

AWARD/CONTRACT

OMB No. 1505-0080 Expiration Date: 03/31/92

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1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350) RATING

2. CONTRACT NO. NRC-02-91-001	3. EFFECTIVE DATE 2/14/91	4. REQUISITION/PROJECT NO. NMS-91-001
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5. ISSUED BY Code:  U.S. Nuclear Regulatory Commission Div. of Contracts & Property Mgmt. Contract Neg. Br. No. 1;P-1020 Washington, DC 20555	6. ADMINISTERED BY Code: (If other than Item 5) U.S. Nuclear Regulatory Commission Div. of Contracts & Property Mgmt. Contract Admin. Br. No. 1;P-1114 Washington, DC 20555
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7. NAME AND ADDRESS OF CONTRACTOR ICF, Inc. 9300 Lee Highway Fairfax, VA 22031-1207  Code: Facility Code:	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 Nuc. Mat. Safety & Safeguard/LLRB MS 5-E2 NMSS/LLRB Washington, D.C. 20555	12. PAYMENT WILL BE MADE BY CODE Offer must be addressed as shown in Item 7. Hand-carried offers (Including Express Mail & delivery services) must be delivered to
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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

Funds to be obligated on individual task orders

15A. ITEM NO.	15B. SUPPLIES/ SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
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The U.S. Nuclear Regulatory Commission hereby accepts ICF's technical proposal dated 11/30/90, and as clarified dated 1/17/91, both of which are incorporated herein by this reference and made a part of this contract to perform the work in accordance with Sol. No. RS-NMS-91-001 which is attached herein and made a part of this contract. This type contract is completed as follows:

15G. TOTAL AMOUNT OF COST PLUS FIXED FEE TASK ORDERING CONTRACT	\$521,145.00
EXCEPTION TO STANDARD FORM SF28 (REV. 4-85)	Prescribed by GSA FAR(48 CFR) 53.214(a)

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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 3 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. ( X ) AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number ~~RS-NMS-90-00~~ 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)	20A. NAME OF CONTRACTING OFFICER  Elois J. Wiggins
19B. NAME OF CONTRACTOR by _____ (Signature of person authorized to sign)	20B. UNITED STATES OF AMERICA by <u>Elois J. Wiggins</u> (Signature of Contracting Officer)
19C. DATE SIGNED	20C. DATE SIGNED <u>2/14/91</u>

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

1. Section B, Article B.3 CONSIDERATION AND OBLIGATION--TASK ORDERS is amended as follows:

a. "The total estimated amount of this contract (ceiling) for the products/services ordered, delivered, and accepted under this contract is \$521,146."

b. "The amount presently obligated with respect to this contract is \$0. Funds are to be obligated on individual Task Orders."

2. Section F, Article F.5 PLACE OF DELIVERY -- REPORTS is revised as follows:

"a" is amended to read, " Project Officer (3 copies)  
U.S. Nuclear Regulatory Commission  
Attn:Louis Bykoski  
Office of Nuclear Material Safety  
and Safeguards  
MS 5E-2 OWFN  
Washington, D.C. 20555"

"b" is completed to read, "Contract Number: NRC-02-91-001"

3. Section F, Article F.6 DURATION OF CONTRACT PERIOD, is completed to read, "The ordering period for this contract shall commence on February 24, 1991 and will expire on February 23, 1995."

4. Section G, Article G.1 INDIRECT COST RATES is amended to include the following allowable indirect cost rates:

Fringe Benefits - 35.56%  
Labor Overhead - 70.0%  
General & Administrative - 11.90%

5. Paragraph a. of Article G.2 PROJECT OFFICER AUTHORITY is completed as follows:

"Name: Louis Bykoski  
Address: U.S. Nuclear Regulatory Commission  
Office of Nuclear Material Safety  
and Safeguards  
MS 5E-2 OWFN  
Washington, D.C. 20555"  
Phone Number: 301-72-0572"

5. Article G.7 NRC LICENSING OFFICE CONTACTS, are designated as follows:

IMNS - John Hickey  
Region I - John Kinneman  
Region II - Chuck Hosey  
Region III - Michael McCann  
Region IV - Bill Fisher  
Region V - Beth Riedlinger

Region V - Beth Riedlinger

6. Section H, Article H-1. KEY PERSONNEL is amended to include the following individuals:

Craig Dean, Project Manager  
 John Collier, Deputy Project Manager  
 Paul Bailey  
 Michael Berg  
 Elaine Blatt  
 Bryan Kelleher  
 Joseph Karam  
 Robin Rodensky

7. Section I is modified to add the following clauses:

I.10 REQUIREMENT FOR CERTIFICATE OF PROCUREMENT  
 INTEGRITY-MODIFICATION (FAR 52.203-9) (NOV 1990)

(a) Definitions. The definitions set forth in FAR 3.104-4 are hereby incorporated in this clause.

(b) The Contractor agrees that it will execute the certification set forth in paragraph (c) of this clause when requested by the Contracting Officer in connection with the execution of any modification of this contract.

(c) Certification. As required in paragraph (b) of this clause, the officer or employee responsible for the modification proposal shall execute the following certification:

CERTIFICATE OF PROCUREMENT INTEGRITY--MODIFICATION (NOV 1990)

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

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

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

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(Signature of the officer or employee responsible for the modification proposal and date)

(Typed name of the officer or employee responsible for the modification proposal)

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

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

(End of certification)

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

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

(END-OF-PROV)

#### I.11 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (FAR 52.203-10) (SEP 199C)

(a) The Government, at its election, may reduce the price of a fixed-price type contract or contract modification and the total cost and fee under a cost-type contract or contract modification by the amount of profit or fee determined as set forth in paragraph (b) of this clause if the head of the contracting activity or his or her designee determines that

there was a violation of subsection 27(a) of the Office of Federal Procurement Policy Act, as amended (41 U.S.C. 423), as implemented in the FAR. In the case of a contract modification, the fee subject to reduction is the fee specified in the particular contract modification at the time of execution, except as provided in subparagraph (b)(5) of this clause.

(b) The price or fee reduction referred to in paragraph (a) of this clause shall be-

(1) For cost-plus-fixed-fee contracts, the amount of the fee specified in the contract at the time of award;

(2) For cost-plus-incentive-fee contracts, the target fee specified in the contract at the time of award, notwithstanding any minimum fee or "fee floor" specified in the contract.

(3) For cost-plus-award-fee contracts

(i) The base fee established in the contract at the time of contract award;

(ii) If no base fee is specified in the contract, 30 percent of the amount of each award fee otherwise payable to the Contractor for each award fee evaluation period or at each award fee determination point.

(4) For fixed-price-incentive contracts, the Government may-

(i) Reduce the contract target price and contract target profit both by an amount equal to the initial target profit specified in the contract at the time of contract award; or

(ii) If an immediate adjustment to the contract target price and contract target profit would have a significant adverse impact on the incentive price revision relationship under the contract, or adversely affect the contract financing provisions, the Contracting Officer may defer such adjustment until establishment of the total final price of the contract. The total final price established in accordance with the incentive price revision provisions of the contract shall be reduced by an amount equal to the initial target profit specified in the contract at the time of contract award and such reduced price shall be the total final contract price.

(5) For firm-fixed-price contracts or contract modifications, by 10 percent of the initial contract price; 10 percent of the contract modification price; or - profit amount determined by the Contracting Officer from records or documents in existence prior to the date of the contract award or modification.

(c) The Government may, at its election, reduce a prime contractor's price or fee in accordance with the procedures of paragraph (b) of this clause for violations of the Act by its subcontractors by an amount not to exceed the amount of profit or fee reflected in the subcontract at the time the subcontract was first definitively priced.

(d) In addition to the remedies in paragraphs (a) and (c) of this clause, the Government may terminate this contract for default. The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law or under this contract.

(END-OF-CLAUSE)

8. Section K is amended to include Article K-22. REQUIREMENT FOR CERTIFICATE OF PROCUREMENT INTEGRITY (FAR 52.203-9) (NOV 1990) ALTERNATE I (SEP 1990)

9. Sections K, L, and M, are deleted for the purposes of this contract.

10. Nothing follows.

1. This contract is a rated order under DPAS(15 CFR 350) RATING:

2. CONTRACT NO.	3. SOLICITATION NO. RS-NMS-91-001	4. TYPE OF SOLICITATION ( ) SEALED BID (IFB) (X) NEGOTIATED (RFP)
5. DATE ISSUED OCT 30 1990	6. REQUISITION/PURCHASE REQ. NO. NMS-91-001	
7. ISSUED BY ATTN: RS-NMS-91-001 U.S. Nuclear Regulatory Commission Div. of Contracts & Property Mgmt. Contract Neg. Branch No. 1; P-1020 Washington, DC 20555	8. ADDRESS OFFER TO Offer must be addressed as shown in Item 7. Hand-carried offers (Including Express Mail and delivery services) must be delivered to the address in Item 9.	

NOTE: In sealed bid solicitations, "offer" and "offeror" mean "bid" and "bidder".

### SOLICITATION

9. Sealed offers for furnishing the services or supplies in the schedule are due at 3:30 PM, Washington, DC local time on 11/30/90. Offers sent through the U.S. Mail (including U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee) must be addressed to the place specified in Item 7. All hand-carried offers including those made by private delivery services (e.g. Federal Express and Airborne Express) must be delivered to 7920 Norfolk Avenue, Bethesda, Maryland 20814 and received in the depository located in Room P-1011. NRC is a secure facility with perimeter access-control and NRC personnel are not available to receive hand-carried offers except during normal working hours, 7:30 AM - 4:15 PM, Monday through Friday, excluding federal holidays. Offerors should be aware that many private carriers only make deliveries to the mail room. All offerors should allow extra time for internal mail distribution.

Offerors should clearly identify the RFP number on the outside wrapper. IFB's should have affixed the Optional Form (OF) 17, "Sealed Bid Label," on the outside wrapper.

CAUTION - LATE SUBMISSIONS, MODIFICATIONS AND WITHDRAWALS. SEE SECTION L. PROVISION NO. 52.214-7 or 52.215-10.

All offers are subject to all terms and conditions contained in this solicitation. (See the Provision in Section L, "Proposal Presentation and Format").

10. FOR INFORMATION:	A. NAME: CALL: Mrs. Helen Hagey	B. TELEPHONE NO. (Include Area Code) (NO COLLECT CALLS) (301) 492-9449
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SOLICITATION, OFFER AND AWARD

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M	EVALUATION FACTORS FOR AWARD	

OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provision at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within 120 calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)  
 10 CALENDAR DAYS \_\_\_\_\_%      20 CALENDAR DAYS \_\_\_\_\_%      30 CALENDAR DAYS \_\_\_\_\_%      \_\_\_\_\_ CALENDAR DAYS \_\_\_\_\_%

14. ACKNOWLEDGEMENT OF AMENDMENTS The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated:

AMENDMENT NO.	DATE	AMENDMENT NO.	DATE
---------------	------	---------------	------

15A. NAME AND ADDRESS OF OFFEROR	CODE _____	FACILITY _____	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print) Richard F. Casey Deputy Director of Contracts
	ICF Incorporated 9 00 Lee Highway Fairfax, VA 22031-1207		
	CEC #: 07-264-8579		

15B. TELEPHONE NO. (Include Area Code) (703) 934-3000	15C. CHECK IF REMITTANCE ADDRESS IS ( ) DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE
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17. SIGNATURE: <i>Richard F. Casey</i>	18. OFFER DATE: November 30, 1990
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SOLICITATION, OFFER AND AWARD

AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED | 20. AMOUNT | 21. ACCOUNTING AND APPROPRIATION

22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:

( ) 10 U.S.C. 2304(c)( )

( ) 41 U.S.C. 253(c)( )

23. SUBMIT INVOICES TO ADDRESS SHOWN IN | ITEM

(4 copies unless otherwise specified)

24. ADMINISTERED BY CODE | \_\_\_\_\_ | 25. PAYMENT WILL BE MADE BY CODE | \_\_\_\_\_

(If other than Item 7)

U.S. Nuclear Regulatory Commission  
Division of Accounting and Finance  
GOV/COM Accounting Section  
Washington, DC 20555

26. NAME OF CONTRACTING OFFICER | 27. UNITED STATES OF AMERICA | 28. AWARD DATE  
(Type or Print)

(Signature of Contracting Officer)

IMPORTANT - Award will be made on this Form or on Standard Form 26,  
or by other authorized official written notice.

EXCEPTION TO STANDARD FORM 33 (REV. 4-85)

Prescribed by GSA  
FAR(48 CFR) 53.214(c)

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OFFERORS/BIDDERS PLEASE NOTE:

An (\*) means the information is to be incorporated into any resultant contract.

PART I - THE SCHEDULE

SECTION B - SUPPLIES OR SERVICES AND PRICE/COSTS

B.1 PROJECT TITLE

The title of this project is as follows:

"TECHNICAL ASSISTANCE IN COST ESTIMATING AND  
FINANCIAL ASSURANCE CASE REVIEWS"  
(End of Clause)

B.2 BRIEF DESCRIPTION OF WORK (MAR 1987)  
ALTERNATE I (JUNE 1988)

a. Brief description of work:

NRC has recently developed financial assurance guidance governing classes licensees and require contractor assistance to further implement the financial assurance requirements.

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

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

b. The amount presently obligated with respect to this contract is \$\_\_\*\_\_. This obligated amount represents the designated minimum of this contract (see B.4 below.) The Contracting Officer shall issue Task Orders for work under this contract up to the minimum of effort. Thereafter, funds will be obligated on each

individual Task Order hereunder.

c. A total estimated cost as well as any fee 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 MINIMUM AND MAXIMUM ORDERS

During the four year period of performance of this contract, total Task Orders placed by the NRC Contracting Officer will be a minimum of 1.5 staff years (3,000 hours) of professional staff effort and a maximum of 4.5 staff years (9,000 hours) of professional staff effort.

(End of Clause)



SECTION C - DESCRIPTION/SPECIFICATION  
/WORK STATEMENT

---

C.1. BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC) has authority to establish and enforce regulations requiring licensees to demonstrate evidence of financial responsibility for their activities such as construction, operation, closure, decommissioning and stabilization. This authority is based on the Atomic Energy Act of 1954, as amended, the Uranium Mill Tailings Radiation Contract Act of 1978, and the Nuclear Waste Policy Act of 1982 (NWPA).

NRC's Office of Nuclear Material Safety and Safeguards (NMSS) is mandated for ensuring public health and safety and protecting the national security and environment in the licensing and regulation of all facilities (except reactors) and materials associated with processing, transport, and handling of nuclear materials and disposal of nuclear waste. This mandate includes ensuring that licensees possess the financial capability to perform certain planned activities during operation and closure of their facility.

Financial assurance regulations are included in 10 CFR Part 40, Appendix A which require the applicant to assure that sufficient funds will be available to carry out decontamination and decommissioning of the mill and site reclamation. 10 CFR Part 61 includes requirements to ensure that adequate resources are available during site closure and long-term care. Amendments to 10 CFR Parts 30, 40, 70, and 72 on decommissioning, issued June 27, 1988 (53 FR 24018) require submittal of certifications of financial assurance or decommissioning funding plans for certain materials licensees.

The NRC Low-Level Waste Management and Decommissioning Division (LLWM) staff has the lead responsibility for developing financial assurance guidance and providing assistance in the implementation of the NMSS financial assurance requirements. The LLWM has recently developed financial assurance guidance governing these classes of licensees.

(End of Clause)

C.2. OBJECTIVE OF PROPOSED WORK

The LLWM staff requires contractor support to further implement the financial assurance requirements over the next four years. Primary tasks include (1) review of certifications of financial assurance for decommissioning; (2) review of decommissioning funding plans; (3) review of financial and cost related aspects of

low-level waste disposal facility applications and uranium recovery related casework; (4) review of existing guidance for possible revisions based on casework experience; (5) consolidation and review of information for possible rulemaking proposals related to long term care of low-level waste facilities, standby trusts, retention of surety trust funds, accidental cleanup cost coverage and consolidation of financial assurance regulations; (6) support to possible workshops developed to implement decommissioning financial assurance requirements by Agreement States; (7) general technical assistance support in reviewing reports, assisting in workshops, attending meetings, providing testimony and serving as expert witness and other matters related to financial assurance. To perform these tasks, expertise is needed in the following areas: corporate organization and finance, corporate accounting, bankruptcy law, commercial banking and commercial insurance.

(End of Clause)

### C.3. STATEMENT OF WORK

#### C.3.1. TASK 1 - REVIEW OF CERTIFICATIONS OF FINANCIAL ASSURANCE FOR DECOMMISSIONING

Utilizing the Regulatory Guide "Standard Format and Content of Financial Assurance Mechanism: Required For Decommissioning Under 10 CFR Parts 30, 40, and 72" and NUREG-1337 Rev. 1 entitled, "Standard Review Plan for the Review of Financial Assurance Mechanisms for Decommissioning Under 10 CFR Parts 30, 40, 70 and 72," the contractor shall assist LLWM in the review of financial documents submitted to it by the applicable NRC licensing office.

The contractor shall review the submittals for completeness and validity by utilizing the appropriate references. The financial mechanisms will be reviewed to determine if they meet the requirements of the decommissioning rule.

The contractor shall also review licensee responses and make recommendations for resolution of differing positions from the applicant/licensee.

Following NRC approval of each acceptable financial certification, the contractor shall provide to the appropriate licensing office a completed licensing tracking system (LTS) data sheet (see Section J - List of Attachments for sample).

Refer to C.4 below for the review process.

The estimated level of effort for this task is one staff year.

#### C.3.2. TASK 2 - REVIEW OF DECOMMISSIONING FUNDING PLANS

Utilizing the financial guidance documents mentioned in Task 1 and appropriate Pacific Northwest Laboratory (PNL) cost studies (see attachment in Section J), the contractor shall assist LLWM in the

review of decommissioning funding plans submitted to it by the applicable NRC licensing office.

The contractor shall review the decommissioning cost estimates for technical adequacy and completeness and by utilizing appropriate PNL cost studies plus any other sources the contractor may elect to use with prior approval from the NRC Project Officer. The contractor shall also review the financial certifications submitted as part of the decommissioning funding plan utilizing the appropriate guidance provided in above references.

The contractor shall also review responses and make recommendations for resolution of differing positions from the licensee/applicant and summarize the licensing financial assurance information for the LTS Data Sheet.

Refer to C.4 below for the review process.

The estimated level of effort for this task is 1.5 staff years..

#### C.3.3. TASK 3 - LOW LEVEL WASTE DISPOSAL AND URANIUM RECOVERY CASEWORK

Using NUREG-1199, "Standard Format and Content of a License Application for Low-Level Radioactive Waste Disposal Facility" and NUREG-1200, "Standard Review Plan for the Review of License Application for a Low-Level Radioactive Waste Disposal Facility," the contractor shall assist NRC staff in the financial assurance review of low-level waste disposal facility license applications. Using the branch technical position "Technical Position on Financial Assurance for Reclamation, Decommissioning, and Long-Term Surveillance and Control of Uranium Recovery Facilities," the contractor shall assist NRC staff in the financial assurance review of uranium recovery facility license applications.

The estimated level of effort for this task is 0.25 staff year.

#### C.3.4. TASK 4 - REVIEW OF EXISTING FINANCIAL ASSURANCE GUIDANCE

Utilizing NRC casework experience, the contractor will review the following existing financial assurance guidance and will make recommendations for revisions and revise the guidances after approval of the recommendations by the NRC Project Officer.

1. Regulatory Guide 3.66, "Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning Under Parts 30, 40, 70 and 72."
2. NUREG-1337, Rev. 1, entitled, "Standard Review Plan for the Review of Financial Assurance Mechanisms for Decommissioning under 10 CFR parts 30, 40, 70 and 72."
3. NUREG-1199, Rev. 1, "Standard Format and Content of a License Application for a Low-Level Radioactive Waste Disposal

Facility."

4. NUREG-1200, Rev. 1, "Standard Review Plan for the Review of a License Application for Low-Level Radioactive Waste Disposal Facility."
5. "Technical Position on Financial Assurances for Reclamation, Decommissioning, and Long-Term Surveillance and Control of Uranium Recovery Facilities."

The estimated level of effort for this task is 0.25 staff year.

#### C.3.5. TASK 5 - CONSOLIDATION AND REVIEW OF INFORMATION FOR POSSIBLE RULEMAKING PROPOSALS

##### A. Standby Trust Rulemaking

The contractor shall assist the staff in developing necessary information to initiate a standby trust rulemaking. The rule would require licensees who use financial mechanisms which include surety bonds, letters of credit or lines of credit to establish a standby trust fund. This rule would affect licensees covered by Part 61 (LLW Disposal) and 10 CFR Part 40, Appendix A (Uranium Recovery Facilities). The recently enacted decommissioning rule requires licensees to have trusts but did not cover the subject licensees of this rulemaking.

##### B. Accidental Cleanup Cost Rulemaking

The contract shall assist the staff in developing necessary information to initiate a cleanup cost rulemaking. The rule would require certain persons licensed to possess nuclear materials to demonstrate that they possess adequate financial means to pay for cleanup of accidental releases of radioactive materials. Reports that would be utilized in this effort include the following. "Impact of Proposed Financial Assurance Requirements on Nuclear Materials Licensee," (NUREG/CR-4958 PNL-6233), September 1987; "A Preliminary Evaluation of The Economic Risk for Cleanup of Nuclear Material Licensee Contamination Incidents," (NUREG/CR-4825, SAND 86-2108), March 1987; and "Economic Risk of Contamination Cleanup Costs Resulting from Large Nonreactor Nuclear Material Licensee Operations," (NUREG/CR-5384, SAND 89-1302), March 1990.

##### C. Long Term Care of Low-Level Waste Facilities Rulemaking

The contractor shall assist the staff in developing necessary information to initiate a rulemaking which would ensure that the licensees have made available adequate financial arrangements for any long-term maintenance or monitoring needed prior to license termination. Authority for this rulemaking is found in Section 151 of the 1982 NWPA which now gives the Commission authority to explicitly require funding for long-term maintenance or monitoring during the

institutional control period.

D. Retention of Surety Trust Funds Rulemaking

Following the passage of enabling legislation, the contractor shall assist the NRC staff to develop a rulemaking to enable NRC to hold and expend funds received from a financial surety arrangement established to accomplish decommissioning, decontamination, and reclamation activities at NRC-licensed site when a licensee is unable to perform these activities.

E. Omnibus Financial Assurance Rulemaking

The contractor shall assist the staff in developing necessary information to initiate the rulemaking which would consolidate all financial assurance regulations into a new regulatory section. This rule would also revisit some of the financial mechanisms presently allowed by NRC, with a focus on the mechanisms especially vulnerable in bankruptcy proceedings.

The estimated level of effort for this task is one staff year.

C.3.6. TASK 6 - WORKSHOP AND MEETING SUPPORT FOR DECOMMISSIONING

The contractor shall provide assistance to LLWM staff for meetings and workshops as well as assist in the review of reports, such as agreement state reports and regulations developed to implement decommissioning financial assurance requirements by Agreement States. The Contractor shall also provide testimony and serve as an expert witness in matters related to financial assurance. This effort would involve up to 16 meetings, up to 8 workshops and review of up to 29 regulations.

The estimated level of effort for this task is 0.50 staff year.

(End of Clause)

C.4. REVIEW PROCESS FOR TASKS 1 AND 2

The following review process will follow upon definitization of a Task Order (for Tasks 1 and/or 2) by the NRC Contracting Officer:

The process for providing Financial Assurance Certifications and Decommissioning funding plans (DFP) for review (as stated in Tasks 1 and 2 above) by the contractor shall be as follows:

1. After receiving the Certifications and DFP's from the licensees, the regional contacts will submit those items received to the NRC Project Officer.
2. The NRC Project Officer will then process the items received and will send to the contractor a request for assistance letter including the items to be reviewed (including any special guidance) as well as the expected timeframe for the reviews.

3. Comments prepared by the contractor will be submitted to the NRC Project Officer and appropriate Regional contacts simultaneously. The contractor will respond with comments to the applicable NRC licensing office and the NRC Project Officer within 45 days of receipt of the submittals. All follow-up reviews of responses from licensees will be handled in the same manner.
4. The contractor's monthly report shall clearly show what items have been received for reviews and the status of the reviews.

(End of Clause)

#### C.5 MEETINGS AND TRAVEL

All domestic travel requires the prior approval of the NRC Project Officer. No foreign travel will be required under this contract.

- A. Upon execution of Task Order No. One by the NRC Contracting Officer, the contractor shall attend a kickoff meeting at the NRC office in Rockville, Maryland. The contractor shall also attend an annual contract status meeting at the NRC office in Rockville, Maryland.
- B. The contractor shall plan to visit the NRC offices in Rockville, Maryland up to 2 times per task to confer with the LLWM staff regarding the performance of work under this contract.
- C. Trips as stated in Task 6 for ten meetings and 4 workshops.

(NOTE TO OFFEROR: Refer to Section L for estimates to consider in preparing a proposal for travel expenses.)

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 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference:

## FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

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



SECTION F - DELIVERIES OR PERFORMANCE

## F.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference:

## FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

NUMBER	DATE	TITLE
52.212-13	AUG 1989	STOP-WORK ORDER ALTERNATE I (APR 1984)

## F.2 PREPARATION OF TECHNICAL REPORTS (JUNE 1988)

All technical reports required by Section C and all Technical Progress Reports required by Section F are to be prepared in accordance with the attached NRC Manual Chapter 3202. NRC Manual Chapter 3202 is not applicable to any Contractor Spending Plan (CSP) and any Financial Status Report that may be included in this contract. (See Section J for List of Attachments).

(End of Clause)

F.3 TECHNICAL PROGRESS REPORT  
(OMB CLEARANCE NUMBER 3150-0112)

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

a. A list of the efforts completed during the period such as number of reviews by category, as well as a copy of the comments submitted to the Regions.

b. Any problems or delays encountered or anticipated and recommendations for resolution; (if the recommended resolution involves a contract modification, e.g., change in work requirements, level of effort (cost) or schedule delay, the Contractor shall submit a separate letter to the Contracting Officer identifying the required change and estimated cost impact).

c. A summary of progress to date; and

d. Plans for the next reporting period.

(End of Clause)

F.4 FINANCIAL STATUS REPORT (JUNE 1988)  
(OMB CLEARANCE NUMBER 3150-0112)

The Contractor shall provide a monthly Financial Status Report to the Project Officer and the Contracting Officer. The report is due within 15 calendar days after the end of the report period and shall identify the title of the project, the contract number, project manager and/or principal investigator, the contract period of performance, and the period covered by the report. Each report shall include the following for each discrete task:

- 1) Total Estimated Contract Amount.
- 2) Total Funds Obligated to Date.
- 3) Total Costs Incurred This Reporting Period.
- 4) Total Costs Incurred to Date.
- 5) Provide a detail of all direct and indirect costs incurred during the reporting period for the entire contract or each task, if it is a task ordering contract.
- 6) Balance of Obligations Remaining.
- 7) Balance of Funds Required To Complete Contract/Task Order.
- 8) CSP Status:

(a) Projected Percentage (%) of Completion cumulative through the report period for the Project/Task Order as reflected in the current CSP.

(b) Indicate if there has been a significant change in the original Contractor Spending Plan (CSP) projection in either dollars or percentage of completion. Identify what the change is, the reasons for the change, whether there is any projected overrun, and when additional funds would be required. If there have been no changes to the original NRC approved CSP projections, a written statement to that effect is sufficient in lieu of submitting a detailed response to this item 8).

9) A revised CSP is required with the Financial Status Report whenever the contractor or the Contracting Officer has reason to believe that the total cost for performance of this contract will be either greater or substantially less than what had been previously estimated.

If the data in this report indicates a need for additional funding beyond that already obligated, this information may only be used

as backup to the official request for funding required in accordance with the Limitation of Cost (LOC) Clause, FAR 52.232-20, or the Limitation of Funds (LOF) Clause, FAR 52.232-22.

(End of Clause)

#### F.5 PLACE OF DELIVERY--REPORTS (JUNE 1988)

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

- a. Project Officer (4 copies)

\_\_\_\_\_\*\_\_\_\_\_  
 \_\_\_\_\_\*\_\_\_\_\_  
 \_\_\_\_\_\*\_\_\_\_\_  
 \_\_\_\_\_\*\_\_\_\_\_  
 \_\_\_\_\_\*\_\_\_\_\_  
 \_\_\_\_\_\*\_\_\_\_\_

- b. Contracting Officer (1 copy)

U.S. Nuclear Regulatory Commission  
 Contract Number: \_\_\_\_\*\_\_\_\_\_  
 Division of Contracts and Property Management  
 Contract Administration Branch  
 Washington, D.C. 20555

(End of Clause)

#### F.6 DURATION OF CONTRACT PERIOD (MAR 1987) ALTERNATE I (JUNE 1988)

The ordering period for this contract shall commence on \_\_\_\_\*\_\_\_\_ and will expire on \_\_\_\_\*\_\_\_\_. 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).

(End of Clause)

#### F.7 QUALITY ASSURANCE

For all reports delivered under this agreement, the contractor shall assure that an independent review and verification of all numerical computations and mathematical equations and derivations are performed by qualified personnel other than the original author(s) of the reports. If the contractor proposes to verify/check less than 100 percent of all computations and mathematical equations and derivations in the report(s), (such as might be the case when there are a large number of routine, repetitive calculations), the contractor must first obtain written approval from the NRC Project Officer. Computer-generated calculations will not require verification where the computer program has already been verified.

In addition, all reports, including those which do not contain numerical analyses must be reviewed by the contractor's management and approved with two signatures, one of which is for the contractor's management at a level above the program manager.

When revisions for the reports are issued, a section must be included in the revised report to document dates of, reasons for, and scope of all changes made since issuance of the first approved report by the contractor.

(End of Clause)

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 INDIRECT COST RATES (JUNE 1988)

a. Pending the establishment of final indirect rates which shall be negotiated based on audit of actual costs, the Contractor shall be reimbursed for allowable indirect costs as follows:

\_\_\_\*\_\_\_

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

(End of Clause)

G.2 PROJECT OFFICER AUTHORITY (JUNE 1988)

a. The Contracting Officer's authorized representative hereinafter referred to as the Project Officer for this contract is:

Name: \_\_\_\*\_\_\_

Address: \_\_\_\*\_\_\_  
 \_\_\_\*\_\_\_  
 \_\_\_\*\_\_\_  
 \_\_\_\*\_\_\_  
 \_\_\_\*\_\_\_  
 \_\_\_\*\_\_\_

Telephone Number: \_\_\_\*\_\_\_

b. Performance of the work under this contract shall be 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 reports, drawings, specifications and technical information to be delivered by the Contractor to the Government under the contract.

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

- 1) Constitutes an assignment of additional work outside the general scope of the contract.
- 2) Constitutes a change as defined in the "Changes" clause of this contract.
- 3) In any way causes an increase or decrease in the total estimated contract cost, the fixed fee, if any, or the time required for contract performance.
- 4) Changes any of the expressed terms, conditions or specifications of the contract.
- 5) Terminates the contract, settles any claim or dispute arising under the contract, or issues any unilateral directive whatever.

d. All technical directions shall be issued in writing by the Project Officer or shall be confirmed by such person in writing within ten (10) working days after verbal issuance. A copy of said written direction shall 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 such person'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 c above, the Contractor shall not proceed but shall notify the Contracting Officer in writing within five (5) working days after the receipt of any such instruction or direction and shall request the Contracting Officer to modify the contract accordingly. Upon receiving such 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 shall be subject to 52.233-1 - Disputes.

1. In addition to providing technical direction as defined above, the Project Officer is responsible for:

1) Monitoring the Contractor's technical progress, including surveillance and assessment of performance, and recommending to the Contracting Officer changes in requirements.

2) Assisting the Contractor in the resolution of technical problems encountered during performance.

3) Reviewing all costs requested for reimbursement by the Contractor and submitting to the Contracting Officer recommendations for approval, disapproval, or suspension of payment for supplies and services required under this contract.

(End of Clause)

### G.3 REMITTANCE ADDRESS (MAR 1987)

If item 15C. of the Standard Form 33 has been checked, enter the remittance address below.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(End of Clause)

### G.4 TASK ORDER PROCEDURES (MAR 1987)

#### a. Task Order Request for Proposal

When a requirement within the scope of work for this contract is identified, the Contracting Officer will transmit to the Contractor a Task Order Request for Proposal which will include 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.
- 6) Estimated Level of Effort.

#### b. Task Order Proposal

By the date specified in the Task Order Request for

Proposal, the Contractor shall deliver to the Contracting Officer a written Task Order Proposal that provides the following technical and cost information, as appropriate:

1) Technical Proposal Content.

a) 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.

b) 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.

c) Identification of administrative support personnel and/or facilities that are needed to assist the professional personnel in completing work on the task order.

d) 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 shall be prepared using the 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 shall 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 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 Task Order Request for Proposal will indicate 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 will 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.
- 6) Total Task Order amount.

(End of Clause)



## G.5 ACCELERATED TASK ORDER PROCEDURES (JUNE 1988)

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 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 a 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 BILLING INSTRUCTIONS

The Contractor shall refer to the attachment in Section J entitled "Billing Instructions."

(End of Clause)

## G.7 NRC LICENSING OFFICE CONTACTS

The following NRC licensing office contacts are designated:

IMNS - \*  
REGION I - \*  
REGION II - \*  
REGION III - \*  
REGION IV - \*  
REGION V - \*

(End of Clause)

SECTION H - SPECIAL CONTRACT REQUIREMENTS

## H.1 KEY PERSONNEL (JUNE 1988)

a. The following individuals are considered to be essential to the successful performance of the work hereunder.

\*  
---  
\*  
---  
\*  
---  
\*  
---  
\*  
---  
\*  
---

The Contractor agrees that such personnel shall not be removed from the contract work or replaced without compliance with paragraphs b and c hereof.

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 such personnel with personnel of at least substantially equal ability and qualifications.

c. All requests for approval of substitutions hereunder must be in writing and provide a detailed explanation of the circumstances necessitating the proposed substitutions. They must contain a complete resume for the proposed substitute and other information requested by the Contracting Officer to approve or disapprove the proposed substitution. The Contracting Officer will evaluate such requests and promptly notify the Contractor of his/her approval or disapproval thereof in writing.

d. If the Contracting Officer determines that:

1) Suitable and timely replacement of key personnel who have been reassigned, terminated or have otherwise become unavailable for the contract work is not reasonably forthcoming; or

2) That the resultant reduction of effort would be so substantial as to impair the successful completion of the contract, 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.2 SAFETY, HEALTH, AND FIRE PROTECTION (MAR 1987)

The Contractor shall take all reasonable precautions in the performance of the work under this contract to protect the health and safety of employees and of members of the public 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 such work stoppage.

(End of Clause)

#### H.3 DISSEMINATION OF CONTRACT INFORMATION (MAR 1987)

The Contractor shall comply with the requirements of the attached NRC Manual Chapters 3202 and 3206 (See Section J for List of Attachments) regarding publications or dissemination to the public of any information, oral or written, concerning the work performed under this contract. Failure to comply with this clause shall be grounds for termination of this contract.

(End of Clause)

#### H.4 PRIVATE USE OF CONTRACT INFORMATION AND DATA (JUNE 1988)

Except as specifically authorized by this contract, or as otherwise approved by the Contracting Officer, information and other data developed or acquired by or furnished to the Contractor in the performance of this contract shall be used only in connection with the work under this contract.

(End of Clause)

#### H.5 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST

(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 41 CFR

§20-1.5402(f) in the activities covered by this clause.

(c) Work for others. 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 prior to execution of such contractual arrangement.

(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 41 CFR §20-1.5402(a).

(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.

(e) Access to and use of information.

(1) If the contractor in the performance of this contract obtains access to information, such as NRC plans, policies, reports, studies, financial plans, internal data protected by the Privacy Act of 1974 (Pub. L. 93-579), or data which has not been released to the public, the contractor agrees not to:

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

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

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

(iv) Release the information without prior written approval by the contracting officer unless the

information has previously been released to the public by the NRC.

(2) In addition, the contractor agrees that, to the extent it receives or is given access to proprietary data, data protected by the Privacy Act of 1974 (Pub. L. 93-579), 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) The contractor shall have, subject to patent and security provisions of this contract, 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 41 CFR 520-1.5402(h), 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 through the contracting officer to the Executive Director for Operations (EDO) in accordance with the procedures outlined in 41 CFR 520-1.5411.

(End of Clause)

#### H.6 GOVERNMENT FURNISHED EQUIPMENT/PROPERTY - NONE PROVIDED (JUNE 1988)

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

(End of Clause)

PART II - CONTRACT CLAUSES

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SECTION I - CONTRACT CLAUSES

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I.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference:

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

NUMBER	DATE	TITLE
52.202-1	APR 1984	DEFINITIONS
52.203-1	APR 1984	OFFICIALS NOT TO BENEFIT
52.203-3	APR 1984	GRATUITIES
52.203-5	APR 1984	COVENANT AGAINST CONTINGENT FEES
52.203-6	JUL 1985	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT
52.203-7	OCT 1988	ANTI-KICKBACK PROCEDURES
52.209-6	MAY 1989	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT
52.215-1	APR 1984	EXAMINATION OF RECORDS BY COMPTROLLER GENERAL
52.215-2	DEC 1989	AUDIT -- NEGOTIATION
52-215-22	APR 1988	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA
52.215-24	APR 1985	SUBCONTRACTOR COST OR PRICING DATA
52.215-31	SEP 1987	WAIVER OF FACILITIES CAPITAL COST OF MONEY
52.215-33	JAN 1986	ORDER OF PRECEDENCE
52.216-7	APR 1984	ALLOWABLE COST AND PAYMENT
52.216-8	APR 1984	FIXED FEE
52.217-8	AUG 1989	OPTION TO EXTEND SERVICES
52.219-8	FEB 1990	UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED BUSINESS CONCERNS
52.219-9	FEB 1990	SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS SUBCONTRACTING PLAN
52.219-13	AUG 1986	UTILIZATION OF WOMEN-OWNED SMALL BUSINESSES
52.219-16	AUG 1989	LIQUIDATED DAMAGES - SMALL BUSINESS

52.220-3	APR 1984	SUBCONTRACTING PLAN UTILIZATION OF LABOR
52.220-4	APR 1984	SURPLUS AREA CONCERNS LABOR SURPLUS AREA
52.222-1	APR 1984	SUBCONTRACTING PROGRAM NOTICE TO THE GOVERNMENT OF LABOR DISPUTES
52.222-3	APR 1984	CONVICT LABOR
52.222-26	APR 1984	EQUAL OPPORTUNITY
52.222-35	APR 1984	AFFIRMATIVE ACTION FOR SPECIAL DISABLED AND VIETNAM ERA VETERANS
52.222-36	APR 1984	AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS
52.222-37	JAN 1988	EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA
52.223-2	APR 1984	CLEAN AIR AND WATER
52.225-13	MAY 1989	RESTRICTIONS ON CONTRACTING WITH SANCTIONED PERSONS
52.227-1	APR 1984	AUTHORIZATION AND CONSENT
52.227-2	APR 1984	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT
52.227-3	APR 1984	PATENT INDEMNITY
52.228-7	APR 1984	INSURANCE -- LIABILITY TO THIRD PERSONS
52.232-17	APR 1984	INTEREST
52.232-22	APR 1984	LIMITATION OF FUNDS
52.232-23	JAN 1986	ASSIGNMENT OF CLAIMS
52.233-1	APR 1984	DISPUTES
52.233-3	AUG 1989	PROTEST AFTER AWARD ALTERNATE I (JUN 1985)
52.242-1	APR 1984	NOTICE OF INTENT TO DISALLOW COSTS
52.243-2	AUG 1987	CHANGES -- COST-REIMBURSEMENT ALTERNATE I (APR 1984)
52.244-2	JUL 1985	SUBCONTRACTS (COST-REIMBURSEMENT AND LETTER CONTRACTS)
52.244-5	APR 1984	COMPETITION IN SUBCONTRACTING
52.245-5	JAN 1986	GOVERNMENT PROPERTY (COST-REIMBURSEMENT, TIME-AND-MATERIAL, OR LABOR-HOUR CONTRACTS)
52.249-6	MAY 1986	TERMINATION (COST-REIMBURSEMENT)
52.249-14	APR 1984	EXCUSABLE DELAYS
52.230-3	SEP 1987	COST ACCOUNTING STANDARDS
52.230-4	SEP 1987	ADMINISTRATION OF COST ACCOUNTING STANDARDS
52.230-5	SEP 1987	DISCLOSURE AND CONSISTENCY OF COST ACCOUNTING PRACTICES

## I.2 ORDERING (FAR 52.216-18) (APR 1984)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders by the individuals or activities designated in the Schedule. Such orders may be issued from the effective date of the contract through the end of the effective period..

(b) All delivery orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order and this contract, the contract shall control.

(c) If mailed, a delivery order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally or by written telecommunications only if authorized in the Schedule.

(End of Clause)

## I.3 INDEFINITE QUANTITY (FAR 52.216-22) (APR 1984)

(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 the "minimum."

(c) Except for any limitations on quantities in the Delivery-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 the end of the effective period of the final task order.

(End of Clause)



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

(a) The use of overtime is authorized under this contract if the overtime premium does not exceed \$0 or the overtime premium is paid for work--

(1) Necessary to cope with emergencies such as those resulting from accidents, natural disasters, breakdowns of production equipment, or occasional production bottlenecks of a sporadic nature;

(2) By indirect-labor employees such as those performing duties in connection with administration, protection, transportation, maintenance, standby plant protection, operation of utilities, or accounting;

(3) To perform tests, industrial processes, laboratory procedures, loading or unloading of transportation conveyances, and operations in flight or afloat that are continuous in nature and cannot reasonably be interrupted or completed otherwise; or

(4) That will result in lower overall costs to the Government.

(b) Any request for estimated overtime premiums that exceeds the 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.5 DRUG-FREE WORKPLACE (FAR 52.223-6) (JUL 1990)

(a) Definitions. As used in this clause, "Controlled Substances" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11-1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the

Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct costs employees and any other Contractor employee who has other than a minimal impact or environmental in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall--within 30 calendar days after award (unless a longer period is agreed to in writing for contracts of 30 calendar days or more performance duration); or as soon as possible for contracts of less than 30 calendar days performance duration--

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b)(1) of this clause;

(4) Notify such employees in writing in the the statement required by subparagraph (b)(1) of this clause, that as a condition of continued employment on this contract, the employee will--

(1) Abide by the terms of the statement; and

(11) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction;

(5) Notify the contracting officer in writing within 10 calendar days after receiving notice under subdivision (b)(4)(ii) of this provision, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee; and

(6) Within 30 days after receiving notice under subparagraph (b)(4)(ii) of this provision of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the workplace:

(i) Taking appropriate personnel action against such employee, up to and including termination; or

(ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency.

(7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) through (b)(6) of this clause.

(c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in the performance of this contract.

(d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraphs (b) and (c) of this clause may, pursuant to FAR 23.506, render the contractor subject to suspension of contract payments, termination of the contract for default, and suspension or debarment.

(End of Clause)

#### I.6 PROMPT PAYMENT (FAR 52.232-25) (APR 1989)

Notwithstanding any other payment clause in this contract, the Government will make invoice payments and contract financing payments under the terms and conditions specified in this clause. Payment shall be considered as being made on the day a check is dated or an electronic funds transfer is made. Definitions of pertinent terms are set forth in 32.902. All days referred to in this clause are calendar days, unless otherwise specified. The term "foreign vendor" means an incorporated concern not incorporated in the United States, or unincorporated concern having its principal place of business outside the United States.

(a) Invoice Payments.

(1) For purposes of this clause, "invoice payment" means a Government disbursement of monies to a Contractor under a contract or other authorization for supplies or services accepted by the Government. This includes payments for partial deliveries that have been accepted by the Government and final cost or fee payments where amounts owed have been settled between the Government and the Contractor.

(2) Except as indicated in subparagraph (a)(3) and paragraph (c) of this clause, the due date for making invoice payments by the designated payment office shall be the later of the following two events:

(i) The 30th day after the designated billing office has received a proper invoice from the Contractor.

(ii) The 30th day after Government acceptance of supplies delivered or services performed by the Contractor. On a final invoice where the payment amount is subject to contract settlement actions, acceptance shall be deemed to have occurred on the effective date of the contract settlement. However, if the designated billing office fails to annotate the invoice with the actual date of receipt, the invoice payment due date shall be deemed to be the 30th day after the date the Contractor's invoice is dated, provided a proper invoice is received and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(3) The due date on contracts for meat and meat food products, contracts for perishable agricultural commodities, contracts for dairy products, edible fats or oils, and food products prepared from edible fats or oils, and contracts not requiring submission of an invoice shall be as follows:

(1) The due date for meat and meat food products, as defined in section 2(a)(3) of the Packers and Stockyard Act of 1921 (7 U.S.C. 182(3)) and further defined in Pub. L. 98-181 to include any edible fresh or frozen poultry meat, any perishable poultry meat food product, fresh eggs, and any perishable egg product, will be as close as possible to, but not later than, the 7th day after product delivery.

(ii) The due date for perishable agricultural commodities, as defined in Section 1(4) of the Perishable Agricultural Commodities Act of 1930 (7 U.S.C. 499a(44)), will be as close as possible to, but not later than, the 10th day after product delivery, unless another date is specified in the contract.

(iii) The due date for dairy products, as defined in Section 111(e) of the Dairy Production Stabilization Act of 1983 (7 U.S.C. 4502(e)), edible fats or oils, will be as close as possible to, but not later than, the 10th day after the date on which a proper

invoice has been received.

(4) An invoice is the Contractor's bill or written request for payment under the contract for supplies delivered or services performed. An invoice shall be prepared and submitted to the designated billing office specified in the contract. A proper invoice must include the items listed in subdivisions (a)(4)(i) through (a)(4)(viii) of the clause. If the invoice does not comply with these requirements, then the contractor will be notified of the defect within 7 days after receipt of the invoice at the designated billing office (3 days for meat and meat food products and 5 days for perishable agricultural commodities, edible fats or oils, and food products prepared from edible fats or oils). Untimely notification will be taken into account in the computation of any interest penalty owed the Contractor in the manner described in subparagraph (a)(6) of this clause.

(i) Name and address of the Contractor.

(ii) Invoice date.

(iii) Contract number or other authorization for supplies delivered or services performed (including order number and contract line item number).

(iv) Description, quantity, unit of measure, unit price, and extended price of supplies delivered or services performed.

(v) Shipping and payment terms (e.g., shipment number and date of shipment, prompt payment discount terms). Bill of lading number and weight of shipment will be shown for shipments on Government bills of lading.

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number and mailing address of person to be notified in event of a defective invoice.

(viii) Any other information or documentation required by other requirements of the contract (such as evidence of shipment).

(5) An interest penalty shall be paid automatically by the Government, without request from the Contractor, if payment is not made by the due date and the conditions listed in subdivisions (a)(5)(i) through (a)(5)(iii) of this clause are met, if applicable. An interest penalty shall not be paid on contracts awarded to foreign vendors outside the United States for work performed outside the United States.

(i) A proper invoice was received by the designated billing office.

(ii) A receiving report or other Government documentation authorizing payment was processed and there was no disagreement over quantity, quality, or contractor compliance with any contract term or condition.

(iii) In the case of a final invoice for any balance of funds due the Contractor for supplies delivered or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(6) The interest penalty shall be at the rate established by the Secretary of the Treasury under Section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) that is in effect on the day after the due date, except where the interest penalty is prescribed by other governmental authority. This rate is referred to as the "Renegotiation Board Interest Rate," and it is published in the Federal Register semiannually on or about January 1 and July 1. The interest penalty shall accrue daily on the invoice payment amount approved by the Government and be compounded in 30-day increments inclusive from the first day after the due date through the payment date. That is, interest accrued at the end of any 30-day period will be added to the approved invoice payment amount and be subject to interest penalties if not paid in the succeeding 30-day period. If the designated billing office failed to notify the contractor of a defective invoice within the periods prescribed in subparagraph (a)(4) of this clause, then the due date on the corrected invoice will be adjusted by subtracting the number of days taken beyond the prescribed notification of defects period. Any interest penalty owed the Contractor will be based on this adjusted due date. Adjustments will be made by the designated payment office for errors in calculating interest penalties, if requested by the Contractor.

(i) For the sole purpose of computing an interest penalty that might be due the contractor, Government acceptance shall be deemed to have occurred constructively on the 7th day after the contractor delivered the supplies or performed the services in accordance with the terms and conditions of the contract, unless there is a disagreement over quantity, quality, or contractor compliance with a contract provision. In the event that actual acceptance occurs within the constructive acceptance period, the determination of an interest penalty shall be based on the actual date of acceptance. The constructive acceptance requirement does not, however, compel Government officials to accept supplies or services, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The following periods of time will not be included in the determination of an interest penalty:

(A) The period taken to notify the contractor of defects in invoices submitted to the Government, but this may not exceed 7 days (3 days for meat and meat food products and 5 days for perishable agricultural commodities, dairy products, edible fat or oils, and food products prepared from edible fats or oils).

(B) The period between the defects notice and resubmission of the corrected invoice by the Contractor.

(iii) Interest penalties will not continue to accrue after the filing of a claim for such penalties under the clause at 52.233-1, Disputes, or for more than 1 year. Interest penalties of less than \$1.00 need not be paid.

(iv) Interest penalties are not required on payment delays due to disagreement between the Government and Contractor over the payment amount or other issues involving contract compliance or on amounts temporarily withheld or retained in accordance with the terms of the contract. Claims involving disputes, and any interest that may be payable, will be resolved in accordance with the clause at 52.233-1, Disputes.

(7) An interest penalty shall also be paid automatically by the designated payment office, without request from the contractor, if a discount for prompt payment is taken improperly. The interest penalty will be calculated as described in subparagraph (a)(6) of this clause on the amount of discount taken for the period beginning with the first day after the end of the discount period through the date when the Contractor is paid.

(8) If this contract was awarded on or after October 1, 1989, a penalty amount, calculated in accordance with regulations issued by the Office of Management and Budget, shall be paid in addition to the interest penalty amount if the contractor:

(i) Is owed an interest penalty;

(ii) Is not paid the interest penalty within 10 days after the date the invoice amount is paid; and

(iii) Makes a written demand, not later than 40 days after the date the invoice amount is paid, that the agency pay such a penalty.

(b) Contract Financing Payments.

(1) For purposes of this clause, "contract financing payment" means a Government disbursement of monies to a Contractor under a contract clause or other authorization prior to acceptance of supplies or services by the Government. Contract financing payments include advance payments, progress payments based on cost under the clause at 52.232-16, Progress Payments, progress payments based on a percentage or stage of completion (32.102(e)(1)) other than those made under the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, or the clause at 52.232-10, Payments Under Fixed-Price Architect-Engineer Contracts, and interim payments on cost type contracts.

(2) For contracts that provide for contract financing, requests for payment shall be submitted to the designated billing office as specified in this contract or as directed by the Contracting

Officer. Contract financing payments shall be made on the 30th day after receipt of a proper contract financing request by the designated billing office. In the event that an audit or other review of a specific financing request is required to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the due date specified.

(3) For advance payments, loans, or other arrangements that do not involve recurrent submissions of contract financing requests, payment shall be made in accordance with the corresponding contract terms or as directed by the Contracting Officer.

(4) Contract financing payments shall not be assessed an interest penalty for payment delays.

(c) If this contract contains the clause at 52.213-1, Fast Payment Procedure, payments will be made within 15 days after the date of receipt of the invoice.

(End of Clause)

#### I.7 ELECTRONIC FUNDS TRANSFER PAYMENT METHODS (FAR 52.232-28) (APR 1989)

Payments under this contract will be made by the Government either by check or electronic funds transfer (through the Treasury Fedline Payment System (FEDLINE) or the Automated Clearing House (ACH), at the option of the Government. After award, but no later than 14 days before an invoice or contract financing request is submitted, the Contractor shall designate a financial institution for receipt of electronic funds transfer payment, and shall submit this designation to the Contracting Officer or other Government Official, as directed.

(a) For payment through FEDLINE, the Contractor shall provide the following information:

(1) Name, address, and telegraphic abbreviation of the financial institution receiving payment.

(2) The American Bankers Association 9-digit identifying number for wire transfers of the financing institution receiving payment if the institution has access to the Federal Reserve Communications System.

(3) Payee's account number at the financial institution where funds are to be transferred.

(4) If the financial institution does not have access to the Federal Reserve Communications System, name, address, and telegraphic abbreviation of the correspondent financial institution through which the financial institution receiving payment obtains wire transfer activity. Provide the telegraphic abbreviation and



the American Bankers Association identifying number for the correspondent institution.

(b) For payment through ACH, the Contractor shall provide the following information:

(1) Routing transit number of the financial institution receiving payment (same as American Bankers Association identifying number used for FEDLINE).

(2) Number of account to which funds are to be deposited.

(3) Type of depositor account ("C" for checking, "S" for savings).

(4) If the Contractor is a new enrollee to the ACH system, a "Payment Information Form," SF 3881, must be completed before payment can be processed.

(c) In the event the Contractor, during the performance of this contract, elects to designate a different financial institution for the receipt of any payment made using electronic funds transfer procedures, notification of such change and the required information specified above must be received by the appropriate Government official 30 days prior to the date such change is to become effective.

(d) The documents furnishing the information required in this clause must be dated and contain the signature, title, and telephone number of the Contractor official authorized to provide it, as well as the Contractor's name and contract number.

(e) Contractor failure to properly designate a financial institution or to provide appropriate payee bank account information may delay payment of amounts otherwise properly due.

(End of Clause)

#### I.8 CLAUSES INCORPORATED BY REFERENCE (FAR 52.252-2) (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.

(End of Clause)

#### I.9 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS--(FAR 52.203-12) (JAN 1990)

(a) Definitions.

"Agency", as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

- (a) The awarding of any Federal contract.
- (b) The making of any Federal grant.
- (c) The making of any Federal loan.
- (d) The entering into of any cooperative agreement.
- (e) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

- (a) An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment.
- (b) A member of the uniformed services, as defined in subsection 101(3), title 37, United States Code.
- (c) A special Government employee, as defined in section 202, title 18, United States Code.
- (d) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted

by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State," as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or

attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(A) The prohibition on the use of appropriated funds, in paragraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action--

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those activities expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) Professional and technical services.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of--

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable.

Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a

condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(iii) Disclosure.

(A) The Contractor who requests or receives from an agency a Federal Contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(B) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes--

(1) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(2) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(3) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(C) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or received any subcontract exceeding \$100,000 under the Federal contract.

(D) All subcontractor disclosure forms (but not certification) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(iv) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(v) Penalties.

(A) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(B) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(vi) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

PART III - LIST OF DOCUMENTS, EXHIBITS  
AND OTHER ATTACHMENTS

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SECTION J - LIST OF ATTACHMENTS

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J.1 ATTACHMENTS (MAR 1987)

<u>Attachment Number</u>	<u>Title</u>
1	Billing Instructions
2	NRC Contractor Organizational Conflicts of Interest (41 CFR Part 20)
3	NRC Manual Chapter 3202
4	Standard Form 1411 with Instructions
5	Contractor Spending Plan (CSP) Instructions
6	Subcontracting Plan
7	Manual Chapter 0506
8	Licensing Tracking System Data Sheet
9	List of PNL Cost Studies
10	Cost or Pricing Data



PART IV - REPRESENTATIONS AND INSTRUCTIONS

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SECTION K - REPRESENTATIONS, CERTIFICATIONS AND  
OTHER STATEMENTS OF OFFERORS

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K.1 CONTINGENT FEE REPRESENTATION AND  
AGREEMENT (FAR 52.203-4) (APR 1984)

(a) Representation. The offeror represents that, except for full-time bona fide employees working solely for the offeror, the offeror--

(Note: The offeror must check the appropriate boxes. For interpretation of the representation, including the term "bona fide employee," see Subpart 3.4 of the Federal Acquisition Regulation.)

(1) ( ) has, ( ) has not employed or retained any person or company to solicit or obtain this contract; and

(2) ( ) has, ( ) has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(b) Agreement. The offeror agrees to provide information relating to the above Representation as requested by the Contracting Officer and, when subparagraph (a)(1) or (a)(2) is answered affirmatively, to promptly submit to the Contracting Officer--

(1) A completed Standard Form 119, Statement of Contingent or Other Fees, (SF 119); or

(2) A signed statement indicating that the SF 119 was previously submitted to the same contracting office, including the date and applicable solicitation or contract number, and representing that the prior SF 119 applies to this offer or quotation.

(End of Provision)

K.2 TAXPAYER IDENTIFICATION (FAR 52.204-3) (SEP 1989)

(a) Definitions.

"Common parent," as used in this solicitation provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

"Corporate status," as used in this solicitation provision, means

a designation as to whether the offeror is a corporate entity, an unincorporated entity (e.g., sole proprietorship or partnership), or a corporation providing medical and health care services.

"Taxpayer Identification Number (TIN)," as used in this solicitation provision, means the number required by the IRS to be used by the offeror in reporting income tax and other returns.

(b) The offeror is required to submit the information required in paragraphs (c) through (e) of this solicitation provision in order to comply with reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M and implementing regulations issued by the Internal Revenue Service (IRS). If the resulting contract is subject to the reporting requirements described in 4.902(a), the failure or refusal by the offeror to furnish the information may result in a 20 percent reduction of payments otherwise due under the contract.

(c) Taxpayer Identification Number (TIN).

- TIN: \_\_\_\_\_
- TIN has been applied for.
- TIN is not required because:
- Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the U.S. and does not have an office or place of business or a fiscal paying agent in the U.S.;
- Offeror is an agency or instrumentality of a foreign government;
- Offeror is an agency or instrumentality of a Federal, state, or local government;
- Other. State basis. \_\_\_\_\_

(d) Corporate Status.

- Corporation providing medical and health care services, or engaged in the billing and collecting of payments for such services;
- Other corporate entity;
- Not a corporate entity;
- Sole proprietorship;
- Partnership;
- Hospital or extended care facility described in 26 CFR 501(c)(3) that is exempt from taxation under 26 CFR 501(a).

(e) Common Parent.

- Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this clause.
- Name and TIN of common parent:  
Name \_\_\_\_\_  
TIN \_\_\_\_\_

(End of provision)

K.3 CERTIFICATION REGARDING DEBARMENT, SUSPENSION,  
PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY  
MATTERS (FAR 52.209-5) (MAY 1989)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that -

(i) The Offeror and/or any of its Principals -

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a 3-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has ( ) has not ( ), within a 3-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

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

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the

Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of Provision)

#### K.4 TYPE OF BUSINESS ORGANIZATION (FAR 52.215-6) (JUL 1987)

The offeror or quoter, by checking the applicable box, represents that--

(a) It operates as  a corporation incorporated under the laws of the State of \_\_\_\_\_,  an individual,  a partnership,  a nonprofit organization, or  a joint venture; or

(b) If the offeror or quoter is a foreign entity, it operates as  an individual,  a partnership,  a nonprofit organization,  a joint venture, or  a corporation, registered for business in \_\_\_\_\_ (country).

(End of Provision)

#### K.5 AUTHORIZED NEGOTIATORS (FAR 52.215-11) (APR 1984)

The offeror or quoter represents that the following persons are authorized to negotiate on its behalf with the Government in connection with this request for proposals or quotations: (list names, titles, and telephone numbers of the authorized negotiators).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(End of Provision)

#### K.6 PLACE OF PERFORMANCE (FAR 52.215-20) (APR 1984)

(a) The offeror or quoter, in the performance of any contract resulting from this solicitation,  intends,  does not intend (check applicable box) to use one or more plants or facilities

located at a different address from the address of the offeror or quoter as indicated in this proposal or quotation.

(b) If the offeror or quoter checks "intends" in paragraph (a) above, it shall insert in the spaces provided below the required information:

Place of Performance (Street Address, City, County, State, Zip Code)	Name and Address of Owner and Operator of the Plant or Facility if Other than Offeror or Quoter
_____	_____
_____	_____
_____	_____
_____	_____

(End of Provision)

K.7 SMALL BUSINESS CONCERN REPRESENTATION  
(FAR 52.219-1) (FEB 1990)

(a) Representation. The offeror represents and certifies as part of its offer that it \_\_\_\_\_ is, \_\_\_\_\_ is not a small business concern and that \_\_\_\_\_ all, \_\_\_\_\_ not all end items to be furnished will be manufactured or produced by a small business concern in the United States, its territories or possessions, Puerto Rico, or the Trust Territory of the Pacific Islands.

(b) Definition.

Small business concern, as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards in this solicitation.

(c) Notice. Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small business concern in paragraph (a) of this clause in order to obtain a contract to be awarded under the preference programs established pursuant to sections 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall (1) be punished by imposition of a fine, imprisonment, or both; (2) be subject to administrative remedies; and (3) be ineligible for participation in programs conducted under the authority of the Act.

(End of Provision)

K.8 SMALL DISADVANTAGED BUSINESS CONCERN REPRESENTATION  
(FAR 52.219-2) (FEB 1990)

(a) Representation. The offeror represents that it \_\_\_\_\_ is, \_\_\_\_\_ is not a small disadvantaged business concern.

(b) Definitions.

Asian Pacific Americans, as used in this provision, means United States citizens whose origins are in Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the U.S. Trust Territory of the Pacific Islands (Republic of Palau), the Northern Mariana Islands, Laos, Kampuchea (Cambodia), Taiwan, Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Republic of the Marshall Islands, or the Federated States of Micronesia.

Indian tribe, as used in this provision, means any Indian tribe, band, nation, or other organized group or community of Indians, including any Alaska Native Corporation as defined in 13 CFR 124.100 which is recognized as eligible for the special programs and services provided by the U.S. to Indians because of their status as Indians, or which is recognized as such by the State in which such tribe, band, nation, group, or community resides.

Native Americans, as used in this provision, means American Indians, Eskimos, Aleuts, and native Hawaiians.

Native Hawaiian Organization, as used in this provision, means any community service organization serving Native Hawaiians in, and chartered as a not-for-profit organization by, the State of Hawaii, which is controlled by Native Hawaiians, and whose business activities will principally benefit such Native Hawaiians.

Small business concern, as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards in 13 CFR part 121.

Small disadvantaged business concern, as used in this provision, means a small business concern that (a) is at least 51 percent unconditionally owned by one or more individuals who are both socially and economically disadvantaged, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more socially and economically disadvantaged individuals and (b) has its management and daily business controlled by one or more such individuals. This term also means a small business concern that is at least 51 percent unconditionally owned by an economically disadvantaged Indian tribe or Native Hawaiian Organization, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one of these entities which has its management and daily business controlled by members of an economically disadvantaged Indian tribe or Native Hawaiian Organization, and which meets the requirements of 13 CFR part 124.

Subcontinent Asian Americans, as used in this provision, means United States citizens whose origins are in India, Pakistan, Bangladesh, Sri Lanka, Bhutan, or Nepal.

(c) Qualified groups. The offeror shall presume that socially and economically disadvantaged individuals include Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian Americans, and other individuals found to be qualified by SBA under 13 CFR 124. The offeror shall presume that socially and economically disadvantaged entities also include Indian tribes and Native Hawaiian Organizations.

(End of Provision)

K.9 WOMEN-OWNED SMALL BUSINESS REPRESENTATION  
(FAR 52.219-3) (APR 1984)

(a) Representation. The offeror represents that it ( ) is, ( ) is not a women-owned small business concern.

(b) Definitions.

"Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominate in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards in 13 CFR 121.

"Women-owned," as used in this provision, means a small business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(End of Provision)

K.10 PREFERENCE FOR LABOR SURPLUS AREA CONCERNS  
(FAR 52.220-1) (APR 1984)

(a) This acquisition is not a set aside for labor surplus area (LSA) concerns. However, the offeror's status as such a concern may affect (1) entitlement to award in case of tie offers or (2) offer evaluation in accordance with the Buy American Act clause of this solicitation. In order to determine whether the offeror is entitled to a preference under (1) or (2) above, the offeror must identify, below, the LSA in which the costs to be incurred on account of manufacturing or production (by the offeror or the first-tier subcontractors) amount to more than 50 percent of the contract price.

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(b) Failure to identify the locations as specified above will preclude consideration of the offeror as an LSA concern. If the offeror is awarded a contract as an LSA concern and would not have

otherwise qualified for award, the offeror shall perform the contract or cause the contract to be performed in accordance with the obligations of an LSA concern.

(End of Provision)

K.11 CERTIFICATION OF NONSEGREGATED FACILITIES  
(FAR 52.222-21) (APR 1984)

(a) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(b) By the submission of this offer, the offeror certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The offeror agrees that a breach of this certification is a violation of the Equal Opportunity clause in the contract.

(c) The offeror further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will--

(1) Obtain identical certifications from proposed subcontractors before the award of subcontracts under which the subcontractor will be subject to the Equal Opportunity clause;

(2) Retain the certifications in the files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR  
CERTIFICATIONS OF NONSEGREGATED FACILITIES

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract under which the subcontractor will be subject to the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

(End of Provision)



K.12 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS  
(FAR 52.222-22) (APR 1984)

The offeror represents that--

(a) It ( ) has, ( ) has not participated in a previous contract or subcontract subject either to the Equal Opportunity clause of this solicitation, the clause originally contained in Section 310 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114;

(b) It ( ) has, ( ) has not filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of Provision)

K.13 AFFIRMATIVE ACTION COMPLIANCE  
(FAR 52.222-25) (APR 1984)

The offeror represents that--

(a) It ( ) has developed and has on file, ( ) has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or (b) It ( ) has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(End of Provision)

K.14 CLEAN AIR AND WATER CERTIFICATION  
(FAR 52.223-1) (APR 1984)

The Offeror certifies that--

(a) Any facility to be used in the performance of this proposed contract is ( ), is not ( ) listed on the Environmental Protection Agency List of Violating Facilities;

(b) The Offeror will immediately notify the Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the Offeror proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and

(c) The Offeror will include a certification substantially the same as this certification, including this paragraph (c), in every

nonexempt subcontract.

(End of Provision)

K.15 CERTIFICATION REGARDING A DRUG-FREE WORKPLACE  
(FAR 52.223-5) (JUL 1990)

(a) Definitions. As used in this provision,

"Controlled substance" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11-1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct costs employees and any other Contractor employee who has other than a minimal impact or environmental in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) By submission of its offer, the offeror, if other than an individual, who is making an offer that equals or exceeds \$25,000, certifies and agrees, that with respect to all employees of the offeror to be employed under a contract resulting from this solicitation, it will--no later than 30 calendar days after award (unless a longer period is agreed to in writing), for contracts of 30 calendar days or more performance duration, but in any case, by a date prior to when performance is expected to be completed--

(1) Publish a statement notifying such employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

- (i) The dangers of drug abuse in the workplace;
  - (ii) The Contractor's policy of maintaining a drug-free workplace;
  - (iii) Any available drug counseling, rehabilitation, and employee assistance programs; and
  - (iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b)(1) of this provision;
- (4) Notify such employees in writing in the the statement required by subparagraph (b)(1) of this provision, that as a condition of continued employment on the contract resulting from this solicitation, the employee will-
- (i) Abide by the terms of the statement; and
  - (ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction;
- (5) Notify the contracting officer in writing within 10 calendar days after receiving notice under subdivision (b)(4)(ii) of this provision, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee; and
- (6) Within 30 days after receiving notice under subparagraph (b)(4)(ii) of this provision of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the workplace:
- (i) Take appropriate personnel action against such employee, up to and including termination; or
  - (ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency.
- (7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) through (b)(6) of this provision.
- (c) By submission of its offer, the offeror, if an individual who is making an offer of any dollar value, certifies and agrees that the offeror will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in the performance of the contract resulting from this solicitation.

(d) Failure of the offeror to provide the certification required by paragraph (b) or (c) of this provision, renders the offeror unqualified and ineligible for award. (See FAR 9.104-1(g) and 19.602-1(a)(2)(1).)

(e) In addition to other remedies available to the Government, the certification in paragraphs (b) and (c) of this provision concerns a matter within the jurisdiction of an agency of the United States and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

(End of Clause)

K.16 NOTICE OF RESTRICTIONS ON CONTRACTING WITH SANCTIONED PERSONS (FAR 52.225-12) (MAY 1989)

(a) Statutory prohibitions have been imposed on contracting with sanctioned persons, as specified in Federal Acquisition Regulation (FAR) 52.225-13, Restrictions on Contracting with Sanctioned Persons.

(b) By submission of this offer, the Offeror represents that no products or services, except those listed in this paragraph (b), delivered to the Government under any contract resulting from this solicitation will be products or services of a sanctioned person, as defined in the clause referenced in paragraph (a) of this provision, unless one of the exceptions in paragraph (d) of the clause at FAR 52.225-13 applies.

Product or service	Sanctioned person
_____	_____
_____	_____
_____	_____

(List as necessary)

(End of Clause)

K.17 COST ACCOUNTING STANDARDS NOTICES AND CERTIFICATION (NONDEFENSE) (FAR 52.230-2) (SEP 1987)

NOTE: This notice does not apply to small businesses or foreign governments.

(a) Any contract over \$100,000 resulting from this solicitation shall be subject to Cost Accounting Standards (CAS) if it is awarded to a business unit that is currently performing a national defense CAS-covered contract or subcontract, except when--

- (1) The award is based on adequate price competition;
- (2) The price is set by law or regulation;

(3) The price is based on established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(4) One of the exemptions in Federal Acquisition Regulation (FAR) 30.201-1(b) applies.

(b) Contracts not exempted from CAS shall be subject to full or modified coverage as follows:

(1) If the business unit receiving the award is currently performing a national defense contract or subcontract subject to full CAS coverage FAR 30.201-2(a), this contract will have full CAS coverage and will contain the clauses from the FAR entitled Cost Accounting Standards, 52.230-3 and Administration of Cost Accounting Standards, 52.230-4.

(2) If the business unit receiving the award is currently performing a national defense contract or subcontract subject to modified CAS coverage FAR 30.201-2(b), this contract will have modified coverage and will contain the clauses entitled Disclosure and Consistency of Cost Accounting Practices, 52.230-5 and Administration of Cost Accounting Standards, 52.230-4.

#### A. Certificate of CAS Applicability

The offeror hereby certifies that--

( ) The offeror is not performing any CAS-covered national defense contract or subcontract. The offeror further certifies that it will immediately notify the Contracting Officer in writing if it is awarded any national defense CAS-covered contract or subcontract subsequent to the date of this certificate but before the date of the award of a contract resulting from this solicitation. (If this statement applies, no further certification is required.)

( ) The offeror is currently performing a negotiated national defense contract or subcontract that contains the Cost Accounting Standards clause at FAR 52.230-3.

( ) The offeror is currently performing a negotiated national defense contract or subcontract that contains the Disclosure and Consistency of Cost Accounting Practices clause at FAR 52.230-5.

#### B. Additional Certification--CAS Applicable Offerors

( ) The offeror subject to Cost Accounting Standards further certifies that practices used in estimating costs in pricing this proposal are consistent with the practices disclosed in the Disclosure Statement where it has been submitted as required by FAR 30.202-1 through 30.202-5.

#### C. Data Required--CAS Covered Offerors

The offeror certifying that it is currently performing a national defense contract containing either CAS clause (see A above) is required to furnish the name, address (including agency or department component), and telephone number of the cognizant Contracting Officer administering the offeror's CAS-covered contracts.

Name of Contracting Officer: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

(End of Provision)

#### K.18 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST REPRESENTATION

I represent to the best of my knowledge and belief that:

The award to \_\_\_\_\_ of a contract or the modification of an existing contract does / / does not / / involve situations or relationships of the type set forth in §20-1.5403(b).

(a) If the representation, as completed, indicates that situations or relationships of the type set forth in §20-1.5403(b) are involved, or the contracting officer otherwise determines that potential organizational conflicts of interest exist, the offeror shall provide a statement in writing which describes in a concise manner all relevant factors bearing on his representation to the contracting officer. If the contracting officer determines that organizational conflicts exist, the following actions may be taken:

- (1) Impose appropriate conditions which avoid such conflicts,
- (2) Disqualify the offeror, or
- (3) Determine that it is otherwise in the best interest of the United States to seek award of the contract under the waiver provisions of §20-1.5411.

(b) The refusal to provide the representation required by §20-1.5404(b), or upon request of the contracting officer, the facts required by §20-1.5404(c), must result in disqualification of the offeror for award. The nondisclosure or misrepresentation of any relevant interest may also result in the disqualification of the offeror for awards; or if nondisclosure or misrepresentation is discovered after award, the resulting contract may be terminated. The offeror may also be disqualified from subsequent related NRC contracts and be subject to such other remedial actions provided by law or the resulting contract.

(End of Provision)

K.19 QUALIFICATIONS OF CONTRACT EMPLOYEES (JUNE 1988)

The offeror hereby certifies by submission of this offer that all representations made regarding its employees, proposed subcontractor personnel and consultants are accurate.

(End of Provision)

K.20 CURRENT/FORMER AGENCY EMPLOYEE INVOLVEMENT (JUNE 1988)

The following representation is required for NRC information and evaluation purposes only. It is not NRC policy to encourage offerors and contractors to propose current/former Agency employees to perform work under NRC contracts.

The offeror hereby certifies that there ( ) are ( ) are not current/former NRC employees who have been or will be involved, directly or indirectly, in developing the offer, or in negotiating on behalf of the offeror, or in managing, administering or performing any contract, consultant agreement or subcontract resulting from this offer. For each individual so identified, the Technical and Management proposal contains as a separate attachment the name, title, date individual left NRC and a brief description of the individual's role under this proposal.

(End of Provision)

K.21 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (FAR 52.203-11) (JAN 1990)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The offeror, by signing its offer, hereby certifies, to the best of his or her knowledge and belief as of December 23, 1989, that--

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal

transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB Standard Form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(End of Provision)



SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES  
TO OFFERORS

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L.1 NOTICE LISTING SOLICITATION PROVISIONS INCORPORATED  
BY REFERENCE

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference:

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

NUMBER	DATE	TITLE
52.215-5	JUL 1987	SOLICITATION DEFINITIONS
52.215-7	APR 1984	UNNECESSARILY ELABORATE PROPOSALS OR QUOTATIONS
52.215-8	DEC 1989	AMENDMENTS TO SOLICITATIONS
52.215-9	DEC 1989	SUBMISSION OF OFFERS
52.215-10	DEC 1989	LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF PROPOSALS
52.215-12	APR 1984	RESTRICTION ON DISCLOSURE AND USE OF DATA
52.215-13	APR 1984	PREPARATION OF OFFERS
52.215-14	APR 1984	EXPLANATION TO PROSPECTIVE OFFERORS
52.215-15	APR 1984	FAILURE TO SUBMIT OFFER
52.215-16	JUL 1990	CONTRACT AWARD

L.2 CONTRACTOR ESTABLISHMENT CODE (FAR 52.204-4) (AUG 1989)

In the block with its name and address, the offeror should supply the Contractor Establishment Code applicable to that name and address, if known to the offeror. The number should be preceded by "CEC:" Offerors should take care to report the correct CEC and not a similar number assigned to the Offeror in a different system.

The CEC is a 9-digit code assigned to a contractor establishment that contracts with a Federal executive agency. The CEC system is a contractor identification coding system which is currently the Dun and Bradstreet Data Universal Numbering System (DUNS). The CEC system is distinct from the Federal Taxpayer Identification Number (TIN) system.

The Government will obtain a Contractor Establishment Code for any awardee that does not have or does not know its CEC.

(End of Provision)

L.3 FACILITIES CAPITAL COST OF MONEY  
(FAR 52.215-30) (SEP 1987)

(a) Facilities capital cost of money will be an allowable cost under the contemplated contract, if the criteria for allowability in subparagraph 31.205-10(a)(2) of the Federal Acquisition Regulation are met. One of the allowability criteria requires the prospective contractor to propose facilities capital cost of money in its offer.

(b) If the prospective Contractor does not propose this cost, the resulting contract will include the clause Waiver of Facilities Capital Cost of Money.

(End of Provision)

L.4 TYPE OF CONTRACT (FAR 52.216-1) (APR 1984)

The Government contemplates award of a Cost Plus Fixed Fee Task Ordering contract resulting from this solicitation.

(End of Provision)

L.5 SERVICE OF PROTEST (FAR 52.233-2) (NOV 1988)

(a) Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) or the General Services Administration Board of Contract Appeals (GSBCA), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from:

F.ois J. Wiggins

Hand-Carried Address:

U.S. Nuclear Regulatory Commission  
7920 Norfolk Avenue  
Room 1018  
Bethesda, Maryland 20814

Mailing Address:

U.S. Nuclear Regulatory Commission  
Contract Neg. Branch No. 1; DCPM  
Mail Stop: F-1020  
Washington, D.C. 20555

(b) The copy of any protest shall be received in the office designated above on the same day a protest is filed with the GSBCA or within one day of filing a protest with the GAO.

(End of Provision)

L.6 SOLICITATION PROVISIONS INCORPORATED BY  
REFERENCE (FAR 52.252-1) (JUN 1988)

This solicitation incorporates one or more solicitation provisions 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.

(End of Provision)

L.7 LEVEL OF EFFORT (AUG 1989) ALTERNATE I (AUG 1989)

a. The minimum and maximum hours of professional and clerical effort projected for the performance of task orders to be issued under this contract are as follows:

b. For the purposes of the minimum and maximum effort expressed above, offerors should use 2,000 hours as representing a staff year.

(End of Provision)

L.8 ESTIMATED DURATION (JUNE 1988)

It is estimated that the duration of the contract will be 4 years. (See section F for any option periods)

(End of Provision)

L.9 ACCEPTANCE PERIOD (MAR 1987)

Because of the time required by the Government to evaluate proposals and make an award, offerors are instructed to specify on the SF-33 a proposal acceptance period of not less than 120 days.

(End of Provision)

L.10 SMALL BUSINESS SIZE STANDARD AND PRODUCT CLASSIFICATION  
(MAR 1987) ALTERNATE I (MAR 1987)

The Standard Industrial Classification for the supplies and/or services described herein is 8999. The small business standard is average annual receipts of \$3,500,000.00 over the past three (3) years.

(End of Provision)

L.11 AWARD NOTIFICATION AND COMMITMENT OF PUBLIC FUNDS  
(JUNE 1988)

All offerors will be notified of their selection or nonselection as soon as possible. Formal notification of nonselection for unrestricted awards will not be made until a contract has been awarded. Pursuant to requirements of Section

15.1001(b)(2) of the Federal Acquisition Regulation, preliminary notification will be provided prior to award for small business set-aside procurements.

It is also brought to your attention that the Contracting Officer is the only individual who can legally commit the NRC to the expenditure of public funds in connection with this procurement. This means that unless provided in a contract document or specifically authorized by the Contracting Officer, NRC technical personnel cannot issue contract modifications, give informal contractual commitments or otherwise bind, commit, or obligate the NRC contractually. Informal contractual commitments include such actions as:

- a. Encouraging a potential Contractor to incur costs prior to receiving a contract,
- b. Requesting or requiring a Contractor to make changes under a contract without formal contract modifications,
- c. Encouraging a Contractor to incur costs under a cost-reimbursable contract in excess of those costs contractually allowable, and
- d. Committing the Government to a course of action with regard to a potential contract, contract change, claim, or dispute.

(End of Provision)

#### L.12 DISPOSITION OF PROPOSALS (JUNE 1988)

After award of the contract, one (1) copy of each unsuccessful proposal will be retained by NRC's Division of Contracts and Property Management. Unless return of the additional copies is requested by the offeror upon submission of proposal, all other copies will be destroyed. This request should appear in any cover letter accompanying the proposal.

(End of Provision)

#### L.13 PROPOSAL PRESENTATION AND FORMAT (JUNE 1988) ALTERNATE I (JUNE 1988)

- a. Proposals must be typed, printed or reproduced on letter-size paper and each copy must be legible.
- b. Proposals in response to this Request for Proposal must be submitted in the following three (3) separate and distinct parts:
  - 1) Two (2) original signed copies of this solicitation package. All applicable sections must be completed by the Offeror.
  - 2) One (1) original and 5 copies of the "Cost Proposal" must be submitted.

3) One (1) original and 5 copies of the "Technical and Management Proposal" must be submitted.

c. Correctness of the Proposal

Caution--offerors are notified that all information provided in its proposals, including all resumes, must be accurate, truthful, and complete to the best of the offeror's knowledge and belief. The Commission will rely upon all such representations made by the offeror both in the evaluation process and for the performance of the work by the offeror selected for award. The Commission may require the offeror to substantiate the credentials, education and employment history of its employees, subcontractor personnel and consultants, through submission of copies of transcripts, diplomas, licenses, etc.

d. Cost Proposal

The Offeror shall provide a cost proposal based on the Estimated Level of Effort. The total estimated cost proposed by the offeror must be used for evaluation purposes only. Any resultant contract must contain an overall cost ceiling whereby individual Task Orders may be issued. The cost and fee, if any for each Task Order will be individually negotiated and will also contain a cost ceiling.

The Offeror shall utilize the Standard Form 1411, Contracting Pricing Proposal Cover Sheet, in submitting the Cost Proposal. A copy of the form and instructions are attached to this solicitation. The information must include pertinent details sufficient to show the elements of cost upon which the total cost is predicated. The Cost Proposal must be submitted separately from the Technical and Management Proposal.

L.14 PROPOSAL PRESENTATION AND FORMAT  
(OMB CLEARANCE NUMBER 3150-0118)

A. GENERAL INSTRUCTIONS

1. Proposals must be typed, printed or reproduced on letter-size paper and each copy must be legible.

2. Correctness of the Proposal: Offerors are cautioned that all information provided in its proposals, including all resumes, must be accurate, truthful, and complete to the best of the offeror's knowledge and belief. The Commission will rely upon all such representations made by the offeror both in the evaluation process and for the performance of the work by the offeror selected for award. The Commission may required the offeror to substantiate the credentials, education and employment history of its employees, subcontractor personnel and consultants, through submission of copies of transcripts, diplomas, licenses, etc.

B. REQUIRED NUMBER OF PROPOSAL COPIES

Proposals in response to this Request for Proposal must be submitted in the following three (3) separate and distinct parts:

1. Two (2) original signed copies of this solicitation package, including all attachments as listed in Section J. All applicable sections must be completed by the Offeror.
2. One (1) original and five (5) copies of the "Cost Proposal" must be submitted.
3. One (1) original and five (5) copies of the "Technical and Management Proposal" must be submitted.

#### C. COST PROPOSAL

The offeror shall provide a cost proposal based on the Estimated Level of Effort, shown below. The offeror shall utilize the Standard Form 1411, Contracting Pricing Proposal Cover Sheet, in submitting the Cost Proposal. A copy of the form and instructions are attached to this solicitation (See Section J - List of Attachments.)

The information must include pertinent details sufficient to show the elements of cost upon which the total cost is predicated.

NOTE: The offeror is specifically requested to provide the complete and current name, address and telephone number of the audit office.

Any resultant contract will contain an overall cost ceiling for the four year period of performance whereby individual Task Orders may be issued by the NRC Contracting Officer. The cost and fee, if any, for each Task Order will be individually negotiated by the NRC Contracting Officer/Contract Administrator and will also contain a cost ceiling for that Task Order.

The Cost Proposal must be submitted separately from the Technical and Management Proposal.

For the purpose of preparing a proposal, the Offeror shall assume the following travel requirements:

1. 4 trips for kickoff and status meetings: 2 persons, 1 day each, in Rockville, Maryland (total of 8 trips).
2. 2 trips for each of the 6 tasks in the Statement of Work, for LLWM Staff conferences: 1 person, 1 day each, in Rockville, Maryland (total of 12 trips).
3. Task 6 (total of 32 trips):
  - 16 Meetings, 1 person, 2 days each to:
    - 4 trips to Washington, DC
    - 3 trips to Chicago, Illinois
    - 3 trips to San Francisco, California

- 8 Workshops, 2 persons, 3 days each to:
- 1 trip to Washington, DC
  - 1 trip to Chicago, Illinois
  - 1 trip to Dallas, Texas
  - 1 trip to San Francisco, California

#### D. TECHNICAL AND MANAGEMENT PROPOSAL

The Technical and Management Proposal shall not contain any reference to cost. Resource information such as data concerning labor hours and categories, materials, subcontracts, travel, computer time, etc., shall be included in the Technical and Management Proposal so that the Offeror's understanding of the scope of work may be evaluated.

The Offeror shall submit with the Technical and Management Proposal full and complete information as set forth below to permit the Government to make a thorough evaluation and a sound determination that the proposed approach will have a reasonable likelihood of meeting the requirements and objectives of this procurement.

Statements which paraphrase the Statement of Work without communicating the specific innovation proposed by the Offeror or statements to the effect that the Offeror's understanding can or will comply with the Statement of Work may be construed as an indication of the Offeror's lack of understanding of the Statement of Work and objectives.

The Technical and Management Proposal shall set forth as a minimum the following:

##### I. TECHNICAL APPROACH

- a. Demonstrate a sound approach and comprehensive implementation plan for achieving the technical objectives of all the work in this solicitation.
- b. Discuss the statement of work to substantiate the Offeror's understanding of the requirement.
- c. Indicate potential problem areas and the approach to be taken to resolve said areas.
- d. State any interpretations, requirements, or assumptions.

##### II. PERSONNEL EXPERIENCE

- a. Discuss support personnel and facilities available to assist the professional personnel. Show how the personnel essential to the work being performed are qualified and experienced in corporate organization and finance, corporate accounting, bankruptcy and corporate law, commercial banking and

commercial insurance.

- b. Identify "Key Personnel" and for the person(s) so identified, specify the percentage of time currently committed to other projects over the course of the proposed contract period of performance.
- c. Include resumes for all professional personnel to be utilized in the performance of any resulting contract. Include educational background, specific pertinent work experience and a list of any pertinent publications authored by the individual.
- d. Describe the source of personnel required for performance of the effort herein, including those not presently employed by the Offeror. If any of the personnel are under commitment, describe the terms of the commitment(s). Note specifically the personnel that will be employed at time of contract award.
- e. If the Offeror plans to obtain consultant services, explain the need for such services. List the proposed consultants by name, describe the work they will perform under this contract, and include related past experience. Individuals who are employees of the Contractor or of the U.S. Government are prohibited from being paid as a consultant under this contract.
- f. If the Offeror plans to subcontract any of the work to be performed, list proposed subcontractors, if known, by name. Identify any key personnel and provide a detailed description of the work to be performed by the subcontractor.

### III. CORPORATE EXPERIENCE

Describe, in general terms, corporate qualifications and experience in performing the effort as required in Section C of this solicitation and other relevant work the firm -- and any of its proposed subcontractors -- have performed recently.

### IV. MANAGEMENT

- a. Describe the management organizational structure, delineating areas of responsibility and authority under the proposed effort. Describe the relationship of the project organization to corporate management and to subcontractors, if any. Discuss the functions and authorities of the Project Manager.
- b. Describe the procedures used for periodically reviewing in-house organizational functions, program reviews and controls and subsequent coordination with the NRC.
- c. Outline the management controls expected to be utilized to preclude a contract cost growth.
- d. List any current commitments with other organizations,



Government and/or commercial, for the same or similar effort.

(End of Provision)

L.15 ESTIMATED LEVEL OF EFFORT

The NRC's estimate of the total professional and clerical effort for this project is listed under each of the six tasks in the Statement of Work (Section C). The estimated total level of effort for this contract is approximately 4.5 staff years. Note that this information is advisory and is not to be considered as the sole basis for the development of the staffing plan. For the purposes of the Government estimate, 2000 hours constitute a staff year.

(End of Provision)

L.16 NONDISCRIMINATION BECAUSE OF AGE (FAR 22.901) (MAR 1987)

It is the policy of the Executive Branch of the Government that (a) Contractors and Subcontractors engaged in the performance of Federal contracts shall not, in connection with the employment, advancement, or discharge of employees or in connection with the terms, conditions, or privileges of their employment, discriminate against persons because of their age except upon the basis of a bonafide occupational qualification, retirement plan, or statutory requirement, and (b) that Contractors and Subcontractors, or persons acting on their behalf, shall not specify, in solicitations or advertisements for employees to work on Government contracts, a maximum age limit for such employment unless the specified maximum age limit is based upon a bonafide occupational qualification, retirement plan, or statutory requirement.

(End of Provision)

L.17 SUBCONTRACTING PROGRAM PLAN FOR UTILIZATION OF SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS CONCERNS (JUNE 1988)

When requested by the Contracting Officer, offerors shall submit a subcontracting plan as called for by 52-219-19 - Small Business and Small Disadvantaged Business Subcontracting Plan using attached format (See Section J for List of Attachments).

(End of Provision)

SECTION M - EVALUATION FACTORS FOR AWARD

M.1 NOTICE LISTING SOLICITATION PROVISIONS INCORPORATED BY REFERENCE

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference:

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

NUMBER	DATE	TITLE
--------	------	-------

None by reference

M.2 CONTRACT AWARD AND EVALUATION OF PROPOSALS (JUNE 1988)

a. By use of numerical and narrative scoring techniques, proposals will be evaluated against the evaluation factors specified in the paragraph below. These factors are listed in their relative order of importance. Award will be made to the offeror (1) whose proposal is technically acceptable and (2) whose technical/cost relationship is most advantageous to the Government; and who is considered to be responsible within the meaning of Federal Acquisition Regulation Part 9.1.

b. Although cost will be a factor in the evaluation of proposals, technical merit in the evaluation criteria set forth below will be a more significant factor in the selection of a Contractor. Further, to be selected for an award, the proposed cost must be realistic and reasonable.

c. The Government may:

1) Reject any or all offers if such action is in the public interest.

2) Accept other than the lowest offer.

3) Waive informalities and minor irregularities in offers received.

d. The Government may award a contract on the basis of initial offers received, without discussions. Therefore, each initial offer should contain the offeror's best terms from a cost or price and technical standpoint.

e. A separate cost analysis will be performed on each cost proposal. To provide a common base for evaluation of cost

proposals, the level of effort data shall be expressed in staff hours. Where a Contractor Spending Plan (CSP) is required by other provisions of this solicitation, consideration will be given to the Plan for completeness, reasonableness, and as a measure of effective management of the effort.

f. In making the above determination, an analysis will be performed taking into consideration the results of the technical evaluation and cost analysis.

(End of Provision)

### M.3 EVALUATION CRITERIA (MAR 1987)

All responsive proposals will be evaluated in accordance with the following weighted factors, listed in the order of their relative importance:

- A. Extent to which the proposed personnel are qualified and experienced to perform the work in this solicitation.....40 points
- B. Extent to which the Offeror's understanding of the requirements as set forth in this solicitation demonstrate soundness of the Offeror's technical approach to meeting those requirements.. .....20 points
- C. Extent to which the corporation has the necessary qualifications and experience to perform the requirements as set forth in this solicitation.....20 points
- D. Degree to which Offeror's corporate and project management structure demonstrate necessary authority, responsibility and controls to ensure the objectives of this procurement are met.....20 points

(End of Provision)

REVISED 8/89

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. A sample voucher/invoice is provided for your reference. 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 and Property Management  
Contract Administration Branch, P-902  
Washington, D.C. 20555

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

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

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

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

Agency Payment Office: Payment will continue to be made by the office designated in the contract in Block 13 of SF 26 or Block 25 of SF 33, whichever is applicable.

VOUCHERS FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

Official Agency Billing Office U. S. Nuclear Regulatory Commission Division of Contracts and Property Management, P-902 Washington, D.C. 20555 <u>Payee's Name and Address</u>	(a) Contract Number _____ Task Order No. (if Applicable) _____ (b) Title of Project _____ _____ (c) Voucher Number _____ (d) Project Officer _____ (e) Date of Voucher _____ (f) Contract Amount _____ (g) Fixed Fee _____
Individual to Contact Regarding This Voucher: Name: _____ Tel. No.: _____	

(h) This voucher represents reimbursable costs from \_\_\_\_\_ thru \_\_\_\_\_

	Amount Billed	
	(l) Current Period	(m) Inception to Date
(i) Direct Costs		
(1) Direct Labor *	_____	_____
(2) Fringe Benefits @ _____ % (if computed as percentage)	_____	_____
(3) Capitalized Nonexpendable Equipment *	_____	_____
(4) Materials, Supplies and Noncapitalized Equipment *	_____	_____
(5) Premium Pay _____	_____	_____
(6) Consultants *	_____	_____
(7) Travel - Domestic * Foreign *	_____	_____
(8) Subcontract *	_____	_____
(9) Other Costs *	_____	_____
Total Direct Costs	_____	_____
(j) INDIRECT COSTS		
A) Overhead _____ % of _____ (Indicate Base)	_____	_____
Subtotal	_____	_____
B) General & Administrative Expense _____ % of Cost Elements Nos. _____	_____	_____
Total Costs	_____	_____
(k) FIXED-FEE EARNED (Formula)	_____	_____
(n) Total Amounts Claimed	_____	_____
(o) Adjustments Outstanding Suspensions	_____	_____
(p) Grand Totals	_____	_____
* (REQUIRES SUPPORTING INFORMATION--SEE ATTACHED)		

Labor Category	Labor Hrs. Negotiated	Hours Billed	Rate	Total	Cumulative Hours 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) Direct Equipment. For educational institutions, list each item costing \$500.00 or more and having a life expectancy of more than one year. For contractors other than educational institutions, list each item costing \$200.00 or more and having a life expectancy of more than one year. List only those items of equipment for which reimbursement is requested. A reference shall be made to the following (as applicable): (a) the item number for the specific piece of equipment listed in the property schedule of the contract; (b) the Contracting Officer's approval letter if the equipment is not covered by the property schedule; or (c) be preceded by an asterisk (\*) if the equipment is below the approval level. Further itemization of vouchers/invoices shall only be required for items having specific limitations set forth in the contract.
- (4) Materials, Supplies, or Other Expendable Items. These are consumable materials, supplies, and equipment other than that described in (3) above.
- (5) Premium Pay. This is remuneration in excess of the basic hourly rate. (Requires written approval of the Contracting Officer.)
- (6) Consultant's Fee. The supporting information must include the name, hourly or daily rate of the consultant, and reference the NRC approval (if not specifically approved in the original contract).
- (7) Travel. Domestic travel is travel within the United States, its territories, possessions, and Canada. It should be billed separately from foreign travel.

All costs associated with each trip must be shown in the following format:

Date		Traveler	Destination		Purpose	Cost
From	To		From	To		\$

Supporting Information - Sample

1) Direct Labor - \$2400

<u>Labor Category</u>	<u>Labor Hours Negotiated</u>	<u>Hours Billed</u>	<u>Rate</u>	<u>Total</u>	<u>Cumulative Hours Billed</u>
Senior Engineer I	2400	100	\$14.00	\$1400	975
Engineer	1500	50	\$10.00	\$500	465
Computer Analyst	700	100	\$5.00	\$500	320
				<u>\$2400</u>	

3) Direct Equipment

Spectrometer - General Electric (as approved in Property schedule) \$5,000

4) Materials, Supplies & Other Expendable Items

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 3/6/89.)

6) Consultants' Fee

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

7) Travel

<u>Date</u>		<u>Traveler</u>	<u>Destination</u>		<u>Purpose</u>	<u>Costs</u>
<u>From</u>	<u>To</u>		<u>From</u>	<u>To</u>		
3/1/89	3/6/89	William King	Chicago, IL	Wash., DC	Meeting with Project Officer	\$200

PART 20-1 -- GENERAL

Subpart 20-1.54--Contractor Organizational Conflicts of Interest

Sec.	
20-1.5401	Scope and policy.
20-1.5402	Definitions.
20-1.5403	Criteria for recognizing contractor organizational conflicts of interest.
20-1.5404	Representation.
20-1.5405	Contract clauses.
20-1.5405-1	General contract clause.
20-1.5405-2	Special contract provisions.
20-1.5406	Evaluation, findings, and contract award.
20-1.5407	Conflicts identified after award.
20-1.5408	(Reserved)
20-1.5409	(Reserved)
20-1.5410	Subcontractors.
20-1.5411	Waiver.
20-1.5412	Remedies.

AUTHORITY: Sec. 8, Pub. L. 95-601, adding Sec. 170A to Pub. L. 83-703, 68 Stat. 919, as amended (42 U.S.C. ch. 14)

20-1.5401 Scope and Policy

(a) It is the policy of the U.S. Nuclear Regulatory Commission (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 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 so as 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 the policy. NRC contracting and program officials must be alert to other situations which may warrant application of this policy guidance. The ultimate test is: 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 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



(j) "Potential conflict of interest" means that a factual situation exists that suggests (indicates) 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 which merit investigation prior to contract award in order to ascertain whether award would give rise to an actual conflict or which must be reported to the contracting officer for investigation if they arise during contract performance.

§ 20-1.5403 Criteria for recognizing contractor organizational conflicts of interest

(a) General. Two questions will be asked in determining whether actual or potential organizational conflicts of interest exist: (1) Are there conflicting roles which might bias a contractor's judgment in relation to its work for the NRC? (2) May the contractor be given an unfair competitive advantage based on the performance of the contract? The ultimate determination by NRC as to whether organizational conflicts of interest exist will be made in light of common sense and good business judgment based upon the relevant facts disclosed and the work to be performed. While it is difficult to identify and to prescribe in advance a specific method for avoiding all of the various situations or relationships which might involve potential organizational conflicts of interest, NRC personnel will pay particular attention to proposed contractual requirements which call for the rendering of advice, consultation or evaluation activities, or similar activities that lay direct groundwork for the NRC's decisions on regulatory activities, future procurements, and research programs.

(b) Situations or relationships which may give rise to organizational conflicts of interest. (1) The offeror or contractor shall disclose information concerning relationships which may give rise to organizational conflicts of interest under the following circumstances:

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

(ii) Where the offeror or contractor provides advice to the NRC on the same or similar matter in 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 the products or services of another entity where the offeror or contractor has been substantially involved in their development or marketing.

(iv) Where the award of a contract would otherwise 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 may otherwise result in an unfair competitive advantage for the offeror or contractor.

Guidance. An NRC contract normally could be awarded to the ABC Corp. because no conflict of interest exists which would 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 during the performance of the NRC contract with the private sector which could create a conflict. 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) Example. As a result of operating problems in a certain type of commercial nuclear facility, it is imperative that NRC secure specific data on various operational aspects of that type of plant so as to assure adequate safety protection of the public. Only one manufacturer has extensive experience with that type of plant. Consequently, that company is the only one with whom NRC can contract which can develop and conduct the testing programs required to obtain the data in reasonable time. That company has a definite interest in any NRC decisions that might result from the data produced because those decisions affect the reactor's design and thus the company's costs.

Guidance. This situation would place the manufacturer in a role in which its judgment could be biased in relationship to its work for NRC. Since the nature of the work required is vitally important in terms of NRC's responsibilities and no reasonable alternative exists, a waiver of the policy may be warranted. Any such waiver shall be fully documented and coordinated in accordance with the waiver provisions of this policy with particular attention to the establishment of protective mechanisms to guard against bias.

(4) Example. The ABC Co. submits a proposal for a new system for evaluating a specific reactor component's performance for the purpose of developing standards that are important to the NRC program. The ABC Co. has advised 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.

Guidance. A contract could be awarded to the ABC Co. provided that the contract stipulates that no information produced under the contract will be used in the contractor's private activities unless such information has been reported to NRC. Information which is reported to NRC by contractors will normally be disseminated by NRC to others so as to preclude an unfair competitive advantage that might otherwise accrue. When NRC furnishes information to the contractor for the performance of contract work, it shall not be used in the contractor's private activities unless such 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 under the contract is proposed to be used.

## ORGANIZATIONAL CONFLICTS OF INTEREST REPRESENTATION

I represent to the best of my knowledge and belief that:

The award to \_\_\_\_\_ of a contract or the modification of an existing contract does ( ) or does not ( ) involve situations or relationships of the type set forth in 41 CFR § 20-1.5403(b)(1).

(c) Instructions to offerors. The following shall be included in all NRC solicitations: (1) If the representation as completed indicates that situations or relationships of the type set forth in 41 CFR § 20-1.5403(b)(1) are involved, or the contracting officer otherwise determines that potential organizational conflicts exist, the offeror shall provide a statement in writing which describes in a concise manner all relevant facts bearing on his representation to the contracting officer. If the contracting officer determines that organizational conflicts exist, the following actions may be taken: (i) Impose appropriate conditions which avoid such conflicts, (ii) disqualify the offeror, or (iii) determine that it is otherwise in the best interest of the United States to seek award of the contract under the waiver provisions of § 20-1.5411.

(2) The refusal to provide the representation required by § 20-1.5404(b) or upon request of the contracting officer the facts required by § 20-1.5404(c), shall result in disqualification of the offeror for award. The nondisclosure or misrepresentation of any relevant interest may also result in the disqualification of the offeror for award; or if such nondisclosure or misrepresentation is discovered after award, the resulting contract may be terminated. The offeror may also be disqualified from subsequent related NRC contracts and be subject to such other remedial actions provided by law or the resulting contract.

(d) The offeror may, because of actual or potential organizational conflicts of interest, propose to exclude specific kinds of work from the statements of work contained in a RFP unless the RFP specifically prohibits such 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 work to the detriment of the competitive posture of the other offerors, the proposal must be rejected as unacceptable.

(e) The offeror's failure to execute the representation required by subsection (b) above with respect to invitation for bids will be considered to be a minor informality, and the offeror will be permitted to correct the omission.

§ 20-1.5405 Contract clauses

§ 20-1.5405-1 General contract clause

on such information for a period of six (6) months after either the completion of this contract or the release of such information to the public, whichever is first, (iii) submit an unsolicited proposal to the government based on such information until one year after the release of such information to the public, or (iv) release the information without prior written approval by the contracting officer unless such information has previously been released to the public by the NRC.

(2) In addition, the contractor agrees that to the extent it receives or is given access to proprietary data, data protected by the Privacy Act of 1974 (Pub. L. 93-579), or other confidential or privileged technical, business, or financial information under this contract, the contractor shall treat such information in accordance with restrictions placed on use of the information.

(3) The contractor shall have, subject to patent and security provisions of this contract, 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 41 CFR §20-1.5402(h), the contractor shall include this clause, including this paragraph, in subcontracts of any tier. The terms "contract," "contractor," and "contracting officer," shall be appropriately modified to preserve the government's rights.

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

(h) Waiver. A request for waiver under this clause shall be directed in writing through the contracting officer to the Executive Director for Operations (EDO) in accordance with the procedures outlined in §20-1.5411.

#### §20-1.5405-2 Special contract provisions.

(a) If it is determined from the nature of the proposed contract that organizational conflicts of interest exist, the contracting officer may determine that such conflict can be avoided or after obtaining a waiver in accordance with §20-1.5411, neutralized through the use of an appropriate special contract provision. If appropriate, the offeror may negotiate the terms and conditions of these clauses, including the extent and time period of any such restriction. These provisions include but are not limited to:

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

(c) Award the contract under the waiver provision of §20-1.5411.

§20-1.5407 Conflicts identified after award.

If potential organizational conflicts of interest are identified after award with respect to a particular contractor, the contracting officer determines that such conflicts do, in fact, exist and that it would not be in the best interests of the government to terminate the contract as provided in the clauses required by §20-1.5405, the contracting officer will take every reasonable action to avoid, eliminate, or, after obtaining a waiver in accordance with §20-1.5411, neutralize the effects of the identified conflict.

§20-1.5408 (Reserved)

§20-1.5409 (Reserved)

§20-1.5410 Subcontracts

The contracting officer shall require offerors and contractors to submit a representation statement in accordance with §20-1.5404(b) from subcontractors and consultants. The contracting officer shall require the contractor to include contract clauses in accordance with §20-1.5405 in consultant agreements or subcontracts involving performance of work under a prime contract covered by this subsection.

§20-1.5411 Waiver

In the first instance, determination with respect to the need to seek a waiver for specific contract awards shall be made by the contracting officer with the advice and concurrence of the program office director and the Office of Executive Legal Director. Upon the recommendation of the contracting officer, and after consultation with the Office of the General Counsel, the EDO may waive the policy in specific cases if he determines that it is in the best interest of the United States to do so.

Such action shall be 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; and (3) contractual and/or technical review and supervision methods can be employed by NRC to neutralize the conflict. For any such waivers, the justification and approval documents shall be placed in the Public Document Room.

Form NRC-489  
(1-76)U. S. NUCLEAR REGULATORY COMMISSION  
NRC MANUAL  
TRANSMITTAL NOTICECHAPTER NRC-3202 PUBLICATION OF TECHNICAL REPORTS PREPARED BY NRC  
CONTRACTORS, INCLUDING REPORTS PREPARED UNDER OR  
PURSUANT TO INTERAGENCY AGREEMENTS

## SUPERSEDED:

	Number	Date
Chapter	NRC-3202	4/29/82
Page		
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## TRANSMITTED:

	Number	Date
TN	3200-21	
Chapter	NRC-3202	5/29/84
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Appendix	NRC-3202	5/29/84

## REMARKS:

This revision of Chapter 3202 expands the chapter from coverage of unclassified reports to include the marking and handling of sensitive unclassified information (Official Use Only and Limited Official Use Information, Safeguards Information, Proprietary Information) and classified information (Top Secret, Secret, and Confidential). A section has also been added to set forth procedures for the handling of unclassified reports on NRC cooperative programs with foreign governments and organizations and with U.S. industry.

Publishers Note: 3/90 Delete Division of Technical Information &  
Document Control

Replace With: Division of Freedom of Information  
and Publication Services, Regulatory  
Publications Branch, Technical  
Publications Section, Tel.492-7086.

U.S. NUCLEAR REGULATORY COMMISSION  
NRC MANUAL

Volume: 3000 Information and Foreign Activities  
Part : 3200 Technical Information and Document Control

ADM

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CHAPTER 3202 PUBLICATION OF TECHNICAL REPORTS PREPARED BY  
NRC CONTRACTORS, INCLUDING REPORTS PREPARED  
UNDER OR PURSUANT TO INTERAGENCY AGREEMENTS

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3202-01 COVERAGE

This chapter and its appendix handbook establish responsibilities, basic requirements, standards and procedures for the documentation, production and dissemination of technical reports prepared by NRC consultants and grantees and by NRC contractors and their subcontractors, including reports prepared under or pursuant to interagency agreements or memorandums of understanding. These reports are hereafter referred to as contractor reports. This chapter does not cover NRC staff-generated documents, NRC docket material, or the documents generated by NRC boards, panels, advisory committees and Offices that report to the Commission.

3203-02 OBJECTIVES

021 to assure production and dissemination of technical reports as required by the Energy Reorganization Act of 1974 and the Freedom of Information Act.

022 to assure that dissemination of technical reports is consistent with requirements for public availability of information.

023 to assure that national security, patent rights, copyrights, proprietary rights and rights in other sensitive unclassified information are not compromised by the release, distribution, or dissemination of technical reports from NRC.

024 to assure that formal NRC contractor reports will carry the registered NRC designation NUREG/CR or NUREG/CP as the prime identification.

025 to provide for coordination of press or other media releases.

3202-03 RESPONSIBILITIES AND AUTHORITIES

031 The Director, Office of Administration:

- a. develops and maintains, in consultation with Directors of Offices and Divisions and Regional Administrators, NRC standards, procedures and guides for the production and dissemination of technical contractor reports.

Approved: August 29, 1984

PUBLICATION OF TECHNICAL REPORTS PREPARED BY  
NRC CONTRACTORS, INCLUDING REPORTS PREPARED  
UNDER OR PURSUANT TO INTERAGENCY AGREEMENTS

NRC-3202-034

- (2) provide for the reviews necessary to insure that the national security, patent rights, copyrights, proprietary rights and rights in other sensitive unclassified information are not compromised by the release or dissemination of the reports. If DOE contractors are to be authorized to make the reviews, designate the contractor officials who are authorized to sign NRC Form 426A prior to NRC distribution of reports (see Appendix, Part IV). Assure that sensitive unclassified and classified reports are marked and handled properly (see Appendix, Part V).
  - (3) specify that all formal reports carry NUREG/CR or NUREG/CP numbers as the prime identification, as illustrated in the appendix.
  - (4) specify whether formal reports shall be printed by NRC or the contractor if the contractor has a JCP-authorized federal printing plant (see Appendix, Parts II and IV).
  - (5) specify that all formal reports required by NRC shall be distributed by NRC.
  - (6) establish the number of copies the contractor may retain or request for internal and external distribution and charge against NRC. Written justification must be provided, and approval obtained of the NRC JCP representative (the Director, Division of Technical Information and Document Control) when the number exceeds the 50 copies authorized by JCP for unclassified reports.
  - (7) assure the protection of classified and sensitive unclassified information, if any, in contractor reports (see Appendix, Part V).
- b. assure adherence to instructions and authorizations regarding the reproduction and distribution of reports.
  - c. recommend standard distribution category(ies) for contractor reports to the Division of Technical Information and Document Control.
  - d. provide changes to the official standard distribution lists to the Division of Technical Information and Document Control.
  - e. establish procedures for review of contractor's proposed press and other media releases.

034 The Office of the Executive Legal Director provides legal review and advice to NRC staff on questions regarding inventions, patents, proprietary information, use of copyrighted material, national security, and other sensitive unclassified and classified information.

035 The Director, Office of Public Affairs, upon request of the project manager, reviews proposed contractor's press or other media releases for appropriateness.

Approved: August 29, 1984



044 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. Copyrighted material may not be reproduced without the permission of the author or publisher.

045 disseminate - to announce the publication of reports and make them available for free distribution, sale or copying.

046 distribute - to dispense reports to specific organizations and individuals to assure their participation in the regulatory process and support of research and technological investigations. Such distribution may be accomplished by the use of standard distribution data banks established and maintained by the Division of Technical Information and Document Control based on the requests of the originating Office or Region.

047 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 FIN number), date and availability.

048 draft or final material for inclusion in "Safety Evaluation Reports" or "Environmental Statements" (ES) - written material requested for input to SERs or ESs to be issued as NUREGs. Such material may be edited or modified at the discretion of the NRC staff.

*Editor*

049 formal technical reports - the final product of research, an original investigation, or a significant compilation of information. This product is a formal technical report for publication in the NUREG/CR series. For extensive long-term projects, formal monthly, quarterly or semiannual and annual periodic technical reports may be required. A draft of the final or periodic report may be requested for comment prior to preparation of the camera-ready copy.

0410 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.

0411 patent review - examination by legal staff to assure protection rights in inventions.

0412 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 9.5); and other information submitted in confidence to the NRC by a foreign source and determined to be unclassified by the NRC.

0413 publicly available documents - information (reports and references) which is available in the NRC Public Document Room (PDR) for public inspection and copying or available in the public domain.

054 Preparation Requirements

- a. Reports to be Printed by NRC. All contractor reports to be printed by NRC shall be prepared according to Appendix 3202. The reproducible masters for the requisite distribution shall be transmitted to the Division of Technical Information and Document Control accompanied by completed NRC Form 426A and NRC Form 335.
- b. Reports Printed by Authorized Federal Printing Plants. All contractor reports to be printed by the contractor (as specified by the contract, agreement, or standard order for work) shall be prepared according to Appendix 3202, and a reproducible master and sufficient copies for standard and incidental distribution shall be supplied to the Division of Technical Information and Document Control, accompanied by completed NRC Form 426A, signed by the authorized contractor official. Each such report shall include, as the last page, a completed NRC Form 335.

055 References. The NRC chapters referenced and NUREG-0794 (ref. j) and NUREG-0650 (ref. i) are available from the Division of Technical Information and Document Control. The other publications are available from the Government Printing Office.

- a. Chapter NRC-0260, "Printing, Copying, Graphics and Photography."
- b. Chapter and Appendix NRC-2101, "NRC Security Program."
- c. Chapter NRC-3203, "Distribution of Unclassified NRC Staff- and Contractor-Generated Documents."
- d. Chapter NRC-1102, "Procedures for Placement of Work with the Department of Energy."
- e. Chapter NRC-3206, "NRC Contractor Speeches, Papers and Journal Articles on Regulatory and Technical Subjects."
- f. Chapter NRC-3207, "Conferences and Conference Proceedings."
- g. Title 44, U.S. Code, "Public Printing and Documents," Government Printing Office.
- h. Government Printing and Binding Regulations of the Joint Committee on Printing, Congress of the United States, No. 24, April 1977 (JCP Regulations), Government Printing Office.
- i. Title 5, U.S. Code, "Government Organization and Employees," Government Printing Office.

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PUBLICATION OF TECHNICAL REPORTS PREPARED BY  
 NRC CONTRACTORS, INCLUDING REPORTS PREPARED  
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## PART I

### PREPARATION OF REPORTING REQUIREMENT PORTIONS OF STATEMENTS OF WORK FOR CONTRACTS, GRANTS AND STANDARD ORDERS FOR DOE WORK

#### A. LIST OF TECHNICAL REPORT REQUIREMENTS

List the technical reports required from each project, task or subtask, as applicable. State when and to whom they should be submitted and what they should contain. These reports may be unclassified, sensitive unclassified or classified. Standards for each of these categories are presented in Parts II through V. The following definitions describe the types of reports that may be specified:

technical reports - information on the technical aspects of contract work. These may be interim or final technical letter reports, draft or final formal technical reports for publication in the NUREG/CR or NUREG/CP series, or draft or final material for inclusion in SERs or ESs (see definitions below).

technical letter reports (also called technical evaluations) - interim or final letters that provide information on the technical aspects of the contract work. Interim technical letter reports may be required at various stages of a project. These interim reports usually are followed by a final technical letter report or a final technical report. Final technical letter reports are usually specified in situations where the technical work is review and evaluation of work of others or work to be used by the staff in the licensing and regulation process. Interim letter reports may include, but are not limited to, informal (interim) progress reports, quick-look reports, data reports, status summary reports, project descriptions, pre-test predictions, model verifications, experiment safety analyses, experiment operating procedures, facility certification reports, and test result reports. These reports must be identified with the financial number (FIN) assigned to the project. They are not identified with DOE registered report codes. The number of copies to be prepared and the distribution of those copies will be specified by the project manager.

formal technical reports - the final product of research, an original investigation, or a significant compilation of information. This product is a formal technical report for publication in the NUREG/CR or NUREG/CP series. For extensive long-term projects, formal monthly, quarterly or semiannual and annual periodic technical reports may be required. A draft of the final or periodic report may be requested for comment prior to preparation of the camera-ready copy.

camera-ready copy for printing and distribution. This is to be done to assure proper publication, handling, and distribution and, among other things, to preclude further changes that might nullify the agreement. If caveats were agreed to and the project manager wishes to check the final document for their presence, he/she should inform TIDC of that desire. In that case, upon receipt of the camera-ready copy by TIDC, the project manager will be informed and requested to prepare and sign the NRC Form 426A.

Also state that if agreement on changes to a formal technical report to be issued in the NUREG/CR series is not reached, the NRC project manager may request the contractor to prepare the camera-ready copy with, in addition to the standard disclaimer required on all contractor formal reports (see Exhibit 6), any caveats deemed necessary to cover NRC objections. Such caveats may range from the "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.

State that 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 that laboratory should be informed by the NRC Office Director or Regional Administrator of the decision and the reasons therefor, with a copy to the Laboratory Director. In the case of another Federal agency, a State, or a private contractor, the person who executed the contract should similarly be informed by the NRC Contracting Officer. The contractor is then free to publish without NRC identification of the report. Project manager or higher level decisions may be appealed to the NRC Executive Director for Operations.

D. PUBLISHING UNCLASSIFIED INFORMATION IN OPEN LITERATURE AND PRESENTING PAPERS

If the contractor's principal investigator is to be allowed to publish in the open literature instead of submitting a final report and/or present papers at public or association meetings during the course of the work, add the following statement to the Statement of Work:

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

If the project manager wants to review the paper or journal article prior to presentation or submission for publication, state this in the Statement of Work, as follows:

The principal investigator(s) may publish the results of this work in the open literature instead of submitting a final report and/or present papers at public or association meetings at interim stages of the work, if the article or paper has been reviewed by the NRC project

participates as a sponsor or cosponsor. Chapter NRC-3207, "Conferences and Conference Proceedings," provides general information and guidance for this. More detailed guidance is available from TIDC upon request.

#### H. WRITING AND PUBLISHING UNCLASSIFIED BOOKS

NRC may, under certain circumstances, publish books prepared by grantees or contractors. For general information and guidance on book publishing, see Chapter NRC-3210, "Book Writing and Publishing."

#### I. DISTRIBUTION OF REPORTS TO CONTRACTORS

Up to 50 copies of unclassified formal technical reports may be retained by or will be bulk shipped to the contractor by NRC for internal use. If fewer than 50 copies are needed, indicate the desired quantity on NRC Form 426A. Single copies for specific individuals in organizations other than the contractor's organization who are not included in the distribution requested by the NRC project manager may be requested on a project basis or on a report-by-report basis. The request, with written justification, should be addressed to the NRC project manager, with a copy to NRC/TIDC. If the additional distribution is approved by the NRC project manager, the contractor shall send these copies (if printing is done by the contractor) and address labels, even if printing is done by NRC, to NRC/TIDC, where the distribution will be made along with the standard distribution. Distribution of sensitive unclassified and classified reports will be made by the project manager on a case-by-case basis.

#### J. COORDINATION OF PRESS OR OTHER MEDIA RELEASES OF UNCLASSIFIED INFORMATION

A contractor may request permission to issue a press or other media release on the work being done. Such request shall be made to the project manager, who will consult with his/her management and with the Office of Public Affairs. The contractor may not issue a press release on nonroutine information without this prior coordination. This coordination may be accomplished by telephone, with the NRC project manager responsible for expeditious handling. Decisions not to release information or delays in handling by the project manager may be appealed to the NRC Executive Director for Operations.



PART II

UNCLASSIFIED FORMAL CONTRACTOR REPORTS  
TO BE PRINTED BY NRC

A. DOCUMENTATION

1. Applicability

- a. The requirements of this part apply to contractor and inter-agency agreement reports that are to be printed by NRC. Contractors may not print reports prepared for NRC except those DOE laboratories with JCP-authorized printing plants and then only those reports prepared for NRC's Office of Nuclear Regulatory Research.
- b. With respect to sensitive unclassified and classified reports, the requirements set forth in Part V of this appendix shall be used in conjunction with NRC Appendix 2101.
- c. The requirements of this part do not apply to consultants and contractors of the NRC boards, panels, and advisory committees which report directly to the Commission.

2. Front Cover and Title Page

- a. Separate covers and title pages are required (see Exhibits 1 and 2 for contractor reports and Exhibits 3 and 4 for reports prepared under or pursuant to interagency agreements).\*
- b. The items shown in Exhibits 1 through 4 and discussed below shall appear on the title page and cover, as appropriate.\*\*

(1) NRC Report Number

Each report shall be identified by an NRC-controlled alpha-numeric designation as the prime designation unique to that report. The centralized report control system for unique identification is maintained by the Division of Technical Information and Document Control. Numbers may be obtained by calling the Division of Technical Information and Document Control or by submitting a copy of NRC Form 426A (Exhibit 5) with a request for a number.

\* Reproducible copy of the cover of the performing organization may be submitted; however, the data elements shown in Exhibit 1 must be included.

\*\* These requirements meet the specifications of American National Standard ANSI Z39.18-1974, Guidelines for Format and Production of Scientific and Technical Reports, and ANSI Z39.23-1974, Technical Report Numbers.

3. Availability Information

All formal reports will be made available for sale by NRC and by the National Technical Information Service (NTIS). Exhibit 6 will be inserted on the inside of the front cover by the Division of Technical Information and Document Control.

4. Disclaimer

The following notice will be added during the printing step on the inside front cover (Exhibit 6): "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, or 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 following additional statement, "The views expressed in this report are not necessarily those of the U.S. Nuclear Regulatory Commission" will be printed below the standard disclaimer, if appropriate. Other qualifying statements may be added, if needed (see Part I.C., Requirements for Draft Reports).

5. Previous Reports in Series

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.

6. Abstract

An abstract of 200 words or less shall be prepared for each formal report. Within the report, the abstract shall appear on a separate page between the list of previous documents in the series and the contents page.\*

7. References and Bibliographies

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, at the National Technical Information Service, 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 and interviews, unpublished

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\* This preferred positioning of the abstract in the report need not be followed if the style manual of the originating organization requires a different location.

C. PROCEDURES FOR PRINTING AND DISTRIBUTING

1. Printing

Reproducible masters prepared in accordance with this appendix shall be transmitted to the Division of Technical Information and Document Control, accompanied by completed NRC Form 426A (Exhibit 5). NRC Form 426A must be signed by the NRC project manager or a contractor official authorized by the project manager. Such authorization shall be reported in writing to TIDC.

The Division of Technical Information and Document Control will review the masters for adherence to the standards set forth in this chapter and appendix and will arrange for printing and distributing the report. Unsatisfactory masters will be reported to the NRC project manager for appropriate contractual action by the contracting officer or, in the case of government agency or interagency agreement work, the publications manager of the performing organization.

2. Reprinting

Requests for reprinting any report subsequent to the initial printing require approval of the Division of Technical Information and Document Control. Each request shall include a written justification and the project manager's approval for reprinting along with address labels for the recipients.

3. Distribution of Reports

All copies of unclassified formal contractor reports will be distributed by the Division of Technical Information and Document Control in accordance with instructions on NRC Form 426A (Exhibit 5). The Division of Technical Information and Document Control will also arrange automatic distribution of these reports to the NRC Document Control System, the NRC Public Document Room, the National Technical Information Service (NTIS), the Government Printing Office and the Depository Library Service.

If any distribution is to be made other than, or in addition to, the standard distribution established for the report, written justification and the project manager's approval for printing additional copies shall accompany the reproducible masters when submitted to the Division of Technical Information and Document Control. Address labels for the additional distribution must be supplied.

Distribution of sensitive unclassified and classified reports will be made by the NRC project manager on a case-by-case basis.

EXHIBIT 1

SAMPLE COVER FOR UNCLASSIFIED FORMAL CONTRACTOR-PREPARED  
DOCUMENTS, EXCLUDING THOSE PREPARED UNDER OR PURSUANT TO  
INTERAGENCY AGREEMENTS

NRC Report No.  
Contractor Report No. (if any)  
Vol., Part, Rev., etc. (if any)

NUREG/CR-1676  
NUSAC-556  
Vol. 1

Title

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Using Advanced Process Monitoring  
to Improve Material Control

Subtitle and Type of Report  
(Annual, Topical, etc.)

Final Report  
September 1979 - September 1980

Author(s)

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Prepared by R. L. Hawkins, R. L. Lynch, R. F. Lumb

Contractor

NUSAC Incorporated

NRC

Prepared for  
U. S. Nuclear Regulatory  
Commission

EXHIBIT 3

SAMPLE COVER FOR UNCLASSIFIED FORMAL REPORTS PREPARED  
UNDER OR PURSUANT TO INTERAGENCY AGREEMENTS

NRC Report No.  
Contractor Report No.  
Vol., Part, Rev., etc.

NUREG/CR-1952  
SAND81-0151

Title

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# LOCA-Simulation Thermal-Shock Test of Sliding-Link Terminal Blocks

Type of Report  
or Subtitle

Independent Verification Testing Program  
Independent Verification Test-1

Author(s), Editor(s)

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Prepared by L. L. Bonzon, W. H. Buckalew, F. V. Thome, J. A. Lewin, T. W. Gilmore, SNL  
W. R. Rutherford, A. B. Bennett, NRC

Contractor

Sandia National Laboratories

Sponsorship

Prepared for  
U. S. Nuclear Regulatory  
Commission

PUBLICATION OF TECHNICAL REPORTS PREPARED BY  
 NRC CONTRACTORS, INCLUDING REPORTS PREPARED  
 UNDER OR PURSUANT TO INTERAGENCY AGREEMENTS

NRC Appendix 3202  
 Part II

EXHIBIT 5  
 NRC FORM 426A, PUBLICATIONS RELEASE FOR UNCLASSIFIED  
 NRC CONTRACTOR AND CONSULTANT REPORTS

NRC FORM 426A (2-79) NRC RM 3201		U.S. NUCLEAR REGULATORY COMMISSION		1. REPORT NUMBER (If any)	Check appropriate box: Division of Technical Information and Document Supply
PUBLICATIONS RELEASE FOR UNCLASSIFIED NRC CONTRACTOR AND CONSULTANT REPORTS (Please Type or Print)				2. DISTRIBUTION CATEGORY NO. (If any)	Check appropriate box: Check the NRC Distribution Category List, see NUREG 0550
3. TITLE AND SUBTITLE (State in full as shown on document)					
4. AUTHORS (If more than three, name last author followed by "and others")					
5. NAME OF CONTRACTOR		MAILING ADDRESS (Number and Street, City, State and Zip Code)		TELEPHONE NO.	
6. DATE MANUSCRIPT COMPLETED		7. NRC PROGRAM SPONSOR TECHNICAL MONITOR		TELEPHONE NO.	
8. CONTRACT DATA					
a. CONTRACT OR FIN NUMBER (Do not use DOE contract number)					
b. IF CONTRACTOR IS AUTHORIZED TO PRINT, PLEASE PROVIDE THE FOLLOWING INFORMATION:					
Number of Copies Printed		Estimated Circulation Cost		Estimated Printing Cost	
9. TYPE OF DOCUMENT (Check appropriate box)					
a. TECHNICAL REPORT					
(1) FORMAL					
(2) INTERIM					
b. CONFERENCE PAPER					
(1) TITLE OF CONFERENCE PAPER					
(2) DATE(S) OF CONFERENCE					
(3) LOCATION OF CONFERENCE					
c. OTHER (Indicate type of item, e.g. thesis, speech, reprint, article, guide, etc.)					
10. SPECIAL DISTRIBUTION (Send all copies to the Distribution Services Branch, Division of Technical Information and Document Supply. See NRC special instructions for details. Make available only as specifically approved by program office. Do not send to other addresses. Supply addresses for special distribution. Continue instructions on reverse of separate sheet, if necessary.)					
11. PATENT CLEARANCE (If applicable)			12. SUBMITTED BY		
Forward completed, signed NRC Form 426A, together with the related documents for review TO: Appropriate Patent Counsel			a. NAME OF AUTHORIZED CONTRACTOR OFFICIAL OR NRC MONITOR (Type or Print)		
1. PATENT CLEARANCE NOT REQUIRED			b. OFFICIAL'S ORGANIZATIONAL UNIT		
2. PATENT CLEARANCE GRANTED					
3. PATENT CLEARANCE DENIED					
4. PATENT COUNSEL'S SIGNATURE		DATE	SIGNATURE (Authorized Representative of NRC Monitor)		DATE

EXHIBIT 7  
 NRC FORM 335 - BIBLIOGRAPHIC DATA SHEET

NRC FORM 335 (2-84) NRCM 1192 3201 3202 SEE INSTRUCTIONS ON THE REVERSE		U.S. NUCLEAR REGULATORY COMMISSION		REPORT NUMBER (Assigned by NRC and Year) (Optional)	
<b>BIBLIOGRAPHIC DATA SHEET</b>					
1 TITLE AND SUBTITLE				2 LEAVE BLANK	
				4 DATE REPORT COMPLETED MONTH _____ YEAR _____	
3 AUTHOR(S)				5 DATE REPORT ISSUED MONTH _____ YEAR _____	
7 PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)				8 PROJECT/TASK WORK UNIT NUMBER	
				9 FUND GRANT NUMBER	
10 SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)				11a TYPE OF REPORT	
				6 PERIOD COVERED (Indicate Dates)	
12 SUPPLEMENTARY NOTES					
13 ABSTRACT (200 words or less)					
14 DOCUMENT ANALYSIS -- KEYWORDS-DESCRIPTORS				15 AVAILABILITY STATEMENTS	
9 IDENTIFIERS-OPEN ENDED TERMS				16 SECURITY CLASSIFICATION (This report) _____ (This report) _____	
				17 NUMBER OF PAGES	
				18 PRICE	

PART III

UNCLASSIFIED TECHNICAL LETTER REPORTS

A. FORMAT

1. Applicability

- a. The requirements of this part apply to unclassified contractor technical letter reports. (See Part I.A for definition.)
- b. The requirements of this part do not apply to consultants and contractors to the NRC boards, panels, and advisory committees which report directly to the Commission.

2. Requirements

Technical letter reports are prepared, duplicated and distributed in accordance with the requirements of the Statement of Work in the contract or in the Standard Order for DOE Work. Each such report must be identified with the financial number (FIN) assigned to the project. The number of copies to be prepared and the distribution of those copies will be specified by the project manager. If unclassified and non-sensitive, the NRC project manager is responsible for making such reports available in the NRC Public Document Room (PDR) by sending them to the PDR through the NRC Document Control System.

B. PATENT AND SECURITY REVIEWS

1. Patent Review

Patent implications shall be considered prior to approval of reports for public release so that disclosure will not adversely affect the patent rights of NRC. If the work being reported is contractually managed through another government agency (e.g., DOE laboratories), that government agency should be requested by the contractor to perform the patent review.

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 shall be consulted, and the responsible NRC project manager shall consider the patent implications.

If there is a possibility that there is disclosure of developments of an inventive nature, the NRC contracting officer shall request assistance from the NRC Patent Counsel, Office of the Executive Legal Director.



## PART IV

### UNCLASSIFIED FORMAL REPORTS TO BE PRINTED FOR THE NRC OFFICE OF NUCLEAR REGULATORY RESEARCH BY DOE LABORATORIES WITH JCP-AUTHORIZED FEDERAL PRINTING PLANTS

#### A. DOCUMENTATION

##### 1. Applicability

- a. The requirements of this part apply to NRC staff who are responsible for agreements with DOE Laboratories and their contractors who print regulatory and technical reports required by NRC. (See also Chapter NRC-1102).
- b. With respect to sensitive unclassified and classified reports the requirements set forth in Part V of this appendix shall be used in conjunction with NRC Appendix 2101.
- c. The requirements of this part do not apply to consultants and contractors to the NRC boards, panels and advisory committees which report directly to the Commission.

##### 2. Front Cover and Title Page

- a. Separate covers (of different paper than that of the text) and title page are required.\*
- b. Items such as those shown in Exhibits 3 and 4 and discussed below shall appear on the front cover and title page, as appropriate.\*\* While layouts and typefaces need not be exactly the same as in Exhibits 3 and 4, the items shall appear in approximately the locations indicated and with the same relative prominence.

##### (i) NRC Report Number

Each report shall be identified by an NRC-controlled alpha-numeric designation as the prime designation unique to that document. The centralized report control system for unique identification is maintained by the Division of Technical Information and Document Control. Numbers may

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\* The cover stock of the performing organization may be used; however it must include the data elements shown in Exhibit 3.

\*\* These requirements meet the specifications of American National Standard ANSI Z39.18-1974, "Guidelines for Format and Production of Scientific and Technical Reports," and ANSI Z39.23-1974, "Technical Report Numbers."

(b) On the title page, provide information of the type illustrated in Exhibit 4.

(5) Basis for Report Dates(s)

(a) The basis for dating may be shown along with the date on the title page. Various bases for dating are possible; e.g., date report completed, date reviews completed, date published, date distributed, etc.

(b) More than one date, with the basis for each, may be shown where this is necessary.

3. Availability and Price Information

All formal reports will be made available for sale by NRC and NTIS. The statement shown in Exhibit 6 is required on the inside of the front cover.

4. Disclaimer

The following notice shall be added during the printing step on the inside front cover (Exhibit 6): "This report was prepared as an account of work sponsored by the United States Government. Neither the United States Government nor any agency thereof, or 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, or represents that its use by such third party would not infringe privately owned rights." The following additional statement, "The views expressed in this report are not necessarily those of the U.S. Nuclear Regulatory Commission" will be printed below the standard disclaimer, if appropriate. Other qualifying statements may be added, if needed (see Part I.C., Requirements for Draft Reports).

5. Previous Reports in Series

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.

6. Abstract

An abstract of 200 words or less shall be prepared for each formal report. Within the report, the abstract shall appear on a separate page between the list of previous documents in the series and the contents page.\*

\* This preferred positioning of the abstract in the document need not be followed if the style manual of the originating organization requires a different location.

## C. PROCEDURES FOR PRINTING AND DISTRIBUTING

### 1. Printing

Contractor reports may be printed only by a JCP-authorized printing plant and then only if prepared for the NRC Office of Nuclear Regulatory Research. Reports printed by the contractor and one reproducible master shall be submitted to the Division of Technical Information and Document Control, with completed NRC Form 426A. The number of copies specified by the Statement of Work for standard and incidental distribution shall be provided. The appropriate identifying number (NUREG/CR-\_\_) may be obtained as discussed in Section A.2.b.(1).

### 2. Reprinting

Requests for reprinting of any report at NRC expense subsequent to the initial printing requires approval of the Division of Technical Information and Document Control. The request shall include a written justification and the project managers approval for the reprinting, along with address labels for the recipients.

### 3. Distribution of Reports

All copies of unclassified formal contractor reports will be distributed by the Division of Technical Information and Document Control in accordance with instructions on NRC Form 426A (Exhibit 5). NRC Form 426A must be signed by a contractor official authorized by the project manager. Such authorization shall be reported in writing to the Division of Technical Information and Document Control.

If any distribution is to be made other than, or in addition to, the standard distribution established for the report, written justification and the project manager's approval for printing additional copies shall accompany the reproducible masters when submitted to the Division of Technical Information and Document Control. Address labels for the additional distribution must be supplied.

The Division of Technical Information and Document Control will arrange automatic distribution of these reports to the NRC Document Control System, the NRC Public Document Room, the National Technical Information Service (NTIS), the Government Printing Office and the Depository Library Service.

Distribution of sensitive (unclassified) and classified reports will be made by the NRC project manager on a case-by-case basis.

PART V

REPORTS CONTAINING SENSITIVE UNCLASSIFIED  
AND CLASSIFIED INFORMATION

A. APPLICABILITY

These procedures and exhibits of this part apply to sensitive unclassified and classified reports prepared by NRC contractors. These reports include those designated:

Official Use Only  
Limited Official Use  
Proprietary Information  
Safeguards Information  
Confidential  
Secret  
Top Secret

Only sufficient information is presented here to aid in the preparation of the properly marked covers, title pages, back covers, and text pages. Details of the NRC Security Program and specific provisions for determining when to use the markings exhibited are contained in NRC Appendix 2101.

The reports covered are defined as sensitive unclassified or classified. Sensitive unclassified information refers to information designated Official Use Only, Limited Official Use, and Proprietary Information. Sensitive unclassified information also includes Safeguards Information that must be protected from unauthorized disclosure pursuant to 10 CFR 73.21 and Section 147 of the Atomic Energy Act of 1954, as amended, information withheld from public dissemination under the Freedom of Information Act or Privacy Act, and information not to be exported to or disclosed to foreign countries.

Classified information as used in this part includes Restricted Data, Formerly Restricted Data or National Security Information that requires protection in one of the three classification categories described in Executive Order 12356: Top Secret, Secret or Confidential.

The uses of each of the sensitive unclassified and classified categories and the markings required on reports are discussed and exhibited in the following sections. All sensitive unclassified and classified reports are to be sent directly to the project manager.

B. OFFICIAL USE ONLY AND LIMITED OFFICIAL USE INFORMATION

NRC regulations require an Official Use Only marking to be placed on a report only when the originator or other holder believes the marking is

Procedures for reproducing, transmitting, protecting and handling proprietary information reports and removing them from the proprietary information category are detailed in NRC Appendix 2101. A cover sheet (Exhibit 19) is to be placed on each hard copy of a report containing proprietary information.

#### D. SAFEGUARDS INFORMATION

Safeguards information may be of three types: (1) classified information, which is marked and handled as indicated in Section E, (2) unclassified information restricted under Section 147 of the Atomic Energy Act, which is marked and handled as described in this Section, and (3) unclassified information, which is publicly available and handled as indicated in Parts I through IV.

The safeguards information that is to be protected as described here is unclassified information used in a report which specifically identifies certain licensee's or applicant's Detailed:

1. security measures for the physical protection of special nuclear material
2. security measures for the physical protection and location of certain plant equipment vital to the safety of production or utilization facilities.

Unclassified NRC contractor reports containing safeguards information that is to be protected shall be marked as shown in Exhibits 20 through 22.

Procedures for reproducing, transmitting, protecting, and handling safeguards information reports and removing them from the safeguards information category are detailed in NRC Appendix 2101. A cover sheet (Exhibit 23) is to be placed on each hard copy of a report containing safeguards information.

#### E. CLASSIFIED INFORMATION

Classified information is limited to Restricted Data, Formerly Restricted Data and National Security Information. The procedures for making classification determinations and for marking, reproducing, transmitting, protecting, and handling reports containing classified information and removing such reports from classified categories are detailed in NRC Appendix 2101. These procedures are too complex for summarizing here.

Classification determinations regarding NRC information may be made solely by authorized classifiers designated by NRC or DOE. Authorized classifiers are responsible for insuring that reports they determine to be classified are marked and protected in accordance with the provisions of NRC Appendix 2101.

**EXHIBIT 8**  
**SAMPLE COVER FOR A CONTRACTOR REPORT CONTAINING**  
**OFFICIAL USE ONLY INFORMATION**

OFFICIAL USE ONLY

NUREG/CR-XXXX (S)

**Title**  
Subtitle and Type of Report

Author(s), Editor(s)  
Contractor  
Prepared for  
U.S. Nuclear Regulatory Commission

WITHHOLD FROM PUBLIC DISCLOSURE

OFFICIAL USE ONLY

EXHIBIT 10  
SAMPLE BACK COVER FOR A CONTRACTOR REPORT CONTAINING  
OFFICIAL USE ONLY INFORMATION

OFFICIAL USE ONLY

OFFICIAL USE ONLY

EXHIBIT 12  
SAMPLE TITLE PAGE FOR A CONTRACTOR REPORT CONTAINING  
LIMITED OFFICIAL USE INFORMATION

LIMITED OFFICIAL USE

NUREG/CR-XXXX (S)

**Title**  
Subtitle and Type of Report

Manuscript Completed: (date)  
Date Published: (month, year)  
Author(s), Editor(s)  
Contractor name and address

Prepared for  
Division  
Office  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20565  
NRC FIN No.

LIMITED OFFICIAL USE



EXHIBIT 14  
SAMPLE COVER FOR A CONTRACTOR REPORT CONTAINING  
PROPRIETARY INFORMATION OBTAINED FROM A U.S. ORGANIZATION

PROPRIETARY INFORMATION

NUREG/CR-XXXX (P)

Title  
Subtitle and Type of Report

Author(s), Editor(s)  
Contractor  
Prepared for  
U.S. Nuclear Regulatory Commission

TRADE SECRET OR PRIVILEGED OR CONFIDENTIAL  
COMMERCIAL OR FINANCIAL INFORMATION

This document contains information  
submitted to NRC by:

\_\_\_\_\_  
(Name of Company and Name of Submitter)

which has been determined (which is claimed)  
to be proprietary in accordance with 10CFR  
2.790 (b) (10CFR 9.5) (10CFR Part 21) and is  
exempt from mandatory public disclosure pur-  
suant to 10CFR Part 9.

WITHHOLD FROM PUBLIC DISCLOSURE

\_\_\_\_\_  
(Signature, Title and Office) (Date)

PROPRIETARY INFORMATION

EXHIBIT 16  
SAMPLE TITLE PAGE FOR A CONTRACTOR REPORT CONTAINING  
PROPRIETARY INFORMATION OBTAINED FROM A U.S. ORGANIZATION

PROPRIETARY INFORMATION

NUREG/CR-XXXX (P)

**Title**  
Subtitle and Type of Report

Manuscript Completed (date)  
Date Published (month, year)

Author(s), Editor(s)  
Contractor name and address

Prepared for  
Division  
Office  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20565  
NRC File No.

TRADE SECRET OR PRIVILEGED OR CONFIDENTIAL  
COMMERCIAL OR FINANCIAL INFORMATION

This document contains information submitted  
to NRC by

\_\_\_\_\_  
Name of Company and Name of Submitter

which has been determined (which is claimed  
to be proprietary in accordance with 10CFR  
2.790 (b); 10CFR 9.5; 10CFR Part 21) and is  
exempt from mandatory public disclosure pur-  
suant to 10CFR Part 9

WITHHOLD FROM PUBLIC DISCLOSURE

\_\_\_\_\_  
Signature, Title and Office (Date)

PROPRIETARY INFORMATION

EXHIBIT 18  
SAMPLE BACK COVER FOR A CONTRACTOR REPORT CONTAINING  
PROPRIETARY INFORMATION

PROPRIETARY INFORMATION

PROPRIETARY INFORMATION

EXHIBIT 20  
SAMPLE COVER FOR A CONTRACTOR REPORT CONTAINING  
UNCLASSIFIED SAFEGUARDS INFORMATION

SAFEGUARDS INFORMATION

NUREG/CR-XXXX (SG)

Title  
Subtitle and Type of Report

Author(s), Editor(s)  
Contractor

Prepared for  
U.S. Nuclear Regulatory Commission

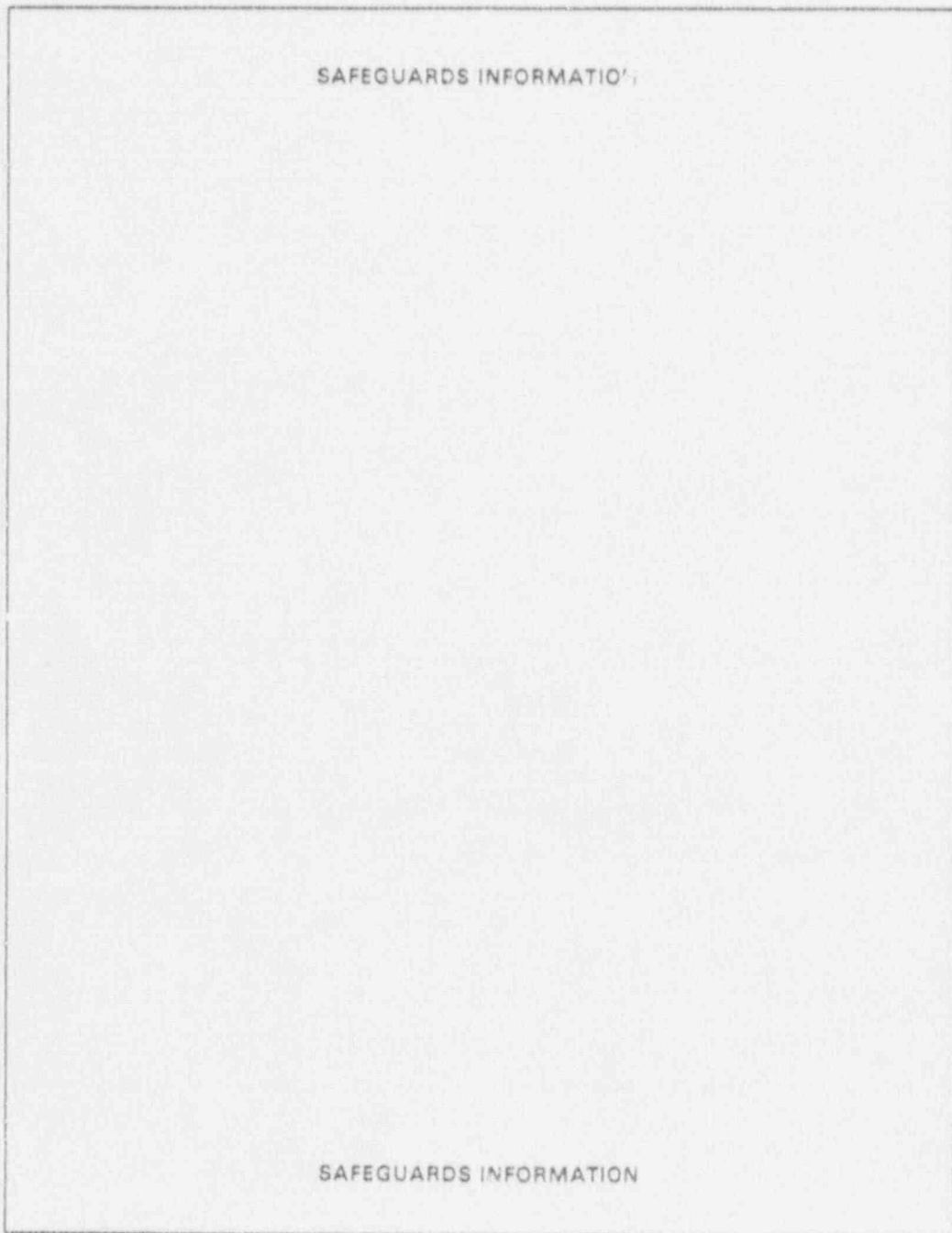
The determination that this document contains  
safeguards information was made by

(Name) (Title) (Organization) (Date)

Violation of protection requirements of 10CFR  
73.21 subject to civil or criminal penalties

SAFEGUARDS INFORMATION

EXHIBIT 22  
SAMPLE BACK COVER FOR A CONTRACTOR REPORT CONTAINING  
UNCLASSIFIED SAFEGUARDS INFORMATION



## PART VI

### HANDLING OF UNCLASSIFIED INFORMATION ON NRC COOPERATIVE PROGRAMS WITH FOREIGN GOVERNMENTS AND ORGANIZATIONS AND WITH U.S. INDUSTRY

The Nuclear Regulatory Commission has requested that its Program Offices establish, to the extent feasible, cooperative nuclear safety research programs that involve either or both U.S. industry and foreign governments and organizations. Such involvement includes monetary contributions, information exchange, and comments on program plans and results. This is authorized in 42 U.S.C. 5801. To this end, international and U.S. industry agreements have been signed that provide for transmitting unclassified information from NRC to participants. These procedures apply only to NRC-managed work not programatically funded by DOE.

The interests of all NRC cooperative nuclear safety research program participants are served best by early, rapid dissemination for comment of information on these programs developed for NRC by NRC contractors. This can be accomplished by distribution of "Draft Preliminary Reports (or Codes)" for comment for a specified period of time, followed by issue as formal NUREG/CR reports, with the concurrence of the participants. Specific procedures for accomplishing these goals and for transmitting information prepared by the NRC and DOE facilities and contractors and their subcontractors working on these programs are presented in the following sections. The procedures detailed here have been agreed to by DOE and have been provided to the responsible DOE Operations Officers and NRC Program and Project Managers as guidance.

#### A. PREPARATION OF DRAFT PRELIMINARY REPORTS FOR COMMENT

The first issuance of information by a contractor shall be designated "Draft Preliminary Report (or Code)," and shall include the cover sheet shown in Exhibit 24.

The following notice is to be printed on the bottom of the cover sheet (Exhibit 24):

#### NOTICE

THIS DRAFT PRELIMINARY REPORT IS ISSUED ONLY TO  
PARTICIPANTS IN THE DESIGNATED COOPERATIVE PROGRAM

This report was prepared in contemplation of Commission action. It has not have received patent review and may contain information received in confidence. Therefore, the contents of this report should neither be disclosed to others nor reproduced, wholly or partially, unless written permission to do so has been obtained from the appropriate USNRC office. The recipient is requested to take the necessary action to ensure the protection of this report.

the appropriate periodic notation, if any, included in the title (Exhibit 24). They shall not be given standard report nomenclature until the NRC project manager authorizes publication as a NUREG/CR report. At that time, the contractor may add its own designation below the NUREG/CR number, as shown in Exhibits 3 and 4.

#### E. MAILING TO PROGRAM PARTICIPANTS

The physical transmission of reports from NRC to program participants shall be handled by the Document Management Branch (DMB), Division of Technical Information and Document Control (TIDC), based on address labels of participants supplied by the project manager. The transmittal sheet shown in Exhibit 26 shall be used to transmit the documents and the labels to DMB.

#### F. SECURITY

If information included in the report or code has been determined to be sensitive unclassified or classified information (see statement of work) the procedures of Part V also apply. The report (or code) may not be classified solely for the purpose of limiting distribution to the participants.

EXHIBIT 25  
TRANSMITTAL LETTER FROM CONTRACTOR TO NRC PROJECT  
MANAGER FOR DRAFT PRELIMINARY REPORT

TO: NRC Project Manager  
SUBJECT: DRAFT PRELIMINARY REPORT (CODE) ON  
(PROGRAM TITLE) FOR COMMENT

The enclosed "Draft Preliminary Report (Code)" is being submitted for comment. It is our understanding that the comment period shall extend six months from the date of mailing of the draft to the participants. Upon resolution of the comments after that period and with concurrence of the cooperative program participants, the NRC Program Manager will authorize publication of this report in the NUREG/CR series under the provisions of NRC Manual Chapter 1102 or 3202.

\_\_\_\_\_  
DOE Facility or Contractor Representative



RELEASE TO PUBLISH UNCLASSIFIED NRC CONTRACTOR,  
CONSULTANT, OR CONFERENCE PROCEEDINGS REPORTS

(Please Type or Print)

Obtain from the Technical Publications  
Section on 492-1953

2. TITLE AND SUBTITLE (State in full as shown on docu. - if)

3. FIN OR GRANT NUMBER  
(Do not list DOE contract number)

4. AUTHORS (If more than three, name first author followed by "and others")

5. CONTRACTOR

MAILING ADDRESS (Number and Street, City, State and ZIP Code)

TELEPHONE NUMBER

6. TYPE OF DOCUMENT (Check appropriate box)

A. TECHNICAL REPORT

FORMAL

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 (List NRC distribution codes. Provide mailing labels for special distribution not covered by NRC codes. If NRC staff, provide name and mail stop only. If external, provide complete mailing address.)

YES	NO	8. CERTIFICATION (ANSWER ALL QUESTIONS)	
		A. REFERENCE AVAILABILITY -	Is all material referenced in this report 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 a referenced document with the reference listing below.
		SPECIFIC AVAILABILITY	
		B. COPYRIGHTED MATERIAL -	Does this report contain copyrighted material? If yes, attach a letter of release from the source that owns the copy right.
		C. COMPUTER CODES	Does this report contain a computer code? If yes, does it comply with the standards in NRC Manual Chapter 0904, "Planning and Control of Automatic Data Processing (ADP) Resources"?
		D. PATENT CLEARANCE	Does this report require patent clearance? If yes, the NRC Patent Counsel must signify clearance by signing below.
		NRC PATENT COUNSEL (Type or Print Name)	SIGNATURE _____ DATE _____
		E. INFORMATION REQUESTS -	Does this report contain any questionnaires, surveys, or data collection requests?
		F. LICENSING REQUIREMENTS -	Does this report impose requirements on licensees?

9. AUTHORIZATION

LAB AUTHORIZING OFFICIAL (If applicable)  
(Type or print name)

SIGNATURE

DATE

NRC RESPONSIBLE STAFF MEMBER  
(Type or print name)

SIGNATURE

OFF. DIV.

TELEPHONE

MAIL STOP

DATE

### BIBLIOGRAPHIC DATA SHEET

(Instructions on the reverse)

1. TITLE AND SUBTITLE

2. DATE REPORT PUBLISHED  
MONTH YEAR

4. FUND OR GRANT NUMBER

5. AUTHOR(S)

6. TYPE OF REPORT

7. PERIOD COVERED (if applicable)

8. PERFORMING ORGANIZATION - NAME AND ADDRESS (If NRC, provide Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)

9. SPONSORING ORGANIZATION - NAME AND ADDRESS (If NRC, use "Same as above." If contractor, provide NRC Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address.)

10. SUPPLEMENTARY NOTES

11. ABSTRACT (200 words or less)

12. KEY WORDS DESCRIPTORS (Use words or phrases that will assist researchers in locating the report.)

13. AVAILABILITY STATEMENT

14. SECURITY CLASSIFICATION

(This Page)

(This Report)

15. NUMBER OF PAGES

16. PRICE

**CONTRACT PRICING PROPOSAL COVER SHEET**

1. FACILITY, ACTION, CONTRACT, MODIFICATION NO.

FORM APPROVED OMB NO. 3090-0116 *(7 pages)*

NOTE: This form is used in contract actions if submission of cost or pricing data is required. (See FAR 15.804-6(b))

2. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)

3A. NAME AND TITLE OF OFFEROR/POINT OF CONTACT

3B. TELEPHONE NO.

4. TYPE OF CONTRACT ACTION (Check)

A. NEW CONTRACT

D. LETTER CONTRACT

B. CHANGE ORDER

E. UNPRICED ORDER

C. PRICE REVISION/ REDETERMINATION

F. OTHER (Specify)

5. TYPE OF CONTRACT (Check)

FFP

CPFF

CPFI

CRAT

FPI

OTHER (Specify)

A. COST

6. PROPOSED COST (A+B+C)

B. PROFIT/FEE

C. TOTAL

\$

\$

\$

7. PLACE(S) AND PERIOD(S) OF PERFORMANCE

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

A. LINE ITEM NO.	B. IDENTIFICATION	C. QUANTITY	D. TOTAL PRICE	E. REF.

9. PROVIDE NAME, ADDRESS, AND TELEPHONE NUMBER FOR THE FOLLOWING (If applicable)

10. BACI ADMINISTRATION OFFICE

11. AUDIT OFFICE

12. WILL YOU REQUIRE THE USE OF ANY GOVERNMENT PROPERTY IN THE PERFORMANCE OF THIS WORK? (If "Yes," identify)

YES  NO

11A. DO YOU REQUIRE GOVERNMENT CONTRACT FINANCING TO PERFORM THIS PROPOSED CONTRACT? (If "Yes," complete Item 11B)

YES  NO

11B. TYPE OF FINANCING (Check one)

ADVANCE PAYMENTS

PROGRESS PAYMENTS

GUARANTEED LOANS

13. 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))

YES  NO

13. IS THIS PROPOSAL CONSISTENT WITH YOUR ESTABLISHED ESTIMATING AND ACCOUNTING PRACTICES AND PROCEDURES AND FAR PART 31 COST PRINCIPLES? (If "No," explain)

YES  NO

14. COST ACCOUNTING STANDARDS BOARD (CASB) DATA (Public Law 91-375 as amended and FAR PART 30)

14A. WILL THIS CONTRACT ACTION BE SUBJECT TO CASB REGULATIONS? (If "No," explain in proposal)

YES  NO

14B. 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)

YES  NO

14C. HAVE YOU BEEN NOTIFIED THAT YOU ARE OR MAY BE IN NON-COMPLIANCE WITH YOUR DISCLOSURE STATEMENT OR COST ACCOUNTING STANDARDS? (If "Yes," explain in proposal)

YES  NO

14D. IS ANY ASPECT OF THIS PROPOSAL INCONSISTENT WITH YOUR DISCLOSED PRACTICES OR APPLICABLE COST ACCOUNTING STANDARDS? (If "Yes," explain in proposal)

YES  NO

This proposal is submitted in response to the RFP, contract, modification, etc. in item 1 and reflects our best estimates and/or actual costs as of this date.

15. NAME AND TITLE (Type)

16. NAME OF FIRM

17. SIGNATURE

18. DATE OF SUBMISSION

**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 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 projecting from known data; and
  - b. The nature and amount of any contingencies included in the proposed price.
3. 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. The requirement for submission of cost or pricing data continues to the time of final agreement on price.

B. Change Orders (modifications).

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 (i) current estimates of what the cost would have been to complete deleted work not yet performed, and (ii) 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 full identification and explanation of them.

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.

(e.g., included in production costs as direct engineering labor, charged to manufacturing overhead, etc.). Also how the costs would be allocated to the units at their various states 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.

### 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.





SMALL BUSINESS AND SMALL DISADVANTAGED  
BUSINESS SUBCONTRACTING PLAN

ATTACHMENT 6  
(5 pages)

DATE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

SOLICITATION OR CONTRACT NUMBER: \_\_\_\_\_

ITEM/SERVICE: \_\_\_\_\_

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 the contract cited above or to the contract awarded under the solicitation cited.
  - (i) Small Business concerns: \_\_\_\_\_ % of total planned subcontracting dollars under this contract will go to subcontractors who are small business concerns.
  - (ii) Small Disadvantaged Business Concerns: \_\_\_\_\_ % of total planned subcontracting dollars under this contract 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 concerns: \$ \_\_\_\_\_.
  - (ii) Total dollars planned to be subcontracted to small disadvantaged business concerns: \$ \_\_\_\_\_. This dollar amount is included in the amount shown under 1. (b)(i), above, as a subset.
- (c) The total estimated dollar value of all planned subcontracting (to all types of business concerns) under this contract is \$ \_\_\_\_\_.
- (d) The following principal products and/or services will be subcontracted under this contract, and the distribution among small and small disadvantaged business concerns is as follows:

(Products/services planned to be subcontracted to small business concerns are identified by \*-To small disadvantaged business concerns by \*\*)

\_\_\_\_\_  
\_\_\_\_\_  
(ATTACHMENT MAY BE USED IF ADDITIONAL SPACE IS REQUIRED)

- (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 all 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 lists.
- (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 counsellors 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) Additions to (or deletions from) the duties specified above are as follows:

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3. The following efforts will be taken to assure that small and small disadvantaged business concerns will have an equitable opportunity to compete for subcontract:

- (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



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# Technical Writing Style Guide

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Compiled by: A. Savolainen, R. H. Feldmann, W. E. Ollu, M. H. Singh

Division of Technical Information and Document Control  
Office of Administration

U.S. Nuclear Regulatory  
Commission



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# Technical Writing Style Guide

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Date Published: November 1979

Compiled by: A. Savolainen, R. H. Feldmann, W. E. Olliv, M. H. Singh

Division of Technical Information and Document Control  
Office of Administration  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555



### ABSTRACT

This style guide provides recommended guidelines to NRC staff and contractors as they prepare draft and final staff and contractor documents. Detailed information on report content and organization is presented with examples.

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## PREFACE

This document provides recommended guidelines for the preparation of draft and final staff and contractor documents (see Glossary for definitions) for the U.S. Nuclear Regulatory Commission (NRC). Both the objectives and organization of technical reports are discussed. Use of the guidelines recommended in this guide will improve information exchange between contractors and the NRC staff, provide a uniform format to aid staff and contractors in preparing reports, and produce consistency in documentation procedures. Properly reported work serves as source material for NRC regulatory actions, and the report is a legal record of completion of contract requirements.

Guidelines presented in this document will help improve the readability of NRC reports. However, variations of these guidelines are also acceptable. Guidance presented here was adopted from national standards common to most technical publications. The ORNL Style Guide (May 1974) and LASL Technical Information Manual (April 1977) proved useful in the compilation of this NRC Technical Writing Style Guide.

## ACKNOWLEDGMENTS

Many individuals contributed to this compilation through preparation of the initial draft and comments made during the review process. The initial draft was prepared by Leslie Casey, now of the Office of Nuclear Regulatory Research, and the following members of the Office of Nuclear Materials Site Safety and Safeguards: Nadia Dayem, Daniel Fehringer, Mark Grayson, Michael Kearney, Dave Rohrer, Stephen Schreurs, and George Wu. The comments of Edward L. Hill and Carol Peabody of the Office of Standards Development and William J. Maher of the Office of Management and Program Analysis were particularly helpful.

Appreciation is due to Walter Oliu and his colleagues who generously permitted use of material from their book "Handbook of Technical Writing," by Charles T. Brusaw, Gerald J. Alred, and Walter Oliu, St. Martin's Press, New York, 1976.

Comments on the index by Ms. Wendy Osborne are gratefully acknowledged.

# TECHNICAL WRITING STYLE GUIDE

## 1. INTRODUCTION

The basic requirements for staff and contractor documents are given in NRC Manual Chapters 3201, 3202, and 1102.\*

This style guide, Part III of MC 3201, provides recommended guidance for U.S. Nuclear Regulatory Commission staff and contractors in the preparation of draft and final documents. The objectives of this style guide are to:

- Improve document readability,
- Standardize document format,
- Ensure consistency of staff and contractor documents,
- Ensure completeness of documents,
- Facilitate information retrieval,
- Ensure complete source documentation.

Documents directed toward a technical audience should be written on a level understandable by an individual with a basic understanding of nuclear engineering principles. Documents directed toward a general audience should be written for the educated layman.

Include explanatory statements that provide background information on specialized subjects, unless lengthy, in the document. If longer than one or two pages, include such statements in an appendix.

In general, references cited in NRC documents must be available to the public. See Appendix A of this guide for proper indication of availability.

## 2. GENERAL FORMAT

Organize formal reports (including drafts)\*\* as follows using only those elements appropriate to the report:

<u>Element</u>	<u>Page Number</u>	<u>Right- or Left-Hand Page</u>
Title page	None	Right
Previous Documents in Series	None	Left
Abstract	iii	Right

\*Copies of these Manual Chapters can be obtained from the Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

\*\*See Glossary for definitions of Formal Staff and Contractor Reports.

### 3. FRONT MATTER

#### 3.1 Cover (Formal Reports)

The cover, made of heavy, protective paper, should contain (1) the title of the document, (2) the author's name(s), (3) the type of document (for example, draft, final, task force), and (4) the NRC report number. (See MC 3201, 3202, and 1102 for additional information and sample covers.)

#### 3.2 Title Page (Formal and Interim Reports)

The title page should include (1) the title of the document, (2) the author's name(s), (3) the date of submission and publication, (4) document and contract numbers, (5) a status statement (if applicable), (6) the authorization (that is, the division ordering the work to be done), (7) the NRC division or office sponsoring the document, and (8) the NRC FIN number, if applicable. (See MC 3201, 3202, and 1102 for additional information and sample title pages for formal and interim reports.)

#### 3.3 Previous Documents in Series

If the document being prepared is one in an ongoing series, list all previous documents in the series. Include document numbers and issuance dates. Place this list on the back of the title page.

#### 3.4 Abstract

Prepare an abstract of 200 words or less for each formal document (draft and final) and place it on a separate page between the list of previous documents in the series and the contents pages. The abstract should address the major points of the document, including the investigations the document covers, and any findings, conclusions, and recommendations. The first sentence of the abstract should state the subject of the document.

Be concise; do not use words and ideas that are either repetitious or unnecessary. Take care, however, to include articles (a, an, the) and transitional words important to the document's readability (for example, moreover, nevertheless, however, but).

#### 3.5 Contents

In the contents, list the title and page number of each section of the document. Carry subheadings to at least the second degree of subordination. The subheadings serve essentially as an outline of the document. In the absence of an index, information retrieval is greatly enhanced by including the highest degree of subordination in the contents that appears in the text. (See contents of this document as an example.) Ensure that the page numbers and wording of chapter and section titles are identical with those in the text.

Note these rules for abbreviations. Abbreviate units of measure, quantity, and time only when they are preceded by a numeral; use the percent symbol (%) only with numerals. An abbreviation is the same whether singular or plural (1 kg, 25 kg) unless it is in all-capital form such as RV, "reentry vehicle," which becomes "RVs." Abbreviate "accelerations of gravity" to "gs" to distinguish it from "g" for "grams."

Do not use double prefixes. Write ns, not mps, for nanosecond; GW, not kmW, for gigawatt; and pF, not mpF, for picofarad. Use  $\mu\text{m}$  for micrometer; micron ( $\mu$ ) should not be used.

When a prefix is placed before the symbol of a unit, the combination may be regarded as a single symbol that can be raised to a positive or negative power without using brackets; thus,  $\text{mm}^3$ , and  $\mu\text{s}^{-1}$ . Remember that  $\text{mm}^3$  means  $(0.001 \text{ m})^3$ , not  $0.001 \text{ m}^3$ , and that  $\mu\text{s}^{-1}$  means  $(10^{-6}\text{s})^{-1}$ , not  $10^{-6}\text{s}^{-1}$ .

Further guidance on the proper use of abbreviations and symbols is presented in the U.S. Government Printing Office Manual, Chapters 9 and 10.

### 3.10.2 Definitions of Variables

A separate list should be included in the nomenclature section to define by name and unit of measure all variables used in mathematical expressions in the document. This list is particularly helpful to the reader of a large document because, even if the variable was properly defined in the text when first used, it is easier for the reader to find a listing of variables than to find the first place it is defined in the text.

### 3.10.3 Acronyms and Initialisms

List acronyms and initialisms in alphabetical order in the abbreviations and symbols list. An acronym is a pronounceable term formed from the initial letters or parts of a compound expression, such as rem (Roentgen equivalent man), and FORTRAN (formula translation). An initialism is an unpronounceable abbreviation formed from the initial letters of a compound expression, such as FFTF (Fast Flux Test Facility) or ac (alternating current). To be sure that readers will recognize the acronym or initialism, enclose it in parentheses after the expression to which it refers. Thereafter, use the acronym or initialism only. When it is first used in the document abstract, reidentify an acronym in its first appearance. Acronyms for computer programs and many acronyms not adopted into the language as words are written in full capitals. For a listing of acronyms and initialisms common to nuclear engineering, see NRC's "A Handbook of Acronyms and Initialisms" (NUREG-0544).

### 3.10.4 Chemical Elements

Spell out the names of elements used as modifiers, such as "beryllium spacers" and "copper coating." Do not capitalize the initial letter when spelling out the element name.

Use element symbols when giving an exact chemical formula ( $\text{H}_2\text{SO}_4$ ) or alloy composition. Use "Uranium-233" at the beginning of a sentence; otherwise, use

Center the title of the document at the top of the first page of the text, like an appendix or chapter title.

## 4.2 Executive Summary

Documents (other than short summary reports) should include a 500- to 1000-word executive summary of major findings, conclusions, and recommendations (if any) of the document. The summary states the purpose and nature of the investigation. It also provides a brief account of the procedures used and a concise overview for persons in management positions. Although more complete than an abstract, the summary should not contain a detailed description of the work upon which the findings, conclusions, and recommendations are based. The summary section immediately follows the title of the document on the first text page. (See Manual Chapter 1102.)

## 4.3 Introduction

### 4.3.1 Objective

The introduction should state the goals and objectives of the work done. This statement should answer two questions: What was the objective of the study, and why was the study done?

### 4.3.2 Scope and Limitations

The introduction should define the scope and limitations of the study, and specify boundary conditions explicitly. The reader should be able to ascertain quickly what the study does and does not investigate.

### 4.3.3 Organizational Paragraph

The introduction may include a paragraph that expresses the relationship of each chapter or appendix to the overall study objective.

## 4.4 Body

### 4.4.1 General Requirements

#### 4.4.1.1 Audience

Documents directed toward a technical audience should be written on a level understandable by an individual with a basic knowledge of nuclear engineering principles. Documents directed toward a general audience should be written for the educated layman.

Include explanatory statements that provide background information on specialized subjects, unless lengthy, in the document. If longer than one or two pages, include such statements in an appendix. (See Section 4.4.1.3, Length of Text.)

the results. Describe nontrivial mathematical operations in detail and provide an explanation of the methodology used and why it was chosen.

#### 4.4.2.3 Results

State results objectively. Show how they follow from the study objectives and methodology. Point out unexpected results both in the results section and in the summary section of the report.

#### 4.4.2.4 Analysis and Conclusions

Describe the method used to interpret the results. The conclusions should state the significance of the results in relation to the stated problem. In presenting the conclusions, include a statement on the level of confidence in the conclusions. Make clear where the use of subjective judgment or expert opinion was used. Clearly identify speculative or unsubstantiated assertions.

#### 4.4.2.5 Recommendations

Indicate the course of action recommended based on the interpretation of the study results. Include in the recommendations, if appropriate, suggested methods for obtaining additional information and a justification for obtaining such information.

#### 4.4.3 Chapters

Include a title and an introductory paragraph for each chapter (or major section). Indicate in the introductory paragraph what material is covered in the chapter and the relationship of the material covered in the chapter to the overall document.

Place references at the end of the whole report in a separate section or at the end of sections or chapters if the document is lengthy.

#### 4.4.4 In-Text Referencing

Should more than one section of the same document require in-text referencing, give the proper reference notation in the text at the point where the reference is made (see Appendix A). Use references both to give proper credit for previous work and to guide the reader to sources. When directing readers to information in appendixes or other sections of the document, place such direction in parentheses, such as (see Appendix A). The reference should be as specific as possible and include page number(s) if necessary.

#### 4.4.5 Incorporating Quoted Material in the Text

Material quoted word for word from another document can be incorporated into the text in one of two ways. To highlight quoted information because of its significance, set it off from the text by indenting five spaces from the left margin and five spaces from the right margins and by double spacing above and below the passage. Inset quoted passages are single spaced and are not enclosed in quotation marks. Quoted passages that do not require highlighting are "run in" to the text and are enclosed in quotation marks.



footnotes where numbers could be mistaken for tabulated information. Orient footnote symbols from left to right and from top to bottom.

#### 4.8 Computer Material

Technical documents include two general categories of computer material: computer program descriptions and computer output. Computer program descriptions explain either how a program is developed or how a program is used in an analysis. Computer output presents the results of an analysis.

##### 4.8.1 Computer Program Description

###### 4.8.1.1 Explanation of Program Development

Present the explanation of program development in the text of a document. Clearly identify the approach, assumptions, scope, and limitations of the program. The approach includes topics such as numerical solution techniques, basic theory, mathematics, and approximations (for example, curve fitting). Give a clear explanation of why a particular approach was used. Present long derivations in appendixes.

###### 4.8.1.2 Explanation of Program Use

Include the following information when using an already-existing program to provide input to a document:

- (1) An explanation of how and why the program was used (in text).
- (2) The scope and limitations of the program (in text).
- (3) A program summary (in one appendix for all the program summaries).
- (4) Documentation (either as an appendix or as a reference to an available document).

##### 4.8.2 Computer Output

When computer output is used in a document, clearly label the output and provide a high-quality copy (that is, a reproducible copy). Include with the copy an explanation of the program used to generate the output (see Section 4.8.1.2) and an explanation or listing of the inputs used to generate the output.

#### 4.9 Report Mechanics

Appendix E of this style guide contains information on the following:

- (1) Chapter (or section) dividers
- (2) Paper
- (3) Appearance
- (4) Pagination
- (5) Spelling
- (6) Preferred usage

place the information in an appendix, or abstract and make the information available for inspection and copying for a fee at the NRC Public Document Room and then cite it as a reference to the text.

Citing classified or proprietary documents is strongly discouraged; in some instances, however, reference to classified or proprietary documents cannot be avoided because they are the only source for certain information. Even though the documents must be withheld from the public, make the public aware that such documents served as the bases for the information. Accordingly, reference proprietary and classified documents when necessary. (Omit the title if the title is classified.) This type of reference should include a statement such as the following: "This document is not publicly available because it contains proprietary or national security information."

#### 5.1.4 Copyrighted Material in NRC Publications

To quote from copyrighted material in an NRC publication to be made available to the public, you must obtain permission from the copyright holder. (The copyright holder is usually the publisher of the book or journal.) Permission is usually granted if the usage will not harm the author or prejudice sale of the copyrighted material. If permission is not granted, or if you cannot determine who holds the copyright, contact the Patent Counsel of the Office of the Executive Legal Director.

To obtain permission, send the copyright holder either a copyright release form or a brief note. (Copyright release forms are available from the Policy and Publications Management Branch of the Division of Technical Information and Document Control.) If the copyright release must be obtained quickly, secure permission over the telephone. Upon approval, confirm the release by sending the holder a copyright release form that should be signed and sent back to the NRC office making the request.

When permission to reproduce the work has been obtained, cite the copyright holder in a source or credit line where the information is referenced. If the holder does not request a particular credit line, use the following:

Permission to use this copyrighted material was granted by [name of copyright holder].

#### 5.2 Bibliography

List citations of other documents pertinent to the subject but not referenced in the text in a bibliography. Arrange bibliographic entries alphabetically by personal or corporate author name. In general, most NRC documents need not have bibliographic sections unless the study required a literature search.

The bibliography, labeled as such, should follow the last reference section in the text and begin on a new page, either right or left. (See Appendix F for a sample bibliography.)

its page number on the index card. When you have completed this process, have the index section typed from this set of cards.

Index entries are divided into headings that concisely specify a particular subject discussed within the text and their page references. A complete entry consists of the principal entry, subentries and cross-references, if any, as indicated in the following example:

Monitoring programs, 27-49	<u>Heading</u>
aquatic, 42	
ecological, 40	
meteorological, 37	<u>Subheadings</u>
radiological, 30	
terrestrial, 41, 43-44	
thermal, 27	
staff evaluation and recommendations, 45-49	<u>Sub-subheading</u>

Each subentry in the index appears on a separate line, indented from the main entry to which it refers. Sometimes a sub-subentry is needed and is indented from the preceding subentry.

Cross-references are devices inserted at appropriate places in the index to guide the reader to the complete information in the text. They consist of two general kinds - "see" references and "see also" references. "See" references are used when the indexer has chosen among several key words:

Economic costs. See benefit-cost analysis.

when the subject has been treated as a subentry to a principal entry:

Radiological impacts. See environmental effects of station operation, radiological impacts.

or when reference is from a popular or shortened form of a term to the "official," scientific or full form:

China syndrome. See reactor core meltdown.

"See also" references are used when additional information can be found in another entry or subentry.

Ecological programs, 40-49. See also monitoring programs.

The index in this style guide is an example of the indented style, where each subentry begins a new line and is indented from the left. The indented style is recommended for detailed subjects because the indentions allow the reader to scan a column quickly for pertinent subentries.

## 6. TABLES AND ILLUSTRATIONS

The primary purpose of including tables and illustrations in your writing is to increase your reader's understanding of what you are saying in ways that words alone cannot. Pictures show shapes and relationships in space far

following the table of contents, labeled "List of Figures" or "List of Tables."

If presented with clarity and consistency, illustrations can help the reader focus on key portions of the report. Even the best illustration only supplements the text, however. The writing must provide the context for the illustration and point out its significance. Appendix D provides detailed guidance on the creation of tables and illustrations.

## 6.2 Availability of Existing Graphics Works at NRC

Standardized graphics works on many technical and regulatory topics already exist in camera-ready form for use in publications and in the preparation of Vu Graphs. Check with your branch chief, with the Special Projects Branch (OMPA), or with the Printing and Graphics Branch for the availability of pertinent maps, tables, graphs, photographs, organizational charts, and the like.

## 7. MATHEMATICS

### 7.1 Writing Numbers

Authors must often decide whether to use numerals or to spell out a number. Appendix C provides rules based on the principle that readers comprehend numerals more readily than spelled-out numbers. Some rules, however, are based on typographic appearance.

### 7.2 Typing Mathematical Material

Type all mathematical material. For more specific information dealing with equations, refer to Appendix C (Section 4, Displayed Equation).

## 8. BIBLIOGRAPHY

Brusaw, C. T., G. J. Alred, and W. E. Olfu. Handbook of Technical Writing. New York: St. Martin's Press Inc., 1976. Available from St. Martin's Press, Inc., 175 Fifth Avenue, New York, NY 10010.

Chemical Abstracts Service. Bibliographic Guide for Editors and Authors, Biosciences Information Service of Biological Abstracts. American Chemical Society, 1974. Available from public and technical libraries.

Chemical Abstracts Service. Chemical Abstracts Service Source Index (CASSI), 1907-1974 Cumulative, 2 vols. American Chemical Society, 1974. Available from public and technical libraries.

U.S. Government Printing Office. Style Manual. Washington, DC: U.S. Government Printing Office, January 1973. Available for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

U.S. Nuclear Regulatory Commission. "A Handbook of Acronyms and Initialisms." USNRC Report NUREG-0544, March 1979. Available for purchase from the National Technical Information Service, Springfield, VA 22161.

## APPENDIX A

### EXAMPLES OF REFERENCE CITATIONS

#### 1. INTRODUCTION

This appendix provides guidelines for the preparation of reference citations. For references requiring the same availability statement, place the statement(s) at the bottom of the page in a footnote rather than repeating the statement in each pertinent reference.

#### 2. EXAMPLES OF REFERENCE CITATIONS

##### 2.1 Correspondence

References to letters or memoranda should clearly indicate originator and the recipient.

Letter from D. B. Blackman, Georgetown Municipal Utility, to R. A. Gilbert, NRC, Subject: Answers to NRC Questions on Docket 50-825, dated January 31, 1975. Available in NRC PDR for inspection and copying for a fee.

Memorandum from D. S. Ross and D. G. Eisenhut, NRC, to D. B. Vassallo and K. R. Goller, "Internal Safety Evaluation Report on the Effects of Fuel Rod Bowing on Thermal Margin Calculations for Light Water Reactors," December 8, 1975. Available in NRC PDR for inspection and copying for a fee.

##### 2.2 Internal Papers

Do not reference internal papers, such as technical notes and minutes of meetings, unless they are already available in the NRC Public Document Room (PDR) or will be made available in the PDR before issuance of the report. For a technical note, list author (if any), title, and date, and state that it is "available in the NRC PDR for inspection and copying for a fee." The same format is applicable to minutes of meetings. Do not reference calculations and working papers. If the information in them is pertinent to the text of the report, make it part of the report as text, footnote, or appendix.

##### 2.3 Personal Communications, Private Communications, Notes on Visits

Do not cite references of the following type.

J. G. Facer, ERDA Grand Junction Office, personal communication to M. B. Sears, Oak Ridge National Laboratory, December 16, 1975.

Staff visit to the Exxon mine waste dump, Converse County, Wyoming, April 12, 1972.

In both instances, place these remarks directly in the text (or as a footnote) because they do not represent any retrievable information.

The basic format for active Regulatory Guides is as follows:

U.S. Nuclear Regulatory Commission, Regulatory Guide 1.31, "Control of Ferrite Content in Stainless Steel Weld Metal." Copies are available from U.S. Government Printing Office, Washington, D.C. 20402. ATTN: Regulatory Guide Account.

## 2.6 NRC Contractor Reports and Reports Prepared on Interagency Agreements

For formal reports:

R. J. Brouns, F. P. Roberts, and U. L. Upson, Battelle Pacific Northwest Laboratories, "Considerations for Sampling Nuclear Materials for SNM Accounting Measurements," USNRC Report NUREG/CR-0087, May 1978. Available for purchase from National Technical Information Service, Springfield, Virginia 22161.

For interim reports:

G. L. Boardner and others, "Pretest Analysis SLSF In-Reactor Experiment 62," USNRC Accession No. 771090001, prepared for NRC by Argonne National Laboratory, October 1976. Available in NRC PDR for inspection and copying for a fee.

## 2.7 NRC Applicant Documents

Exxon Nuclear Corporation, "Preliminary Safety Analysis Report, Nuclear Fuel Recovery and Recycling Center," Vol. 3, p. 5.4-3, Docket 50-564, June 1976. Available in NRC PDR for inspection and copying for a fee.

## 2.8 Project Documents

For project documents, use the format given in Section 2.7 and replace the docket number with the project number.

## 2.9 Licensee Documents

For licensee documents, use the format given in Section 2.7 for applicant documents and use the docket number or the license number.

## 2.10 Congressional Hearings, Reports, Acts, and Testimony

To cite legal references, follow examples set forth in A Uniform System of Citation, Harvard Law Review Association, Cambridge, Massachusetts, 1976, 12th edition. (Reference copies are available from the NRC Law Library.)

## 2.11 Federal Register Notices

U.S. Nuclear Regulatory Commission, "Licensing Procedures for Geologic Repositories for High-Level Radioactive Wastes," Federal Register, Vol. 43, No. 223, Nov. 17, 1978, 53869-53872.

## 2.17 Encyclopedia Articles

S. P. Johnston, "Airplane," Encyclopaedia Britannica (1968).

(Because the articles are arranged alphabetically, volume and page numbers are unnecessary. If the entry does not list an author, begin the reference with the article title.)

## 2.18 Translations

V. L. Bouch-Bruevich, Electronic Theory of Heavily Doped Semiconductors (American Elsevier, 196F, translation), 131 pp.

## 2.19 Codes and Standards

"American National Standard Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants," ANSI N45.2.9-1974. Available from American National Standards Institute, 1430 Broadway, New York, NY 10018, Copyrighted.

"American National Standard Guidelines on the Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants," ANSI/ANS-6.4-1977. Available from American National Standards Institute, 1430 Broadway, New York, NY 10018, Copyrighted.

## 2.20 Patents

W. J. Entdecker, "Autoheuristic Hypothesizer," US Patent No. 4 321 098, November 1970.

## 3. BIBLIOGRAPHY

U.S. Nuclear Regulatory Commission. "Manual Chapter, 3202, Publication of Unclassified Regulatory and Technical Documents Prepared by NRC Contractors, Including Reports Prepared Under or Pursuant to Interagency Agreements." Washington, DC: U.S. Nuclear Regulatory Commission, January 25, 1978. Available from NRC Division of Technical Information and Document Control, Document Management Branch.

U.S. Nuclear Regulatory Commission. "Manual Chapter 3207, Conferences and Conference Proceedings." Washington DC: U.S. Nuclear Regulatory Commission, September 12, 1978. Available from NRC Division of Technical Information and Document Control, Document Management Branch.

Bohr magneton.....	μB
boiling point.....	bp
Brinell hardness number.....	Bhn
British thermal unit.....	Btu
calculated.....	calc
calorie.....	cal
candela.....	cd
candela per square meter.....	cd/m <sup>2</sup>
capacitance.....	C
cathode-ray tube.....	CRT
Celsius.....	C
center of gravity.....	c.g.
centigram.....	cg
center of mass.....	c.m.
centimeter.....	cm
centimeter-gram-second (unit system).....	cgs
centimeter per second.....	cm/s
centipoise.....	cP
chapter.....	Chap.
chemically pure.....	cp
coefficient.....	coeff
cologarithm.....	colog
complex conjugate.....	c.c.
concentrated, concentration.....	conc
constant.....	const
contact potential difference.....	cpd
continued.....	cont.
continuous wave.....	cw
coulomb (A·s).....	C
counts per minute.....	counts/min
counts per second.....	counts/s
cubic.....	cu
cubic centimeter.....	cm <sup>3</sup> (not cc)
cubic meter.....	m <sup>3</sup>
cubic millimeter.....	mm <sup>3</sup>
curie.....	Ci
cycle.....	spell out
cycles per second.....	Hz
day.....	spell out
debye.....	D
decibel.....	dB
degree.....	°, deg
degree Celsius.....	°C
density.....	p, d
Department of Energy.....	DOE
derivative.....	deriv
diameter.....	diam
difference, is similar to.....	~
direct current.....	dc
disintegration per second.....	dis/s
drawing number.....	Dwg No.
dyne.....	dyn
east.....	E



sine.....	sin
tangent.....	tan
versine.....	vers
gauss.....	G
Geiger-Mueller (or MÜller).....	G-M
generations per microsecond.....	gen/ $\mu$ s
gigaelectron volts.....	GeV, BeV
gigahertz.....	GHz
gigawatt.....	GW
gram.....	g
gram-atom.....	g·at.
gram-calorie.....	g·cal
gram-molecular volume.....	gmv
grams per cubic centimeter.....	g/cm <sup>3</sup>
grams per liter.....	g/liter
gray (J/kg).....	Gy
henry (V·s/A).....	H
hertz (cycle/s).....	Hz
hexagonal close-packed.....	hcp
high voltage.....	hv
hour.....	h
hyperfine structure.....	hfs
inductance-capacitance.....	LC
inductance, mutual.....	M
inductance, self.....	L
infrared.....	ir
inside diameter.....	i.d.
International Critical Tables.....	ICT
International System of Units.....	SI
joule (N·m).....	J
joule per Kelvin.....	J/K
joule per kilogram Kelvin.....	J/(kg·K)
Kelvin (never use ° with K).....	K
kilobar.....	kbar
kilocalorie.....	kcal
kilocalories per mole.....	kcal/mol
kilocurie.....	kCi
kilocycles per second.....	kHz
kiloelectron volt.....	keV
kilogauss.....	kG
kilogram.....	kg
kilogram-force.....	kgf
kilogram-meter.....	kg·m
kilogram per cubic meter.....	kg/m <sup>3</sup>
kilohertz.....	kHz
kilohm.....	k $\Omega$
kilojoule.....	kJ
kilometer.....	km
kilometers per second.....	km/s
kilo-ersted.....	kOe
kilovolt.....	kV
kilovolt-ampere.....	kVA
kilowatt.....	kW

milliampere.....	mA
millibar.....	mbar
millibarn.....	mb
millicurie.....	mCi
milliequivalent.....	meq
millifarad.....	mF
milligram.....	mg
millihenry.....	mH
millilambert.....	mL
milliliter.....	mL
millimass units.....	mmu
millimeter.....	mm
millimeter of mercury.....	mm Hg
millimho.....	mmho
millimole.....	mmol
million electron volts.....	MeV
million gallons (geological use only).....	Mgal
million volts.....	MV
million years (geological use only).....	Myr
milliradian.....	mrad
millirem.....	mrem
millisecond.....	ms
millivolts.....	mV
milliwatt.....	mW
minimum.....	min
minute.....	min
mole.....	mol, or spell out
mole percent.....	spell out
molecular weight.....	mol wt
month.....	spell out
motor generator.....	m.g.
nanometer.....	nm
nanosecond.....	ns
nautical mile.....	spell out
neutron.....	n
neutrons per square centimeter.....	n/cm <sup>2</sup>
Nevada Test Site.....	NTS
newton (kg·m/s <sup>2</sup> ).....	N
normal (concentration).....	N
north.....	N
northern conjugate.....	NC
nuclear magnetic resonance.....	NMR
nuclear magneton.....	μN
nucleon.....	N
number(s).....	No. (Nos.)
observed.....	obs
oersted.....	Oe
ohm (V/A).....	Ω
optical density.....	OD
outside diameter.....	o.d.
oxygen-free, high-conductivity.....	OFHC
page(s).....	p. (pp.)
parts per million.....	ppm

square millimeter.....mm<sup>2</sup>  
 standard.....std  
 standard deviation.....std dev  
 standard temperature and pressure.....STP  
 steradian.....sr  
 stokes.....St  
 tap (1 dyn-s/cm<sup>2</sup>).....spell out  
 temperature.....temp  
 tesla (Wb/m<sup>2</sup>).....T  
 theoretical.....theoret  
 thermocouple.....TC  
 thermoluminescent detector.....TLD  
 thin-layer chromatography.....TLC  
 trace.....Tr  
 transverse acoustic.....TA  
 transverse optic.....TO  
 triton.....t  
 tuballoy.....spell out  
 ultraviolet.....uv  
 velocity.....v  
 versus.....vs  
 Vickers diamond hardness.....Vdh  
 volt (W/A).....V  
 volt-ampere.....VA  
 volt per meter.....V/m  
 volts, alternating current.....Vac  
 volts, direct current.....Vdc  
 volume.....vol  
 volume percent.....spell out  
 volume per volume.....v/v  
 watt (J/s).....W  
 watt per meter kelvin.....W/(m·K)  
 watt per steradian.....W/sr  
 weber.....Wb  
 week.....wk  
 weight.....wt  
 weight percent.....spell out  
 weight-to-volume ratio.....W/V  
 weight-to-weight ratio.....W/W  
 west.....W  
 year.....yr

### 3. ELEMENT ABBREVIATIONS

<u>Name</u>	<u>Symbol</u>	<u>Name</u>	<u>Symbol</u>
actinium	Ac	bismuth	Bi
aluminum	Al	boron	B
americium	Am	bromine	Br
antimony	Sb	cadmium	Cd
arsenic	As	calcium	Ca
astatine	At	californium	Cf
barium	Ba	carbon	C
berkelium	Bk	cerium	Ce
beryllium	Be	cesium	Cs

#### 4. THE GREEK ALPHABET

<u>Greek Letter</u>	<u>Lower Case</u>	<u>Upper Case</u>	<u>Greek Letter</u>	<u>Lower Case</u>	<u>Upper Case</u>
alpha	α	A	nu	ν	N
beta	β	B	xi	ξ	Ξ
gamma	γ	Γ	omicron	ο	Ο
delta	δ	Δ	pi	π	Π
epsilon	ε	Ε	rho	ρ	Ρ
zeta	ζ	Z	sigma	σ	Σ
eta	η	H	tau	τ	T
theta	θ	Θ	upsilon	υ	Υ
iota	ι	I	phi	φ	Φ
kappa	κ	K	chi	χ	Χ
lambda	λ	Λ	psi	ψ	Ψ
mu	μ	M	omega	ω	Ω

#### 5. BIBLIOGRAPHY

Los Alamos Scientific Laboratory. LASL Technical Information Manual.  
 Los Alamos, NM: Los Alamos Scientific Laboratory, April 1977. Available  
 from LASL, Albuquerque, NM 87545.

U.S. Nuclear Regulatory Commission. "A Handbook of Acronyms and Initialisms,"  
 USNRC Report NUREG-0544, March 1979. Available for purchase from the  
 National Technical Information Service, Springfield, VA 22161.

#### 4. Percentages

Use a percent symbol only when it is preceded by a numeral.

#### 5. Proportions

1 to 4  
1:52 500  
1/3/5 of powder/alcohol/water

#### 6. Times

6 h  
3955 s  
20 min  
10 yr  
90 days

but: four centuries  
three decades  
statistics of any one year  
in a year or two

#### 7. Clock times and dates

0800  
1400  
4:30 p.m.  
10 o'clock or 10 p.m. (not 10 o'clock p.m.)  
12 m. (noon), 12 p.m. (midnight)  
July 4, 1976, not July 4th 1976  
the 1st (day) of the month.

but: the last of April or the first of May  
(not referring to specific days)  
January 31, 1976, but January 1976 (no comma)  
31 January 1976 (also acceptable)

#### 2.1.2 Sentence Containing Only One Number

If a sentence contains only one number, one that is not discussed in Section 2.1.1, use a numeral if it is 10 or more; spell it out if it is less than 10. (EXCEPTION: Always spell out a number when it is the first word of a sentence; see also Sections 2.1.3 and 2.1.4 in this appendix.)

...saw seven men...  
...drove 24 horses...

but: Seventeen students took the test.  
Twelve 2-kg packages were stacked on each pallet.

Five years ago  
Five-year plans are lagging.  
Four hundred and fifty men are employed.  
(Consider changing to: Employees number 450.)  
Sixty-six horses, twenty-nine men, and nine guns  
were captured. (Consider changing to: Losses  
were 66 horses, 29 men, and 9 guns.)

Do not repeat a spelled-out number as a numeral in parentheses.

Spell out numbers less than 100 that precede a compound modifier containing a numeral.

twelve 2-kg packages  
ninety-three 5-m-wide crates  
five 2400-L/s pumps

Spell out rounded and approximate numbers.

a hundred people  
less than a million  
about a million dollars (but \$2 million)

### 2.3 Hyphenation of Numbers

Hyphenate between numbers and words that combine to form a unit modifier preceding the word that is modified. (See also Section 7.1 of Appendix E.)

1-mm diam  
10-mm-diam rod (but a rod 10 mm in diameter)  
6-m-long board (but a board 6 m long)  
five-member panel  
10-fold increase (but threefold, ninefold)

When two or more hyphenated compounds in series have a common base element that is omitted in all but the first or last one, retain the hyphen to indicate suspension.

2- to 5-mm-thick sheets  
2- or 3-mm tubing, not 2 or 3-mm tubing  
2- by 4-mm sheets, but sheets 2 by 4 mm in cross section  
8-, 10- and 16-m beams

Hyphenate between the elements of spelled-out compound numbers from 21 to 99.

twenty-one  
thirty-seven  
eighty-two  
ninety-nine

Hyphenate between the numerator and denominator of a spelled-out fraction, except when one or the other already contains a hyphen.

### 3.2 Base and Supplementary Units

<u>Quantity</u>	<u>Unit</u>	<u>SI Symbol</u>
<b>Base Units</b>		
Length	meter	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Amount of substance	mole	mol
Luminous intensity	candela	cd
<b>Supplementary Units</b>		
Plane angle	radian	rad
Solid angle	steradian	sr

### 3.3 Derived Units

<u>Quantity</u>	<u>Unit</u>	<u>SI Symbol</u>	<u>Formula</u>
absorbed dose	gray	Gy	J/kg
acceleration	meter per second squared		$m/s^2$
activity (radioactive)	becquerel	Bq	$s^{-1}$
activity (radioactive)	disintegration per second		dis/s
angular acceleration	radian per second squared		$rad/s^2$
angular velocity	radian per second		rad/s
area	square meter		$m^2$
density	kilogram per cubic meter		$kg/m^3$
dose equivalent	sievert	Sv	J/kg
electric capacitance	farad	F	$A \cdot s/V$
electrical conductance	siemens	S	$A/V$
electric field strength	volt per meter		$V/m$
electric inductance	henry	H	$V \cdot s/A$
electric potential difference	volt	V	$W/A$
electric resistance	ohm	$\Omega$	$V/A$
electromotive force	volt	V	$W/A$
energy	joule	J	$N \cdot m$
entropy	joule per kelvin		$J/K$
force	newton	N	$kg \cdot m/s^2$
frequency	hertz	Hz	$s^{-1}$
illuminance	lux	lx	$lm/m^2$
luminance	candela per square meter		$cd/m^2$
luminous flux	lumen	lm	$cd \cdot sr$

### 3.4.2.3 Double Prefixes

Do not use double prefixes. For example, use GW (gigawatt), not kW<sup>2</sup>; use pF (picofarad), not  $\mu\mu\text{F}$ , and use Gg (gigagram), not Mkg.

### 3.4.2.4 Compound Units

Use only one prefix in forming a compound unit. Normally the prefix should be attached to a unit in the numerator. An exception occurs when one of the units is the kilogram.

### 3.4.2.5 Higher Order Metric Units

With metric units of higher order such as  $\text{m}^2$  and  $\text{m}^3$ , raise the prefix to the same order (that is,  $\text{mm}^3$  is  $10^{-9} \text{m}^3$  not  $10^{-3} \text{m}^3$ ).

## 3.4.3 Use of SI Units

### 3.4.3.1 Length

Nominal dimensions merely name the item, and no SI equivalent of the name is required.

Nominal Size (in.)	Outside Diameter [in. (mm)]	Wall Thickness [in. (mm)]		
		Sch 40	Sch 80	Sch 160
1	1.315 (33.40)	0.133 (3.38)	0.179 (4.55)	0.250 (6.35)

Likewise, the name "2 by 4" refers only to the approximate dimensions in inches of a rough-sawed, green piece of timber, the finished dimensions of which are considerably smaller. A 1/4-20 UNC screw thread should continue to be so identified. However, the controlling dimensions of the part, such as the pitch and major and minor diameters of a screw thread, should be converted to SI values. Convert threads per inch to millimeter pitch.

When a dimension such as wire diameter or sheet thickness is expressed by a gauge number, give the appropriate gauge system (for example, American Wire Gauge or AWG) and the corresponding SI value.

Convert surface finish expressed in microinches to micrometers ( $\mu\text{m}$ ).

### 3.4.3.2 Temperature

The SI temperature scale is the International Thermodynamic Temperature Scale, and the unit used for expressing temperature and temperature intervals is the Kelvin. However, the degree Celsius has wide use, particularly in engineering and in nonscientific areas, and it is permissible to use the Celsius scale where considered necessary. The Celsius scale (formerly called the centigrade scale) is related directly to the Kelvin scale as follows:



### 3.4.4.5 Derived Units

In derived unit symbols, use the center dot or a space to indicate multiplication and a slash to indicate division. Symbols to the left of the slash are in the numerator and those to the right are in the denominator. Only one slash should be used unless parentheses are included to avoid ambiguity. If typing a center dot creates problems, a hyphen may be used instead.

## 4. EQUATIONS

### 4.1 Units of Measure Within Equations

When U.S. customary units appear in equations, omit the SI equivalents. Instead of inserting the SI equivalents in parentheses as in text or small tables, restate the equations using SI quantities or add a sentence, paragraph, or footnote stating the factor to be used to convert the calculated result in U.S. units equivalent to the preferred SI units.

### 4.2 Displayed Equations

Type mathematical equations, rather than write by hand, for simplicity and clarity in the reproduction process. Equations may be typed centered on the page, tabbed in from the left margin, or flush left with the rest of the text. If mathematical symbols and Greek letters are not available with the typing equipment, use commercially produced press-on letters and symbols. If press-on material is unavailable, handprint letters and symbols preferably with ink. Allow sufficient space within a basic typewritten equation to accommodate any press-on or handwritten symbols or letters.

Align a series of equations (not separated by text) by equality signs and place them to give the appearance of being centered as a whole (Ref. 4) or tab in and align by equality signs. Consider the following sample:

$$C_m = \frac{\lambda}{b} [\exp(bu) - 1] \exp(-au) \quad (1)$$

where

$$a = \lambda_1/\lambda_2$$

$$b = a - K_2/K_1$$

$$u = \lambda_2 K_1 x/V$$

$\lambda_i$  = decay constant for parent (i=1) or daughter (i=2) (yr<sup>-1</sup>)

$K_i$  = sorption coefficient

$x$  = aquifer path length (1,000 m)

$V$  = aquifer velocity (100 m/yr)

## APPENDIX D

### GUIDELINES FOR CREATING TABLES AND GRAPHICS

#### 1. INTRODUCTION

This appendix presents a brief description of how tables and figures should be prepared for reports. Examples of report tables and figures are also included.

#### 2. TABLES

A table is useful for showing large numbers of specific, related statistics in a brief space. A table can present data in a more concise form than is possible in the text and a table is more accurate than graphic presentations because it provides numerous facts that a graph cannot convey. A table makes comparisons between figures easy because of the arrangement of the figures into rows and columns, although overall trends about the information are more easily seen in charts and graphs. (See Table D.1 for a sample format.)

##### 2.1 Guidelines for Creating Tables

###### 2.1.1 Table Number

If you are using several tables, assign each a specific number; position the number and title above the table. The numbers are usually Arabic, and they should be assigned sequentially to the tables throughout the text. Refer to tables in the text by table number rather than by direction ("Table 4" rather than "the above table"). If there are more than five tables in your report or paper, list them, their captions, and their table and page numbers on a separate page immediately after the Table of Contents, labeled "List of Tables."

###### 2.1.2 Caption

The caption, centered above the table, should describe concisely what the table represents.

###### 2.1.3 Boxhead

The boxhead carries the column headings. These should be kept concise but descriptive. Units of measurement, where necessary, should be specified either as part of the heading or enclosed in parentheses beneath the heading. Avoid vertical lettering where possible.

###### 2.1.4 Stub

The left-hand vertical column of a table is the stub. It lists the items about which information is given in the body of the table, and carries a boxheading only if identification is necessary.

###### 2.1.5 Body

The body comprises the data below the boxhead and to the right of the stub. Within the body, arrange columns so that the terms to be compared appear in

adjacent rows and columns. Where no information exists for a specific item, leave a blank space.

#### 2.1.6 Rules (Lines)

These are the lines that separate the table into its various parts. Horizontal lines are placed below the title, below the body of the table, and between the column headings and the body of the table. They should not be closed at the sides. The columns within the table may be separated by vertical lines if they aid clarity.

#### 2.1.7 Footnotes

Footnotes are used for explanations of individual items in the table. Symbols (\*, #) or lower-case letters rather than numbers are ordinarily used to identify table footnotes because numbers might be mistaken for data in a numerical table.

#### 2.1.8 Source Line

The source line, which identifies where the data were obtained, appears below any footnotes, when appropriate.

#### 2.1.9 Continuing Table

When a table must be divided so that it can be continued on another page, repeat the boxhead and give the table number at the head of each new page with a "continued" label (Table 3, continued).

### 3. GRAPHS

Graphs, like tables, present numerical data in visual form. Graphs have several advantages over presenting data in tables or within the text, however. Trends, movements, distributions, and cycles are more readily apparent in graphs than they are in tables. By providing a means for ready comparisons, a graph often shows a significance in the data not otherwise immediately apparent. Be aware, however, that although graphs present statistics in a more comprehensible form than tables do, they are less accurate. For this reason, they are often accompanied by tables giving exact figures. The kinds of graphs most commonly used in NRC reports are line graphs, bar graphs, and pie graphs.

#### 3.1 Line Graphs

The line graph, most widely used of all graphs, shows the relationship between two sets of numbers by means of points plotted in relation to a vertical and horizontal axis drawn at right angles. Once plotted, the points are connected to one another to form a continuous line, thus making the relationship between the two sets of figures easy to see.

##### 3.1.1 Tips on Preparing Line Graphs

- (1) Give the graph a title that describes the data clearly and concisely.
- (2) Assign a figure number if your report includes more than five illustrations.

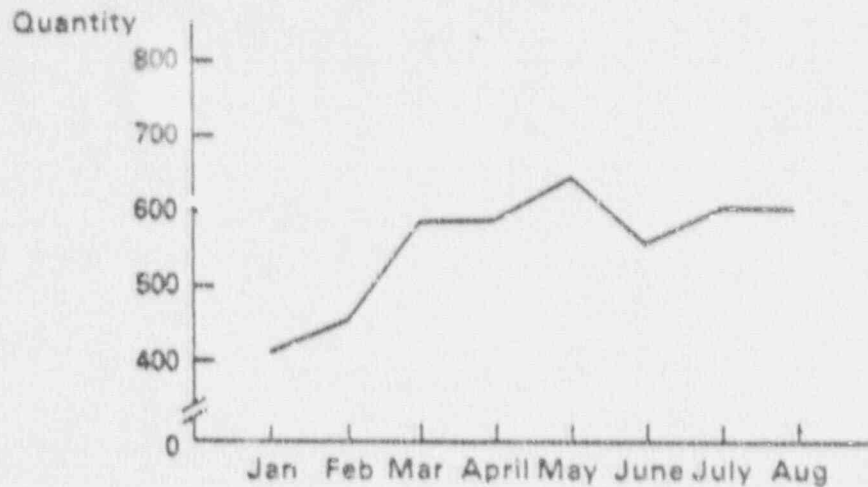


Figure D.2 Widget production for January-August 1979.

- (8) Keep grid lines to a minimum so that curved lines stand out. Since precise values are usually shown in a table of data accompanying a graph, detailed grid lines are unnecessary.
- (9) If the information comes from another source, include a source line below the graph.
- (10) Place explanatory footnotes directly below the figure number.

### 3.2 Bar Graphs

Bar graphs consist of horizontal or vertical bars of equal width but scaled in length to represent some quantity. They are commonly used to show (1) quantities of the same item at different times, (2) quantities of different items for the same time period, or (3) quantities of the different parts of an item that make up the whole.

If the bar is not labeled, the different portions must be marked clearly by shading or crosshatching. Include a key that identifies the various subdivisions, as in Figure D.3.

Bar graphs can also show the different portions of an item that make up the whole. The bar is then equivalent to 100 percent. It is then divided according to the appropriate proportions of the item sampled, as Figure D.4. This type of graph can be constructed vertically or horizontally and can indicate more than one whole where comparisons are necessary, as Figure D.5.

### 3.3 Pie Graphs

A pie graph presents data as wedge-shaped sections of a circle. The circle equals 100 percent, or the whole, of some quantity (a tax dollar, personnel, the hours of a working day), with the wedges representing the various ways in which the whole is divided. In Figure D.6, for example, the circle represents NRC funds for FY 1979. It is divided into units equivalent to the percentage of funds allocated to major program offices and advisory groups.

Pie graphs provide a quick, easy-to-read way of presenting information compared with tables; in fact, a table often accompanies a pie graph with a more detailed breakdown of the same information.

When you construct a pie graph, keep the following things in mind.

- (1) The complete 360° circle is equivalent to 100 percent; therefore, each percentage point is equivalent to 3.6°.
- (2) To make the relative percentages as clear as possible, begin at the 12 o'clock position and sequence the wedges clockwise, from largest to smallest.
- (3) If you shade the wedges, do so clockwise and from light to dark.
- (4) Keep all labels horizontal and, most important, give the percentage values of each wedge.
- (5) Finally, check to see that all wedges, as well as percentage values given for them, add up to 100 percent.

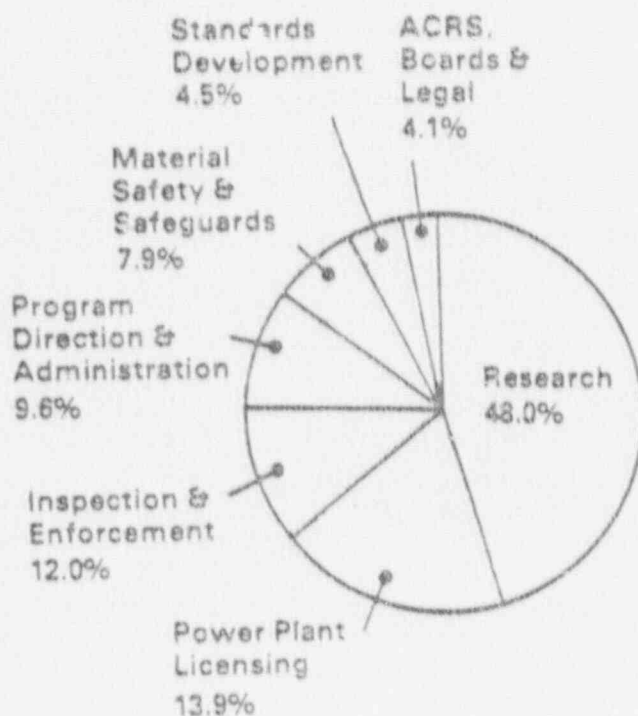


Figure D.6 NRC funds for FY 1979 - \$331 million.

- (3) Make sure all boundaries within the map are clearly identified. Eliminate unnecessary boundaries.
- (4) Eliminate unnecessary information from your map. For example, if population is important, do not include mountains, roads, rivers, etc..
- (5) Include a scale of miles or feet to give your reader an indication of the map's proportions.
- (6) Indicate which direction is north.
- (7) Show the features you want emphasized by shading, dots, crosshatching or use of appropriate symbols when color reproduction cannot be used.
- (8) If you use only one color, only three shades of a single color will show up satisfactorily.
- (9) Include a key telling what the different colors, shadings, or symbols represent.
- (10) Place maps as close as possible to the portion of the text that refers to them.

## 5. DRAWINGS

A drawing is useful when you wish to focus on details or relationships that a photograph cannot capture. A drawing can emphasize the significant piece of a mechanism, or its function, and omit what is not significant. However, if the precise details of the actual appearance of an object are necessary to your report or document, a photograph is essential. Tips for creating and using drawings follow:

- (1) Give the drawing a clear title and a figure number, both of which should be centered below the drawing.
- (2) Place the source line, if necessary, in the lower left corner.
- (3) Show the equipment from the point of view of the person who will use it.
- (4) When illustrating a subsystem, show its relationship to the larger system of which it is a part.
- (5) Draw the different parts of an object in proportion to one another, unless you indicate that certain parts are enlarged.
- (6) Where a sequence of drawings is used to illustrate a process, arrange them from left to right.
- (7) Label parts in the drawing so that text references to them are clear.
- (8) Depending on the complexity of what is shown, labels may be placed on the parts themselves, or the parts may be given letter or number symbols, with an accompanying key. (See Figure D.8.)

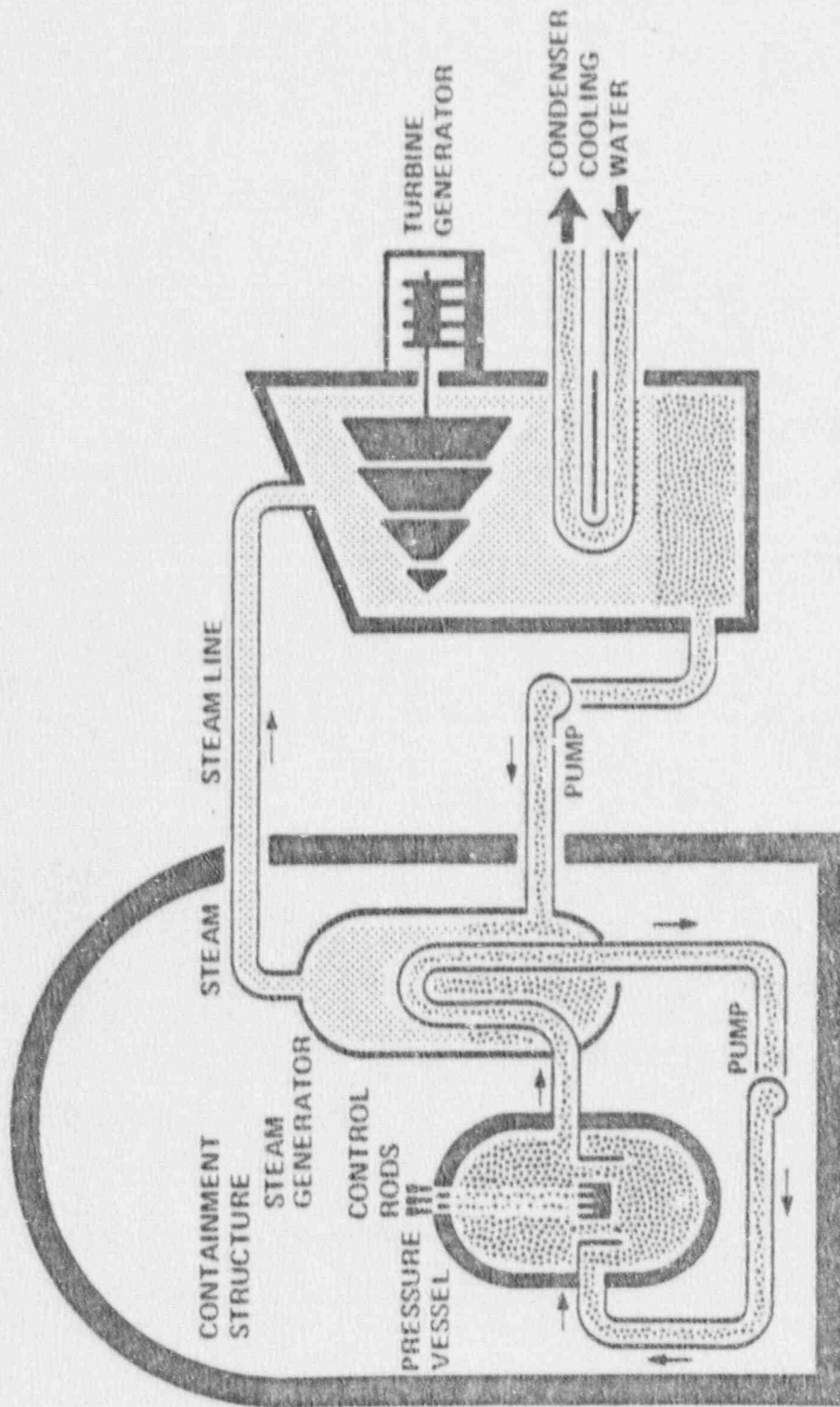


Figure D.9 Pressurized water reactor (PWR) cooling cycles.

## 8. SPECIAL GRAPHICS

Use oversized illustrations, such as engineering drawings, only when no acceptable substitutes for them are available. Such illustrations are difficult and expensive to reproduce. When they must be used, assign them figure numbers and captions as you would any other illustration.

For instructions about their use and special handling, contact the Policy and Publications Management Branch of the Division of Technical Information and Document Control.

## 9. BIBLIOGRAPHY

Brusaw, C. T., G. J. Alfred, and W. E. Oliu. Handbook of Technical Writing. New York: St. Martin's Press, 1976. Available from St. Martin's Press, Inc., 175 Fifth Ave., New York, NY 10010.



## 5. CHAPTER DIVIDERS

The use of colored paper or heavier weight paper as chapter dividers for final documents is discouraged. Although there are several ways of incorporating separating devices in a bound text, the most reasonable divider (least costly in time of preparation as well as money) is a margin thumb index in which a solid printed mark (much like a tab) bleeds\* to the outside edge of the paper. This type of index is often keyed on the back of the outside cover of a publication. If this be the case, the bleeding margin index is printed on the left margin of a left-hand page of the divider area or sheet.

## 6. SPELLING

The authorities used by NRC for spelling, usage, and word division are Webster's Third New International Dictionary and the GPO Style Manual.

## 7. PREFERRED USAGE

### 7.1 Compounding and Hyphenation

Compound words are combinations of two or more words that are written either as one word or hyphenated: man-year, greenhouse, light-year. To determine whether a compound word should or should not be hyphenated, check a recent edition of an office dictionary. For a concise discussion of general rules for compounding, see the GPO Style Manual, Chapters 6 and 7.

When applying the general rules for compounding to nuclear engineering, the following terms are not usually hyphenated: critical heat flux, fast flux test facility, nuclear steam supply system, or radioactive waste disposal classification system. However, chemical elements used in combination with numbers (uranium-235) or chemical formulas (Cr-Ni-Mo) require hyphens. A hyphen is also required with elements of technical compound units of measurement, such as kilowatt-hour, volt-ampere, centimeter-gram-second.

Be careful to distinguish between compound words and unit modifiers. Use hyphens in unit modifiers: gas-cooled reactor, full-scale test, loss-of-coolant accident.

### 7.2 Word Usage

This section provides guidance to the correct use of frequently misused words and expressions.

#### accuracy, precision

Accuracy is the agreement between the true value and the result obtained by measurement.

\*The ink is intentionally printed to the outside edge of the paper, thus providing easily visible divider marks.

apt, liable, likely

Apt means exactly suitable, to the point, appropriate.

Liable means "legally subject to" or "responsible for" and connotes legal responsibility.

Likely means probable.

as, like

As (conjunction) means to the same degree or quantity that; it is often used to indicate a correlative.

Like (preposition) is used to mean possessing the characteristics of something or resembling closely. It is not appropriate to use like as a conjunction in formal language and especially written language.

assure, ensure, insure

Assure, ensure, and insure all mean "to make secure or certain."

Assure refers to persons, and it alone has the sense of setting a person's mind at rest.

Example: The health physicist assured the concerned public that there was no risk of exposure to radiation from the normal operation of the proposed plant.

Both ensure and insure mean "to make secure from harm." However, only insure has the connotation of guaranteeing life or property against risk and should be reserved for use only in this sense.

Example: A closely followed inspection schedule will ensure proper operation of the monitoring instruments.

balance, remainder

Balance means both "a state of equilibrium" and "the amount remaining in a bank account after balancing deposits and withdrawals."

Remainder always means "what is left over." Use remainder to mean "what is left over" outside of bookkeeping contexts.

because, since

Because is the strongest and most specific connective used to state a causal relationship.

Example: He was kept under observation because his dosimeter indicated exposure to radiation.

Since is a weak substitute for because when expressing cause. It is, however, the appropriate connective when the emphasis is on circumstances or conditions rather than on cause and effect.

### definite, definitive

Definite means unmistakable, precise, or having certain limits.

Definitive refers to something complete or authoritative.

### due to, because of

Due to in the sense of "caused by" is acceptable in phrases following a verb form of "to be."

Example: His fall was due to carelessness.

Due to is not acceptable when it follows other verbs and is used to mean "because of."

Change: He fell due to carelessness.

To: He fell because of carelessness.

### etc.

A series introduced by the words "includes" or "such as" should not be followed by etc. because the phrases, taken together, are redundant. (Etc., when used in text, is followed by a comma except when it ends a sentence.)

### factor

Factor has a precise mathematical meaning. Do not use it unnecessarily even in mathematical contexts, however. The expression "to increase by a factor of 3" means simply to triple--use triple.

### farther, further

Farther refers to distance.

Further indicates additional degree, time, or quantity.

Example: As you go farther away, your ability to hear is further decreased.

### fewer, less

Fewer refers to units or individuals.

Less refers to mass or bulk.

Example: With the use of less powder, fewer particles result.

Common means shared by all.

on the order of

Do not use on the order of to mean about or approximately. If you mean "within an order of magnitude," say so.

only

Place only immediately before the word or phrase it modifies. Note the difference in meaning caused by the word's location in the following sentences:

Examples: He was the only engineer.

He was only the engineer.

opposed to, compared to

Do not use opposed to unless you mean in literal opposition; use compared to instead.

Examples: Force a is opposed to force b, and is stronger.

Force a compared to force b is several times greater.

order of magnitude

Use this phrase to express measurements in powers of 10 only, not to mean "approximately."

Example: The earth's mass is about  $10^{24}$  kg; that of the sun,  $10^{30}$  kg. Their masses differ by about six orders of magnitude.

parameter, property

A parameter is an arbitrary constant or an independent variable through functions of which other functions may be expressed.

Examples: The parameters for the first test were 6 to 12 V.

Four parameters, three in space and one in time, are needed to specify an event.

A property is an explicit value or characteristic.

Example: One of the most important properties of iodine is its low temperature of sublimation.

Example: These frequencies, which increase exponentially with voltage, can cause perturbations that are self-propagating.

Which is appropriate to nonrestrictive (nondefining) clauses that are always set off by commas.

### via

Via is Latin for "by way of." Restrict its use to routing instructions.

Example: The package was sent to Bethesda via Region I.

Do not use via to mean through or as the result of outside of such contexts.

### viz

Use namely or that is instead of viz when introducing examples, lists, or items.

### whether, if

Whether implies a condition of doubt.

Example: He was not sure whether security was breached.

If implies no alternative.

Example: If it does not rain, we will move the equipment.

### while, although, whereas

The noun while, when used in adverbial phrases, indicates a period of time (during, or at the same time as). When used as a conjunction, while means "as long as" in reference to time. While should not be used in the place of although, whereas, and or but.

Although (conjunction) means regardless of the fact that or even though.

Whereas (conjunction) means in view of the fact that and is commonly used to indicate a comparison or contradiction.

## 7.2.1 Deadwood

The following unwieldy or repetitious word groups should be avoided.

### Deadwood Expression

as far as our own observations  
are concerned, they show  
ascertain the location of

### Clearer Substitute

we observed  
find

### 7.3 Sex-Neutral Language in NRC Publications

A Presidential Memorandum (August 1977) and numerous Federal guidelines urge the cooperation of all Federal agencies in eliminating gender-specific terminology from regulations, policy and program statements, correspondence, reports, and all other pertinent materials. These guidelines, in essence, ask that gender-specific references be avoided unless they are necessary.

The use of precise language will eliminate most gender-specific terms. References to him or his can be eliminated by referring instead to a "licensee," "applicant," "operator," "administrator," etc. Detailed guidance on the use of sex-neutral language is provided in the following publications, which are available at NRC's Technical Library.

Office of the Federal Register. "Legal Drafting Style Manual."  
(Interim Ed.) March 1978.

U.S. Commission on Civil Rights. "Sex Bias in the U.S. Code." April 1977.

U.S. Department of Labor. "Job Title Revisions to Eliminate Sex and Age Referent Language from the Directory of Occupational Titles."  
3rd ed. 1975.

### 8. BIBLIOGRAPHY

U.S. Government Printing Office. Style Manual. Washington, DC: U.S. Government Printing Office, January 1973. Available for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Webster's Third New International Dictionary of the English Language, Unabridged. Springfield, MA: G&C Merriam Co, 1971. Available from public and technical libraries.

## GLOSSARY

Contractor Document: A document prepared in accordance with the provisions of a contract or under or pursuant to an interagency agreement.

Formal Contractor Reports: Regulatory and technical documents that record the results of contractor or interagency agreement work at principal points in the program. Such documents may include, but are not limited to, quarterly and annual progress reports and final reports. Prior to publication, these documents shall have received the reviews and approvals required by NRC. Such reviews and approvals shall include, but not necessarily be limited to, patent review (if applicable) and security review (if applicable). These reports will carry NUREG designations as the prime identification.

Formal Staff Reports: Regulatory and technical documents prepared in support of regulatory investigations that become publicly available records.

Interim Contractor Documents: Regulatory and technical documents prepared in accordance with contract or interagency agreement requirements for recording plans and results during the course of the work. Such documents may include, but are not limited to, informal progress reports, quick-look reports, data reports, status summary reports, project descriptions, pre-test predictions, model verifications, experiment safety analyses, experiment operating procedures, facility certification reports, and test result reports.

Level of Confidence: Degree of certainty; for example, confidence level as used in statistics.

NRC Program Project Sponsor: The NRC individual responsible for the performance of a consultant or a contractor and his subcontractor or work performed under or pursuant to an interagency agreement.

Patent Review: Review by legal staff to assure protection rights in inventions.

Publicly Available: Available to the general public in the NRC Public Document Room (PDR) for inspection and copying for a fee or ordinarily available from a public library.

Regulatory and Technical Documents: Documents that have been prepared in support of regulatory investigations and are to become publicly available records. Such documents shall carry unique identification.

Unique Identification: NRC identification used on a document and its attachments, revisions, and supplements that is not used on any other document.

## INDEX

There are three types of underlined terms in this index: (1) word usage entries, such as imply/infer, (2) titles of specific publications, such as the GPO Style Guide and, (3) all "see" and "see also" references

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U.S. NUCLEAR REGULATORY COMMISSION  
BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER (Assigned by NRC)

NUREG-0650

TITLE AND SUBTITLE (Show Volume No., if appropriate)

TECHNICAL WRITING STYLE GUIDE

2. (Leave blank)

3. RECIPIENT'S ACCESSION NO.

AUTHOR(S)

A. Savolainen, R. H. Feldmann, W. E. Olin, M. H. Singh

4. DATE REPORT COMPLETED

MONTH November 1979

PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Division of Technical Information and Document Control  
Office of Administration  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

DATE REPORT ISSUED

MONTH November 1979

6. (Leave blank)

8. (Leave blank)

2. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Division of Technical Information and Document Control  
Office of Administration  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

10. PROJECT/TASK/WORK UNIT NO.

11. CONTRACT NO.

3. TYPE OF REPORT

PERIOD COVERED (Include Dates)

6. SUPPLEMENTARY NOTES

14. (Leave blank)

16. ABSTRACT (200 words or less)

This style guide provides recommended guidelines to NRC staff and contractors as they prepare draft and final staff and contractor documents. Detailed information on report content and organization is presented with examples.

17. KEY WORDS AND DOCUMENT ANALYSIS

17a. DESCRIPTORS

17b. IDENTIFIERS/OPEN-ENDED TERMS

18. AVAILABILITY STATEMENT

Unclassified

19. SECURITY CLASS (This report)  
Unclassified

21. NO. OF PAGES

20. SECURITY CLASS (This page)  
Unclassified

22. PRICE  
5

(End of NUREG-0650)

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```

DOCKET: ..... LIC: ..... NAME: .....
-----
PARTY ISSUING MECHANISM:
NAME : ..... ASSUR TYPE : ? CERT ?
ADDR1: ..... MECH TYPE : ..
ADDR2: ..... MECH AMOUNT: 0
CITY : ..... APPROVED? _ DATE: 0
STATE: .. ZIP: ..... EXPIRES ? _ DATE: 0
ACTION (A=ADD C=CHG D=DELETE)
-----
PARTY ISSUING MECHANISM:
NAME : ..... ASSUR TYPE : ? CERT ?
ADDR1: ..... MECH TYPE : ..
ADDR2: ..... MECH AMOUNT: 0
CITY : ..... APPROVED? _ DATE: 0
STATE: .. ZIP: ..... EXPIRES ? _ DATE: 0
ACTION (A=ADD C=CHG D=DELETE)
-----
** 000 000 **

```

```

B MJ LIU10          NUM   A,a   R5 C9
T for Attention. Home to Switch / Capture Off ; Numeric

```

CMD: -----

## LTS - FINANCIAL ASSURANCE INFORMATION

## VALID MECHANISM TYPE CODES AND THEIR MEANINGS:

MECH TYPE	DESCRIPTION
TR	TRUST FUND
ES	ESCROW ACCOUNT
CD	CERTIFICATE OF DEPOSIT
GF	GOVERNMENT FUND
GS	DEPOSIT OF GOVERNMENT SECURITIES
SB	SURETY BOND
LT	LETTER OF CREDIT
LN	LINE OF CREDIT
PG	PARENT COMPANY GUARANTEE
SI	STATEMENT OF INTENT

PRESS RETURN KEY FOR FINANCIAL ASSURANCE SCREEN:

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PACIFIC NORTHWEST LABORATORIES COST STUDIES

1. Technology, Safety and Costs of Decommissioning a Reference Uranium Fuel Fabrication Plant. NUREG/CR-1266, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, October 1980.
2. Technology, Safety and Costs of Decommissioning a Reference Uranium Hexafluoride Conversion Plant. NUREG/CR-1757, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, October 1981.
3. Technology, Safety and Costs of Decommissioning Reference Non-Fuel-Cycle Nuclear Facilities. NUREG/CR-1754, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, February 1981.
4. Technology, Safety and Costs of Decommissioning Reference Non-Fuel-Cycle Nuclear Facilities. NUREG/CR-1754, Addendum 1, Pacific Northwest Laboratory for U.S. Regulatory Commission, October 1989.

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