cost breakdowns, and showing trends and budgetary data, to provide a basis for evaluating the reasonableness of proposed rates. Indicate the rates used and provide an appropriate explanation.

Other Costs—List all other costs not otherwise included in the categories described above (e.g., special tooling, travel, computer and consultant services, preservation, packaging and packing, spoilage and rework, and Federal excise tax on finished articles) and provide bases for pricing.

Royalties—If more than \$250, provide the following information on a separate page for each separate royalty or license fee: name and address of licensor; date of license agreement; patent numbers, patent application serial numbers, or other basis on which the royalty is payable; brief description (including any part or model numbers of each contract item or component on which the royalty is payable); percentage or dollar rate of royalty per unit; unit price of contract item; number of units; and total dollar amount of royalties. In addition, if specifically requested by the contracting officer, provide a copy of the current license agreement and identification of applicable claims of specific patents. (See FAR 27.204 and 31.205-37.)

Facilities Capital Cost of Money—When the offeror elects to claim facilities capital cost of money as an allowable cost, the offeror must submit Form CASB-CMF and show the calculation of the proposed amount (see FAR 31.205-10).

2. As part of the specific information required, the offeror must submit with offeror's proposal, and clearly identify as such, cost or pricing data (that is, data that are verifiable and factual and otherwise as defined at FAR 15.801). In addition, submit with offeror's proposal any information reasonably required to explain offeror's estimating process, including—

a. The judgmental factors applied and the mathematical or other methods used in the estimate, including those used in

PART 15—CONTRACTING BY NEGOTIATION

projecting from known data; and

b. The nature and amount of any contingencies included in the proposed price.

3. Whenever the offeror has incurred costs for work performed before submission of proposal, those costs must be identified in the offeror's cost/price proposal.

4. There is a clear distinction between submitting cost or pricing data and merely making available books, records, and other documents without identification. The requirement for submission of cost or pricing data is met when all accurate cost or pricing data reasonably available to the offeror have been submitted, either actually or by specific identification, to the contracting officer or an authorized representative. As later information comes into the offeror's possession, it should be promptly submitted to the contracting officer in a manner that clearly shows how the information relates to the offeror's price proposal. The requirement for submission of cost or pricing data continues up to the time of agreement on price, or another date agreed upon between the parties if applicable.

5. In submitting offeror's proposal, offeror must include an index, appropriately referenced, of all the cost or pricing data and information accompanying or identified in the proposal. In addition, any future additions and/or revisions, up to the date of agreement on price, must be annotated on a supplemental index.

6. By submitting offeror's proposal, the offeror, if selected for negotiation, grants the contracting officer or an authorized representative the right to examine, at any time before award, those books, records, documents, and other types of factual information, regardless of form or whether such supporting information is specifically referenced or included in the proposal as the basis for pricing, that will permit an adequate evaluation of the proposed price.

7. As soon as practicable after final agreement on price, but before the award resulting from the proposal, the offeror shall, under the conditions stated in FAR 15.804-4, submit a Certificate of Current Cost or Pricing Data.

8. HEADINGS FOR SUBMISSION OF LINE-ITEM SUMMARIES:

A. New Contracts (including Letter contracts).

COST ELEMENTS	PROPOSED CONTRACT ESTIMATE—TOTAL COST	PROPOSED CONTRACT ESTIMATE—UNIT COST	REFERENCE
(1)	(2)	(3)	(4)

Under Column (1)—Enter appropriate cost elements.

Under Column (2)—Enter those necessary and reasonable costs that in offeror's judgment will properly be incurred in efficient contract performance. When any of the costs in this column have already been incurred (e.g., under a letter contract or unpriced order), describe them on an attached supporting schedule. When preproduction or startup costs are significant, or when specifically requested to do so by the contracting officer, provide a full identification and explanation of them.

Under Column (3)—Optional, unless required by the contracting officer.

Under Column (4)—Identify the attachment in which the information supporting the specific cost element may be found. Attach separate pages as necessary.

B. Change Orders, Modifications, and Claims.

COST ELEMENTS	ESTIMATED COST OF ALL WORK DELETED	COST OF DELETED WORK ALREADY PERFORMED	NET COST TO BE DELETED	COST OF WORK ADDED	NET COST OF CHANGE	REFERENCE
(1)	(2)	(3)	(4)	(5)	(6)	(7)

Under Column (1)—Enter appropriate cost elements.

Under Column (2)—Include the current estimates of what the cost would have been to complete the deleted work not yet performed (not the original proposal estimates), and the cost of deleted work already performed.

Under Column (3)—Include the incurred cost of deleted work already performed, actually computed if possible, or estimated in the contractor's accounting records. Attach a detailed inventory of work, materials, parts, components, and hardware already purchased, manufactured, or performed and deleted by the change, indicating the cost and proposed disposition of each line item. Also, if offeror desires to retain these items or any portion of them, indicate the amount offered for them.

Under Column (4)—Enter the net cost to be deleted which is the estimated cost of all deleted work less the cost of deleted work already performed. Column (2) less Column (3) = Column (4).

Under Column (5)—Enter the offeror's estimate for cost of work added by the change. When nonrecurring costs are significant, or when specifically requested to do so by the contracting officer, provide a full identification and explanation of them. When any of the costs in this column have already been incurred, describe them on an attached supporting schedule.

Under Column (6)—Enter the net cost of change which is the cost of work added, less the net cost to be deleted. When this result is negative, place the amount in parentheses. Column (4) less Column (5) = Column (6).

Under Column (7)—Identify the attachment in which the information supporting the specific cost element may be found. Attach separate pages as necessary.

C. Price Revision/Redetermination.

CUTOFF DATE	NUMBER OF UNITS COMPLETED	NUMBER OF UNITS TO BE COMPLETED	CONTRACT AMOUNT	REDETERMINATION PROPOSAL AMOUNT	DIFFERENCE
(1)	(2)	(3)	(4)	(5)	(6)

COST ELEMENTS	INCURRED COST—PREPRODUCTION	INCURRED COST—COMPLETED UNITS	INCURRED COST—WORK IN PROCESS	TOTAL INCURRED COST	ESTIMATED COST TO COMPLETE	ESTIMATED TOTAL COST	REFERENCE
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)

Under Column (1)—Enter the cut off date required by the contract, if applicable.

Under Column (2)—Enter the number of units completed during the period for which experienced costs of production are being submitted.

Under Column (3)—Enter the number of units remaining to be completed under the contract.

Under Column (4)—Enter the cumulative contract amount.

Under Column (5)—Enter the offeror's redetermination proposal amount.

Under Column (6)—Enter the difference between the contract amount and the redetermination proposal amount. When this result is negative, place the amount in parentheses. Column (4) less Column (5) = Column (6).

Under Column (7)—Enter appropriate cost elements. When residual inventory exists, the final costs established under fixed-price-incentive and fixed-price-redeterminable arrangements should be net of the fair market value of such inventory. In support of subcontract costs, submit a listing of all subcontracts subject to repricing action, annotated as to their status.

Under Column (8)—Enter all costs incurred under the contract before starting production and other nonrecurring costs (usually referred to as startup costs) from offeror's books and records as of the cutoff date. These include such costs as preproduction engineering, special plant rearrangement, training program, and any identifiable nonrecurring costs such as initial rework, spoilage, pilot runs, etc. In the event the amounts are not segregated in or otherwise available from offeror's records, enter in this column offeror's best estimates. Explain the basis for each estimate and how the costs are charged on offeror's accounting records (e.g., included in production costs as direct engineering labor, charged to manufacturing overhead, etc.). Also show how the costs would be allocated to the units at their various stages of contract completion.

Under Columns (9) and (10)—Enter in Column (9) the production costs from offeror's books and records (exclusive of preproduction costs reported in Column (8)) of the units completed as of the cutoff date. Enter in Column (10) the costs of work in process as determined from offeror's records or inventories at the cutoff date. When the amounts for work in process are not available in contractor's records but reliable estimates for them can be made, enter the estimated amounts in Column (10) and enter in Column (9) the differences between the total incurred costs (exclusive of preproduction costs) as of the cutoff date and these estimates. Explain the basis for the estimates, including identification of any provision for experienced or anticipated allowances, such as shrinkage, rework, design changes, etc. Furnish experienced unit or lot costs (or labor hours) from inception of contract to the cutoff date, improvement curves, and any other available production cost history pertaining to the item(s) to which offeror's proposal relates.

Under Column (11)—Enter total incurred costs (Total of Columns (8), (9), and (10)).

Under Column (12)—Enter those necessary and reasonable costs that in contractor's judgment will properly be incurred in completing the remaining work to be performed under the contract with respect to the item(s) to which contractor's proposal relates.

Under Column (13)—Enter total estimated cost (Total of Columns (11) and (12)).

Under Column (14)—Identify the attachment in which the information supporting the specific cost element may be found. Attach separate pages as necessary.

CONTRACT PRICING PROPOSAL COVER SHEET
(Cost or Pricing Data Required)

1. SOLICITATION/CONTRACT/MODIFICATION NUMBER

OM3 No.: 9000-0013
Expires: 09/30/98

Public reporting burden for this collection of information is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (VRS), Office of Federal Acquisition Policy, GSA, Washington, DC 20405.

2a. NAME OF OFFEROR			3a. NAME OF OFFEROR'S POINT OF CONTACT		3c. TELEPHONE	
2b. FIRST LINE ADDRESS			3b. TITLE OF OFFEROR'S POINT OF CONTACT		AREA CODE	NUMBER
2c. STREET ADDRESS			4. TYPE OF CONTRACT ACTION <i>(Check)</i>			
2d. CITY			2e. STATE		2f. ZIP CODE	
5. TYPE OF CONTRACT <i>(Check)</i>			a. NEW CONTRACT		d. LETTER CONTRACT	
<input type="checkbox"/> FFP <input type="checkbox"/> CPFF <input type="checkbox"/> CPF <input type="checkbox"/> CPAF <input type="checkbox"/> FPI <input type="checkbox"/> OTHER <i>(Specify)</i>			b. CHANGE ORDER		e. UNPRICED ORDER	
			c. PRICE REVISION/REDETERMINATION		f. OTHER <i>(Specify)</i>	
6. PROPOSED COST $(A + B = C)$						
A. COST			B. PROFIT/FEE		C. TOTAL	

7. PERFORMANCE

PAGE	a.		PERIOD	a.	
	b.			b.	

8. List and reference the identification, quantity and total price proposed for each contract line item. A line item cost breakdown supporting this recap is required unless otherwise specified by the Contracting Officer. *(Continue on reverse, and then on plain paper, if necessary. Use same headings.)*

a. LINE ITEM NO.	b. IDENTIFICATION	c. QUANTITY	d. TOTAL PRICE	e. PROP. REF. PAGE

9. PROVIDE THE FOLLOWING *(If available)*

NAME OF CONTRACT ADMINISTRATION OFFICE			NAME OF AUDIT OFFICE		
STREET ADDRESS			STREET ADDRESS		
CITY	STATE	ZIP CODE	CITY	STATE	ZIP CODE
TELEPHONE	AREA CODE	NUMBER	TELEPHONE	AREA CODE	NUMBER

10. WILL YOU REQUIRE THE USE OF ANY GOVERNMENT PROPERTY IN THE PERFORMANCE OF THIS WORK? <i>(If "yes" identify)</i>	11a. DO YOU REQUIRE GOVERNMENT CONTRACT FINANCING TO PERFORM THIS PROPOSED CONTRACT? <i>(If "Yes," complete item 11b)</i>	11b. TYPE OF FINANCING <i>(Check one)</i>
<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> ADVANCE PAYMENT <input type="checkbox"/> PROGRESS PAYMENTS <input type="checkbox"/> GUARANTEED LOANS

12. HAVE YOU BEEN AWARDED ANY CONTRACTS OR SUBCONTRACTS FOR THE SAME OR SIMILAR ITEMS WITHIN THE PAST 3 YEARS? <i>(If "Yes," identify item(s), customer(s) and contract number(s) on reverse of form.)</i>	13. IS THIS PROPOSAL CONSISTENT WITH YOUR ESTABLISHED ESTIMATING AND ACCOUNTING PRACTICES AND PROCEDURES AND FAR PART 31, COST PRINCIPLES? <i>(If "yes," explain on reverse of form)</i>
<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

14. COST ACCOUNTING STANDARDS BOARD (CASS) DATA *(Public Law 91-379 as amended and FAR PART 30)*

a. WILL THIS CONTRACT ACTION BE SUBJECT TO CASS REGULATIONS? <i>(If "Yes," explain in proposal)</i>	b. HAVE YOU SUBMITTED A CASS DISCLOSURE STATEMENT (CASS DS-1 or 2)? <i>(If "Yes," specify in proposal the office to which submitted and if determined to be adequate)</i>
<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
c. HAVE YOU BEEN NOTIFIED THAT YOU ARE OR MAY BE IN NONCOMPLIANCE WITH YOUR DISCLOSURE STATEMENT OR COST ACCOUNTING STANDARDS? <i>(If "Yes," explain in proposal)</i>	d. IS ANY ASPECT OF THIS PROPOSAL INCONSISTENT WITH YOUR DISCLOSED PRACTICES OR APPLICABLE COST ACCOUNTING STANDARDS? <i>(If "Yes," explain in proposal)</i>
<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO

This proposal is submitted in response to the solicitation, contract, modification, etc., in item 1 and reflects ex: estimates and/or actual costs as of this date and conforms with the instructions in FAR 15.804-6(b)(1), and Table 15-2. By submitting this proposal, the offeror, if selected for negotiation, grants the contracting officer and authorized representative(s) the right to examine, at any time before award, those records, which include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or any other form, or whether such supporting information is specifically referenced or included in the proposal on the basis for pricing that will permit an adequate evaluation of the proposed price.

15. NAME OF OFFEROR <i>(Type)</i>	15. TITLE OF OFFEROR <i>(Type)</i>	16. NAME OF FIRM
17. SIGNATURE		18. DATE OF SUBMISSION

TABLE 15-2 INSTRUCTIONS FOR SUBMISSION OF A CONTRACT PRICING PROPOSAL WHEN COST OR PRICING DATA ARE REQUIRED

The SF 1411 provides a cover sheet for use by offerors to submit to the Government a pricing proposal of estimated and/or actual costs only when cost or pricing data are required.

1. The pricing proposal shall be segregated by contract line item with sufficient detail to permit cost analysis. Attach cost-element breakdowns, using the applicable formats prescribed in Item 8A, B, or C of this section, for each proposed line item. These breakdowns must conform to the instructions in the solicitation and any specific requirements established by the contracting officer. Furnish supporting breakdowns for each cost element, consistent with the offeror's cost accounting system.

When more than one contract line item is proposed, summary total amounts covering all line items must be furnished for each cost element. If agreement has been reached with Government representatives on use of forward pricing rates/factors, identify the agreement, include a copy, and describe its nature. Depending on offeror's system, breakdowns shall be provided for the following basic elements of cost, as applicable:

Materials—Provide a consolidated priced summary of individual material quantities included in the various tasks, orders, or contract line items being proposed and the basis for pricing (vendor quotes, invoice prices, etc.). Include raw materials, parts, components, assemblies, and services to be produced or performed by others. For all items proposed, identify the item and show the source, quantity, and price.

Competitive Methods—For those acquisitions (e.g., subcontracts, purchase orders, material orders, etc.) exceeding the pertinent threshold set forth at 15.804-2(a)(1) priced on a competitive basis, also provide data showing degree of competition, and the basis for establishing the source and reasonableness of price. For interorganizational transfers priced at other than cost of the comparable competitive commercial work of the division, subsidiary, or affiliate of the contractor, explain the pricing method (see 31.205-26(e)).

Established Catalog or Market Prices or Prices Set by Law or Regulation or Commercial Item Not Covered By Another Exception—When an exception from the requirement to submit cost or pricing data is requested, whether the item was produced by others or by the offeror, provide justification for the exception as required by 15.804-1(d).

Noncompetitive Methods—For those acquisitions (e.g., subcontracts, purchase orders, material orders, etc.) exceeding the pertinent threshold set forth at 15.804-2(a)(1) priced on a noncompetitive basis, also provide data showing the basis for establishing source and reasonableness of price. For standard commercial items fabricated by the offeror that are generally stocked in inventory, provide a separate cost breakdown if priced based on cost. For interorganizational transfers priced at cost, provide a separate breakdown of cost by elements. As required by 15.806-2(a), provide a copy of cost or pricing data submitted by the prospective source in support of each subcontract, or purchase order that is either: (i) \$1,000,000 or more, or (ii) both more than the pertinent threshold set forth in 15.804-2(a)(1)(iii) and (iv) and more than 10 percent of the prime contractor's proposed price. The contracting officer may require submission of cost or pricing data in support of proposals in lower amounts. Submit the results of the analysis of the prospective source's proposal as required by 15.806. When the submission of a prospective source's cost or pricing data is required as described above, it shall be included as part of the offeror's initial pricing proposal.

Direct Labor—Provide a time-phased (e.g., monthly, quarterly, etc.) breakdown of labor hours, rates, and cost by appropriate category, and furnish bases for estimates.

Indirect Costs—Indicate how offeror has computed and applied offeror's indirect costs, including cost breakdowns, and showing trends and budgetary data, to provide a basis for evaluating the reasonableness of proposed rates. Indicate the rates used and provide an appropriate explanation.

Other Costs—List all other costs not otherwise included in the categories described above (e.g., special tooling, travel, computer and consultant services, preservation, packaging and packing, spoilage and rework, and Federal excise tax on finished articles) and provide bases for pricing.

Royalties—If more than \$250, provide the following information on a separate page for each separate royalty or license fee: name and address of licensor; date of license agreement; patent numbers, patent application serial numbers, or other basis on which the royalty is payable; brief description (including any part or model numbers of each contract item or component on which the royalty is payable); percentage or dollar rate of royalty per unit; unit price of contract item; number of units; and total dollar amount of royalties. In addition, if specifically requested by the contracting officer, provide a copy of the current license agreement and identification of applicable claims of specific patents. (See FAR 27.204 and 31.205-37.)

Facilities Capital Cost of Money—When the offeror elects to claim facilities capital cost of money as an allowable cost, the offeror must submit Form CASB-CMF and show the calculation of the proposed amount (see FAR 31.205-10).

2. As part of the specific information required, the offeror must submit with offeror's proposal, and clearly identify as such, cost or pricing data (that is, data that are verifiable and factual and otherwise as defined at FAR 15.801). In addition, submit with offeror's proposal any information reasonably required to explain offeror's estimating process, including—

a. The judgmental factors applied and the mathematical or other methods used in the estimate, including those used in

FEDERAL ACQUISITION REGULATION (FAR)

Under Column (5)—Enter the offeror's estimate for cost of work added by the change. When nonrecurring costs are significant, or when specifically requested to do so by the contracting officer, provide a full identification and explanation of them. When any of the costs in this column have already been incurred, describe them on an attached supporting schedule.

Under Column (6)—Enter the net cost of change which is the cost of work added, less the net cost to be deleted. When this result is negative, place the amount in parentheses. Column (4) less Column (5) = Column (6).

Under Column (7)—Identify the attachment in which the information supporting the specific cost element may be found. Attach separate pages as necessary.

C. Price Revision/Redetermination.

CUTOFF DATE	NUMBER OF UNITS COMPLETED	NUMBER OF UNITS TO BE COMPLETED	CONTRACT AMOUNT	REDETERMINATION PROPOSAL AMOUNT	DIFFERENCE
(1)	(2)	(3)	(4)	(5)	(6)

COST ELEMENTS	INCURRED COST—PREPRODUCTION	INCURRED COST—COMPLETED UNITS	INCURRED COST—WORK IN PROCESS	TOTAL INCURRED COST	ESTIMATED COST TO COMPLETE	ESTIMATED TOTAL COST	REFERENCE
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)

Under Column (1)—Enter the cut off date required by the contract, if applicable.

Under Column (2)—Enter the number of units completed during the period for which experienced costs of production are being submitted.

Under Column (3)—Enter the number of units remaining to be completed under the contract.

Under Column (4)—Enter the cumulative contract amount.

Under Column (5)—Enter the offeror's redetermination proposal amount.

Under Column (6)—Enter the difference between the contract amount and the redetermination proposal amount. When this result is negative, place the amount in parentheses. Column (4) less Column (5) = Column (6).

Under Column (7)—Enter appropriate cost elements. When residual inventory exists, the final costs established under fixed-price-incentive and fixed-price-redeterminable arrangements should be net of the fair market value of such inventory. In support of subcontract costs, submit a listing of all subcontracts subject to repricing action, annotated as to their status.

Under Column (8)—Enter all costs incurred under the contract before starting production and other nonrecurring costs (usually referred to as startup costs) from offeror's books and records as of the cutoff date. These include such costs as preproduction engineering, special plant rearrangement, training program, and any identifiable nonrecurring costs such as initial rework, spoilage, pilot runs, etc. In the event the amounts are not segregated in or otherwise available from offeror's records, enter in this column offeror's best estimates. Explain the basis for each estimate and how the costs are charged on offeror's accounting records (e.g., included in production costs as direct engineering labor, charged to manufacturing overhead, etc.). Also show how the costs would be allocated to the units at their various stages of contract completion.

Under Columns (9) and (10)—Enter in Column (9) the production costs from offeror's books and records (exclusive of preproduction costs reported in Column (8)) of the units completed as of the cutoff date. Enter in Column (10) the costs of work in process as determined from offeror's records or inventories at the cutoff date. When the amounts for work in process are not available in contractor's records but reliable estimates for them can be made, enter the estimated amounts in Column (10) and enter in Column (9) the differences between the total incurred costs (exclusive of preproduction costs) as of the cutoff date and these estimates. Explain the basis for the estimates, including identification of any provision for experienced or anticipated allowances, such as shrinkage, rework, design changes, etc. Furnish experienced unit or lot costs (or labor hours) from inception of contract to the cutoff date, improvement curves, and any other available production cost history pertaining to the item(s) to which offeror's proposal relates.

Under Column (11)—Enter total incurred costs (Total of Columns (8), (9), and (10)).

Under Column (12)—Enter those necessary and reasonable costs that in contractor's judgment will properly be incurred in completing the remaining work to be performed under the contract with respect to the item(s) to which contractor's proposal relates.

Under Column (13)—Enter total estimated cost (Total of Columns (11) and (12)).

Under Column (14)—Identify the attachment in which the information supporting the specific cost element may be found. Attach separate pages as necessary.

Solicitation No.	<u>RS-OIP-97-302</u>	Performance Period:	<u>10/1/97 - 9/30/98</u>
Contract No.	<u> </u>	Total Estimated Costs (including fixed fee, if any) of the Proposed Contract/Task Order/Modification (to a contract or task order) at the time of proposal submission.	
Task Order No.	<u> </u>	Does not include options.	\$ <u>254,825</u>
Modification No.	<u> </u>		
Offeror/Contractor Name:	<u>SCIENTECH, Inc.</u>		

Project Completion	57%	65%	74%	83%	91%	100%
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May 30, 1997

Solicitation No.	RS-OIP-97-302	Performance Period:	10/1/98 - 9/30/99
Contract No.			
Task Order No.		Total Estimated Costs (including fixed fee, if any) of the	
Modification No.		Proposed Contract/Task Order/Modification (to a contract	
Offeror/Contractor Name:	SCIENTECH, Inc.	or task order) at the time of proposal submission.	
		Does not include options.	\$ 268,855

Cost Elements	1st Month	2nd Month	3rd Month	4th Month	5th Month	6th Month
Direct Costs	<u>\$11,779</u>	<u>\$11,779</u>	<u>\$11,779</u>	<u>\$11,779</u>	<u>\$12,157</u>	<u>\$12,157</u>
Indirect Costs	<u>\$10,085</u>	<u>\$10,085</u>	<u>\$10,085</u>	<u>\$10,085</u>	<u>\$10,519</u>	<u>\$10,519</u>
Total Estimated Costs including fixed fee if any	<u>\$21,863</u>	<u>\$21,863</u>	<u>\$21,863</u>	<u>\$21,863</u>	<u>\$22,675</u>	<u>\$22,675</u>
Project Completion	8%	16%	24%	33%	41%	49%

Cost Elements	7th Month	8th Month	9th Month	10th Month	11th Month	12th Month
Direct Costs	<u>\$12,157</u>	<u>\$12,157</u>	<u>\$12,157</u>	<u>\$12,157</u>	<u>\$12,157</u>	<u>\$12,157</u>
Indirect Costs	<u>\$10,519</u>	<u>\$10,519</u>	<u>\$10,519</u>	<u>\$10,519</u>	<u>\$10,519</u>	<u>\$10,519</u>
Total Estimated Costs including fixed fee if any	<u>\$22,675</u>	<u>\$22,675</u>	<u>\$22,675</u>	<u>\$22,675</u>	<u>\$22,675</u>	<u>\$22,675</u>
Project Completion	58%	56%	75%	83%	92%	100%

May 30, 1997

CONTRACTOR SPENDING PLAN - INSTRUCTIONS

The Contractor Spending Plan (CSP) is an important tool for projecting and tracking contract costs and progress each task under the contract.

Applicability

The Nuclear Regulatory Commission (NRC) requires that the CSP be completed for cost reimbursement contracts when the award amount is expected to exceed \$100,000 and the period of performance is expected to exceed 6 months. For task order type contracts, a CSP is required when an individual cost reimbursement task order is expected to exceed the above thresholds. When a contract or task order modification increases the contract or task order amount of a cost reimbursement contract or task order to over \$100,000 and the period of performance from the effective date of the modification to the contract or task order expiration exceeds 6 months, a CSP is required for all contract work to be performed after the effective date of the modification.

Submission

1. A CSP is required:
 - a. as part of the cost proposal for a cost reimbursement contract or individual task order, or modification to a contract or task order which meets the above thresholds;
 - b. as part of the Best and Final Offer (if requested) as a result of negotiations;
2. Updated CSP information is required on a monthly basis or as approved by the CO as part of the "Financial Status Report" (Ref: Section F.3, "Financial Status Report").

Format

The attached CSP sample format may be duplicated and used by the Contractor, or modified to permit more accurate reporting or to meet other needs of the contractor. For instance, the sample format provides spaces to report projected costs for 12 months, but the contractor may wish to alter the sample format for shorter or longer contract/task order periods. The contractor may also wish to alter the sample format for ease of typing or automated production. So long as complete information is provided on actual and projected costs or accomplishments, changes to the format to improve relevance to the circumstances are encouraged.

It is up to the discretion of the offeror to determine the appropriate level of cost detail to be presented based on the complexity of the effort. This plan reflects only the minimum requirements for submission of cost details which will be considered for completeness, reasonableness, and as a measure of effective management of the effort. The Contracting Officer reserves the right to request additional cost information, if deemed necessary.

CONTRACTOR SPENDING PLAN (SP)

(to be completed as a part of the Offeror's Cost Proposal for each cost reimbursement contract or individual task order or for any contract or task order modification which exceeds \$100,000 and has a performance period exceeding 6 months)

Solicitation No. _____
Contract No. _____

Performance Period: from ____/____/____ to ____/____/____

Task Order No. _____
Modification No. _____
Offeror/Contractor Name: _____

Total Estimated Costs (including fixed fee, if any) of the Proposed Contract/Task Order/Modification (to a contract or task order) at the time of proposal submission.
Does not include options.

\$ _____

Provide cost details by month for the total contract/task order/or task order modification

Cost Elements	<u>1st Month</u>	<u>2nd Month</u>	<u>3rd Month</u>	<u>4th Month</u>	<u>5th Month</u>	<u>6th Month</u>
Direct Costs	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Indirect Costs	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Total Estimated Costs including fixed fee if any	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Project Completion	_____ X	_____ X	_____ X	_____ X	_____ X	_____ X

Cost Elements	<u>7th Month</u>	<u>8th Month</u>	<u>9th Month</u>	<u>10th Month</u>	<u>11th Month</u>	<u>12th Month</u>
Direct Costs	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Indirect Costs	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Total Estimated Costs including fixed fee if any	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Project Completion	_____ X	_____ X	_____ X	_____ X	_____ X	_____ X

**SMALL BUSINESS AND
SMALL DISADVANTAGED BUSINESS**



SUBCONTRACTING PLAN

910 Clopper Road
Gaithersburg, MD 20878

Period: October 1, 1997 - September 30, 2002

The following, together with any attachments, is hereby submitted as a Subcontracting Plan to satisfy the applicable requirements of Public Law 95-507 as implemented by OFPP Policy Letter 80-2.

1.

- (a) The following percentage goals, (expressed in terms of a percentage of total planned subcontracting dollars) are applicable to government contracts as defined by this Master Subcontracting Plan.

- (i) Small Business concerns: 55% of total planned subcontracting dollars will go to subcontractors who are small business concerns.
- (ii) Small Disadvantaged Business Concerns: 0% of total planned subcontracting dollars will go to subcontractors who are small business concerns owned and controlled by socially and economically disadvantaged individuals. This percentage is included in the percentage shown under 1.(a)(i), above, as a subset.
- (iii) Women Owned Business Concerns: 45% of total planned subcontracting dollars will go to subcontractors who are small business concerns owned and controlled by socially and economically disadvantaged individuals. This percentage is included in the percentage shown under 1.(a)(i), above, as a subset.

- (b) The following dollar values correspond to the percentage goals shown in (a) above.

- (i) Total dollars planned to be subcontracted to small business owned concerns: \$24,480.
- (ii) Total dollars planned to be subcontracted to small disadvantaged business concerns: \$0.
This dollar amount is included in the amount shown under 1.(b)(i), above, as a subset.
- (iii) Total dollars planned to be subcontracted to women owned business concerns: \$20,000 (dependent upon the exercise of options). This dollar amount is included in the amount shown under 1.(b)(i), above, as a subset.

- (c) The total estimated dollar value of government planned subcontracting (to all types of business concerns) is \$44,480.

- (d) The following principal products and/or services will be subcontracted under this Contract:

Tom R. Murley (Consultant/Small Business) - Will provide high level reviews of regulations and

Zoltan Rosztoczy (Consultant/Small Business) - Will provide thermal hydraulic support and act as the liaison with the Hungary Atomic Energy Commission.

Robert Budnitz (Consultant/Small Business) - Will provide risk assessment and seismic technical services.

Ed Greenman (Consultant/Small Business) - Will provide inspection program development support.

Technical & Regulatory Evaluations Group (Women-Owned) - Will provide international regulations and standards development consulting services in the area of radioactive waste management.

Envirocore, Inc. (Women-Owned) - Will provide engineering, and regulatory compliance technical services.

- (c) Based upon specific contract requirements and serving the best interests of the Government, SCIENTECH management determines if supplies/services will be required that are not available within the Company. If this is the case, subcontractors are selected based upon the same source selection criteria set forth in SCIENTECH's contracts. Source lists are maintained by both Program Management and Purchasing, although all procurement awards are made through Purchasing.

The method used in developing subcontract goals and to identify potential sources (e.g., what source lists were used and what organizations were or will be contacted to obtain Small Business and Small Disadvantaged Business sources) is described in Paragraph 3 below.

- (f) Indirect and overhead costs have not been included in the goals specified in 1(a) and 1(b).

2. The following individual will administer the subcontracting program:

Name:	<u>Shirley Afable</u>
Address &	<u>910 Clopper Road, Gaithersburg, MD 20878</u>
Telephone:	<u>(208) 258-2419</u>
Title:	<u>Senior Contracts Specialist</u>

This individual's specific duties, as they relate to the firm's subcontracting program, are to assume general overall responsibility for SCIENTECH's Small Business Program, the development, preparation and execution of individual subcontracting plans, and for monitoring performance relative to contractual subcontracting requirements contained in this plan, including, but not limited to:

- (a) Developing and maintaining bidders' lists of small and small disadvantaged business concerns from known sources.
- (b) Ensuring that procurement packages are structured to permit small and small disadvantaged business concerns to participate to the maximum extent possible.
- (c) Assuring inclusion of small and SDB concerns in solicitations for products or services which they are capable of providing.

- (d) Reviewing solicitations to remove statements, clauses, etc., which may tend to restrict or prohibit SB and SDB participation.
 - (e) Ensuring periodic rotation of potential subcontractors on bidders' list.
 - (f) Ensuring that the bid proposal review board documents its reasons for not selecting low bids submitted by small and small disadvantaged business concerns.
 - (g) Ensuring the establishment and maintenance of records of solicitations and subcontract award activity.
 - (h) Attending or arranging for attendance of company counselors at Business Opportunity Workshops, Minority Business Enterprise Seminars, Trade Fairs, etc.
 - (i) Conducting or arranging for conduct of motivational training for purchasing personnel pursuant to the intent of P.L. 95-507.
 - (j) Monitoring attainment of proposed goals.
 - (k) Preparing and submitting periodic subcontracting reports required.
 - (l) Coordinating contractor's activities during the conduct of compliance reviews by Federal agencies.
 - (m) Coordinating the conduct of contractor's activities involving its small and small disadvantaged business subcontracting program.
 - (n) There are no additions to (or deletions from) the duties specified above.
3. The following efforts will be taken to assure that small and small disadvantaged business concerns will have an equitable opportunity to compete for subcontracts:
- (a) Outreach efforts will be made as follows:
 - (i) Contacts with minority and small business trade associations
 - (ii) Contacts with business development organizations
 - (iii) Attendance at small and minority business procurement conferences and trade fairs
 - (iv) Sources will be requested from SBA's PASS system, small business directories, or SCIENTECH bidder's lists.
 - (v) Contact with SCIENTECH's regional SBA office.
 - (vi) SCIENTECH's senior management will pro-actively establish contacts with small business concerns.
 - (b) The following internal efforts will be made to guide and encourage buyers.

- (i) Workshops, seminars and training programs will be conducted
 - (ii) Activities will be monitored to evaluate compliance with this subcontracting plan.
 - (iii) The success in reaching small business goals will be a factor in evaluating SCIENTECH managers' performance and receipt of any salary/bonus increases.
- (c) Small and small disadvantaged business concerns source lists, guides and other data identifying small and small disadvantaged business concerns will be maintained and utilized by buyers in soliciting contracts.
 - (d) Additions to the above listed efforts are shown above in 3(a)(iv). SCIENTECH's services are very specialized and we may need to develop sources beyond PASS, the Procurement Automated Source System. Further, SCIENTECH has taken significant steps to increase business opportunities for small business by adding subparagraphs 3(a)(v), 3(a)(vi), and 3(b)(iii).
4. SCIENTECH agrees that the clauses entitled: "Utilization of Small Business Concerns and Small Business Concerns Owned and Controlled by Socially and Economically Disadvantaged Individuals" will be included in all subcontracts which offer further subcontracting opportunities, and all subcontractors except small business concerns who receive subcontracts in excess of \$500,000 will be required to adopt and comply with a subcontracting plan similar to this one. Such plans will be reviewed by comparing them with the provisions of Public Law 95-507, and assuring that all minimum requirements of an acceptable subcontracting plan have been satisfied. The acceptability of percentage goals shall be determined on a case-by-case basis depending on the supplies/services involved, the availability of potential small and small disadvantaged subcontractors, and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports, and/or, as time and availability of funds permit, periodic visits to subcontractors' facilities to review applicable records and subcontracting program progress.
 5. SCIENTECH agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the contracting agency or the Small Business Administration in order to determine the extent of compliance by the bidder with the subcontracting plan and with the clause entitled "Utilization of Small Business Concerns Owned and Controlled by Socially and Economically Disadvantaged Individuals". SF 294's shall be submitted semi-annually; SF 295's shall be submitted on an annual basis.
 6. SCIENTECH agrees that we will maintain at least the following types of records to document compliance with this subcontracting plan:
 - (a) Small and small disadvantaged business concerns source lists, guides and other data identifying SB/SDBC vendors
 - (b) Organizations contacted for small and small disadvantaged business sources.
 - (c) Records on all subcontract solicitations over \$100,000, indicating on each solicitation (1) whether small business concerns were solicited, and, if not, why not; (2) whether small disadvantaged business concerns were solicited, and, if not, why not; and (3) reasons for the failure of solicited small or small disadvantaged business concerns to receive the subcontract award.

- (d) Records to support other outreach efforts: Contacts with Minority and Small Business Trade Associations, etc. Attendance at small and minority business procurement conferences and trade fairs.
- (e) Records to support internal activities to guide and encourage buyers: Workshops, seminars, training programs, etc. Monitoring activities to evaluate compliance.
- (f) Records to support subcontract award data, to include name and address of subcontractor.

Signed:

Douglas A. Knight

Typed Name:

Douglas A. Knight

Title:

Manager of Contracts and Administration

Date:

June 13, 1997

Government Agency
and/or Federal Office:

Plan Accepted By:

Oliver J. Wiggins
Contracting Officer

Date:

6/19/97

OMB No. 1545-0047
Expiration Date 06-30-2008

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NUCLEAR REGULATORY COMMISSION -- NRC
DIVISION OF ACCOUNTING AND FINANCE
WASHINGTON, DC 20555
CONTACT PERSON NAME _____ TELEPHONE NUMBER
CAROLYN L. BERRY (301) 415-7520

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PROCEDURES FOR RESOLVING NRC CONTRACTOR
DIFFERING PROFESSIONAL VIEWS

The Nuclear Regulatory Commission's (NRC) policy is to support the expression of professional health and safety related concerns associated with the contractors' work for NRC that may differ from a prevailing staff view, an NRC decision or policy position, proposed or established agency practices or similar considerations. The following procedure provides for the expression and resolution of differing professional views (DPVs) of health and safety related concerns of NRC contractors and contractor personnel on matters connected to the subject of the contract. The NRC may authorize up to eight reimbursable hours for the contractor to document in writing a DPV by the contractor, the contractor's personnel, or subcontractor personnel. Subcontractor DPVs shall be submitted through the prime contractor. The prime contractor or subcontractor shall submit all DPV's received but need not endorse them. In the event sufficient funds are not available under the contract, the contractor shall first obtain authorization from the Contracting Officer providing sufficient funds to cover the cost of preparing the DPV. With the exception of the above specified payment for eight hours work on a DPV, the contractor shall not be entitled to any additional compensation or additional work under its contract by virtue of the DPV submission.

Contract funds shall not be authorized to document an allegation in the following instances where the use of this NRC contractor DPV process is inappropriate. This process shall not be used for allegations of wrongdoing which should be addressed directly to the NRC Office of the Inspector General (OIG); issues submitted anonymously; issues that are deemed by NRC to be frivolous or otherwise not in accordance with the policy underlying these procedures; or issues raised which have already been considered, addressed, or rejected, absent significant new information. Note that this procedure does not provide anonymity. Individuals desiring anonymity should contact the NRC Office of the Inspector General or submit the information under NRC's Allegation Program, as appropriate.

Each DPV shall be submitted in writing and will be evaluated on its own merits.

DPV PROCEDURE

When required, the contractor shall initiate the DPV process by submitting a written statement directly to the NRC Office Director or Regional Administrator responsible for the contract, with a copy to the Contracting Officer, Division of Contracts, Office of Administration.

The DPV, while being brief, shall contain the following as it relates to the subject matter of the contract:

- a summary of the prevailing NRC view, existing NRC decision or stated position, or the proposed or established NRC practice.
- a description of the submitter's views and how they differ from any of the above items.
- the rationale for the submitter's views, including an assessment based on risk, safety and cost benefit considerations of the consequences should the submitter's position not be adopted by NRC.

The Office Director or Regional Administrator will immediately forward the submittal to the NRC DPV Review Panel and acknowledge receipt of the DPV, ordinarily within five (5) calendar days of receipt.

The panel will normally review the DPV within seven calendar days of receipt to determine whether enough information has been supplied to undertake a detailed review of the issue.

Typically, within 30 calendar days of receipt of the necessary information to begin a review, the panel will provide a written report of its findings to the Office Director or Regional Administrator and to the Contracting Officer, which includes a recommended course of action.

The Office Director or Regional Administrator will consider the DPV Review Panel's report, make a decision on the DPV and provide a written decision to the contractor and the Contracting Officer normally within seven calendar days after receipt of the panel's recommendation.

Subsequent to the decision made regarding the DPV Review Panel's report, a summary of the issue and its disposition will be included in the NRC Weekly Information Report submitted by the Office Director. The DPV file will be retained in the Office or Region for a minimum of one year thereafter. For purposes of the contract, the DPV shall be considered a deliverable under the contract. Based upon the Office Director or Regional Administrator's report, the matter will be closed.

Technical Qualifications for Contractor Personnel

NOTE:

In addition to the qualifications described below, technical personnel shall have a demonstrated ability to prepare clear and concise technical reports.

In each of the technical qualification areas listed below, the Contractor shall provide a Senior Technical Expert with demonstrated capabilities to address highly complex issues who shall be designated as Key Personnel. In addition, the Principal Investigator should have proven capability in the performance of NRC-like nuclear safety analyses, and be skilled in the use of PRA.

A Program Manager with the qualifications described in the Statement of Work shall be designated for this procurement.

Technical Qualifications

Nuclear Engineer: Engineering or relevant technical degree with demonstrated experience in neutronics and reactor systems operations for pressurized water reactors (PWRs) or boiling water reactors (BWRs) (both preferably) and familiarity with the Commission's regulations in Appendix A to 10 CFR Part 50.

Mechanical Engineer (Mechanical Component Design): Engineering or relevant technical degree with demonstrated extensive design and field experience with nuclear service pump design, rotating equipment vibration analysis, and/or fluid dynamics. Must have knowledge of the applicable ASME Code requirements and industry standards and demonstrated ability to apply that knowledge in evaluating the safety significance of not meeting (or alternatives to) the Codes and Standards.

Electrical Engineer (Plant Power Systems): Engineering or relevant technical degree with demonstrated experience in the design of electrical power distribution systems (preferably some should be with nuclear power plants designs) and experience in the reliability analysis of such systems including consideration of electrical equipment degradation and failure mechanisms (including aging factors) and preventative maintenance. Background should include working knowledge of industry standards/practices for periodic inspections and tests of electric equipment. Some experience should be in the evaluation of electrical systems as incorporated into probabilistic risk assessments with background experience associated with electrical equipment failure rate data and modeling techniques.

Ignalina Safety Panel

Recommendations

on the

Ignalina NPP Units 1 & 2

In-Depth Safety Assessment

February 1997

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Main Part

1 Introduction

A Grant Agreement was signed on 10 February 1994 by the Lithuanian Government, the Ignalina Nuclear Power Plant (INPP) and the European Bank for Reconstruction and Development (EBRD). The grant was to fund a project of short term safety upgrades in support of the Safety Improvement Program (SIP) being implemented at INPP.

Included in the Grant Agreement was a commitment by Lithuanian authorities that an „In-Depth Safety Assessment of the Ignalina NPP“ would be performed. The safety assessment was the responsibility of the INPP with the support of Western and Eastern nuclear safety experts and the reactor designer, NIKIET. Subject to budget and time constraints, the in-depth safety assessment was to be comparable to a Safety Analysis Report (SAR) produced in Western countries to demonstrate the adequacy of plant safety and to provide the major contribution for the regulator in the licensing process. In addition to production of the SAR, this particular project included the independent review of the safety analysis report (RSR) jointly by Western and Eastern experts. Unit 1 of INPP was the objective of this assessment. However, since no significant differences were identified between Units 1 and 2, the results apply to both plants.

Prior to project execution, Guidelines were developed and endorsed by the regulatory authority (VATESI). This endorsement required the examination of Lithuanian/Russian standards. The examination concluded that in general the current Lithuanian/Russian regulations constitute an adequate framework, but a number of specific areas were identified where the Western practice was to be taken as the basis for comparison for the plant.

A Panel of international nuclear safety experts, Ignalina Safety Panel, was established in accordance with the Grant Agreement. The objectives of the Panel were to define, monitor and supervise the scope and production of the Ignalina SAR and its review. The Panel was to make independent recommendations to the Lithuanian Government, which has ultimate responsibility for plant safety, regarding a decision for continued INPP operation and implementation strategies of the SAR and RSR recommendations and to the EBRD.

2 Background

The INPP, Lithuania's only nuclear power station, consists of two units, commissioned in December 1983 and August 1987. Both units are of the later Soviet RBMK design and are the largest of their kind with a design capacity of 4800 MWth (1500 MWe).

culture required for a safety basis for plant operation. These recommendations are summarised in the Annex 2. The Panel broadly endorses the recommendations and priorities defined by RSR (see Table 2).

The Panel concludes that the measures defined by the ongoing Safety Improvement Program (SIP) /9/ are in general supported by SAR and RSR results. The scope of the ongoing SIP, however, is not in itself sufficient for continued operation for the time period defined by the Grant Agreement.

The „Ignalina NPP - Nuclear Safety Account Project“ which was part of the SIP has already addressed several important recommendations of SAR/RSR (e.g. engineering study for a second shutdown system, additional reactor trips, fire protection equipment, simulator). However, that project does not provide complete resolution of the safety issues. Some elements of this Nuclear Safety Account project addressed issues other than those covered in the SAR/RSR (e.g. radioactive release and environmental monitoring, seismic upgrading, hydrogen monitoring system).

The Panel is disappointed that the senior management of INPP does not accept ownership and responsibility for the SAR despite the active involvement of plant staff. Also the Panel believes that neither INPP nor VATESI fully understand and accept their respective roles and responsibilities to resolve the identified safety issues. If their roles and responsibilities are not clearly defined, understood and aggressively implemented, this would be a significant issue requiring immediate shutdown. Both INPP and VATESI require significant improvements in management. In addition, they need to develop an appropriate safety culture before they can perform to acceptable standards.

The Panel reiterates that the Lithuanian Government as the owner of INPP is ultimately responsible for plant safety.

The Panel holds the view that the most important safety issues in design and operation must be resolved without delay. Specifically the Panel recommends that neither unit should be restarted from its extended 1997 maintenance outage until the most important safety issues identified in the Panel's Recommendations (chapter 4) are resolved to the satisfaction of the Lithuanian authorities.

The following section provides the Panel recommendations to the Lithuanian Government, INPP and VATESI. Intermediate term operation will require an operating license from VATESI.

4 Ignalina Safety Panel Recommendations

General Recommendations

The Panel is directing its recommendations to the Lithuanian Government.

The INPP is in need of significant improvements in safety before its operation can be considered tolerable within the time defined by the Grant Agreement i.e. the time when the pressure tubes would require replacement.

The Panel holds the view that the most important safety issues needing immediate resolution are as follows:

- The INPP should introduce an appropriate management structure to ensure safe operation of the plant, efficient implementation of necessary safety improvements and adequate support of the licensing process.
- The safety case for the reactor control and protection system should be completed by INPP.
- The safety case for the accident localisation system should be provided by INPP.
- The safety case for the structural integrity of the reactor cooling circuit should be provided by INPP.
- A fire hazard analysis for all safety systems should be carried out by INPP.
- INPP should develop and implement emergency operating procedures and the limits and conditions of safe operation.

In addition to these requirements on the INPP, the following applies specifically to VATESI:

- Substantial changes in the attitude of the regulator are necessary with regard to safety problems. VATESI must develop a regulatory regime for the licensing process and for monitoring of INPP operation using bilateral and multilateral assistance.

The Panel believes that a prudent approach would be to consider the future operation of the reactors at the end of their next scheduled maintenance shutdowns. At that time (approximately 6-8 months from now for Unit 1, a few months later for Unit 2) we recommend a decision by VATESI to restart should be contingent on a satisfactory resolution of the outstanding safety issues.

For unit 1 this will require a development of an economic and speedy resolution to the control and protection system issue, able to provide an acceptable system for the few

years (2-3) of the operation of the plant before its planned closure on pressure tube/graphite gap closure grounds.

For unit 2 however, the projected longer life of this plant requires a more reliable solution, the provision of a second shutdown system. The Panel believes that a four year time scale to design and install this system is unacceptably long.

For both units the plan must include action items covering the identified safety, management and organisational issues. In particular, the following measures have to be completed prior to restart after 1997 annual shutdown:

- commit to an appropriate management structure
- complete a single failure analysis of the control and protection system
- identify and implement design and procedural modifications required to compensate for control and protection system deficiencies
- complete planning and start development of a safety case for the structural integrity of the reactor circuit; as part of this safety case the design analysis required by the SAR/RSR on critical reactor circuit components (drum separator and group distribution header nozzles) should be provided prior to restart
- complete planning and start development of a safety case for the accident localisation system
- complete the emergency operating procedures

Important safety deficiencies discovered by analyses required above should be resolved before restart.

In addition an action plan and schedule for all safety issues be prepared by INPP and approved by VATESI. It should cover all recommendations of the SAR/RSR and the Panel as well as safety issues identified by the plant and VATESI. Each identified safety issue should have resolution criterion which should be prepared by the plant and approved by the regulator. Implementation of the action plan requires immediate and aggressive action.

Specific Recommendations to the Lithuanian Government

In accordance with the Lithuanian Nuclear Energy Law and international conventions and practices the Lithuanian Government should define and establish appropriate division of responsibilities between the Lithuanian State, the Ignalina NPP, the regulatory organisation VATESI and the Technical Support Organisations (TSO's) with regard to nuclear safety. Lithuania did not have a developed nuclear infrastructure when it gained independence. It has had to generate both regulatory and technical support and necessary legal basis. This has progressed well, but the Panel concludes that further strengthening is essential.

Lithuania must provide direction and resources to ensure a qualified and adequate regulatory staff and technical and scientific expertise to perform their required

augment the VATESI management and staff as well as their TSO's to assist in the enhancement of their capabilities.

The Panel believes that insufficient oversight of VATESI is provided by its position within the governmental structure. One example for resolving this problem could be the establishment of a „Board of Governors“ for the regulatory authority.

The Lithuanian Government has established the Lithuanian Nuclear and Radiation Safety Advisory Committee which includes senior international experts, to assist INPP and VATESI. The Committee should be charged specifically with monitoring the implementation of the recommended safety improvements. The Advisory Committee should serve as main supporter to the Lithuanian Government on other major issues affecting the safety including design, operation, upgrading and possible decommissioning.

The Government of Lithuania is the owner of INPP. As such it must take all necessary measures required for safe plant operation. This includes providing funding that is required for the plant to adequately address nuclear safety issues, and implement appropriate plant safety management structures. In addition it is necessary to establish the lacking legal documentation and to consider a Board of Governors to facilitate necessary interactions between the Government and INPP.

Specific Recommendations to VATESI

Consistent with the Convention on Nuclear Safety of which Lithuania is a signatory a regulatory body must be designated and entrusted with the implementation of the legislative and regulatory framework. The regulator must be provided with adequate authority, competence and financial and human resources to fulfil its assigned responsibilities.

The Panel discussed safety problems with the regulator VATESI several times and believes that substantial changes in the attitude of VATESI and the regulatory regime are necessary.

Consistent with the new Lithuanian Nuclear Energy Law, VATESI and INPP must clarify the definitions of their respective roles and responsibilities and the boundary within which the plant has control and accountability, such that the required independent regulatory review responsibility of VATESI is maintained.

VATESI must develop a regulatory regime for the licensing process and for monitoring of INPP operation using bilateral and multilateral assistance as appropriate.

VATESI has the responsibility of a licensing authority. As an urgent action it is important for VATESI to perform a detailed review of the SAR and the SAR/RSR recommendations and to exercise its regulatory authority and require the plant to provide technical justifications for each safety issue.

VATESI must define and schedule a specific program of inspection, monitoring and audit of the Operating License Conditions, the Plant Quality Assurance Program, and

specific safety systems and work activities, required to assess operational safety. VATESI should not perform structural inspections which are the responsibility of INPP.

Specific Recommendations to INPP

It is critical that an action plan and schedule for all safety issues be prepared by INPP and approved by VATESI. It should cover all recommendations of the SAR/RSR and the Panel as well as safety issues identified by the plant and VATESI. Each identified safety issue should have resolution criterion which should be prepared by the plant and approved by the regulator. Implementation of the action plan requires immediate and aggressive action.

The INPP must not only accept ownership of the current SAR but also continuously update the document to demonstrate increasing level of safety responsibility and awareness in the operation of the plant. Consistent with the RSR and Panel recommendations, it is important that INPP provide the plant safety infrastructure to ensure closure of the unresolved safety issues. It is important that appropriate independence be maintained between the INPP and VATESI.

Responsibility for operational safety should be focused upon INPP alone. The development of quality assurance and management programs will enable INPP to handle that increased responsibility.

Specific Recommendations to the Donor Countries

The Panel recognises the urgent need for and supports an integrated international assistance program that builds upon the existing safety improvement program of INPP and includes guidance to VATESI and its TSO's.

Future assistance programs focused on RBMK's should use the experience gained from the "In-Depth Safety Assessment of Ignalina NPP" project. Similar plant specific safety assessments should be performed for all operating units to evaluate the current safety level. These assessments should be connected strongly to a definite licensing process to ensure a serious commitment to meet scope and schedule by all parties (NPP, designer, regulatory authority, TSO) involved.

The "In-Depth Safety Assessment of INPP" is the first attempt to provide a plant specific Western-style safety assessment for any Soviet designed NPP. The Ignalina SAR and RSR thus represent a unique multilateral project to use internationally recognised safety principles and practises for the safety assessment of Soviet designed NPPs. The transfer of methodologies and approaches from the Ignalina in-depth safety assessment to other Soviet designed NPP's would be highly valuable.

Because Ignalina NPP is of more recent design, and has higher power rating the Panel notes that the direct transfer of generic findings and recommendations does not replace the need for plant specific in-depth safety assessment by the plant operator. Every site has specific issues.

The Panel believes that the project management approach worked well. Specifically:

The organisation of this project which separates the SAR production and the independent review is an excellent approach. It is important that the independent review be performed in parallel with the SAR production and provide interactive feedback thereby improving the final product. The use of a Western management team responsible for organisation and quality assurance is also effective.

Annex 1

Major Conclusions

The Panel's Summary on the "In-Depth Assessment of INPP" ¹⁾

1. Safety management and safety culture at the plant is in the early stage of emergence from the Soviet situation into a very different situation based more on Western practice. This is being assisted by Western organisations but is only progressing slowly. Maximum benefit is not being gained from operational experience, either from INPP or from other plants. Plant configuration control is inadequate. Current management practices mean that some of the responsibility for safety is still implicitly shared by organisations other than the NPP, for example the Chief Designer and the Lithuanian Regulatory Authority, although it is clear that formally the responsibility rests solely on INPP. The plant management team does not show a strong commitment to development of a convincing safety case² for continued operation of the plant. The management does not appear to encourage and promote an adequate safety culture.
2. Post-Chernobyl modifications made to the reactor have reduced the void coefficient to the point that there is no longer a significant power pulse during accidents caused by break of large pipework. This combined with relatively slow depressurisation rates means that the existing shutdown system is fast enough to cope with all design basis accidents.
3. The existing control and protection system (CPS) is structured in a way which makes complete separation of the control and protection functions impossible. Furthermore instrumentation associated with the CPS does not meet accepted requirements for segregation. Failure of shutdown for some accidents leads to unacceptable consequences and therefore requires addition of a second shutdown system, and the use of compensatory measures to reduce the risk until the second shutdown system is implemented. A convincing case is also lacking that the existing protection system cannot be disabled by any single failure. This needs to be demonstrated urgently because of the potential consequences of failure to shut down when required.

¹ based on SAR and RSR conclusions /3, 4, 6/

² A safety case is a formally argued case that the safety of the plant is adequate, taking into account accepted principles and criteria of safety. Its scope is all aspects of the plant design and operation that can affect the safety of workers or the public. It normally covers a fixed period of continued operation. It may claim credit for firmly planned and committed future improvements provided it is also shown that the risk is tolerable in the intervening period. The argument needs to be supported by strong evidence (such as detailed calculations of how accidents would

4. There is not an adequate demonstration that the reactor coolant circuit has been built and maintained to ensure high levels of integrity. Such a demonstration would need to integrate results from inspection, theoretical analysis and study of the potential for defect initiation and propagation in the high pressure components. This lack of integrity demonstration is particularly important for the drum separators, because there is no defence in depth. If a drum separator were to rupture there is no engineered safety feature which is designed to protect against core damage and a large release of radioactivity. The situation is similar to that of the pressure vessel of a PWR, for which a comprehensive safety case is required.
5. Apart from in the CPS, for which some uncertainty still exists, there were no single failures identified in the primary safety systems which would prohibit their functioning. Many of the safety support systems are, however, susceptible to single failures but none have been identified that would invalidate the overall safety function. Improvements in fire detection systems, fire cell separation and creation of separate fire compartments for safety and safety related systems are needed. Equipment qualification requirements have been minimised since most of the critical equipment is located in areas of mild environment (post-accident) and actions to ensure integrity of these barriers must be emphasised. The potential for flooding of some safety equipment needs further investigation and remedial action if necessary.
6. Several required design and procedural modifications have been accepted by INPP relating to: additional reactor trips, early initiation of the emergency core cooling system (ECCS) for all breaks, improved diversity in ECCS initiation logic, pressure relief in the steam compartments and in the reactor hall, drainage of radioactive pools in areas outside confinement, reduction in the number of allowable pre-existing fuel failures, and enhanced operator instructions and training for control of long term emergency cooling.
7. The lack of Western style containment at INPP is somewhat offset by the results for design basis accidents which show that all LOCAs where significant fuel failures could occur from fuel over-heating are located within confinement. However, the structural integrity of the confinement in accident conditions is not demonstrated and the leaktightness of unit 1 is poor. Recommendations have been made to ensure that no fuel failures at all would occur in breaks of unconfined pipework, and to improve the confinement integrity and performance.
8. The venting capacity of the reactor cavity is limited, even though it has been recently improved. Multiple pressure tube rupture (MPTR) can cause severe consequences if the venting capacity is exceeded. Any general fuel temperature excursion while at high pressure has the potential to rupture fuel channels. The probability of MPTR is low but needs to be further reduced by several of the improvements currently being instituted (trip on low flow in multiple fuel channels, automatic trip on low operational reactivity margin). Failure of the shutdown system (see above) can also cause MPTR, and this gives the recommendations associated with it a high priority. Enhancements to ECCS initiation logic are also needed to protect against early, local temperature excursions following specific pipe breaks and some other initiators affecting a group of pressure tubes.

9. The time of contact between the pressure tubes and the graphite moderator has been estimated to occur between 1999 and 2002 for Unit 1 but the actual time of closure can only reliably be determined from measurement. Programmes are currently underway at INPP to measure the diameters of the channels and new equipment is under development to measure the channel to graphite gap from within the channel. Operation with contact is not shown to be safe and this has been accepted by INPP as a life-limiting phenomenon.
10. An indicative estimate of the cost of the modifications proposed in the SAR, and priorities for undertaking these modifications have been established and are estimated at about 120 Million US \$ for both units including the full scale simulator. In addition about 125 person-years of operating staff will be required to implement all of the operational procedure and practices recommendations.
11. The fundamental design of this reactor relies on the operator to undertake essential safety actions and correct action is heavily dependent on the operators memorising the required actions. The Emergency Operating Procedures require substantial improvement or new development in regard to content and reference material essential for response in accident situations. Operator training needs to make more use of written procedures and simulators.

Annex 2

In-depth Safety Assessment of Ignalina NPP

Safety Analysis Report

The Grant Agreement by the Lithuanian Government, the INPP and the European Bank for Reconstruction and Development on behalf of the Nuclear Safety Account required that an in-depth safety assessment of the plant (SAR) be undertaken.

Common Guidelines /1/ were proposed and implemented for the production and review of the SAR. The Guidelines describe the safety philosophy behind the in-depth assessment. They also describe the standards and practices which are to form the basis of the requirements for the SAR and its review, and explain how the scope of the assessment shall be determined from existing knowledge, in the East and the West, of the significant safety issues for RBMK's.

As the initial task the Guidelines required the examination of Lithuanian/Russian standards. The higher level standards were reviewed and compared with commonly accepted Western practice. It was concluded that in general the current Lithuanian/Russian regulations constitute an adequate framework, but a number of areas were identified where the western practice was to be taken as the basis for comparison for the plant. Examples of application of Western practices included equipment qualification, separation of control and protection functions, operator actions and seismic considerations.

The objectives of the in-depth safety assessment were to demonstrate that the plant is adequately safe and to identify and evaluate any factors which may limit the safe operation of the plant in the foreseeable future. In addition the safety assessment was to assess the plants safety standard and practices, recommend any additional improvements which are reasonably practicable and provides estimates of their costs and schedules.

In meeting these general objectives, three further goals were to be achieved:

- the process of producing and reviewing the SAR will assist in developing the roles of the operator and regulator in the management of nuclear safety within Lithuania
- the findings of the SAR and review will aid the regulator in the decision regarding the granting of a new license if INPP unit-1 is to be operated beyond 1998
- the findings of the SAR and review will aid the Lithuanian Authorities in decisions regarding priority of investment in hardware and software improvements

The SAR represents a co-ordinated effort of INPP, reactor designer (NIKIET) and western organisations. In comparison with former mainly generic „Technical Safety Justifications“ (TOB) for RBMK's the SAR contains:

- plant specific system descriptions (as far as possible as built)
- the identification of all faults and hazards with the potential to lead to fuel damage or radioactive releases from the plant
- plant specific accident analysis (including a detailed review of acceptance criteria for accident analyses and Russian computer codes)
- operators role and safety management
- a cross comparison with the results of other RBMK safety projects in order to assess the applicability of findings and recommendations valid for other RBMK's to INPP
- evaluation of costs and schedule for additional safety improvements outside the existing SIP

The SAR team concluded that:

- an adequate safety case for continued operation of INPP has been demonstrated,
- the safety case is adequate to the point of first gap closure which is the life limiting factor, and
- the plant's safety standards and practices have been assessed and recommendations for improvement have been made and accepted by INPP.

Table 1 summarises the major recommendations of the SAR.

Review of the Safety Analysis Report

A team of international nuclear safety experts was established to perform an independent review of the safety analysis report (RSR). The specific objectives of the SAR review were to:

- review the analysis carried out during production of the SAR,
- perform independent assessments of the SAR findings and recommendations,
- independently assess the adequacy of the safety basis for continued operation

The RSR performed independent analysis and assessments and concurred with most of the SAR findings and recommendations. The RSR agreed that the SAR provides the major contribution to the Lithuanian regulator to consider in their licensing decision of INPP.

The RSR believes that the SAR can not be considered as a complete basis for a licensing decision and a limited set of important safety issues remain for resolution between INPP and VATESI prior to a licensing decision.

In particular the RSR believes that an adequate safety case has not been made on the control and protection system. The RSR agrees on the need for a second shutdown system and the addition of diverse automatic shutdown initiation signals to ensure reactor shutdown under all accident conditions. The RSR believes that short and intermediate term compensatory measures are required until the second shutdown system would be available (2000 at the earliest).

The RSR is not convinced that the SAR presents an overall safety case for the structural integrity for the reactor coolant system. In particular evidence was not presented in the SAR that the reactor coolant system or the accident localisation system were designed, fabricated and analysed to appropriate standards or that the quality assurance and inspection system is sufficient.

The RSR finds that the recommended improvements in engineered plant safety systems are necessary but are not by themselves sufficient, without corresponding improvements in the plant safety culture. Because of the lack of passive mitigating features, in particular a full containment and forgiving physical characteristics, great emphasis needs to be placed on active protection measures normally defined in emergency operating procedures. In many cases, if active protection were to fail the consequential release would be large and early. The RSR expressed concern that the existing emergency procedures are not of sufficient detail or practised sufficiently that a high degree of confidence may be attributed to operator actions which may be necessary to recover from potential accident situations. In addition a limited equipment qualification demonstration program is required to ensure that systems important to safety will function properly for all accident sequences.

Table 2 summarises the major recommendations of the RSR.

In view of the importance of the safety issues of INPP in design, operation and safety management and their complexity, RSR considers that INPP should be temporarily shutdown until the critical issues are resolved and SAR and RSR recommendations are accepted and carried out with an appropriate degree of urgency.

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References

1. In Depth Safety Assessment of Ignalina NPP, „Guidelines for Production and Review of Safety Analysis Report“, 7 June 1994
2. R. A. Brown, G. H. Archinov, L. H. Austman, „Summary and Demonstration of Acceptability“, SAR95-101-AECL/RAB-182, (version 5)
3. R. A. Brown, H. L. Austman, V. Luukkonen, „Regulatory Issues and Cost Estimates“, 19/11/96 (revision 0)
4. R. A. Brown, G. H. Archinov, L. H. Austman, „SAR Executive Summary“, SAR95-101-AECL/RAB-183, (version 5)
5. Review of the Ignalina Nuclear Power Plant Safety Analysis Report, RISKAUDIT Report No. 55, prepared for EBRD, Contract No. C 4424 and 4584, December 1996
6. Review of the Ignalina NPP Safety Analysis Report , Executive Summary, RISKAUDIT Report No 60, January 1997
7. European Union TACIS Programme 1991, „RBMK Safety Review“ Phase 1: Final Reports of Topic Groups 1- 9, AEA Technology, Risley, U.K. March 1994
8. European Union TACIS Programme 1993, „RBMK Safety Review“ Phase 2: Inception Report, June 1995
9. The Lithuanian Programme for Safety Improvement Work at the Ignalina Nuclear Power Plant, Ignalina, August 1993

Table 1: Major SAR Recommendations

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
System Modifications					
1.	1	P1	Diverse Shutdown System	INPP has accepted the need for the diverse shutdown system, but the details and implementation schedule have not been established.	Agreed
2.	1	P1	ECCS Signal For Stagnation Breaks In GDH	A signal to promptly initiate ECCS for a critical GDH break is needed. This signal should be based on the reactor trip on low flow in multiple channels (currently being designed by Westinghouse). To ensure ECCS is not fired spuriously this signal should be "anded" with high pressure in confinement.	Agreed
3.	1	P1	dP/dt Reactor Trip And ECCS Initiation Signal	A new signal to promptly trip the reactor and to initiate ECCS for breaks outside confinement based on rate of change of Drum Separator pressure decrease	Agreed
4.	1	P2	Contaminated Water Drainage For Breaks Outside Confinement.	High capacity drainage into the ALS should be provided in order to reduce the time contaminated water pools in non-confined areas are exposed to the environment. Task Group 5 has reviewed the situation and believe that this can be achieved in a realistic manner.	Agreed
5.	1	P1	Reactor Hall Over-Pressure Protection	INPP has agreed to install a blow-out panel of some kind to cover the opening where the transfer shaft is not in use.. This size of opening has been shown by the Task Group 5 analysis to be adequate to prevent over-pressurisation of the reactor hall.	Agreed
6.	2	P1	ECCS Inlet Nozzle Protection	It is necessary to ensure a low frequency of pipe break at the junction of the ECCS inlet nozzle and the GDH. There are several options which INPP should investigate with designers to develop a viable design solution. These include: <ul style="list-style-type: none"> increased pipe inspection in this region encase the pipe in another pipe to provide a double barrier 	INPP agrees to inspect 4 of the pipes and then determine what further actions are necessary based upon the predicted probability of failure.

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
7.	3	P1	Seismic Restraints	<p>It is recommended that INPP formally accept the recommendations of the ISMES report and commit to undertaking the actions identified in the report.</p> <p>This one recommendation encompasses the following system specific recommendations::</p> <p>6.4 MSREA-1, 9.1-18, 6.7-R2, 9.4-R1, 4-9.7-6, 9.8-R1</p>	Agreed. INPP will advise as to which of the ISMES recommendations they will actually implement.
8.	3	P1	Fuelling Machine Seismic Restraints.	It is recommended that the modifications to the fuelling machine recommended in the SAR report be implemented, unless INPP can provide information which demonstrates that the fuelling machine will remain stable during seismic events.	Decline, since it is not included in SAR scope and the question has not yet examined enough
9.	2	P2	EFWP Flow Limitation.	INPP should take the necessary steps to ensure that EFWP are not permanently disabled by excessive throughput by either installing over-current protection or preferably by introduction of flow limiters to prevent excessive throughput.	Agreed
10.	2	P1	Separate Fire Compartments In Room 206	That each of the six relay rooms (206/ 1-6) situated in each reactor building be made into separate fire compartments.	This work has been completed in cooperation with the Swedish SIP programme.
11.	2	P2	Fire Detectors, Alarms, Gas Based Fire Extinguishing System.	Since it is not possible to install physical fire barriers between the cabinets within relay rooms 320 and 329 due to lack of space, it is recommended to install individual fire detectors and alarm for each cabinet, and ensure that adequate manual fire fighting capability can be present within approximately one minute. It is also desirable to install a fixed gas-based fire extinguishing system in order to improve fire protection further. It shall be investigated if any such system is available where a release is not harmful to personnel that might be located in the room.	<p>Exclude since it has been already performed.</p> <p>Vattenfall advise that this project is still ongoing and that there is a bid about to be placed with Swedish SIP.</p>
12.	3	P2	Separate Fire Compartments Rooms 320, 329	Modify and upgrade relay rooms 320 and 329 into classified fire compartments.	Agreed
13.	3	P2	Smoke Detection Rooms 320, 329	Install a fast acting sensitive smoke detection system in relay rooms 320 and 329.	Agreed

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
14.	3	P2	MCR Fire Compartment	Modify the main control room (322) for each unit into a classified fire compartment.	Agreed
15.	3	P2	Fire Load Reduction	Reduce the fire load in the main control rooms and adjacent rooms by removing any material that unnecessarily contributes to the combustible loading; and if required there, change the material to a non-combustible type or, at a minimum, make it fire retardant.	Agreed
16.	3	P2	ECR Fire Compartment	Modify the emergency control room (321) for each unit into a classified fire compartment.	This work has been completed in cooperation with the Swedish SIP programme.
17.	3	P2	Fire Cell Separation	Improve the fire cell separation between the components and their cabling in the Service Water (SWS) and Intermediate Cooling Circuits (ICC) pump rooms.	Agreed
18.	3	P2	Fire Detection And Alarms SWS & ICC Rooms.	Install fire detection and alarm systems in the SWS and ICC pump rooms	Agreed
19.	3	P2	Fire Cell Separation ECCS, AFWS, EDAF And UWDS Rooms.	To improve the fire cell separation between the components and their cabling in the ECCS pump room, AFWS pump deck, EDAF pump room and UWDS pump room by installing individual fire detection for each pump unit and fire alarm, and to ensure that sufficient manual fire fighting capability can be present within approximately five minutes. Extra fire protection measures shall also be taken when maintenance and similar activities are going on in any of the rooms.	Agreed
20.	3	P2	EDAF Classified Fire Compartment	That the Emergency Deaerator Feed Water (EDAF) pump room be modified into a classified fire compartment.	Agreed
21.	3	P2	Fire Detection And Alarms EDAF, ECCS & UDWS Rooms.	That a fire detection and alarm system be installed in the EDAF pump rooms and the Emergency Core Cooling System (ECCS) and Unsalted Water Distribution System (UWDS) pump rooms.	Agreed
22.	3	P2	Switch Gear Fire Compartments	The switch gears for emergency power generation in the intermediate building D-2 level 0.00 and the two diesel switch gears in the turbine building for each unit should be modified into separate fire compartments.	Agreed

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
23.	3	P2	Replace Flooring Material	Replace the plastic floor covering material in safety related areas and associated access ways with a fire retardant material.	Agreed
24.	3	P2	Auto Cut-Off Valves	Install automatic cut-off valves in the hydrogen lines to limit leakage of hydrogen in the event of a pipe rupture within the turbine building.	Decline. INPP has never accepted
25.	3	P2	Fire Hazards Report	A Fire Hazards Analysis should be prepared, including identification of potential fires and consolidation of design documents and procedures addressing potential fire risks.	Agreed
26.	2	P2	EQ Programme For Minimum Set Of Equipment.	INPP should develop and implement an Equipment Qualification programme with the objective of: assuring the necessary qualification of the limited set of safety related electrical equipment expected to be exposed to a harsh environment during design basis accidents.	Agreed
27.	1	Pi	ALS Structural Integrity Tests	<p>There has been no structural integrity tests of any of the compartments at a pressure equal to either the design pressure or the maximum accident pressure which, according to IAEA Safety Series No. 50-SG-D12 would be a non-compliance.</p> <p>Recommendation 4-6.3-2: A structural integrity test is recommended but if the result of the required additional analysis in recommendation 4-6.3-14, verifies that the ALS compartments can withstand pressures equal to design, these analysis can be used to justify the lack of structural integrity tests at design pressure of the ALS compartments.</p>	Agreed

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
28.	2	P2	ALS Leak Rate Tests	<p>Leak rate tests are performed at a pressure of only ≈ 0.02 bar which is too low to permit accurate extrapolation to leak rates at design pressure or maximum accident pressures. It is difficult to evaluate the impact of increased pressure on the gap geometry. The equivalent leakage area can vary with pressure in both directions and may be difficult to determine. According to IAEA Safety Series No. 50-SG-D12 this would be a non-compliance.</p> <p>Recommendation 4-6.3-3: Due to a rather large leakage areas in the ALS leaktight compartments, the recirculating ventilation system, that is used as a pressurising device, is not capable to increase the pressure up to sufficient pressure levels. Pressurising devices with a higher capability should be used to allow the leak rate test to be performed at sufficient pressure levels. If possible, the leaktightness of the ALS leaktight compartments should be increased.</p>	Agreed
29.	1	P2	Single Failure of Control Cabinet IHZ19Z51	Single failure of control cabinet IHZ19Z51 results in loss of power supply to control cabinets IHZ19 and, therefore, results in unavailability of automatic control of intermediate cooling circuits. Failure of the circuits results in unavailability of ECCS and AFWS pumps because of the failure of Intermediate Cooling Circuit. Because this failure can result in substantial degradation of the safety systems, the safety impact of the single failure is high.	INPP still examining this issue.
30.	1	P1	Single Failure of Control Cabinet HZ 19	Single failure (spurious closure signal) of control cabinet HZ19 results also in spurious closure of valves VF10S(01-04) leading to the loss of service water. The service water flow can be restored only after manual opening of the valves. This failure is identified as P1 non-compliance in the single failure analysis of SWS.	INPP still examining this issue.
31.	1	P2	Single Failure of HZ 10	Single failure of control cabinet HZ10 results in unavailability of automatic and remote control of the safety components. Thorough analysis is necessary to evaluate consequences of this failure and ability of the safety systems to withstand the failure of the control cabinet. Such analysis can be done only on plant level, because it affects several systems, and it is outside the scope of the present analysis. Taking into account possibility to affect operation of the safety systems, this failure has intermediate safety impact.	INPP still examining this issue.

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
32.	2	P2	Lack of Redundancy	The redundant valves 1RG02S01 and 1RG02S02 are powered from the same safety busbar 1LX10Z and also controlled from the same control cabinet 1HZ14Z03. The situation is similar for the valves 1RG02S03 and 1RG02S10. A single failure may affect the both redundant valves. <u>Recommendation:</u> The power supply to the redundant valves must be arranged in accordance to Western standards.	INPP is still examining this issue.
33.	3	P2	Valve Requirements	It was found out that valves used within the system were made for NPP application but do not meet the requirements of currently applicable Russian regulatory document "General Specifications to Valves OTT-87" (PNAE G-7-008-89, 6.4.1). It is recommended to use valves developed to meet OTT-87 requirements as soon as required to replace worn out valves.	Agreed
34.	3	P2	Hafnium Burnup Characteristics	Inaccurate Hafnium burnup characteristics that necessitate frequent radial flux sensor calibration, a labour intensive process that results in undue occupational dosage. INPP should undertake (with RDIPE/Kurchatov assistance) an analysis program to: <ol style="list-style-type: none">1. Evaluate the burnup characteristics of the Hafnium detectors.2. Survey available data from other sources on Hafnium burnup.3. Refine calibration procedures to include affect of axially variant sensor burnup.4. Advise TG 2 of the incidence of high occupational dose in recalibrating Hafnium detectors.	Agreed
35.	3	P2	Failure Of Distribution Valve Control	All isolating valves used to distribute water coming from ALS pumps to ALS pools and sprinklers are controlled using the same control cabinet 1HZ18. Single failure of the cabinet results in loss of automatic and remote control of the valves.	INPP advises that this has been done.
36.	2	P1	Redundant ECCS Cooling Supply	Installation of a redundant system for the supply of cooling water to the pumps in the ECCS in case of loss of availability of ICC-2.	Agreed
37.	1	P1	Building Structural Changes	The current provisions do not protect the building structures from consequential failures which could cause damage to equipment used for accident mitigation. The plant should be modified to provide increased the relief capacity of pipeline shaft between Blocks D and G;	Agreed

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
38.	1	P2	Pipe Restraints	The current provisions do not protect the building structures from consequential failures which could cause damage to equipment used for accident mitigation. The plant should be modified to provide providing pipe restraints in this shaft to preclude dependant pipe failure, or reinforcing this shaft to withstand discharges from two pipelines;	Agreed
Analyses and Assessments					
39.	1	P1	Waterhammer Analyses	<p>A review should be undertaken to determine the effect of waterhammer in the GDH and in the lines between the ECCS accumulators and injection valves. Analysis or testing should be undertaken as necessary to demonstrate acceptability. This study should also address the specific recommendation 6.4 MSREA 4 raised by Task Group 4.</p> <p>In order to resolve this design deficiency, it is recognised that a programme generic to all RBMK reactors is required, along with some INPP specific calculations.</p>	INPP do not agree with this recommendation since it will be a costly programme and is not being done for other RBMK reactors.
40.	1	P1	GDH And Downcomer Nozzle Strength.	Lithuanian/Russian standards for reinforcement of pressure boundary openings appears to be substantially different from ASME requirements. Therefore INPP should provide the designer's strength calculations for the downcomer and feedwater inlet nozzles on the D ² , and the GDH nozzles. Failing that, finite element analyses should be undertaken to demonstrate that the reinforcement of the pressure boundary opening meets fitness for service requirements using both Lithuanian/Russian and Western codes.	INPP still examining this issue.
41.	2	P1	Electrical Cable Coatings	INPP should assess any potential adverse effects on the electrical function of power cables resulting from the fire retardant coatings that have been applied to them.	Agreed
42.	3	P2	Flooding Review Room A 074	Based on the potential for flooding observed in this review, a detailed flooding assessment should be made for Room A-074 in the reactor building.	Agreed
43.	3	P2	General Flooding Review	A detailed flooding assessment should be performed for areas identified as having a potential concern (designated with a "P") as listed in Exhibits 5 and 6 of the final EQ report.	Agreed

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
Operational, Safety Management and Procedural Issues:					
44.	I	PI	Audit of EOP Training by Walkthrough.	INPP should perform a technical audit of the training program provisions, to compensate for the lack of a replica simulator.	Agreed
45.	I	PI	Replica Simulator.	Obtain access to a full-scope replica simulator for INPP as soon as possible, and establish a program for validation of normal and emergency operating procedures	Agreed
46.	I	PI	Procedure Validation By Walkthrough	Pending receipt of a replica simulator, INPP should establish an alternate program for validation of procedures, such as by "Walkthroughs".	Agreed
47.	I	PI	Policies Of Procedure Usage (Memorisation).	<p>The policies for procedure usage should be revised to define the appropriate usage for various types of plant operations, for example:</p> <ul style="list-style-type: none"> • available at work location for reference, • available at work location and frequently checked, • or step-by-step with signoffs. <p>The policy should describe the criteria for selecting the method for specific operations, for example complexity of operation, importance to safety, etc.</p> <p>(Operators frequently rely on memorisation of procedures in performing normal and abnormal operations, and the accepted policy is to rely on memory for response to both normal operational and emergency situations).</p>	Agreed
48.	I	PI	LOCA Flow Requirements.	Revise Procedure O-56, p.4 to provide specific information on the flow requirements for various accident scenarios, or reference to other documents containing such information, to aid in properly controlling injection flow. Also, include reference to specific video displays of flow sheets that are used to assist the operator in this action.	Agreed
49.	I	PI	Training for Move to Emergency Control Room.	Provide specific training to all operating personnel involved in changing operations from main control room to emergency control room. Training should employ the specific procedures applicable and include walk throughs, step by step.	INPP still examining this issue.

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
50.	1	P1	Revise O-56 for All Actions Identified by Task 8.	1. (applies to all operator actions): Revise Procedure O-56 to incorporate improvements addressing all the concerns identified in these analyses of operator actions.	Agreed
51.	1	P2	New Operational Limits On Fission Products In Reactor Circuit.	The Technological Regulations should be amended to limit the number of cladding failures which can be within the system under normal operation to values which do not result in the regulatory limits being exceeded	Agreed
52.	1	P1	Minimum Number Of ECCS Pumps Available.	The current Technical Regulations need to be changed to ensure that a minimum of 4 ECCS pumps are available in accordance with the requirements of the accident analysis.	Agreed
53.	1	P1	Harsh Environment Boundary	In light of the critical importance of the separation of harsh and mild environments, INPP should strengthen its administrative procedures by issuing a general order highlighting the importance of procedures that assure that the pressure boundary between the harsh and mild environments is maintained to the maximum extent practicable, including the requirement that doors be latched at all times with administrative controls in effect when they are in use.	Agreed

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
54.	2	PI	Priority For Quality Assurance Program	<p>INPP should ensure the complete development and implementation of the Quality Assurance Program as soon as possible. Specifically the following areas need to be addressed:</p> <ul style="list-style-type: none"> • Quality Assurance For Maintenance • Design And Supplier Quality Assurance • Implementation Of Quality Assurance Program • Work Task Documents • Independent Design Verification • Design Quality Assurance Interface • External Quality Assurance Programs • Quality Assurance Program Audit Schedule • Interim Audit Scope And Priority 1996 <p>Detailed recommendations for each area can be found in the appropriate Task Report and in Appendix 2 of the Summary and Demonstration of Acceptability.</p>	Agreed
55.	2	PI	Safety Review Of Changes.	<p>Prepare a detail procedure for a structured, standardised review process for all changes to the plant including plant physical modifications, procedures changes, and special tests and experiments, and provide formal training to all plant personnel who will be involved in preparing, reviewing, or approving such safety evaluations. The procedure should provide a graded approach, so that the rigour and detail of the review is consistent with the potential impact on safety.</p>	Agreed
56.	2	PI	Reorganisation Of Technical Regulations.	<p>INPP should undertake an organisational restructuring of the Technical Regulations to make them more user friendly to both the Operational and Safety Support staff at the plant. Any change to the technical content should be made only upon review by the design organisations involved and by those responsible for the accident analyses.</p>	INPP does not agree to change this document structure.

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
57.	3	PI	Implement Safety Policy At All Levels	<p>Take actions to implement the safety policy at all levels in the organisation and to improve safety culture:</p> <ul style="list-style-type: none"> • INPP management should establish a nuclear safety performance improvement program, with specific, measurable targets, based on the policy, communicated to the organisation and with monitoring of progress against targets. • Implementation must start at the Management level, but proceed with involvement of the entire Operations, Maintenance, and Technical Support organisation. 	Agreed
58.	3	PI	Reporting Safety Concerns, Errors, And Near Misses.	<p>INPP management should <i>publicise their expectations</i> for personnel to <i>report errors and safety concerns</i>, through training and discussions in safety meetings, and to thus improve safety culture:</p> <ul style="list-style-type: none"> • by publicly commending individuals who report errors and safety concerns, and • by advertising successful lessons learned from mistakes. <p>Candid and honest review and evaluation of operating events, with definition of corrective measures is one of the most effective ways to improve safety performance.</p>	Agreed
59.	3	PI	Quality Assurance Program Management	The ongoing development of the QA program should include an established program for inspection, testing, and monitoring of activities in program scope, for verification of conformance to requirements. Inspection plans shall include "hold points" where appropriate for the respective activity	Agreed
60.	4	PI	Quality Assurance of Operating Documents	The plant quality assurance group should establish specific written policies, procedures, and plans for independent review and auditing of operating documentation, as well as monitoring of procedure usage by the plant staff.	Agreed
61.	4	PI	Procedure For Material Storage	INPP should institute a process and procedures for ensuring stored parts and materials do not exceed their specified shelf life.	Agreed
62.	4	PI	Consolidated Modification Procedure	Consolidation of several issues. Production of a consolidated Modification procedure is an essential Nuclear Safety activity and should be completed as quickly as possible.	Agreed

No.	Impl. Prior.	Rec. Prior	Title	Major Recommendations	INPP Position
63.	4	P1	Database Of Quality Assurance Documents	INPP should generate a detail list of all Quality Assurance Program Documentation, similar in scope to the list in IAEA 50-SG-QA1, Table VII.	Agreed
64.	4	P1	Design Document Content Standards	Identify and include in all future design documents, such as those used in modification projects, all required quality standards and requirements	Agreed
65.	4	P1	Extraneous Materials In Systems	INPP should generate procedures that identify all materials that can affect the safety function of systems if they are introduced into the systems, and procedures to control the use of such materials and substances. This should include materials such as heavy metals or halogen chemicals in contact with austenitic stainless steel, and solvents that can degrade the capability of radioactive iodine charcoal filters.	Agreed
66.	4	P1	Urgent Update Of Operational Documentation	Complete the planned program to review and update the most important drawings to support safe operation and maintenance, including schedules. This is a major effort so it is necessary to prioritise it to do the most important documents in order. Prioritise the program based on relative safety importance of drawings. Identify a sub-group of the drawings that are required in the main control room for use by the control room operators. These should have high priority for present and future updating. Adopt a standard time interval that should not be exceeded for actual incorporation of changes into these "control room drawings"(time interval between completion of plant modification and revision to drawing).	Agreed
67.	5	P1	Procedures For Plant Walkdowns/Tours	Develop procedures and/or checklists for performance of walkdowns for monitoring safety related systems and equipment. The procedures should identify the key parameters and their expected values as well as limits, obtained from the plant Limits and Conditions, and have provisions for recording all important data as well as identifying responsibility for analysis of the data including trending.	Agreed
68.	5	P1	Databases Of Equipment, Services, Activities. A) SRCL, B) Services And Work Processes.	Include in the QA manual a reference to: (a) a specific single consolidated list of safety related equipment and systems; and (b) a specific list of services and work processes that are within the scope of the QA program.	Agreed

The recommendations are classified as follows:

- P1. Recommendation is mandatory to meet the agreed Safety Objectives
- P2. Recommendation is required if issue raised would destroy redundant components in a safety or safety support system but would not completely negate safety or safety related system capability.
- P3. Recommendation would generally raise the level of safety at INPP.

Table 2: Summary of RSR Recommendations Categorised on the Basis of Lines of Defence

Recommendation	Cat ¹	Comment
Note: All recommendations for modifications imply a need for design justification analyses and presentation of a modification safety case.		
Performance of a single failure analysis (SFA) of the CPS, including provision of all the necessary in-depth supporting documentation to allow VATESI to review this issue. This should include functional block diagrams, circuit schematics, and wiring diagrams.	pot NT	Needed to support claim that CPS is a strong line of defence.
Prepare a structural integrity safety case that incorporates detailed consideration of the ISI requirements, in accordance with the plan suggested by the RSR.	pot NT	Category determined by need to establish incredibility of drum separator rupture. Some other components are judged also potential NT in combination with other issues.
Detailed assessment of the impact of the EPPS reset memory circuits.	TS	Potential for common cause failure.
Installation of buttons /circuits to permit resetting of the tripped channels in the CPS electronically.	TS	Current system design cannot be tested or reset without removing and reinstalling circuit boards.
Engineering assessment, design and testing towards a diverse shut-down system. This includes demonstrating that the diverse system will address identified problems with the existing CPS.	TS	The problem (lack of diversity) is TS, but this solution cannot be implemented in a short enough time - hence next recommendation.
Compensatory measures are required to increase the reliability of the scram function in the short term.	TS	Needed to justify operation until diverse system can be installed.
Preparation of a Safety Case justifying limited continued operation of the existing CPS/EPPS.	TS	Must demonstrate that there are no common cause problems which would prevent increased reliability being claimed for the CPS.
Adequate emergency operating procedures need to be developed and implemented for specific accident sequences.	TS	Needed urgently for pump cooling, manual scram, and ECCS flow control. Any necessary additional instrumentation to be identified and provided.
Adequate emergency operating procedures need to be developed and implemented for all accident sequences that can be identified.	TL	Identification of all post accident operator actions is required. Complete by soon after licensing.
Perform an evaluation of the impact of the electrical protection setpoints (50% Nominal Voltage / <46 Hz) on the electrical power system to assure equipment operability and protection under persistent degraded voltage / degraded frequency conditions.	TS	Urgent assessment required since uncontrollable plant behaviour may occur if low voltages are tolerated without switch to emergency supplies.

Categories are NT (not tolerable), pot NT (potentially NT), TS (tolerable short term only), TL (tolerable long term). TL recommendations listed are considered to be while carrying out on the basis that implementation is reasonably practicable (easy and inexpensive in relation to the safety benefit). Recommendations for further analysis may also be categorised as "TS - complete before licensing" or "TL - complete soon after licensing", to differentiate in priority from urgent TS to support TS modifications and less urgent TL recommendations.

Recommendation	Cat ¹	Comment
Stop operation when first contact between Pressure Tubes and graphite occurs. Perform a safety evaluation and stress analysis of operation with graphite - pressure tube gaps exhausted (gripped pressure tubes) and transient induced thermal stresses.	* ²	Plant operation with closed pressure tube gaps is not consistent with accident analysis. Time of first closure is difficult to predict.
Analysis of potential stresses on adjacent tubes in a single pressure tube rupture.	TS	Need to demonstrate that propagation is strongly defended against.
Finite element stress analysis for reactor cooling system components which do not meet ASME III requirements (certain nozzles on DS and GDH).	TL	RSR agrees with SAR, but considers general structural integrity safety case for the primary circuit, especially the drum separator, of much greater importance.
ECCS - automatic actuation for low flow in multiple channels connected to one GDH.	TS	These two issues are NT if taken together since they leave no strong defence against partial GDH rupture. The category of each is given on the assumption that the other issue is resolved.
ECCS - ISI of the ECCS inlet into the GDH.	TL	
ECCS - assessment of waterhammer on ECCS/GDH check valves and connected pipelines.	TS	The combination of this issue and lack of structural integrity safety case for pressure header is NT.
ECCS - improve diversity in ECCS and EFWP-cooling.	TS	Alternative solution to the problem of re-establishing lost heat sink (cooling of essential pumps). The category is TL if the EOPs are written and in force (recommendation 8).
ECCS - improve redundancy and reliability of accumulator pressure control.	TL	This recommendation is good practice, but not required to establish redundancy of trains.
ECCS - automatic actuation for steam line breaks.	TL	Reduction of fuel damage in a DBA with direct release to environment.
ECCS - develop strategy for local flow degradation in intermediate and long term (ECCS injection management or depressurisation).	TL	Could be a necessity in certain LOCA sequences.
Verification of state-of-the-art codes (e.g. RELAP5 and ATHLET) for KBMK conditions.	TL	Continuation of existing work. Not required to be completed by licensing.
Carry out a fire hazard analysis to ensure that all parts of the safety systems vulnerable to fire have been adequately protected.	TS	RSR consider this to be of higher priority than did the SAR (no case that fires are strongly protected against at present).
Demonstrate that ventilation can maintain survivable temperature conditions in key instrumentation rooms in post-LOCA conditions.	TS	Complete demonstration before licensing. Important part of the demonstration that safety systems are qualified in accident conditions.
ALS - demonstration of capability of the ALS structures to withstand	TS	The category is based on concern for consequential damage to ECCS (eg

ue will become NT at the time of first closure

Recommendation	Cat ¹	Comment
expected peak pressures during complete range of design basis accidents		leakage from supply tank in ALS).
ALS - enhance ALS leaktightness of Unit-1.	TL	Should not be done unless it can be shown that ALS can withstand LOCA pressures with leak-tightness improved, since consequences of damage may be more serious (category M).
ALS - Analysis of hydrogen concentration in ALS compartments for beyond DBA following OPB-88 requirements.	TL	ALS is assumed to be 1WLOD in BDBA. This analysis would establish actual value of ALS. Not a first order priority for improving safety. OPB-88 requirement not achievable.
SWS - A condition assessment should be carried out of the SWS pipes in the ECCS pump room.	TS	Related recommendations. Ruptured pipe may flood ECCS pump room and thereby disable.
ECCS - Flooding assessment of ECCS pump room.	TS	One pos. trip cooling system.
Justification of omission of an assessment of accidents at shut-down should be made to VATESI by INPP.	TS	Complete by licensing.
SWS - remove single failure vulnerability in flow control system (HZ).	TL	These recommendations are good practice and are longer term solutions. EOPs should be developed more urgently (see recommendation 8).
SWS - improve segregation in pump station and two train piping.	TL	
SWS - protection against external events.	TL	
In-depth seismic assessment of refuelling machine and supporting building structures.	TS	RSR agrees with SAR, but considers that the issue may be resolved by demonstrating low seismicity, without detailed structural analysis.
Installation of clamps in order to enhance the stability of the refuelling machine.	TS	"Low seismicity" = best estimate of < 0.1g PGA at a return period of 10,000 years.
Demonstrate that strong radial or axial flux tilts are prevented by procedures and automatic control/protection.	TS	Pressure tube rupture has been caused by this in the past.
Increase relief capacity of the pipeline shaft between blocks D and G.	TS	Category is based on concern about potential for serious building damage, with possible consequential failures (CFs) of essential systems. Only TL if no CFs.
Introduce pipeline restraints in the shaft between blocks D and G to preclude consequential failures by pipe whip.	TS	
Reduce reactivity effect of voiding CPS channels by changing rod design or separating cooling system.	TL	Modified rod design already under test. If successful it should be introduced as soon as possible (subject to supporting safety analysis).
Demonstrate that MCP isolation is strongly prevented and also recoverable. EOPs required.	TS	Multiple error required. Recovery likely. Case should be presented before licensing.
The Technical Regulations should be modified to require that a minimum of 4 ECCS pumps is available during normal operation to be consistent with the accident analysis.	TS	Change should be made before licensing.

Recommendation	Cat ¹	Comment
Correct deficiencies in accident analysis identified by RSR TG5. In addition, a complete accident analysis should be performed in the long term including accidents during reactor shut-down, internal area events and external events.	TL	A full safety case should follow typical Western SARs.
Document technical justification for categories of accidents initiated by equipment failure omitted from analysis.	TS	Complete by licensing.
Analysis of reactivity initiated events for core with new fuel design (2.4% enriched and containing erbium burnable poison).	TS	Complete before licensing.
Improve ISI requirements for pressure tubes by addressing: detailed measurements of graphite-pressure tube gaps, characterisation of all flaws, measurement of hydrogen uptake, determination of fracture toughness data (δC , KIC, KIDHC).	TL	Needed to give confidence that multiple ruptures will not occur in transients or as a result of propagation.
Introduction of an additional early reactor trip and ECCS initiating parameter for all break locations in RCS and steam systems.	TL	To give diversity. Recommendation is good practice. To be implemented after licensing.
Modifications to ensure ECCS is automatically injected to the unbreached reactor half.	TL	Desirable to avoid high temperatures in unbreached circuit, but fuel damage is not predicted.
ICC - improve independence of EFW Δ -cooling from SWS.	TL	This recommendation is good practice, but is a longer term solution. EOPs are more urgent (see recommendation 8).
Perform an evaluation of the impact of safety related component ageing using the Barselina PSA and Importance Analysis to identify components potentially contributing high risk.	TL	This evaluation addresses a major omission from the SAR. Start immediately and complete by licensing or soon after.
The Technical Regulations should be modified to lower the maximum allowable concentration of fission products in the coolant.	TL	Off-site dose reduction. Implement soon after licensing.
Analysis of effects filling of Steam Lines with water.	TL	Dynamic effects. Increase of potential release, but within one consequence category.
Analysis of the radiological consequences of Feed-Water and Steam Line breaks.	TL	Complete after licensing.
Analysis of break of emergency Feed Water Lines under start-up conditions.	TL	Complete after licensing.
Diverse pressure sensors in protected compartments should be installed.	TL	Good practice, but ECCS reliability is limited by other components.
Partial ATWS and steady state flux transient analyses.	TL	Partial ATWS considered to be less of a problem now that void coefficient

Recommendation	Cat ¹	Comment
		is low. Prevention of flux tilt (see above) is more important than analysis of consequences, which could be very variable and so should be assumed to be severe).
Improvements to drainage in drum separator compartments.	TL	Off-site dose reduction.
Reactor hall over-pressure protection.	TL	Off-site dose reduction.
Additional instrumentation should be installed in the control room to indicate post LOCA conditions in the circuit reliably.	TL	The operator must be provided with reliable data on circuit inventory if the water level is beyond the range of DS gauges.
Continue analysis of reactor cavity venting to determine margins.	TL	Scope for reducing uncertainties by further analysis is limited.
Assure habitability of main and emergency control rooms in external events by separation of ventilation.	TL	Not of high importance if only related to external events. If the ventilation systems are linked and both control rooms can be disabled by a single fire or activity release the issue would be higher category (TS).
Carry out an engineering assessment of the MSIV.	TL	Omitted from SAR.
High failure rates for safety-related components should be investigated and corrected.	TL	Good practice. Complete by licensing or soon after.
The significantly non-linear dependence of the void reactivity on reactor coolant density has to be considered in determining the total void effect based on measurements of the void coefficient.	TL	Not urgent unless it is possible that analysis is invalidated. Complete soon after licensing.

**Summary of Recommendations which Cannot be Categorised by Lines of Defence
(Including Safety Culture and Safety Management Recommendations)**

Recommendation	Comment
INPP must develop a detailed procedure for a structured and standardised review process for all changes that take place on the plant. This procedure must identify appropriate levels of review as related to plant safety and must fully meet QA requirements.	This issue has the potential to cause significant safety problems and must be resolved quickly. Implementation must be progressing by licensing.
INPP must seek to improve the current level of safety culture through the development of appropriate training, management styles and procedures and the dissemination of a clear policy to staff at all levels of the organisation.	Culture is a long term issue. However some actions are required in the short term in order to provide initiative for improvements.
INPP must provide greater evidence of its commitment to the development and implementation of a QA programme. The implementation of the programme should give priority to safety critical areas and functions. A full and detailed plan for implementation should be developed.	The implementation of QA has the potential to make improvements to management processes in a large number of areas. It should be well progressed before licensing.
INPP must develop a more systematic approach to training as described in IAEA guidelines and consistent with a formal QA approach. The provision of training should also be subject to independent review. (Note this is essential if the full benefit of the new simulator is to be gained.)	It is recognised that the process of implementing this recommendation throughout the whole plant will take time. It is important however in the short term that the use of the new simulator is subject to this approach.
Determine testing and maintenance activities after consideration of expected system degradation pathways and timescales.	Good practice - not able to be categorised.
Strong measures are needed to reduce the frequency of high individual worker doses. Dose limits should be reduced and a policy of ALARA implemented.	Not able to be categorised. Good practice. Problem is indicative of poor safety culture. See related recommendation below.
INPP must improve its management of radiation protection through a systematic and thorough review of existing procedures and tasks and through the development of new management approaches which illustrate a higher degree of awareness of this issue.	It is recognised that there may be limitations on what can actually be achieved. However, there are a number of actions which can be carried out within the short term to improve the situation.
Fundamental changes are necessary in the attitude of senior management towards its responsibility for safety.	Not able to be categorised. Closely related to other recommendations of RSR TG8 and 9.

wording of these recommendations in the area of operations and management were made by RSR. SAR and RSR are in close agreement about the requirements and many recommendations were formulated in joint discussions between the SAR and RSR teams for tasks 8 and 9.

Recommendation	Comment
INPP must improve many aspects of its attitude towards the regulatory interface in order to prepare itself for the implementation of a formal licensing system. This includes taking full responsibility for all safety related issues and for the adequate demonstration of safety to the regulatory body.	The plant must change its attitude as the framework for regulation becomes more defined i.e. moves towards a licensing approach.
INPP should implement the recommendations of the ASSET missions and related studies and present evidence of implementation to VATESI.	Not able to be categorised. Safety culture related.
INPP should implement the improvements identified from the new programme of review of incidents and operating experience and present evidence of implementation to VATESI.	Not able to be categorised. Safety culture related.

Explanation of Lines of Defence Issue Categories

Designation	Definition
MS (Modern Standard)	There is compliance with the modern standard. This is fully acceptable and no improvement is required.
TL (Tolerable Long-term)	There is a non-compliance with the standard, but this is tolerable. There may be improvements which can be justified on the grounds of their low cost and ease of implementation, and these should be examined on an individual basis.
TS (Tolerable Short-term)	There is a non-compliance which must be reduced in safety significance. Operation with the non-compliance is justified by the presentation of a credible programme for improvement (giving timescale, method, source of funding, availability of resources, etc.), and/or the introduction of compensatory measures (e. g. operating restrictions).
NT (Not Tolerable)	There is a non-compliance which must be reduced in safety significance. Operation with the non-compliance cannot be justified. Improvement must precede further operation.

Abbreviations

AFWS	Auxiliary Feedwater System
ALS	Accident Localisation System
ATWS	Anticipated Transient without Scram
BDBA	Beyond Design Basis Accident
CPS	Control and Protection System
DBA	Design Basis Accident
DS	Drum Separator
EBRD	European Bank for Reconstruction and Development
ECCS	Emergency Core Cooling System
ECR	Emergency Control Room
EDAF	Emergency Dearator Feedwater
EFWP	Emergency Feedwater Pump
EOP	Emergency Operating Procedure
EPPS	Emergency Process Protection System
EQ	Equipment Qualification
GDH	Group Distribution Header
ICC	Intermediate Cooling Circuit

INPP	Ignalina National Power Plant
ISI	In-Service Inspection
LOCA	Loss of Coolant Accident
LOD	Line of Defence
MCP	Main Circulating Pumps
MCR	Main Control Room
MSIV	Main Steam Isolation Valves
NIKIET	RBMK Design Institut, Moscow
QA	Quality Assurance
RBMK	Graphite-Moderated Pressure Tube Boiling Water Reactor
RSR	Review of the Safety Analysis Report
SAR	Safety Analysis Report
SIP	Safety Improvement Program
SWS	Service Water System
TG	Task Group
TSO	Technical Support Organisation
UWDS	Unsalted Water Distribution System
VATESI	Lithuanian Safety Authority

WLOD

Weak Line of Defence

PROPOSED TASK ORDER NO. 1
STATEMENT OF WORK

LITHUANIA SUPPORT

Background

The breakup of the Soviet Union in 1991 resulted in the government of Lithuania assuming responsibility for the operation of the INPP, a two unit RBMK plant of 1500 MWe/unit. The responsibility for assuring the safety of the INPP lies with the Lithuanian Nuclear Power Safety Inspectorate VATESI, which now has the difficult problem of trying to regulate and inspect against standards established by the former Soviet Union -- not all of which apply to Ignalina. The U.S. Government has had in place in Lithuania a wide ranging assistance program, including nuclear safety assistance.

The NRC, in consultation with a number of western countries, is now embarking on the second year of a bilateral nuclear safety and regulatory assistance program to VATESI. This assistance program is currently being managed out of NRC's Office of International Programs (OIP). Recently, the following regulatory documents have been prepared for use by VATESI:

1. A set of Lithuania-specific Norms and Standards (equivalent to NRC nuclear safety regulations), and
2. Inspection guides, based primarily on NRC practices (but adapted for use in Lithuania).
3. At the present time the incumbent is engaged in drafting a "Regulatory Regime" Policy Statement which defines how VATESI will be regulating Lithuania's nuclear facilities consistent with the recently passed Lithuanian National Energy Legislation. This work is expected to be completed shortly.

NOTE: The above documents are available for review at the NRC's Public Document Room. (See Subsection L.13)

The INPP is committed to rapidly implement a number of major modifications and improvements during the current outage (March 1997 - December 1997). VATESI has limited staff capabilities in areas such as Instrumentation & Control (I&C) systems, and accident analysis. Without additional technical support, VATESI will be forced to either perform only superficial safety evaluations of the changes, or significantly delay the approval of modifications due to the limited time available to it.

NRC's proposed assistance to VATESI takes into account the conclusions and nuclear safety deficiency findings contained in the SAR and the RSR, and in the Safety Panel Report, all of which were released in January 1997. That work has been performed by international teams, and was funded by the EBRD/NSA. A copy of the Safety Panel Report, which contains all the relevant information needed for this solicitation, is provided in Attachment 10.

As agreed among the western SAR/RSR participating countries (UK, France, Sweden, Germany, Canada, US), these countries will now be focusing their respective safety review assistance efforts on the particular topics on which they had worked in the preparation of the SAR/RSR.

Accordingly, the US will now help VATESI in the analysis of topical areas listed below, which are also mentioned in Attachment 10:

- (1) The CPS (Control and Protection System) and EPPS (Emergency Process Protection System);
- (2) Electrical power system - protection for undervoltage and underfrequency operation;
- (3) Russian "Titan" process control system (in a supporting role to GRS/Germany) ;
- (4) Non-LOCA transient accident analysis (in a supporting role to GRS/Germany);
- (5) Management of aging of critical components;

Note: The contractor will also have to assume responsibility for familiarizing VATESI staff with the safety implications of multiple tube gripping by graphite rings - an issue which is currently being investigated by the incumbent contractor under a separate DOE contract.

This task will address the highest priority safety deficiencies identified by the RSR (in Table 2 of Attachment 10). For each listed deficiency in NRC's area of responsibility, the contractor will: a) Explain to cognizant VATESI staff the nature and bases of the safety-deficiency, and b. Following that, the Contractor will train VATESI staff in the performance of an NRC-like safety evaluation of the plant-proposed modifications (or fixes) in accordance with NRC's Standard Review Plan (SRP) and show VATESI how to document the results in a Safety Evaluation Report (SER),

in accordance with NRC practice. The long term task (duration as yet unspecified) will be devoted to training a limited number of VATESI staff in the performance of NRC-like in-depth safety evaluations of one or two major plant systems which are expected to be examined in depth during subsequent plant improvement campaigns.

Because of the urgency of the short term safety deficiency findings, work on them is being started by the incumbent Contractor before the current contract will be in place.

TECHNICAL REQUIREMENTS

The contractor must have a thorough familiarity with the European Bank for Reconstruction and Development (EBRD) and the Nuclear Safety Account (NSA) funded international safety review effort underlying the recently published Safety Analysis Report (SAR), Review of the Safety Analysis Report (RSR), and Safety Panel Report for INPP, beyond that provided in this solicitation. He is expected to be fully familiar with the key published findings and recommendations regarding plant safety deficiencies and upgrade needs, and the analyses and rationale underlying them, and the distribution of regulatory assistance responsibilities among participating western donor countries.

The contractor must have good familiarity with technical capabilities and work habits of key staff of the Lithuanian Nuclear Safety Inspectorate (VATESI), in order to structure effective training programs that would take account of their relative strengths and weaknesses and the existing local infrastructure. In addition, the contractor must have demonstrated prior experience with similar CEE regulatory safety assistance and training programs.

To avoid the possibility or appearance of conflict of interest between the positions/priorities of regulators and those of plant operators, the contractor must also not be involved in work at the INPP related to the implementation of the upgrades recommended in the SAR/RSR, on which he would then be working with the regulators.

TASK ORDER OBJECTIVE

The objective of this task is to provide short term assistance to VATESI. To attain this objective, the contractor shall provide, but not be limited to, the following assistance activities:

- (1) Guiding VATESI staff through the contents and findings of the SAR/RSR, and explaining to them the safety significance of the findings; and

- (2) Training VATESI staff how to perform an NRC-like regulatory licensing review of the plant upgrades, including the short-term highest priority and longer-term high priority issues in accordance with the findings of the international study team.

WORK REQUIREMENTS

The contractor shall provide all necessary equipment, materials, supplies, and qualified personnel, except as specified or otherwise provided herein, to successfully perform all task stated herein.

- (1) The Contractor shall organize a project team composed of individuals with expert knowledge of the SAR/RSR. This team shall guide VATESI staff through the contents and findings of the SAR/RSR. The project team shall explain to the staff the bases of the identified deficiencies, their safety significance, and the safety consequences if no action is taken to mitigate the deficiencies, and how NRC would handle those deficiencies.
- (2) The contractor shall develop a comprehensive training program, and conduct platform training sessions which shall teach VATESI staff how to perform an NRC-like regulatory licensing review of the plants based on methodology described in NRC's SRP, including the short-term highest priority and longer-term high priority upgrades proposed by the international study team. The contractor shall provide all the necessary equipment, materials, supplies and qualified personnel except as specified or otherwise provided herein, to successfully perform this task. The contractor shall develop training plans, training modules, and teaching materials with handouts for approximately 12 attendees. The training sessions for VATESI staff shall be conducted at VATESI Headquarters, in Vilnius, Lithuania.

MEETINGS AND TRAVEL

Meetings to coordinate the on-going international efforts to assist VATESI will likely take place in Lithuania, but may also be shifted to the US or to a third country (most likely Sweden). Meeting attendees will normally include contractor personnel, donor country representatives, VATESI staff and its TSO, and NRC staff, depending on circumstances.

REPORTING REQUIREMENTS

A written report, which shall include a summary of progress for the reporting period, and a list of deliverables given to VATESI under this task, shall be submitted to the NRC project Officer each quarter until the task is completed.

TO: OFFICE DIRECTOR OR REGIONAL ADMINISTRATOR		FROM: CHIEF OF BRANCH (Name)	
PROGRAM OFFICE		BRANCH	
ROOM NUMBER	BUILDING	ROOM NUMBER	BUILDING EXTENSION

1. TRAVELER'S NAME (Last, first and middle initial)	2. DATE OF BIRTH			3. PLACE OF BIRTH		
	MO	DAY	YEAR	CITY	STATE	COUNTRY
4. HOME ADDRESS						
5. CITIZENSHIP	6. PASSPORT NUMBER (If available)					
7. CLEARANCE NUMBER (If visit involves classified information, obtain clearance number from the Personnel Security Branch)	8. EMPLOYER					
9. CONTRACT NUMBER (If applicable)	10. ORGANIZATIONAL UNIT					
11. POSITION TITLE (Include promotion)	12. BUSINESS ADDRESS					

DATES	LOCATION (Installation, city, country)	INDIVIDUALS TO BE CONTACTED	SUBJECT OF DISCUSSION	"X" one	
				CLASSI- FIED	UNCLAS- SIFIED

Attachment 11

14. PURPOSE OF TRAVEL - If this information is CLASSIFIED, be sure to CLASSIFY THIS FORM appropriately.
(If more space is required, attach a separate sheet)

In addition, specify nature and classification of information to be disclosed including titles of papers to be presented; nature of information to be obtained at each of the places to be visited and conferences to be attended and its relation to traveler's work. (TRAVELERS are RESPONSIBLE for OBTAINING CLEARANCES for papers or speeches when necessary.)

15. LIST PERSONS WITH WHOM PURPOSE OF TRAVEL HAS BEEN COORDINATED (include intraoffice as well as other divisions and offices) AND THOSE TO BE BRIEFED OR RECEIVE TRIP REPORTS UPON RETURN. LIST ALL NRC TRAVELERS AND CONTRACTORS WHO PLAN TO ATTEND SAME FOREIGN MEETING OR LOCATION.

16. EMPLOYEE'S SIGNATURE

DATE

B. ENDORSEMENTS AND RECOMMENDATIONS (To be completed by traveler's program officials)

17. TRAVELER'S SUPERVISOR

ENDORSEMENT AND REMARKS

SIGNATURE

TITLE

DATE

18. CONTRACT EMPLOYEES (To be completed by official responsible for supervising activities involved in proposed foreign travel or other official responsible for approving foreign travel under the terms of the contract)

ENDORSEMENT AND REMARKS

SIGNATURE

TITLE

DATE

19. OFFICE DIRECTOR OR REGIONAL ADMINISTRATOR

RECOMMENDATION AND/OR REMARKS

SIGNATURE

TITLE

DATE

C. ESTIMATED COST OF TRAVEL (To be completed by NRC travel office representative)

20. COST TO NRC

TRANSPORTATION

\$

PER DIEM AND
MISCELLANEOUS

\$

TOTAL

\$

21. COST TO OTHER SOURCE (To be completed if part of cost is to be or has been requested from source other than NRC)

SOURCE

AMOUNT

\$

SIGNATURE

TITLE

DATE

D. CONCURRENCES AND/OR REMARKS (To be completed at NRC Headquarters)

22. OFFICE OF GOVERNMENTAL AND PUBLIC AFFAIRS

CONCURRENCES AND/OR REMARKS

SIGNATURE

TITLE

DATE

23. DIVISION OF SECURITY (Communist controlled countries or classified meetings) NOTE: Compliance with NRCM 2101

CONCURRENCES AND/OR REMARKS

SIGNATURE

TITLE

DATE

24. OTHER CLEARANCE

SIGNATURE

TITLE

DATE

E. FINAL ACTION - OFFICE OF THE EXECUTIVE DIRECTOR FOR OPERATIONS OR CHAIRMAN

FOREIGN TRAVEL AT NRC EXPENSE AS OUTLINED IN PART A, IS: ("x" one)

☐ APPROVED☐ APPROVED, SUBJECT TO REMARKS
AND LIMITATIONS☐ DISAPPROVED

SIGNATURE

REMARKS AND/OR LIMITATIONS

TITLE

DATE

REMARKS:

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 445. This information is maintained in a system of records designated as NRC-20 and described at 40 Federal Register 45341 (October 1, 1975).

1. **AUTHORITY** 31 U.S.C. 21, 22, 24, 49, 54, 66a, and 952; 5 U.S.C. 5701; Federal Travel Regulations and Federal Property Management Regulations, Part 101-7.
2. **PRINCIPAL PURPOSE(S)** Information entered on this form is used to secure the required NRC approval for official foreign travel.
3. **ROUTINE USES** Information on this form may be used for transmittal to the State Department to secure passports. The information may also be disclosed to an appropriate Federal, State, or local agency in the event the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, and local agency to the extent relevant and necessary for an NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure is voluntary. If the requested information is not provided, however, approval may be denied.
5. **SYSTEM MANAGER(S) AND ADDRESS**
Director, Division of Accounting and Finance
Office of Administration and Resources Management
U.S. Nuclear Regulatory Commission
Washington, DC 20555