

<b>AWARD/CONTRACT</b>	1. THIS CONTRACT IS RATED ORDER UNDER DPAS (15 CFR 350)	RATING N/A	PAGE OF PAGES 1 51
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2. CONTRACT NO. (Proc. Inst. Ident.) NRC-04-01-065	3. EFFECTIVE DATE 07-16-2001	4. REQUISITION/PURCHASE REQUEST/PROJECT NO. RES-01-065, 3/12/01
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5. ISSUED BY U.S. Nuclear Regulatory Commission Division of Contracts and Property Mgt. Attn: T-7-1-2 Contract Management Branch No. 1 Washington DC 20555	6. ADMINISTERED BY (If other than Item 5) CODE
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7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, State and ZIP Code) SC&A, Inc. ATTN: Mr. Sanford Cohen 6858 Old Dominion Drive Suite 301 McLean, VA 22101	8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)
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9. DISCOUNT FOR PROMPT PAYMENT N/A	10. SUBMIT INVOICES ITEM (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN:
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11. SHIP TO/MARK FOR U.S. Nuclear Regulatory Commission ATTN: Mr. Robert Meck, RES Mail Stop TWFN-9-C4 Washington DC 20555	12. PAYMENT WILL BE MADE BY U.S. Nuclear Regulatory Commission Office of the Chief Financial Officer Attn: GOV/COM Acct'g. Section T-9H4 Washington DC 20555
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13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c)( ) <input type="checkbox"/> 41 U.S.C. 253(c)( )	14. ACCOUNTING AND APPROPRIATION DATA B&R No.: 16015205110 Job Code: Y6407 BOC: 252A APPN No.: 31X0200.160 RES ID No.: RES-COI-049 OBLIGATE: \$200,870.00
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15A. ITEM NO.	15B. SUPPLIES/SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
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15G. TOTAL AMOUNT OF CONTRACT \$297,654.81

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C	DESCRIPTION/SPECS./WORK STATEMENT		J	LIST OF ATTACHMENTS	
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H	SPECIAL CONTRACT REQUIREMENTS				

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return <u>three</u> 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. <input type="checkbox"/> AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.
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19A. NAME AND TITLE OF SIGNER (Type or print) <u>Sanford Cohen, President</u>	20A. NAME OF CONTRACTING OFFICER <u>Mary H. Mace</u>
19B. NAME OF CONTRACTOR <u>SC&amp;A</u>	20B. UNITED STATES OF AMERICA BY <u>Stephen M. Pool</u> (Signature of Contracting Officer)
19C. DATE SIGNED <u>7/19/01</u>	20C. DATE SIGNED <u>7/16/01</u>

TEMPLATE-ADM001

ADM 02

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## 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 Finalizing NUREG-1640 entitled "Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities"

**B.2 BRIEF DESCRIPTION OF WORK (MAR 1987)**

The Contractor shall furnish the necessary qualified, technical personnel and facilities to assist NRC's Office of Nuclear Regulatory Research (RES) to accomplish: (1) an analyses of individual dose assessments for the clearance of materials and equipment and (2) resolve comments on NUREG-1640, and prepare the publication-ready manuscripts and other materials for final publication.

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

(a) The total estimated cost to the Government for full performance of this contract is \$297,654.81, of which the sum of \$275,606.30 represents the estimated reimbursable costs, and of which \$22,048.51 represents the fixed fee.

(b) There shall be no adjustment in the amount of the Contractor's fixed fee by reason of differences between any estimate of cost for performance of the work under this contract and the actual cost for performance of that work.

(c) The amount currently obligated by the Government with respect to this contract is \$200,870.00, of which the sum of \$185,991.00 represents the estimated reimbursable costs, and of which \$14,879.00 represents the fixed fee.

(d) It is estimated that the amount currently allotted will cover performance through January 18, 2002.

**SECTION C - DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK**

[See Attachment No. 01 for Statement of Work]

**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.

**SECTION E - INSPECTION AND ACCEPTANCE****E.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE**

The following contract clauses pertinent to this section are hereby incorporated by reference (by Citation Number, Title, and Date) in accordance with the clause at FAR "52.252-2 CLAUSES INCORPORATED BY REFERENCE" in Section I of this contract. See FAR 52.252-2 for an internet address (if specified) for electronic access to the full text of a clause.

NUMBER	TITLE	DATE
52.246-5	FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1) INSPECTION OF SERVICES--COST-REIMBURSEMENT	APR 1984

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

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

**SECTION F - DELIVERIES OR PERFORMANCE****F.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE**

The following contract clauses pertinent to this section are hereby incorporated by reference (by Citation Number, Title, and Date) in accordance with the clause at FAR "52.252-2 CLAUSES INCORPORATED BY REFERENCE" in Section I of this contract. See FAR 52.252-2 for an internet address (if specified) for electronic access to the full text of a clause.

NUMBER	TITLE	DATE
52.242-15	FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1) STOP-WORK ORDER	AUG 1989
52.247-34	ALTERNATE I (APR 1984) F.O.B. DESTINATION	NOV 1991

**F.2 2052.211-70 PREPARATION OF TECHNICAL REPORTS (JAN 1993)**

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 Management Directive 3.8, "Unclassified Contractor and Grantee Publications in the NUREG Series." Management Directive 3.8 is not applicable to any Contractor Spending Plan (CSP) and any Financial Status Report that may be included in this contract. (See List of Attachments).

**F.3 2052.211-72 FINANCIAL STATUS REPORT-ALTERNATE 1 (OCT 1999)**

The contractor shall provide a monthly Financial Status Report (FSR) to the Project Officer and the contracting officer. The FSR shall include the acquisition of, or changes in the status of, contractor-held property acquired with government funds valued at the time of purchase at \$50,000 or more. Whenever such changes occur, the contractor shall send a copy of the report to the Chief, Property and Acquisition Oversight Branch, Office of Administration. The report is due within 15 calendar days after the end of the report period and shall identify the title of the project, the contract number, project manager and/or principal investigator, the contract period of performance, and the period covered by the report. Each report shall include the following for each discrete task:

- (a) Total estimated contract amount.
- (b) Total funds obligated to date.
- (c) Total costs incurred this reporting period.



(d) Total costs incurred to date.

(e) Detail of all direct and indirect costs incurred during the reporting period for the entire contract or each task, if it is a task ordering contract.

(f) Balance of obligations remaining.

(g) Balance of funds required to complete contract/task order.

(h) Property status:

(1) List property acquired for the project during the month with an acquisition cost between \$500 and \$49,999. Give the item number for the specific piece of equipment.

(2) Provide a separate list of property acquired for the project during the month with an acquisition cost of \$50,000 or more. Provide the following information for each item of property: item description or nomenclature, manufacturer, model number, serial number, acquisition cost, and receipt date. If no property was acquired during the month, include a statement to that effect. The same information shall be provided for any component or peripheral equipment which is part of a "system or system unit."

(3) For multi-year projects, in the September monthly financial status report provide a cumulative listing of property with an acquisition cost of \$50,000 or more showing the information specified in paragraph (i)(3) of this clause.

(4) In the final financial status report provide a closeout property report containing the same elements as described above for the monthly financial status reports, for all property purchased with NRC funds regardless of value unless title has been vested in the contractor. If no property was acquired under the contract, provide a statement to that effect. The report should note any property requiring special handling for security, health, safety, or other reasons as part of the report.

(j) Travel status: List the starting and ending dates for each trip, the starting point and destination, and the traveler(s) for each trip.

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

#### **F.4 PLACE OF DELIVERY--REPORTS (JUN 1988)**

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

(a) Project Officer (2 copies)

U.S. Nuclear Regulatory Commission  
ATTN: Robert Meck  
Mail Stop T-9-C4  
Washington, DC 20555

(b) Contracting Officer (1 copy)

U.S. Nuclear Regulatory Commission  
ATTN: Mary H. Mace  
Mail Stop T-7-I2  
Washington, DC 20555

**F.5 DURATION OF CONTRACT PERIOD (MAR 1987)**

This contract shall commence on July 16, 2001 and will expire July 15, 2002.

**SECTION G - CONTRACT ADMINISTRATION DATA****G.1 2052.215-71 PROJECT OFFICER AUTHORITY (OCT 1999)**

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

Name: Robert Meck

Address: U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Mail Stop T-9-C4  
Washington, DC 20555

Telephone Number: (301) 415-6205

(b) Performance of the work under this contract is subject to the technical direction of the NRC Project Officer. The term technical direction is defined to include the following:

(1) Technical direction to the contractor which shifts work emphasis between areas of work or tasks, authorizes travel which was unanticipated in the Schedule (i.e., travel not contemplated in the Statement of Work or changes to specific travel identified in the Statement of Work), 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, approve technical reports, drawings, specifications, and technical information to be delivered by the contractor to the Government under the contract.

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

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

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

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

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

specifications of the contract.

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

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

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

(f) If, in the opinion of the contractor, any instruction or direction issued by the Project Officer is within one of the categories as defined in paragraph (c) of this section, the contractor may not proceed but shall notify the Contracting Officer in writing within five (5) working days after the receipt of any instruction or direction and shall request the Contracting Officer to modify the contract accordingly. Upon receiving the notification from the contractor, the Contracting Officer shall issue an appropriate contract modification or advise the contractor in writing that, in the Contracting Officer's opinion, the technical direction is within the scope of this article and does not constitute a change under the "Changes" clause.

(g) Any unauthorized commitment or direction issued by the project officer may result in an unnecessary delay in the contractor's performance and may even result in the contractor expending funds for unallowable costs under the contract.

(h) A failure of the parties to agree upon the nature of the instruction or direction or upon the contract action to be taken with respect to the instruction or direction is subject to 52.233-1 - Disputes.

(i) In addition to providing technical direction as defined in paragraph (b) of the section, the Project Officer shall:

(1) Monitor the contractor's technical progress, including surveillance and assessment of performance, and recommend to the contracting officer changes in requirements.

(2) Assist the contractor in the resolution of technical problems encountered during performance.

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

**G.2 2052.215-77 TRAVEL APPROVALS AND REIMBURSEMENT (OCT 1999)**

(a) All foreign travel must be approved in advance by the NRC on NRC Form 445, Request for Approval of Official Foreign Travel, and must be in compliance with FAR 52.247-63 Preference for U.S. Flag Air Carriers. The contractor shall submit NRC Form 445 to the NRC no later than 30 days before beginning travel.

(b) The contractor must receive written approval from the NRC Project Officer before taking travel that was unanticipated in the Schedule (i.e., travel not contemplated in the Statement of Work, or changes to specific travel identified in the Statement of Work).

(c) The contractor will be reimbursed only for those travel costs incurred that are directly related to this contract and are allowable subject to the limitations prescribed in FAR 31.205-46.

(d) It is the responsibility of the contractor to notify the contracting officer in accordance with the Limitations of Cost clause of this contract when, at any time, the contractor learns that travel expenses will cause the contractor to exceed the estimated costs specified in the Schedule.

(e) Reasonable travel costs for research and related activities performed at State and nonprofit institutions, in accordance with Section 12 of Pub. L. 100-679, shall be charged in accordance with the contractor's institutional policy to the degree that the limitations of Office of Management and Budget (OMB) guidance are not exceeded. Applicable guidance documents include OMB Circular A-87, Cost Principles for State and Local Governments; OMB Circular A-122, Cost Principles for Nonprofit Organizations; and OMB Circular A-21, Cost Principles for Educational Institutions.

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

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

INDIRECT COST POOL	RATE	BASE	PERIOD
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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

(b) The Contracting Officer may adjust these rates as appropriate during the term of the contract upon acceptance of any revisions proposed by the contractor. It is the contractor's responsibility to notify the Contracting Officer in accordance with FAR 52.232-20,

Limitation of Cost, or FAR 52.232-22, Limitation of Funds, as applicable, if these changes affect performance of work within the established cost or funding limitations.

#### **G.4 ELECTRONIC PAYMENT**

The Debt Collection Improvement Act of 1996 requires that all payments except IRS tax refunds be made by Electronic Funds Transfer. It is the policy of the Nuclear Regulatory Commission to pay vendors by the Automated Clearing House (ACH) electronic funds transfer payment system. The electronic system is known as Vendor Express. Payment shall be made in accordance with FAR 52.232-33, entitled "Mandatory Information for Electronic Funds Transfer Payment".

To receive payment, the contractor shall complete the "Company Information" portion of the Standard Form 3881, entitled "ACH Vendor/Miscellaneous Payment Enrollment Form" found as an attachment to this document. The contractor shall take the form to the ACH Coordinator at the financial institution that maintains its company's bank account. The contractor shall discuss with the ACH Coordinator how the payment identification information (addendum record) will be passed to them once the payment is received by the financial institution. Further information concerning the addendum is provided at Attachment 04. The ACN Coordinator should fill out the "Financial Institution Information" portion of the form and return it to the Office of the Controller at the following address: Nuclear Regulatory Commission, Division of Accounting and Finance, Financial Operations Section, Mail Stop T-9-H-4, Washington, DC 20555, ATTN: ACH/Vendor Express. It is the responsibility of the contractor to ensure that the financial institution returns the completed form to the above cited NRC address. If the contractor can provide the financial information, signature of the financial institutions ACH Coordinator is not required. The NRC is under no obligation to send reminders. Only after the Office of the Controller has processed the contractor's sign-up form will the contractor be eligible to receive payments.

Once electronic funds transfer is established for payments authorized by NRC, the contractor needs to submit an additional SF 3881 only to report changes to the information supplied.

Questions concerning ACH/Vendor Express should be directed to the Financial Operations staff at (301) 415-7520."

**SECTION H - SPECIAL CONTRACT REQUIREMENTS****H.1 2052.209-72 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST (JAN 1993)**

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

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

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

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

(c) Work for others.

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

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

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

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

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

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

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

(d) Disclosure after award.

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

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

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



(e) Access to and use of information.

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

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

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

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

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

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

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

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

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

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

(i) Follow-on effort. The contractor shall be ineligible to

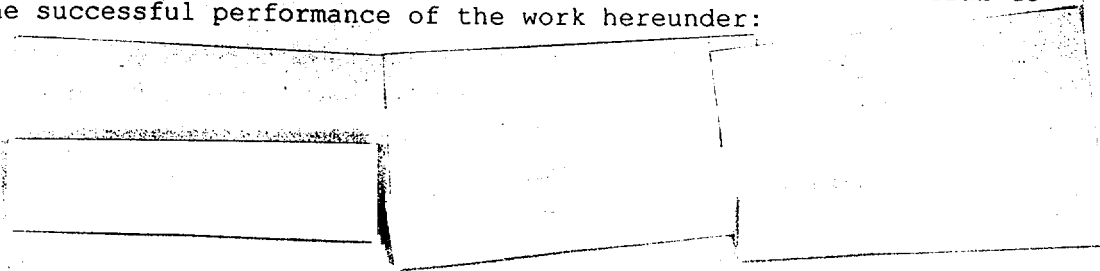
participate in NRC contracts, subcontracts, or proposals therefor (solicited or unsolicited), which stem directly from the contractor's performance of work under this contract. Furthermore, unless so directed in writing by the contracting officer, the contractor may not perform any technical consulting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

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

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

## H.2 2052.215-70 KEY PERSONNEL (JAN 1993)

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



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

(b) If one or more of the key personnel, for whatever reason, becomes, or is expected to become, unavailable for work under this contract for a continuous period exceeding 30 work days, or is expected to devote substantially less effort to the work than indicated in the proposal or initially anticipated, the contractor shall immediately notify the contracting officer and shall, subject to the concurrence of the contracting officer, promptly replace the personnel with personnel of at least substantially equal ability and qualifications.

(c) Each request for approval of substitutions must be in writing and contain a detailed explanation of the circumstances necessitating the proposed substitutions. The request must also contain a complete resume for the proposed substitute and other information requested or needed by the contracting officer to evaluate the proposed substitution. The contracting officer and the

project officer shall evaluate the contractor's request and the contracting officer shall promptly notify the contractor of his or her decision in writing.

(d) If the contracting officer determines that suitable and timely replacement of key personnel who have been reassigned, terminated, or have otherwise become unavailable for the contract work is not reasonably forthcoming, or that the resultant reduction of productive effort would be so substantial as to impair the successful completion of the contract or the service order, the contract may be terminated by the contracting officer for default or for the convenience of the Government, as appropriate. If the contracting officer finds the contractor at fault for the condition, the contract price or fixed fee may be equitably adjusted downward to compensate the Government for any resultant delay, loss, or damage.

### **H.3 2052.242-70 RESOLVING NRC CONTRACTOR DIFFERING PROFESSIONAL VIEWS (DPVS) (OCT 1999)**

(a) The Nuclear Regulatory Commission's (NRC) policy is to support the contractor's expression of professional health and safety related concerns associated with the contractor's work for NRC that may differ from a prevailing NRC staff view, disagree with an NRC decision or policy position, or take issue with proposed or established agency practices. An occasion may arise when an NRC contractor, contractor's personnel, or subcontractor personnel believes that a conscientious expression of a competent judgement is required to document such concerns on matters directly associated with its performance of the contract. The NRC's policy is to support these instances as Differing Professional Views (DPVs).

(b) The procedure that will be used provides for the expression and resolution of differing professional views (DPVs) of health and safety related concerns associated with the mission of the agency by NRC contractors, contractor personnel or subcontractor personnel on matters directly associated with its performance of the contract. This procedure may be found in Attachments to this document. The contractor shall provide a copy of the NRC DPV procedure to all of its employees performing under this contract and to all subcontractors who shall, in turn, provide a copy of the procedure to its employees. The prime contractor or subcontractor shall submit all DPV's received but need not endorse them.

### **H.4 2052.242-71 PROCEDURES FOR RESOLVING NRC CONTRACTOR DIFFERING PROFESSIONAL VIEWS (DPVS) (OCT 1999)**

(a) The following procedure provides for the expression and resolution of differing professional views (DPVs) of health and safety related concerns of NRC contractors and contractor personnel on matters connected to the subject of the contract. Subcontractor

DPVs must be submitted through the prime contractor. The prime contractor or subcontractor shall submit all DPV's received but need not endorse them.

(b) The NRC may authorize up to eight reimbursable hours for the contractor to document, in writing, a DPV by the contractor, the contractor's personnel, or subcontractor personnel. The contractor shall not be entitled to any compensation for effort on a DPV which exceeds the specified eight hour limit.

(c) Before incurring costs to document a DPV, the contractor shall first determine whether there are sufficient funds obligated under the contract which are available to cover the costs of writing a DPV. If there are insufficient obligated funds under the contract, the contractor shall first request the NRC contracting officer for additional funding to cover the costs of preparing the DPV and authorization to proceed.

(d) Contract funds shall not be authorized to document an allegation where the use of this NRC contractor DPV process is inappropriate. Examples of such instances are: allegations of wrongdoing which should be addressed directly to the NRC Office of the Inspector General (OIG), issues submitted anonymously, or issues raised which have already been considered, addressed, or rejected, absent significant new information. This procedure does not provide anonymity. Individuals desiring anonymity should contact the NRC OIG or submit the information under NRC's Allegation Program, as appropriate.

(e) When required, the contractor shall initiate the DPV process by submitting a written statement directly to the NRC Office Director or Regional Administrator responsible for the contract, with a copy to the Contracting Officer, Division of Contracts and Property Management, Office of Administration. Each DPV submitted will be evaluated on its own merits.

(f) The DPV, while being brief, must contain the following as it relates to the subject matter of the contract:

(1) A summary of the prevailing NRC view, existing NRC decision or stated position, or the proposed or established NRC practice.

(2) A description of the submitter's views and how they differ from any of the above items.

(3) The rationale for the submitter's views, including an assessment based on risk, safety and cost benefit considerations of the consequences should the submitter's position not be adopted by NRC.

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

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

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

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

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

#### **H.5 GOVERNMENT FURNISHED EQUIPMENT/PROPERTY - NONE PROVIDED (JUN 1988)**

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

#### **H.6 SEAT BELTS**

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

**PART II - CONTRACT CLAUSES****SECTION I - CONTRACT CLAUSES****I.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE**

The following contract clauses pertinent to this section are hereby incorporated by reference (by Citation Number, Title, and Date) in accordance with the clause at FAR "52.252-2 CLAUSES INCORPORATED BY REFERENCE" in Section I of this contract. See FAR 52.252-2 for an internet address (if specified) for electronic access to the full text of a clause.

NUMBER	TITLE	DATE
	FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1)	
52.202-1	DEFINITIONS	OCT 1995
52.203-3	GRATUITIES	APR 1984
52.203-5	COVENANT AGAINST CONTINGENT FEES	APR 1984
52.203-6	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT	JUL 1995
52.203-7	ANTI-KICKBACK PROCEDURES	JUL 1995
52.203-8	CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY	JAN 1997
52.203-10	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY	JAN 1997
52.203-12	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS	JUN 1997
52.204-4	PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER	AUG 2000
52.209-6	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT	JUL 1995
52.215-2	AUDIT AND RECORDS--NEGOTIATION	JUN 1999
52.215-8	ORDER OF PRECEDENCE--UNIFORM CONTRACT FORMAT	OCT 1997
52.215-17	WAIVER OF FACILITIES CAPITAL COST OF MONEY	OCT 1997
52.216-7	ALLOWABLE COST AND PAYMENT	MAR 2000
52.216-8	FIXED-FEE	MAR 1997
52.219-4	NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)	JAN 1999
52.219-6	NOTICE OF TOTAL SMALL BUSINESS SET-ASIDE	JUL 1996
52.219-8	UTILIZATION OF SMALL BUSINESS CONCERNS	OCT 2000
52.219-14	LIMITATIONS ON SUBCONTRACTING	DEC 1996
52.222-1	NOTICE TO THE GOVERNMENT OF LABOR DISPUTES	FEB 1997
52.222-3	CONVICT LABOR	AUG 1996
52.222-21	PROHIBITION OF SEGREGATED FACILITIES	FEB 1999
52.222-26	EQUAL OPPORTUNITY	FEB 1999
52.222-35	AFFIRMATIVE ACTION FOR DISABLED VETERANS	APR 1998

52.222-36	AND VETERANS OF THE VIETNAM ERA AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES	JUN 1998
52.222-37	EMPLOYMENT REPORTS ON DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA	JAN 1999
52.223-6	DRUG-FREE WORKPLACE	JAN 1997
52.223-14	TOXIC CHEMICAL RELEASE REPORTING	OCT 2000
52.225-13	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES	JUL 2000
52.227-1	AUTHORIZATION AND CONSENT	JUL 1995
52.227-2	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT	AUG 1996
52.227-14	RIGHTS IN DATA--GENERAL	JUN 1987
52.228-7	INSURANCE--LIABILITY TO THIRD PERSONS	MAR 1996
52.232-17	INTEREST	JUN 1996
52.232-20	LIMITATION OF COST	APR 1984
52.232-22	LIMITATION OF FUNDS	APR 1984
52.232-23	ASSIGNMENT OF CLAIMS	JAN 1986
52.232-34	PAYMENT BY ELECTRONIC FUNDS TRANSFER-- OTHER THAN CENTRAL CONTRACTOR REGISTRATION	MAY 1999
52.233-1	DISPUTES ALTERNATE I (DEC 1991)	DEC 1998
52.233-3	PROTEST AFTER AWARD ALTERNATE I (JUN 1985)	AUG 1996
52.242-1	NOTICE OF INTENT TO DISALLOW COSTS	APR 1984
52.242-4	CERTIFICATION OF FINAL INDIRECT COSTS	JAN 1997
52.242-13	BANKRUPTCY	JUL 1995
52.243-2	CHANGES--COST REIMBURSEMENT ALTERNATE I (APR 1984)	AUG 1987
52.244-2	SUBCONTRACTS ALTERNATE II (AUG 1998)	AUG 1998
52.244-5	COMPETITION IN SUBCONTRACTING	DEC 1996
52.244-6	SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS	OCT 1998
52.246-25	LIMITATION OF LIABILITY--SERVICES	FEB 1997
52.249-6	TERMINATION (COST-REIMBURSEMENT)	SEP 1996
52.249-14	EXCUSABLE DELAYS	APR 1984
52.253-1	COMPUTER GENERATED FORMS	JAN 1991

## **I.2 52.232-25 PROMPT PAYMENT (JUN 1997)**

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 the date of an electronic funds transfer. Definitions of pertinent terms are set forth in section 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see subparagraph (a)(4) of this clause concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments (1) Due Date. (i) Except as indicated in subparagraph (a)(2) 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:

(A) The 30th day after the designated billing office has received a proper invoice from the Contractor (except as provided in subdivision (a)(1)(ii) of this clause).

(B) 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.

(ii) If the designated billing office fails to annotate the invoice with the actual date of receipt at the time of receipt, the invoice payment due date shall be the 30th day after the date of the Contractor's invoice; provided a proper invoice is received and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Certain food products and other payments. (i) Due dates on Contractor invoices for meat, meat food products, or fish; perishable agricultural commodities; and dairy products, edible fats or oils, and food products prepared from edible fats or oils are--

(A) For meat or 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 as further defined in Pub. L. 98-181, including any edible fresh or frozen poultry meat, any perishable poultry meat food product, fresh eggs, and any perishable egg product, as close as possible to, but not later than, the \_\_\_\_\_ day after product delivery.

(B) For fresh or frozen fish, as defined in section 204(3) of the Fish and Seafood Promotion Act of 1986 (16 U.S.C. 4003(3)), as close as possible to, but not later than, the \_\_\_\_\_ day after product delivery.

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

(D) 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, and food products prepared from edible fats or oils, as close as possible to, but not later than, the 10th day after the date on which a proper invoice has been received. Liquid milk, cheese, certain processed cheese products, butter, yogurt, ice cream, mayonnaise, salad dressings, and other similar products, fall within this classification. Nothing in the Act limits this classification to refrigerated products. When questions arise regarding the proper classification of a specific product, prevailing industry practices will be followed in specifying a contract payment due date. The burden of proof that a classification of a specific product is, in fact, prevailing industry practice is upon the Contractor making the representation.

(ii) If the contract does not require submission of an invoice for payment (e.g., periodic lease payments), the due date will be as



specified in the contract.

(3) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraph (a)(3)(i) through (a)(3)(viii) of this clause. If the invoice does not comply with these requirements, it shall be returned within 7 days after the date the designated billing office received the invoice (3 days for meat, meat food products, or fish; 5 days for perishable agricultural commodities, edible fats or oils, and food products prepared from edible fats or oils), with a statement of the reasons why it is not a proper invoice. Untimely notification will be taken into account in computing any interest penalty owed the Contractor in the manner described in subparagraph (a)(5) of this clause.

(i) Name and address of the Contractor.

(ii) Invoice date. (The Contractor is encouraged to date invoices as close as possible to the date of the mailing or transmission.)

(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 the event of a defective invoice.

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

(ix) While not required, the Contractor is strongly encouraged to assign an identification number to each invoice.

(4) Interest penalty. An interest penalty shall be paid automatically by the designated payment office, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(4)(i) through (a)(4)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday when Federal Government offices are closed and Government business is not expected to be conducted, payment may be made on the following business day without incurring a late payment interest penalty.

(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.

(5) Computing penalty amount. 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 (e.g., tariffs). 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 principal payment amount approved by the Government until the payment date of such approved principal amount; and will 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 principal payment amount and will 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)(3) of this clause, the due date on the corrected invoice will be adjusted by subtracting from such date 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.

(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 (unless otherwise specified in this contract) 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, meat food products, or fish; 5 days for perishable agricultural commodities, dairy products, edible fats 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.

(C) For incorrect electronic funds transfer (EFT) information, in accordance with the EFT clause of this contract.

(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 need not be paid.

(iv) Interest penalties are not required on payment delays due to disagreement between the Government and the 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.

(6) Prompt payment discounts. An interest penalty also shall 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)(5) 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.

(7) Additional interest penalty. (i) a penalty amount, calculated in accordance with paragraph (a)(7)(iii) of this clause, shall be paid in addition to the interest penalty amount if the Contractor--

(A) Is owed an interest penalty of \$1 or more;

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

(C) Makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(7)(ii) of this clause, postmarked not later than 40 days after the invoice amount is paid.

(ii)(A) Contractors shall support written demands for additional penalty payments with the following data. No additional data shall be required. Contractors shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) Demands must be postmarked on or before the 40th day after payment was made, except that--

(1) If the postmark is illegible or nonexistent, the demand must have been received and annotated with the date of receipt by the designated payment office on or before the 40th day after payment was made; or

(2) If the postmark is illegible or nonexistent and the designated payment office fails to make the required annotation, the demand's validity will be determined by the date the Contractor has placed on the demand; provided such date is no later than the 40th day after payment was made.

(iii)(A) The additional penalty shall be equal to 100 percent of any original late payment interest penalty, except--

(1) The additional penalty shall not exceed \$5,000;

(2) The additional penalty shall never be less than \$25; and

(3) No additional penalty is owed if the amount of the underlying interest penalty is less than \$1.

(B) If the interest penalty ceases to accrue in accordance with the limits stated in paragraph (a)(5)(iii) of this clause, the amount of the additional penalty shall be calculated on the amount of interest penalty that would have accrued in the absence of these limits, subject to the overall limits on the additional penalty specified in paragraph (a)(7)(iii)(A) of this clause.

(C) For determining the maximum and minimum additional penalties, the test shall be the interest penalty due on each separate payment made for each separate contract. The maximum and minimum additional penalty shall not be based upon individual invoices unless the invoices are paid separately. Where payments are consolidated for disbursing purposes, the maximum and minimum additional penalty determination shall be made separately for each contract therein.

(D) The additional penalty does not apply to payments regulated by other Government regulations (e.g., payments under utility contracts subject to tariffs and regulation).

(b) Contract financing payments--(1) Due dates for recurring financing payments. If this contract provides 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 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.

(2) Due dates for other contract financing. For advance

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

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

(c) Fast payment procedure due dates. 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.

### **I.3 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)**

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. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far>

**PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS****SECTION J - LIST OF ATTACHMENTS**

ATTACHMENT NUMBER	TITLE
01	Statement of Work for NRC-04-01-065
02	Billing Instructions-Cost Reimbursement Type Contracts
03	NRC Handbook 3.8 entitled "Unclassified Contractor and Grantee Publications in the NUREG Series"
04	Payment Information Form SF 3381 - ACH Payment System

(MARCH 1996)  
Page 1 of 10

BILLING INSTRUCTIONS FOR  
COST REIMBURSEMENT TYPE CONTRACTS

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

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

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

U.S. Nuclear Regulatory Commission  
Division of Contracts - T-7-I-2  
Washington, DC 20555

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

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

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

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

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

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

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

Format: Claims should be submitted in the format depicted on the attached sample form entitled "Voucher/Invoice for Purchases and Services Other than Personal" (see **Attachment 1**). The sample format is provided for guidance only. The format is not required for submission of a voucher/invoice. Alternate formats are permissible provided all requirements of the billing instructions are addressed. The instructions for preparation and itemization of the voucher/invoice are included with the sample form.

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

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

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

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



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

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

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

Final vouchers/invoices shall be marked "FINAL VOUCHER" or "FINAL INVOICE".

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

Supersession: These instructions supersede any previous billing instructions.

INVOICE/VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

(SAMPLE FORMAT)

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

- (a) Contract Number \_\_\_\_\_
- Task Order No. (If Applicable) \_\_\_\_\_
- (b) Voucher/Invoice # \_\_\_\_\_
- (c) Date of Voucher/Invoice \_\_\_\_\_
- (d) Fixed Fee \_\_\_\_\_

Individual to Contact  
 Regarding this Voucher  
 Name: \_\_\_\_\_

Tel. No.: \_\_\_\_\_

(e) This voucher represents reimbursable costs for the billing period for the billing period from \_\_\_\_\_ through \_\_\_\_\_.

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

Total Direct Costs \_\_\_\_\_

(g)	<u>Indirect Costs</u>		
(A)	Overhead _____ % of _____ (Indicate Base).....	_____	_____
(B)	General & Administrative Expense _____ % of Cost Elements Nos. _____	_____	_____

Total Direct & Indirect Costs \_\_\_\_\_

(h)	Fixed-Fee (Cite Formula):	_____	_____
(i)	Total Amount Billed.....	_____	_____
(j)	Adjustments.....	_____	_____
(k)	Grand Totals.....	_____	_____

\* (Requires Supporting Information -- See Attached)

SAMPLE SUPPORTING INFORMATION

1) Direct Labor - \$2400

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

3) Capitalized Non-Expendable Equipment

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

4) Non-capitalized Equipment, Materials, and Supplies

10 Radon tubes @ \$110.00 = \$1100.00  
 6 Pairs Electrostatic gloves @ \$150.00 = \$900.00  
\$2000.00

5) Premium Pay

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

6) Consultants' Fee

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

7) Travel

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

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

INSTRUCTIONS FOR PREPARING  
COST INFORMATION FOR NRC CONTRACT VOUCHERS/INVOICES

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

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

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

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

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

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

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

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

- (c) Date of Voucher/Invoice. Insert the date the voucher/invoice is prepared.
- (d) Fixed-Fee. Insert total fixed-fee. Include this information as it applies to individual task orders as well.
- (e) Billing Period. Insert the beginning and ending dates (day, month, year) of the period during which costs were incurred and for which reimbursement is claimed.
- (f) Direct Costs - Insert the amount billed for the following cost elements, adjustments, suspensions, and total amounts, for both the current billing period and for the cumulative period (from contract inception to end date of this billing period).

- (1) Direct Labor. This consists of salaries and wages paid (or accrued) for direct performance of the contract itemized as follows:

<u>Labor</u> <u>Category</u>	<u>Hrs.</u> <u>Billed</u>	<u>Rate</u>	<u>Total</u>	<u>Cumulative</u> <u>Hrs.Billed</u>
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- (2) Fringe Benefits. This represents fringe benefits applicable to direct labor and billed as a direct cost. Where a rate is used indicate the rate. Fringe benefits included in direct labor or in other indirect cost pools should not be identified here.
- (3) Capitalized Non Expendable Equipment. List each item costing \$50,000 or more and having a life expectancy of more than one year. List only those items of equipment for which reimbursement is requested. For each such item, list the following (as applicable): (a) the item number for the specific piece of equipment listed in the property schedule of the contract; or (b) the Contracting Officer's approval letter if the equipment is not covered by the property schedule.

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

- (4) Non-capitalized Equipment, Materials, and Supplies. These are equipment other than that described in (3) above, plus consumable materials, supplies. List by category. List items valued at \$500 or more separately. Provide the item number for each piece of equipment valued at \$500 or more.
- (5) Premium Pay. This enumeration in excess of the basic hourly rate. (Requires written approval of the Contracting Officer.)
- (6) Consultants. The supporting information must include the name, hourly or daily rate of the consultant, and reference the NRC approval (if not specifically approved in the original contract).
- (7) Travel. Total costs associated with each trip must be shown in the following format:
- |      | <u>Start Date</u> | <u>Destination</u> | <u>Costs</u> |    |
|------|-------------------|--------------------|--------------|----|
| From | To                | From               | To           | \$ |
- (8) Subcontracts. Include separate detailed breakdown of all costs paid to approved subcontractors during the billing period.
- (9) Other Costs. List all other direct costs by cost element and dollar amount separately.
- (g) Indirect Costs (Overhead and General and Administrative Expense). Cite the formula (rate and base) in effect in accordance with the terms of the contract, during the time the costs were incurred and for which reimbursement is claimed.
- (h) Fixed Fee. If the contract provides for a fixed fee, it must be claimed as provided for by the contract. Cite the formula or method of computation. The contractor may bill for fixed fee only up to 85% of total fee.
- (i) Total Amount Billed. Insert the total amounts claimed for the current and cumulative periods.

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

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

(k) Grand Totals.

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

FEE RECOVERY BILLING REPORT

FIN: \_\_\_\_\_

Facility Name or Report Title:  
\_\_\_\_\_

TAC or Inspection Report Number:  
\_\_\_\_\_

(or other unique identifier)  
\_\_\_\_\_

Docket Number (if applicable): \_\_\_\_\_

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

Remarks: \_\_\_\_\_

R:\BILLING.396



NRC-04-01-065

## STATEMENT OF WORK

PROJECT TITLE: NUREG-1640 Finalization: Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities

I. BACKGROUND

In March 1999, the U.S. Nuclear Regulatory Commission (NRC) published, in the Federal Register (64 FR 14952), a notice of availability of the draft report, Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities, NUREG-1640, for review and comment. NUREG-1640 contains methods for translation of concentrations of radioactivity in or on certain metals and concrete into radiation dose as a result of clearance of these materials. More detail about this document can be found in SECY-00-0070, Attachment 3, Section C (March 23, 2000). No final submission date for comments was set to allow for comments that might be received during the ensuing public workshops and subsequently.

On June 30, 1999, the U.S. Nuclear Regulatory Commission (NRC) published, in the Federal Register (64 FR 35090), an Issues Paper indicating that the NRC was examining its approach for control of solid material and invited written and electronic comment on the paper. To provide further opportunity for public input, the NRC held a series of public meetings during fall 1999 at four locations around the country, as announced in the Federal Register Notice.

Comments from these meetings included allegations that NUREG-1640 was "tainted" because of an apparent organizational conflict of interest. As a result of this latter comment, NUREG-1640 underwent an independent technical review by the Center for Nuclear Waste Regulatory Analyses (CNWRA). Additionally, the Commission has sought the views of a National Academies' National Research Council subcommittee on, among other things, the sufficiency of the technical bases for the establishment of criteria for controlling the release of slightly contaminated solid materials. Specifically included are an evaluation of: methods to identify the critical groups; exposure pathways(s); assessment of individual ....dose; and exposure scenarios. Finally, the NRC staff has comments on the report.

While the National Academies' subcommittee report is not expected until early 2002, the Commission has directed the staff to continue the development of the technical bases to assist them in the decision on whether to proceed with rulemaking. A critical step in this development is the finalization of NUREG-1640.

## II. OBJECTIVE

The objective of the work described herein is to provide technical assistance for individual dose assessments for the clearance of materials and equipment. Specific design objectives of the work are described below under Scope of Work.

## III. SCOPE OF WORK

### 1. **BROAD OVERVIEW OF WORK TO PROVIDE ANALYSES AND TECHNICAL ASSISTANCE**

The contractor shall submit a final revised manuscript suitable for publication as NUREG-1640. The final report shall include estimates of individual doses associated with the clearance of ferrous metals, copper, aluminum, concrete and equipment for reuse as addressed in the draft NUREG-1640, supporting documentation, and the technical basis for those estimates. The report shall include the incremental information used in the calculations, including: background information and data, references, mathematical formulations, rationales for parameter selections, and results in a manner consistent with the style and format of the NUREG-1640. Basic design objectives listed below shall apply to all calculations and reports.

The scope of work is categorized into establishment of a Quality Control and Quality Assurance Plan and a Peer review plan (See XII below.); technical assistance on the resolution of comments including calculations as appropriate (See IV., 2., below); and preparation of the ready-for-publication manuscript and electronic files and delivery of the Quality Control Engineering Design Files (See IV., 3., below.).

Calculational tools that were used to create the draft NUREG-1640 should be used to perform the work in this contract. These tools include: MCNP, EXCEL, and Crystal Ball. To the extent practical, calculational work done under this SOW shall be performed in an EXCEL® 2000 spreadsheet format.

### 2. **DESIGN OBJECTIVES FOR ANALYSES**

#### 2.1 **GENERAL**

- 2.1.1 The analyses shall use to the fullest extent appropriate the draft NUREG-1640 methods. For the final publication, only the changes required for resolution of comments shall be deemed necessary. However, it is recognized that the final NUREG-1640 will have revised tables and is likely to have new or expanded tables. The format and content of the draft are to be followed to the maximum extent practicable.
- 2.1.2 The level of detail of assumptions and parameters used shall be commensurate with the resolution of the models and calculational methods used. The contractor shall not unnecessarily refine data. The analyses usually shall be sufficiently general to apply to a

broad range of similar real-life situations, but not so inclusive that they are bounding or overly conservative.

- 2.1.3 Analyses shall include complete descriptions, references for data used, and rationales for assumptions and approaches. Complete descriptions include scenarios, models, intermediate results such as material flow in by-products, dose factors from the respective exposure pathways, and associated uncertainties. Technical assistance shall include clarification of analyses and rationales by telephone conversations, meetings, and written communications.
- 2.1.4 The calculations shall be designed to be:
- (a) realistic, i.e., based on current industrial conditions
  - (b) probabilistic
  - (c) reported as means and 5, 50, and 95<sup>th</sup> percentiles
  - (d) probabilistically calculated dose factors for each significant exposure pathway in each scenario shall be reported in NUREG-1640 in the appendices.
- 2.1.5 Sensitivity analyses shall be performed and reported in NUREG-1640 to indicate which input factors are most important with respect to uncertainty. The objective is to indicate where specific research or data collection would be most effective in reducing uncertainty.
- 2.1.6 The contractor shall review technical comments on NUREG-1640 radiological assessments received by the NRC staff. These comments are contained in 24 docketed letters, approximately 50 pages of transcript from public meetings, the Center for Nuclear Waste Regulatory Analyses technical review of draft NUREG-1640 (approximately 50 pages), and NRC staff generated comments. The review shall be documented in a letter report that identifies potential corrections, not listed below, or additional clarifications of the draft that potentially could change the calculations by greater than a few tens of percent, e.g.,  $\geq 30$  percent. The rationale for the identification of these additional corrections or clarifications shall be included in the letter report. For planning purposes, the contractor shall assume that one additional correction, requiring an intermediate level of effort as compared to those identified below, will be approved for inclusion in this work. This letter report is due one month after the award of the contract.

## 2.2 **Specific comments requiring work**

The following is the NRC staff's summary of the major significant comments requiring technical assistance. Additional work may be revealed in the course of responding to the comments, however proposals should be based on the following summary with the contingency discussed in 2.1.6 above.

## Mass Related Comments

- 2.2.1 NUREG-1640, Volume 2, Tables B.8. and D.1., are in disagreement with respect to mixing of "clean" scrap and scrap with very low levels of radioactivity for the transport of iron, copper, and aluminum scrap. The spreadsheets did not include this factor, which would lower the dose rate per unit mass or area by an approximate factor of ten for all scrap metal transport scenarios. In this connection, equation 4.2 should be multiplied by  $M_{ss}$  on the right-hand-side, where  $M_{ss}$  = mixing and inhomogeneous distribution of radioactivity on cleared scrap. It is not clear whether this error was propagated in other scenarios. Further,  $C_0$  should be corrected to read, "radionuclide concentration in cleared material, corrected for decay at the start of the scenario."

**Resolution:** The contractor shall include the mixing as intended, recalculate the affected scenarios and correct the equation and text to accurately reflect the scenarios and calculations. Data needed for individual dose calculations likely include: 1) Probability distributions for the activity concentrations in materials; 2) Probability distributions for the surface to mass ratios in materials.

- 2.2.2 Page 4-6 and 4-7 states that 3,300 tons per year of [steel] is potentially available for clearance from nuclear facilities. Page C-16 indicates that the truck hauls [28.5] tons per load and the driver is exposed 250 days per year according to Table B.7 making 7,125 tons/year. There appears to be a mass balance discrepancy. Tonnage Hauled by Driver: The scenario for hauling scrap from a facility assumes that a single driver hauls the material for 1000 hours per year. There are several reasons that this is not likely: The scenario does not account for loading/unloading time. Further, the distance to the scrap yard is not specified but an estimate can be calculated. For local hauling, an average 1.5 loads per day is considered reasonable. Based on the assumption the single driver hauls contaminated scrap steel for 250 d/y, at 20 tons/load (See 2.2.5, Mass of Load, comment below), the driver would have hauled about 7500 tons of cleared steel. The scenario assumes that a licensee prepares 20 to 40 tons of scrap per day for an extended period of time; a year or more.

**Resolution:** The contractor shall revise the scrap transport scenarios to improve realism and clarify in the final NUREG that the potentially cleared steel is approximately 3,300 tons/year for each power reactor and that the cleared scrap is mixed with clean scrap as mentioned in 2.2.1 above.

- 2.2.3 The mass flow of baghouse dust indicates a discrepancy in the assumptions. The Electric Arc Furnace (EAF) dust truck driver hauls 4,750 tons of dust per year that could expose him to external radiation from cleared scrap (17.33 Mg/load x 250 loads/year—See pages C-24 and B-21). This implies an annual input of total material in an EAF of 264,000 tons of which approximately 244,000 tons were scrap (page 4-17). Since the available scrap for clearance is approximately 3,300 tons/year/reactor, the maximum fraction of cleared scrap from a single reactor decommissioning mixed with scrap from general commerce would be about 0.013. Since there are a number of sites

with two or more reactors that could decommission at the same time, it is realistic to assume that the upper range of potentially cleared scrap in a region is 6,600 tons/year. Thus the upper range of the mixing fraction could be as high as 0.027. This is lower by a factor of approximately seven from that used (See page D-5).

**Resolution:** The contractor shall recalculate this scenario based on a more realistic mixing fraction and correct the associated equations (4.7, 4.8) and text.

- 2.2.4 Similarly to 2.2.3, above, the revised mixing fraction of cleared materials should be revised for the FE-EAFD-HANDLIN-W scenario.

**Resolution:** The contractor shall recalculate this scenario based on a more realistic mixing fraction and correct the associated equations (4.7, 4.8) and text.

- 2.2.5 There are numerous, significant errors in the characterizations of materials flow, manufacturing, and scrap processing for steel. For example, Basic Oxygen Furnaces (BOFs) typically do not use baghouses, rather they use other processes such as scrubbers. Further, BOFs recycle, in-house, iron-rich dust called "sinter" generated from the BOF processes. Baghouses may be used for other downstream processes, such as ladle metallurgy, at BOFs. Similarly, significant errors have been made for EAFs and the likely flow of scrap to refineries, including the decay times. The draft NUREG-1640 does not appear to adequately take the real operations and processes into account as required by the design objectives.

**Resolution:** The contractor shall review the materials flow model and parameters for steel for realism with respect to NRC and Agreement State licensees and modify the analyses and dose assessments as appropriate.

- 2.2.6 Induction and cupola furnaces are not included in the dose assessments, since there are speciality melters that use induction furnaces, and the partitioning of elements in these furnaces can be quite different from EAF or BOF melts. Induction and cupola furnaces should be added.

**Resolution:** The contractor shall evaluate the differences and their significance with respect to identification of the critical groups in a scoping study and report the scoping study and results in a letter report. Pending the results of the scoping study the NRC Project Manager shall direct the contractor on whether a more detailed analysis is to include induction furnaces in the dose assessments for the final report.

- 2.2.7 Partitioning factors for slag and the elements S and Re in Tables 4.5 (page 4-22) and B.3 (page B-7) do not agree.

**Resolution:** The contractor shall check the parameter assumptions and the spreadsheets to verify the correct values and make the appropriate corrections.

- 2.2.8 The model of the mass partitioning and charge mixing of copper and aluminum in the draft may underestimate the radionuclide concentrations in copper products and aluminum products, respectively.

**Resolution:** The contractor shall review the mass partitioning of copper and aluminum and, as appropriate, clarify the rationale for retaining the draft model or justify changes in the final NUREG.

- 2.2.9 The treatments of elemental partitioning factors, mass partitioning factors and mass ratios in the draft NUREG-1640 are unclear. Further,  $M_o$ , the mass of cleared material entering the furnace per charge, and  $M_{NC}$ , the mass of non-contaminated scrap metal entering the refining process per charge, should not be allowed to change independently in the probabilistic analyses. Finally, the addition of pig iron or other materials that contribute to the mass of the dust and the mass of the products should be transparent so that mass partitioning "fractions" should not exceed 1.0.

**Resolution:** The contractor shall clarify the partitioning of elements, the mass flow, the mass balance and the mass ratios in the final NUREG-1640.

- 2.2.10 The density of the material in the spreadsheet hsu02cui.ps3, CU-REVS-HANDLIN-W (which corresponds to FE-SLAG-HANDLIN-W, page B-23) and Table B.7 are inconsistent.

**Resolution:** The contractor shall verify the comment, clarify the rationale, or make corrections as appropriate.

- 2.2.11 The number of melting cycles per year in the draft NUREG does not appear consistent with the length of the average melting cycle.

**Resolution:** The contractor shall verify the comment and make corrections as appropriate.

#### **Dose Related Comments**

- 2.2.12 Transportation of scrap geometry factors need to be recalculated. Load to Driver Distance: The model described in section C.3.4 places the driver only 1-meter (3.3 ft) from the edge of the load. Actual measurements taken on trailers with enclosed semi-trailers, flatbed trailers, and tankers showed that the minimum distance from the driver to the trailer's leading edge was 8 ft<sup>1</sup> and the maximum 11 ft. Therefore, a trailer-to the driver distance of 9' 6" would be more realistic. Based on various Microshield models, the low load to driver distance overestimates the dose factor for transporting materials by approximately 2.5 times. Since this is a critical parameter, it should be adjusted to reflect

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<sup>1</sup>The EPA used 8 ft for their scrap transportation model

a realistic average distance. Further, heavy equipment, such as large pipes, concrete blocks, pumps, beams, etc., would be hauled using a flat bed trailer to allow the material to be loaded in a controlled manner. These large objects would be held in place with shoring and hold-downs. These actions are essential to ensure the trailer is not damaged and the load is stable during transport. Since these loads have a higher density, they would be located further from the driver. Mass of Load: The model described in section C.3.4 assumes a 57,000-pound steel mass is transported by the modeled truck tractor/semi-trailer combination. The mass of 57,000 pounds is not considered realistic because Department of Transportation (DOT) regulations in most states limit the combined gross vehicle weight to 80,000<sup>2</sup> pounds. Since a typical empty truck tractor and semi-trailer<sup>3</sup> combination weighs in the neighborhood of 32,000 to 35,000 pounds, the aggregate payload would be limited to about 45,000 to 48,000 pounds. Based on DOT regulations, the 57,000-pound load described in the transportation scenarios could not be hauled on public roadways. Operators also typically maintain their gross vehicle weight at some margin below the stated limit to account for the scale tolerance. Hence, a 40,000 to 44,000 pound maximum load is considered a realistic mass to be used for transporting aggregate scrap. Load Density: The dose factors for the transportation of scrap are not based on independent models. Each model assumes that the semi-trailer is full and weighs 57,000 pounds. By producing a volumetrically full trailer each time, the density of the specific waste type is ignored. The waste densities listed in Appendix B "Parameter Value" were not used to determine the external dose factors for waste transportation. Table 1 provides a comparison of material density, waste density listed in Appendix B, the density used to determine the external dose factors, and the density used by the EPA for the transportation of steel scrap.

Table 1 Comparison of Densities (gm/cm<sup>3</sup>)

Material	Material Density	Waste Density (r <sub>w</sub> )	GF-4 Density	EPA Density
Steel	7.86	3.93 <sup>(1)</sup>	0.236	1.57
Copper	8.94	4.47 <sup>(2)</sup>	0.236	-
Aluminum	2.7	1.35 <sup>(3)</sup>	0.236	-
Concrete	2.3	2.3 <sup>(4)</sup>	0.236	-

- 1 Table B.7 Radionuclide independent parameter definitions for exposure scenarios  
 2 Table B.9 Radionuclide independent parameter definitions specific to copper scenarios  
 3 Table B.12 Radionuclide independent parameter definitions specific to aluminum scenarios  
 4 Table B.15 Radionuclide independent parameter definitions specific to concrete scenarios

<sup>2</sup> Special permits are available for non-dividable loads which exceed the 80,000 pound limit

<sup>3</sup> Semi-trailer – Dump trailer, flatbed, etc

The material density of a volumetrically filled trailer has only a slight impact on the driver's dose because the total activity of the source increases proportionally with density. However, the density impacts the load distribution on the trailer. The scenario ignores this. By assuming each load fills the entire volume of the semi-trailer, the driver is much closer to the load than in real life. The trailer length and type of load will determine actual load distances. For example, a well prepared 40,000 pound load with a density of  $3.96 \text{ g/cm}^3$  would have a volume of  $4.6\text{E}6 \text{ cm}^3$ , not  $1.1\text{E}8 \text{ cm}^3$  described in the model. Since transportation regulations limit the weight on each axle, the load cannot be placed at the front of the trailer. If the load is centered on the trailer, the source to driver distance increases by about 16 feet<sup>4</sup>. Since material density determines the load's dimensions and distance between the driver and the load, a more refined estimate of average load density and distance needs to be produced. By ignoring the load density and distances, the only variable in the transportation of scrap is produced by a transportation time of 1000 hours (5 hours for aluminum); therefore, the dose factors transporting concrete and copper are the same as transporting steel. Trailer Dimensions: The trailer described in C.3.4 is not appropriate for the intended task. The trailer described is fine for hauling items that can be stacked, such as boxes, furniture, etc.; however, the trailer is not designed to haul scrap steel. Large volumes of pipe, insulation, cable trays, unistrut, rebar, and small equipment would likely be hauled in a dump trailer with side walls ranging between 4 to 6 ft high. This type of trailer allows the scrap to be removed by dumping or with grappling machinery at the scrap yard. For small volumes that would be accumulated over time, scrap yards often supply 10-ton roll off recycling containers for industrial accounts. Concrete rubble would be hauled in "rock tub" style end dump trailers which have lower sidewalls and heavy steel tubs to withstand the abuse of loading concrete chunks. Surficial Clearance Values: The XX-SCRIP-TRANSPO-W scenarios limit all the surficial clearance values for energetic gamma emitters because the surficial values are dependent on the mass clearance values. Therefore, all of the problems related to C.3.4 geometry are considered transportable to each of the respective surficial values for steel, copper, aluminum, and concrete scenarios to improve realism and include a complete description of the calculations in the final NUREG-1640.

**Resolution:** The contractor shall revise the geometry factors and calculations for the scrap transport to meet the design objective of realism.

- 2.2.13 The baghouse dust truck geometry factor in the spreadsheets does not match the description of FE-EAFD-TRANSPO-W scenario (page C-17). For nuclides that partition to the baghouse, the dose assessments need to be recalculated. See page C-17, first paragraph. The first sentence on page C-17 should read, "For the five radionuclides for which the use of this GF in the baghouse dust transport scenario resulted in a limiting dose, (see Table C.6), ....." This recalculation of the geometry factor is expected to lower dose rate and may change the identification of the critical group for Zn-65, Cs-134, and

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<sup>4</sup> Assuming each dimension decreases equally



Cs-137. For baghouse dust, a Heil Super Jet Aluminum Dry Bulk Trailer is modeled. Based on a scale drawing of the trailer with a tractor, the distance from the leading edge of the load to the driver would be 11.37 ft (the distance described in section C.3.4). However, the tractor modeled has an overall wheelbase of 212 inches. This is typical of tractors that do not have storage or sleeper compartments. Tractors with storage/sleeper compartments have wheelbases that average about 239 inches. This additional 27 inches also adds distance between the driver and the load. The input parameter of 11.37 ft should be reviewed and a value that represents the average driver to load distance developed.

**Resolution:** The contractor shall recalculate the geometry factor for the baghouse dust truck and revise the scenario results and identification of the critical groups as appropriate.

- 2.2.14 The geometry factor for the baghouse dust handler at the refinery, C.3.9, needs revision. The semi-trailer, a 1040 ft<sup>3</sup> Heil Super Jet Aluminum Dry Bulk Trailer, has dimensions reasonably close to the model; however, the model assumes the trailer is full with dust having a density of 0.51 g/cm<sup>3</sup>. This density is inconsistent with values for baghouse dust listed in Table B.7, namely 1.36 or 1.60 g/cm<sup>3</sup>. Since the body of the Super Jet is constructed of aluminum in order to reduce its weight compared to steel bodied trailers, it can hold a maximum payload of about 54,835 pounds. A trailer carrying a load of about 27 tons of EAF dust would only be about 61 percent full. Therefore, the tally point should not be one-half meter above the center of the truck but about 1.2 meters above the surface of the truck. This provides an increased air gap between the baghouse dust and the individual standing atop the truck. This adjusted geometry would provide a more realistic dose estimate to a baghouse dust truck worker.

**Resolution:** The contractor shall reevaluate the baghouse dust truck geometry factor with more realistic dimensions and parameters and revise the calculations and scenario as appropriate in the final NUREG-1640.

- 2.2.15 The leach rate for the FE-SLAG-STORAGE-N scenario is greatly overestimated and inconsistent with the EPA Technical Support Document data.

**Resolution:** The contractor shall re-evaluate this scenario based on updated data taking into account the EPA data.

- 2.2.16 Additional scenarios should be analyzed where exposure to radioactivity in or on products and materials could occur, including: a sailor living aboard ship; a tuba player; and a resident living in a home with a basement constructed of recycled concrete.

**Resolution:** The contractor shall develop a decision rule for determining whether any of the above named scenarios merit a fully developed dose assessment comparable to those in the draft NUREG-1640. For example, the decision rule could be: If the results of a moderately conservative scoping dose assessment results in values for any

radionuclide greater than a factor of 2 above that for the draft critical group scenario, then an in-depth analysis of that scenario shall be performed.

**Resolution:** The contractor shall perform a scoping analysis of the above mentioned scenarios and determine which, if any, are reasonable candidates to replace the identification of the critical group for any nuclide. The contractor shall submit a letter report on the decision rule, scoping analyses, and plan for proceeding to the project management within two months after this contract is awarded. For those excluded from the candidate list, the contractor shall describe the scoping analyses and their results in the final report. For those scenarios above that appear to be reasonable candidates for identifying the critical group, the contractor shall perform a dose assessment comparable to those in the draft NUREG-1640 and include the description and results in the final NUREG-1640.

- 2.2.17 The values of the resuspension factors used in the draft NUREG-1640 are not sufficiently justified.

**Resolution:** The contractor shall clarify the justification of the resuspension values used or justify changing those values and modify the final NUREG-1640 appropriately.

- 2.2.18 The uncertainties of the geometry factors in the draft report are not adequately justified. Further, the geometric mean of the range is used, and since it is difficult to create a strong basis for the range of the geometry factors, the mean should be set to 1.0 so that the mean results of the calculations would not be affected.

**Resolution:** The contractor shall make scoping MCNP calculations by varying the location of the person relative to the radioactive source in key critical group scenarios to justify the ranges and distributions of geometry factors used in the final report.

- 2.2.19 The DIET parameter in Eq 4.71 appears inconsistent with the activity uptake terms by not being specific to the ingestion of non-irrigated and irrigated foods. Further, in the spreadsheet, Ddu17feg.ps3, there is an error.  $C_{sg} * U_{soil}$  was mistakenly entered as  $C_{sg} * DIET$ .

**Resolution:** The contractor shall verify the comment and make appropriate corrections.

- 2.2.20 The rationale for the daily exposure time of the truck reuse scenario needs clarification or the time needs to be modified, since the truck modeled is an interstate truck. One to eight hours with a four hour mode appears too short an exposure time. -

**Resolution:** The contractor shall re-evaluate the exposure time for the truck reuse scenario and provide the rationale for the values or changes as appropriate.

- 2.2.21 The significance of omitting the lowest and highest wind speed categories on the calculated average wind speeds should be discussed.

**Resolution:** The contractor shall clarify the significance of the assumption.

- 2.2.22 The geometry factors used for the truck driver scenarios did not take into account the different effective atomic numbers of copper, aluminum, and concrete. Thus the low-energy gamma photons are not properly accounted for in the exposures.

**Resolution:** The contractor shall recalculate and use revised geometry factors.

- 2.2.23 Hours of scrap handling in Table B.7 is inconsistent with that used in spreadsheet hmu01fei.ps3.

**Resolution:** The contractor shall verify the comment and make corrections as appropriate.

- 2.2.24 The time of daily exposure for disposal scenarios appears small and could be clarified by using a dilution factor rather than short exposure times.

**Resolution:** The contractor shall verify the comment, clarify the rationale, or make corrections as appropriate.

- 2.2.25 The x-ray emissions for Th-231 appear to have been omitted in the calculation of the surface contamination geometry factors. Since the x-ray energy is significant relative to the gamma emissions for this nuclide, they should be included.

**Resolution:** The contractor shall verify the comment, clarify the rationale, or make corrections as appropriate.

- 2.2.26 Tap water intakes are not consistent. The copper pipe scenario has a mean tap water intake of 1.4 L/d, whereas the iron scenario has a mean of 0.957 L/d.

**Resolution:** The contractor shall verify the comment, clarify the rationale, or make corrections as appropriate.

- 2.2.27 The use of deep dose equivalent for the geometry factor, GF-6, Small Object Close to the Body grossly overestimates the actual effective dose equivalent. Analysis of this dose assessment should refer to the study by Reece, et al., for the Electric Power Research Institute, EPRI TR-101909, February 1993 and NCRP Report No. 122, December 27, 1995.

**Resolution:** The contractor shall review the referenced reports, revise the Small Object Close to the Body to provide a more accurate dose assessment of this scenario, and include the revision in the final report.

- 2.2.28 The leach rates from slag for the drinking water ingestion scenarios should use the data from the Environmental Protection Agency's Technical Support Document, September

1999 version. The following equations in the draft NUREG-1640 are affected: 4-66, 4.42, 4.33, and 4.35.

**Resolution:** The contractor shall evaluate the quality of the data in the referenced document and assign a distribution in accordance with Table B-1 of the draft NUREG-1640. The scenario shall be reevaluated and reported in the final NUREG as appropriate.

2.2.29 Steel Framed Structure Geometry: The C.3.10 geometry uses a steel sphere with a 200-cm radius and a 2-cm wall thickness. Based upon these dimensions, the volume of the shell would be approximately  $1.0E6 \text{ cm}^3$ . A density  $8.032 \text{ g/cm}^3$  was used instead of the standard  $7.86 \text{ g/cm}^3$ . No explanation was provided for this deviation; however, for clarity  $8.032 \text{ g/cm}^3$  will be used for this comparison. Variations in the outcome will be negligible based on this slight density difference. Using the density provided and the shell volume of  $1.0E6 \text{ cm}^3$ , the mass of the steel used in the model would be  $8.032E6$  grams (17,700 pounds). However, 17,700 pounds is a factor of 10 greater than the mass stated in C.3.10. Since a specific volume is not listed, the mass stated is either understated (105 vs. 106) or the dimensions provided are inaccurate. The common thickness for steel construction studs is 20-gauge or 25-gauge steel. Since a 20-gauge stud is thicker and more rigid than a 25-gauge stud, the 20-gauge stud will be used in comparison to the model described in C.3.10. Standard construction techniques utilize studs at 16 inches on center. A 20-gauge stud has a thickness of 0.0396 inch or about 1 mm. Using the dimensions provided in Illustration C.15, the walls have the potential to contain approximately  $6.9E4$  grams of cleared steel. The ceiling would have the potential to contain approximately  $2.6E4$  grams of cleared steel. Therefore, the total amount of steel contained if the studs would equal  $9.5E4$  grams or 210 pounds. This is significantly less than the  $8.042E5$  grams (1,770 pounds) stated in the geometry section of C.3.10 or the  $8.032E6$  grams (17,700 pounds) based upon the dimensions listed in the geometry section of C.3.10. A sensitivity analysis for this model is listed on page C-9. The results of the sensitivity analysis and model are questionable because a realistic room would contain a maximum of 95 kg and the models used 800 kg, possibly 8 Mg.

**Resolution:** The contractor shall evaluate this comment and make appropriate changes to enhance realism and accuracy in the final NUREG-1640.

2.2.30 The geometry and mass used for the passenger vehicle, C.3.11, require clarification of the rationale or revision. A 700 kg (1543 lb) steel slab represents at least half the mass of an average auto. The geometry of the passenger vehicle is not an accurate representation of a common vehicle. Automobiles are mass-produced; therefore, parts are produced in various locations and assembled to form a vehicle. It would be unlikely that all the steel parts would be constructed from a single refinery charge of recycled cleared material. The uncertainty factor for geometry, a triangular distribution ranging from 0.003 to 1.0 with a mode of 0.2 is inadequate to account for the unlikely assembly of a vehicle from many manufacturers all of which used cleared scrap. The mixing with other scrap in this case very likely would be much greater.

**Resolution:** The contractor shall clarify or revise the geometry and mass of the passenger vehicle and revise the scenario and calculations as appropriate to ensure more accurate realism or more defensible rationale.

- 2.2.31 The description for the "Geometry Factor Calculation for Inside an Object or Structure," C.3.7, does not correspond to Figure C.12. Figure C.12 shows a basement that is constructed using 3-cm (1.2-inch) thick solid steel walls. The description is of a 1-meter radius steel sphere. The radius is more representative of a pit or sump than a basement. This appears to be a bounding scenario for someone inside a metal object. However, this geometry section discusses an embedded model for an automobile made from recycled steel. The model assumes a 1-meter radius sphere with a wall thickness of 1.1 cm or 0.41 inches—far thicker than 18 or 20 gauge steel that would be expected in a vehicle body. This embedded model contrasts with the assumptions for C.3.11 Geometry Factor Calculation for a Passenger Vehicle. It is not clear which geometry factor is used in the presentation of the results, e.g., Table F.17. Further, basements are not constructed of 3-cm thick steel but with block or solid concrete. If this geometry is equivalent to a concrete basement, the rationale should be clarified. This geometry factor was apparently used to calculate the external dose from recycled slag in a basement (Tables 4.8 and J.5), but concrete aggregate in basement construction was not analyzed. Dose assessments from the inhalation of radon and its decay products were not included, because the conditions vary too much to develop a generic yet realistic model. However, the incremental increase of radon emanations from concrete with incorporated radioactivity from cleared slag or concrete would be of use in assessing specific situations.

**Resolution:** The contractor shall clarify or revise the geometry factor and include the use of recycled concrete as aggregate in the poured concrete walls of a basement as an additional scenario in the final report. Emanations of radon due to radionuclides from incorporation of cleared slag and concrete shall be included in the final report.

#### Results Reporting Comments

- 2.2.32 NUREG-1640, Volume 1, page 3-13, identifies Mo-93, Nb-93m, and Cd-109 as having critical groups from the reuse of large equipment. However, Table 2.2 lists values from the recycle scenarios.

**Resolution:** The contractor shall take the reuse of equipment into account when identifying the critical groups in the final version.

- 2.2.33 Table B.7., page B-21, last line, the minimum value should read 3.00E-02. Table B.12, page B-28, the value of  $t_{xs}$  for scenario AL-SCR-TRANSP-OW is missing. It should be a triangular distribution with mode 4 h/d, minimum 2 h/d and maximum 5 h/d as per Tables B.13 and B.7. Table B.16 corresponding steel scenario for CN-SCR-TRANSP-OW should read FE-SCR-TRANSP-OW. Table B.22 the line for Promethium should be correctly spelled. Page C-18 under C.3.6, the line starting, "Geometry" should

read, "The source is a cylindrical disk of steel with a radius of 4.0 cm and....." In addition, there are editorial comments that correct typographical errors and requests for clarification, including use of terms familiar to the metals industry, listed in submitted comments.

**Resolution:** The contractor shall verify the corrections and change the text as appropriate. The glossary of the American Iron and Steel Institute found at <http://www.steel.org> shall be consulted for appropriate terms.

2.2.34 Inconsistencies were found in selecting the limiting scenarios for Am-241, Nb-93m, Ac-227, Th-229, Pu-238, Pu-242, and Cm-244.

**Resolution:** The contractor shall verify the comment and make corrections as appropriate.

2.2.35 Surface contamination geometry factors for H-3, Ca-41, Fe-59, Ni-59, and Ni-63 are listed in Table C.14 as zero--probably due to rounding. A footnote could clarify that listing.

**Resolution:** The contractor shall verify the comment, clarify the rationale, or make corrections as appropriate.

2.2.36 Radionuclides included in clearance analyses by the European Commission and the International Atomic Energy Agency should be included in the analyses.

**Resolution:** The contractor shall add the approximately 50 additional radionuclides in the analyses.

2.2.37 Comparisons in Section 2 of NUREG-1640 compare unlike scenarios.

**Resolution:** The contractor shall clarify in the final NUREG report that the comparisons are of the most restrictive values across studies and are in the interest of harmonization of implementation.

2.2.38 The text describing the geometry factor for "Inside a Sphere," should be clarified to state that this calculation, unlike others, is designed to be bounding for the reuse of equipment with surficial radioactivity. However, the cab shell is described as being 3 cm (1.2 inches) thick. At this thickness, the shell of the cab alone would weigh 6700 lbs. While the increased thickness does increase the probability of scattered photons, it is not realistic. A shell thickness of 18 or 20 gauge steel would be a better representation of the cab thickness.

**Resolution:** The contractor shall evaluate the comment and make appropriate changes to enhance realism in the final NUREG-1640.

- 2.2.39 The rationale for not using the landfill resident scenario results to identify the critical group need to be clarified and elaborated.

**Resolution:** The contractor shall include additional text and present in table format in both Section 4 and Appendix J the specific factors that make the landfill assessments bounding overestimates, the difficulties in making more accurate assessments, and the usefulness of such calculations for comparison of the bounding assessments with the more realistic assessments.

- 2.2.40 The dose conversion factors used are from Federal Guidance Report No. 11 and are consistent with those published by the International Commission on Radiation Protection (ICRP) in their report-ICRP 30. The EPA is revising the Technical Support Document numbers by using the ICRP 60 [specifically ICRP 66, 68, 72] dose conversion factors to use the best technical information and to enable a valid comparison with the dose assessments used internationally by the European Commission and the International Atomic Energy Agency.

**Resolution:** The contractor shall, after all other corrections are made recalculate the scenarios using dose conversion factors consistent with ICRP 60 [ICRP 66, 68, and 72] and in separate tables report the results in the final report. That is the final report shall include dose assessments based both on ICRP 30 and ICRP 60 and provide a discussion on the differences in the results in Section 2.

### 2.3 Project Coordination and Reviews

- 2.3.1 At the NRC Project Officer's request, participate in a five day project orientation and coordination meeting among key contractor personnel, the NRC staff and other contractors and subcontractors, if any.
- 2.3.2 At the NRC Project Officer's request, provide up to three each, two-day briefings at NRC headquarters on the status of the analyses under Meetings and Travel Requirements below.
- 2.3.3 At the NRC Project Officer's request, provide up to three, one-week project reviews at the central workplace of the contractor. These meetings may be open for public observation and the NRC Project Officer may invite technical experts or others to participate in the technical dialogue. Travel costs for those persons not included in this contract who may be invited by the NRC Project Officer is not a cost to this contract.

## IV. QUALIFICATIONS OF KEY PERSONNEL

Key personnel proposed for this contract shall have a minimum of two years practical experience with developing scenarios, models, and performing calculations; and significant scenario and model development in the specific area of or areas related to

clearance of metals and concrete, and calculations for those scenarios under a formal QA/QC program.

The lead analyst and the individual who shall perform the independent quality control verification shall be proficient with MCNP, EXCEL, and have advanced skills with Crystal Ball.

A quality assurance administrator is required. This individual is to be different from the lead analyst and verifier.

The personnel shall also have proficient skills in technical editing and advanced production for publication-ready manuscripts of NUREG documents.

## V. REPORTING REQUIREMENTS

Monthly Letter Status Reports (MLSRs) shall report the monthly level of effort by various levels of pay, the technical work performed corresponding to the billing, technical and administrative issues, a log of the expenditures, and a projection of the spending plan by sub-task. Vouchers billing work performed shall be preceded by or accompanied with a monthly letter status report corresponding to and accounting for the billing. The monthly letter status report shall break down the number of hours billed and percent of effort by staff level corresponding to the billing. Project spending plans and billings shall be at the sub-task level. The monthly letter status report or billing shall include a tracking of the spending plan, a cumulative accounting of the spending, as well as the current billing. The monthly status letter report shall include a section that clearly identifies issues, difficulties, needed decisions on the part of the NRC Project Officer, and financial concerns.

The technical lead or contractor manager shall provide a weekly telephone update to the NRC Project Officer or his designee(s) on the detailed status of the work performed.

Analyses for inclusion in published reports shall be explicitly reported in NUREG format, technically edited and publication ready, complete with background information, elaboration of rationales used, methods transparent to the reader, and reproducible by the reader. Letter reports and intermediate reports shall be submitted in both hard copy and electronically. Word processing submissions shall be in WordPerfect® version 8 or greater; spreadsheets in EXCEL® 2000 with design specifications sufficient to enable implementation in different spreadsheet software or in later versions. Monte Carlo realizations shall be performed with Crystal Ball® version 4.0g or greater in conjunction with the EXCEL® spreadsheets. Other electronic formats shall be unacceptable, unless first agreed upon in writing by the NRC Project Officer. Summary tables in letter reports and other communications may be submitted in spreadsheet format. Engineering Design Files (EDFs) shall follow the format of the original SAIC EDFs to document the development of the analyses, changes, and the Quality Control and Quality Assurance processes.



The final reports for publication shall be delivered in WordPerfect®, version 8 or greater electronic format, with one camera-ready, single-sided version, and three double-sided copies. Submission of manuscripts for publication in the NUREG series shall comply with the requirements for submission to the NRC's Agency wide Documents Access and Management System (ADAMS). Other electronic formats shall be unacceptable, unless first agreed upon by the NRC Project Officer.

The contractor shall plan on two complete drafts for two rounds of review, including two rounds of peer review, and comment prior to finalizing the report.

The reports' styles shall be the same as for the draft NUREG-1640 with the intent that they will be companion reports. Submission of manuscripts for publication in the NUREG series shall comply with the requirements for submission to the NRC's Agency-wide Documents Access and Management System (ADAMS). Other electronic formats shall be unacceptable, unless first agreed upon by the NRC Project Officer.

Analyses shall be performed with EXCEL® and Crystal Ball® spreadsheet files and shall be deliverable in electronic medium format with the hard copy reports. Complete documentation of the MCNP run parameters shall be in the EDFs, as well as the scoping and verification calculations done in Microshield or in other electronic program formats. Complete electronic files that would enable the staff to reproduce calculations or calculational runs shall be part of the deliverables, including data files, source codes, input/output and code processing programs. Commercially available software are excluded from this deliverable requirement.

## VI. DELIVERABLES AND DELIVERY SCHEDULE

### a. **General**

Written and calculated deliverables shall conform to the reporting requirements above.

Monthly letter status reports shall be due to the Project Officer 20 days after the end of the month being reported throughout the entire period of performance. The monthly letter status report is used to justify payment of invoices, therefore, the monthly letter status reports shall correspond to and coincide with the work invoiced.

Weekly telephone status calls shall be scheduled, but flexible as to the date and time as mutually agreeable.

A Quality Control and Quality Assurance Plan consistent with that developed by SAIC for the draft NUREG-1640 shall be delivered for review and approval within one month of the award of the contract. Work shall proceed during the approval process, with the proviso that approval of differences from the SAIC quality plans may require modification by the NRC Project Manager.

The contractor shall submit to the NRC Project Officer a Peer Review Plan and a list of nominees and their qualifications as qualified peer reviewers to place under subcontract. This deliverable is due 1 month after the award of the contract. The finalized peer review plan is due within 1 month after receiving the NRC Project Officer's approval. Peer review reports from the subcontractor shall be deliverable as stated in the approved Peer Review Plan.

The contractor shall submit as a deliverable after the termination of the contract or upon request from the NRC Project Officer the QA/QC Engineering Design files.

**b. Specific Technical Deliverables**

A letter report that identifies potential corrections, not listed above in this statement of work, is due one month after the award of the contract (See 2.1.6 above.).

A letter report in which the contractor shall evaluate the differences and their significance with respect to identification of the critical groups in a scoping study of induction and cupola furnaces shall be due six weeks after the award of the contract (See 2.2.26 above.)

In a letter report for optional Task 2.2.16, the contractor shall report a scoping analysis of the sailor, tuba player and cement basement dweller scenarios, the decision rule, and the determination of which, if any, are reasonable candidates to replace the critical group for any nuclide. The letter report on the decision rule, scoping analyses, and plan for proceeding to the Project Manager for approval within two months after this contract is awarded (See 2.2.16 above.)

A draft of the final NUREG1640, complete with sensitivity analyses, uncertainty analyses, and comparisons with other studies, is due 5 months after award of the contract for parallel peer and first-round NRC review. The comments from the NRC review are planned to be submitted the contractor within one month.

The final, camera-ready final NUREG-1640 is due within two months after the NRC comments are received by the contractor—approximately eight months after the contract is awarded.

**VII. QUALITY ASSURANCE & QUALITY CONTROL (QA/QC)**

At the outset of the contract the contractor shall provide a QA/QC plan or procedure to the NRC Project Officer for approval. The contractor shall actively maintain and keep current a formal QA program for all analyses as described in Section 8 of the draft NUREG-1640. QC files shall be kept current and maintained in Engineering Design Files that are deliverable following termination of the contract. In the event that this Statement of Work is subdivided and awarded to more than one contractor or subcontractor, a standard QA/QC plan shall be used by all contractors and

subcontractors. The award for quality coordination, oversight, documentation and audits of all quality activities by all contractors and subcontractors shall be awarded to a single contractor that will, in turn, coordinate the quality activities with the NRC Project Officer.

The contractor shall subcontract for independent peer reviews of the analyses performed under this contract. Prior to award of the subcontract, the contractor shall submit a peer review plan and nominations, complete with qualifications of the nominees, for the approval of the NRC Project Officer. The contractor shall submit the finalized peer review plan to the NRC Project Officer. Any changes to the peer review plan after finalization, shall require written approval from the NRC Project Officer. The subcontractor shall maintain independence from the contractor's analyses, however the contractor may consult the peer review subcontractor for clarification of comments on the contractor's analysis. Different peer review subcontractors may be necessary for different parts of the analyses, depending on the qualifications of the peer reviewers. The peer reviews shall be timely so as not to adversely impact the schedule of deliverables and shall culminate with a letter report submitted to both the contractor and the NRC Project Officer.

#### VIII. PUBLICATIONS

Publication of work under this contract in peer reviewed journals is encouraged, with approval of the NRC Project Officer. However, the costs of such publications is not a part of this contract and shall not be reimbursed by the NRC, unless a contract modification specifically provides for such costs.

#### IX. NRC-FURNISHED MATERIALS

Copies of NUREG and NUREG/CR publications and draft reports generated for the NRC will be provided or made available to the contractor upon request. In addition, available information, reports, public comments on the technical bases, and the results of the CNWRA and NRC/NA reviews will be provided for information and consideration as they become available. Work products that incorporate NRC furnished materials, in whole or in part, shall be considered defensible and the responsibility of the awardee(s) of this procurement.

Work from previous contracts include:

- Project Quality Plan for Technical Assistance Support for Clearance of Materials and Equipment Project;
- Peer Review Plan;
- NUREG/CR User's Manual for the Spreadsheets Used to Develop the NUREG-1640 Analyses;
- Mill Scale and Process Water Letter Report;
- Electronic WordPerfect files for draft NUREG-1640;
- Electronic EXCEL files for spreadsheets used in draft NUREG-1640 calculations;

- Design Engineering Files from the development of draft NUREG-1640;
- Public and staff comments on draft NUREG -1640.

Work-in-progress from previous or parallel contracts include:

- Letter report on the available data on tonnage, types of scrap materials and equipment that are potentially available for clearance and the respective kinds and amounts of radioactivity associated with the materials and equipment.

X. MEETINGS AND TRAVEL REQUIREMENTS

PROGRAM COORDINATION AND REVIEW MEETINGS

The contractor will be required to attend:

- a. meetings independently or in combination with other contractors. Other contractors may include parallel work on clearance and collective doses, soil reuse, and measurements.
- b. a kick-off' program orientation and coordination meeting: 1 trip for three key persons (per contractor or subcontractor) for a 4-day meeting in Rockville, MD.
- c. Project status briefings: 5 trips for two persons each for 1-day briefings in Rockville, MD.
- d. Program review meetings: 3 trips for one person on the contractor's team to travel to the contractor's central workplace to participate in one-day program reviews by the NRC Project Officer.