

AWARD/CONTRACT		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)		RATING	DO-E2	PAGE OF PAGES	
2. CONTRACT (Proc. Inst. Ident.) NO. DE-AC09-02SR22210		3. EFFECTIVE DATE SEE BLOCK 20.C		4. REQUISITION/PURCHASE REQUEST PROJECT NO. 09-02SR22210.000		1 140	
5. ISSUED BY U. S. Department of Energy Savannah River Operations Office Contracts Management Division P. O. Box A Aiken, SC 29802				6. ADMINISTERED BY (if other than item 5)			

7. NAME AND ADDRESS OF CONTRACTOR (No., street, county, state and ZIP Code) Parsons Infrastructure & Technology Group, Inc. 100 Walnut Street Pasadena, CA 91124		8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input type="checkbox"/> OTHER (See below)	
		9. DISCOUNT FOR PROMPT PAYMENT N/A	

CODE	FACILITY CODE	10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN	ITEM 12
11. SHIP TO/MARK FOR See Item 5		12. PAYMENT WILL BE MADE BY US DOE/OAK RIDGE FIN SVC CTR P.O. Box 4908 Oak Ridge, TN 37831-4908	

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 89X0242.91 EW02L1560 \$500,000	
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15A. ITEM NO	15B. SUPPLIES/SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
As indicated by the contractor's signature below, the contractor understands that on August 1, 2002, the provisions of the Price Anderson Amendments Act (PAAA) of 1988 expired. As a result, indemnification under PAAA and its implementing clause (DEAR 952.250-70) is unavailable unless and until Congress re-authorizes coverage. The contractor may submit a request for indemnification under Pub. L. 85-804, as described in FAR 50.403 after contract award and agrees to cooperate with the Department in the process of obtaining approval for the 85-804 indemnification request.					

15G. TOTAL ESTIMATED AMOUNT OF CONTRACT \$ See Section B

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CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. CONTRACTOR'S NEGOTIATED AGREEMENT
 (Contractor is required to sign this document and return 3 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications as are attached or incorporated by reference herein. (Attachments are listed herein)

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

19A. NAME AND TITLE OF SIGNER (Type or print)
 Richard G. Miller
 President

20A. NAME OF CONTRACTING OFFICER
 Charlene Smith
 Contracting Officer

19B. NAME OF CONTRACTOR
 BY RG Miller
 (Signature of person authorized to sign)

20B. UNITED STATES OF AMERICA
 BY Charlene Smith
 (Signature of Contracting Officer)

19C. DATE SIGNED
 9/5/02

20C. DATE SIGNED
 9/17/02

SECTION B

SUPPLIES OR SERVICES AND PRICES/COSTS

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PART I – THE SCHEDULE
SECTION B
SUPPLIES OR SERVICES AND PRICES/COSTS

OVERVIEW: This contract may be one of two contracts for a two phased design/build process for design, construction and commissioning of a Salt Waste Processing Facility (SWPF) as described in Section C. Phase I of the contract is for conceptual design and submission of a cost and fee proposal for Phase II. Phase II is for preliminary and final design, construction and commissioning (one year of operations). The contractor shall not proceed and shall incur no cost for Phase II work without specific, written direction from the Contracting Officer.

B.1 ITEMS BEING ACQUIRED –TYPE OF CONTRACT

The contractor shall furnish all personnel, facilities, equipment, material and supplies and services (except as may be expressly set forth in this contract as furnished by the Government) and otherwise do all things necessary for, or incident to, efficiently and effectively accomplishing the work required by this contract.

Line Item 0001A & B – Phase I - This Phase of the contract will be on a cost-plus-fixed-fee basis.

Phase IA - Includes project familiarization and preparation of Conceptual Design of a 15% scale, expandable Salt Waste Processing Facility as defined in Section C. Although all research and development (R&D) work performed to date by DOE will be provided to the contractor, any additional R&D work needed by the contractor to execute the contract requirements will be included in the cost estimate for this Line Item. Concurrent with submission of the conceptual design the contractor shall submit sensitivity reviews/analyses to provide project construction cost ranges and schedules for 1%, 5%, 10% and 20% scale facilities. The contractor shall also submit a cost and fee proposal for the 15% scale facility as provided for in the clause in Section H entitled, Phase II Cost and Fee Proposal. The Government will consider the information submitted and make a decision on the optimum scale facility.

Phase IB – The contractor shall prepare a final conceptual design for the size facility specified by the Government and submit a revised/final cost and fee proposal for the Phase II work. The Government shall evaluate the information provided by the contractor and, pursuant to the down selection criteria set forth in Section H, select a single contractor to proceed into Phase II.

Line Item 0002 – Phase II – This Phase of the contract is contemplated to be a cost-plus-incentive-fee contract arrangement; however the final contract type will be established in negotiations with the contractor as part of the down selection process described in Section H. The contractor shall not proceed with any Phase II work unless specifically authorized, in writing, by the Contracting Officer.

Phase II – Includes preliminary design, final design, construction and commissioning of the Salt Waste Processing Facility. The contractor shall provide a mandatory value engineering program during the design stages of the work as specified in Section C.

Final Fee Adjustment: Upon completion of commissioning under Line Item 0002, an assessment of actual vs. required facility production rates will be accomplished. The Contracting Officer may reduce the fees earned under Line Items 0001 and 0002 by up to 75% after assessing the differential in actual vs. required production rates, if any, and

consideration of the extent any such differences were within the control of the contractor during contract performance. A combination of production and schedule fee reductions shall not decrease the contractor's fee to less than 2% of the total estimated cost set forth in Line Item 0002. This fee reduction limitation does not apply if the Clause B.7 Conditional Payment of Fee is invoked by the Contracting Officer.

B.2 ESTIMATED COST OF THE CONTRACT AND FUND OBLIGATIONS

(a) The estimated cost of the contract is set forth below:

BASE PERIOD OF PERFORMANCE

Line Item 0001 - Phases IA and IB -

Line Item 0001A - Project familiarization, preparation and submission of a 15% Conceptual Design, sensitivity analyses and schedules for 1%, 5%, 10% and 20% scale facilities, final conceptual design on the optimized scale facility as determined by the Government and submission of a Phase II cost proposal as described in Section C and/or the clause in Section H entitled, Phase II Cost and Fee Proposal.

Estimated Cost \$ 7,714,744.00

Total Fixed Fee \$ 538,835.00

Total Line Item 0001A \$ 8,253,579.00

Line Item 0001B - Demobilization (Cost Only) as Provided for in Special Contract Clause H.40 \$ 128,737.00

Line Item 0001C - Incentive Subcontracting Amount for Phase I (NOTE: Incentive subcontracting percentages applicable to FAR 52.219-10 and FAR 52.219-26 will be re-negotiated for Phase II work.) \$ TBD

Line Item 0002 - Phase II

0002A Estimated Cost for Preliminary Design, Final Design, Construction, And Commissioning \$ TBD

0002B Estimated Cost for Value Engineering Program described in Section C. \$ TBD

Total Estimated Cost \$ TBD

Total Fee Line Item 0002- inclusive of the following: \$ TBD

Fee (type to be specified) \$ TBD

Schedule Fee for Start of hot commissioning 90 days prior to scheduled date in Section F. \$ TBD

Schedule Fee for Start of hot commissioning 180 days prior to scheduled date in Section F. \$ TBD

No Schedule Fee is earned for achievement after these dates.

Schedule Fee Reduction

[Calculated = (3% of Target/Estimated Cost)/365]

Fee will be reduced for each day of delay beyond the scheduled date of "Start of Hot Commissioning" specified in Section F not to exceed 90% of earned fee

\$ TBD

Total

\$ TBD

- (b) In accordance with the clause entitled FAR 52.232-22 LIMITATION OF FUNDS (APR 1984), the amount presently obligated by the Government with respect to this contract is \$ 500,000.00.

B.3 ALLOWABILITY OF SUBCONTRACTOR FEES

If the Contractor is part of a consortium, joint venture, and/or other teaming arrangement, the team shall share in this Contract fee structure (i.e., separate additional "subcontractor fee" for teaming partners will not be considered an allowable cost under the Contract.

B.4 FEE PAYMENTS

Fee payments will be available during the term of the contract as work progresses. Fee will be paid pursuant to one of the following clauses, as applicable: FAR 52.216-8 Fixed Fee or FAR 52.216-10 Incentive Fee.

B.5 CHANGES TO TARGET COST, SCHEDULE, AND FEE (Applicable to any Cost-Plus-Incentive Fee arrangements under this contract)

- (a) Changes to Target Cost, Schedule and Fees will be made in accordance with Section I Clause entitled, Changes – Cost Reimbursement - Alternate III.
- (b) It is the DOE intention that the funding available for this Contract will be consistent with the funding profile set forth in the Section J, Attachment G, Funding Profile, which will be established as part of the negotiations for Phase II work. To the extent that DOE obligates funds to this Contract on a schedule consistent with this funding profile, availability of funds shall not be a basis for proposed changes to the Target Cost, Target Fee, and/or Section F milestone dates.

B.6 FEE PAYMENTS UNDER CHANGE OF OWNERSHIP OR BANKRUPTCY OF GUARANTOR(S)

- (a) Bankruptcy or Other Issues with Guarantor Company(ies). In order to assure the Contractor's ability to repay any fee payments that are determined to be in excess of the actual fee earned at the completion of the Contract, the Contracting Officer reserves the right to discontinue fee payments, in the event that a guarantor company files bankruptcy or is acquired by other owners, or other events arise with the Contractor's guarantor company(ies) that jeopardizes DOE ability to recover unearned fee payments.
- (b) Repayment of Bankruptcy Reserve. In the event of a bankruptcy, acquisition by other owner, or other event the Contractor shall within 60 days after the event, provide evidence satisfactory to the Contracting Officer that the bankruptcy, change in ownership, or other event does not affect the ability of the Contractor to continue to perform the obligations under the Contract, or affect a material Governmental or DOE interest. Upon receipt of such evidence, the Contracting Officer shall resume making payments of fee and shall release all fee payments withheld due to events described in paragraph (a) above during the preceding 60 days.

B.7 DEAR 970.5215-3 - CONDITIONAL PAYMENT OF FEE, PROFIT, OR INCENTIVES (DEC 2000)

Note: The following clause is currently being revised by the Department through the Federal Rule Making Process. The contractor agrees to accept the Final Rule version of this clause when formally published in the Federal Register.

In order for the Contractor to receive all otherwise earned fee, fixed fee, profit, or share of cost savings under the contract in an evaluation period, the Contractor must meet the minimum requirements in paragraphs (a) and (b) of this clause, and if Alternate I is applicable, (a) through (d) of this clause. If the Contractor does not meet the minimum requirements, the DOE Operations/Field Office Manager or designee may make a unilateral determination to reduce the evaluation period's otherwise earned fee, fixed fee, profit or share of cost savings as described in the following paragraphs of this clause.

- (a) Minimum requirements for Environment, Safety & Health (ES&H) Program. The Contractor shall develop, obtain DOE approval of, and implement a Safety Management System in accordance with the provisions of the clause entitled, "Integration of Environment, Safety and Health into Work Planning and Execution," if included in the contract, or as otherwise agreed to with the contracting officer. The minimum performance requirements of the system will be set forth in the approved Safety Management System, or similar document. If the Contractor fails to obtain approval of the Safety Management System or fails to achieve the minimum performance requirements of the system during the evaluation period, the DOE Operations/Field Office Manager or designee, at his/her sole discretion, may reduce any otherwise earned fees, fixed fee, profit or share of cost savings for the evaluation period by an amount up to the amount earned.
- (b) Minimum requirements for catastrophic event. If, in the performance of this contract, there is a catastrophic event (such as a fatality, or a serious workplace-related injury or illness to one or more Federal, contractor, or subcontractor employees or the general public, loss of control over classified or special nuclear material, or significant damage to the environment), the DOE Operations/Field Office Manager or designee may reduce any otherwise earned fee for the evaluation period by an amount up to the amount earned. In determining any diminution of fee, fixed fee, profit, or share of cost savings resulting from a catastrophic event, the DOE Operations/Field Office Manager or designee will consider whether willful misconduct and/or negligence contributed to the occurrence and will take into consideration any mitigating circumstances presented by the contractor or other sources.

PART I – THE SCHEDULE

SECTION C

DESCRIPTION/SPECIFICATIONS/ WORK STATEMENT

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PART I – THE SCHEDULE

SECTION C

DESCRIPTION/SPECIFICATIONS/ WORK STATEMENT

C.1 INTRODUCTION

The Section C Statement of Work for this Contract is divided into nine subsections:

- (C.1) Introduction;
- (C.2) Summary of contract approach;
- (C.3) Summary of interactions with the Contractor;
- (C.4) Summary of environment, safety, quality, and health requirements;
- (C.5) Description of Contract requirements and deliverables defined in the statement of work;
- (C.6) Standards/requirements for execution of the project;
- (C.7) Description of basic facility design specifications;
- (C.8) Baseline for operational specifications; and
- (C.9) Summary of the Interface Control Requirements.

C.2 CONTRACT APPROACH

To accomplish the High Level Waste (HLW) processing mission at the Savannah River Operations Office (SR), the Department of Energy (DOE) will perform salt waste processing via two primary contracts. The first is the current site Managing and Operating (M&O) Contract, responsible for ensuring safe operation of the HLW System including the Defense Waste Processing Facility (DWPF), the Saltstone Facility, HLW Tank Farm, HLW evaporators, and the Effluent Treatment Facility. The second separate contract will involve Contractor/Contractors responsible for designing, constructing, pilot testing, and commissioning, of a HLW Salt Waste Processing Facility (SWPF) based on Caustic Side Solvent Extraction technology. There are several initiatives that will be pursued under the M&O contract that will affect many parameters of the SWPF. These initiatives involve deployment of existing infrastructure to process and dispose of portions of the salt waste in the tank farms. If successful they may eliminate the need for the alpha removal process step in the new facility and affect the quantity and concentration of waste to be processed by the SWPF.

The objective of the Salt Processing Project (SPP) is to design, construct, and perform pilot testing and commissioning of a SWPF to process salt waste. The SPP Contractor/Contractors (hereinafter referred to as the "Contractor(s)") has full responsibility for the SPP from the transfer of technology development and Design Information through the completion of transition to long term operation of the demonstration facility. A phased contract approach as outlined in Section B will be employed. Following facility completion and commissioning per this contract, long term operation of the SWPF will be performed under a separate contract.. The SPP Contract will focus on Contract award for design, construction, startup/pilot testing/commissioning, and turnover of the SWPF.

The SPP Web Page (password protected) contains pre-conceptual design information for a full-scale production facility and conceptual design information for a research scale integrated pilot facility. This technical information will hereafter be referred to collectively as SPP Design Data. Prior to Contract award, the SRS M&O Contractor will maintain the SPP Design Data, and continue to support technology development efforts. All SPP Design Data will be transitioned from the M&O Contractor to the Contractor(s) subsequent to Contract award.

The contract will be performed in the phases defined in Section B, Supplies or services and Price/Costs. In performance of this contract, the Contractor(s) will review the SPP Design Data and develop a Conceptual Design and estimated cost and schedule range for a SWPF. The facility shall be designed to meet pilot testing objectives and provide production capability. For the

conceptual design competition each EPC shall design a facility with a through put capacity of 15% of the flowsheet for a full-scale facility. Waste feed specifications and process product specifications will not be finalized at the time of contract award. Nominal data points for these parameters will be provided in this RFP to support proposal preparation only. Actual specifications against which facility performance will be measured are to be developed in conjunction with DOE and the Site M&O Contractor as a deliverable during the conceptual design phase of this contract.

Each design shall provide process operations equipment and facility footprint for a front-end actinide, strontium, and suspended solids removal process unit operation. DOE is exploring alternatives that may perform this operation prior to feeding the salt waste to the SWPF. This equipment should therefore be designed to allow the option to delete this unit operation from this facility at any time prior to start of construction. Costs and schedule activities associated with design, construction, start up, pilot testing, and commissioning of the alpha removal option shall be segregated in the cost and schedule range estimates.

The EPC contractors will perform a sensitivity analysis of cost and schedule verses the following facility scales: 01%, 05%, 10%, and 20%. The purpose of these studies will be to determine the impacts of increasing or decreasing the size of the facility. Specific break points, if any, where significant cost and or schedule benefits or penalties are incurred with changes in facility scale should be identified by the analysis.

DOE will select a facility scale for which the contractor shall complete Conceptual Designs and Critical Decision-1 packages. Preliminary Design, Preliminary Safety Analysis Report (PSAR), and establishment of the Project Baseline Cost Estimate and Schedule are completed next. The selected Contractor will be required to identify an organization/contractor that will perform start up, pilot testing, and commissioning activities. These services may be self performed or contracted out. In either case the performing organization shall be identified and participate as part of the integrated project team within four months after the start of preliminary design.

The contract will continue with Final Detailed design including the Final Safety Analysis Report (FSAR), construction, and start up/pilot testing/commissioning management. Construction and procurement activities are to be competitively bid (single or multiple contracts as determined most efficient by the contractor) on fixed price basis where possible. The contractor will be responsible for acceptance testing, start up/ pilot testing, and commissioning (either self performed or contracted as discussed above). DOE will task the Site M&O Contractor to provide the waste feed and receive product streams from the facility while providing interface support and services to the start up and commissioning organization. The contractor will ensure these evolutions are conducted in accordance with all required environmental, safety, quality, and health actions. From Contract Award, the Contractor will be the design agent responsible for the Salt Waste Processing Facility (SWPF) design. DOE will expect full Contractor accountability for performance, cost, and schedule throughout the Contract period of performance. Approval of and/or comments on deliverables will be provided to the EPC's by DOE.

The SPP Design Data provides a proposed solution to meet HLW disposal requirements that has potential for optimization/value engineering. DOE will seek to improve the SPP by offering incentives to the Contractor(s) to optimize project performance, cost, and schedule, including the process design, facility design, and technologies.

DOE will evaluate Contractor(s) performance against Contract requirements and review Contractor(s) proposed changes to Contract requirements, but will not accept performance or approve changes that adversely impact overall system-level performance, life-cycle cost, or schedule. Proposed changes must be substantiated with rationale and justification for implementation including proof of viability and technical maturity. DOE approval shall be obtained prior to implementation. All potentials for optimization/value engineering including those that could increase the scope of the project should be evaluated for the overall merit. DOE, however,

reserves the unilateral right to disapprove change it considers to be adverse, inadequately substantiated, and/or not in the government's best interest.

C.3 INTERACTIONS WITH DOE AND THE HLW SYSTEM M&O CONTRACTOR

- (a) DOE and the site M&O Contractor have specific responsibilities and defined interactions with the Contractor(s). DOE will use an Integrated Project Team (IPT) approach to manage interactions between DOE, the Contractor(s), the Research and Development (R&D) organization, and the Site M&O contractor. This approach will: clearly define roles and responsibilities, encourage a common vision with supporting goals and missions for each participant; promote the principles of teamwork, mutual respect, openness, trust, professionalism, and understanding; and include joint commitments to:
- (1) Maintain high safety performance;
 - (2) Complete the SWPF on schedule and within cost;
 - (3) Eliminate barriers to an efficient and more cost-effective project;
 - (4) Promote innovation;
 - (5) Improve communication and understanding;
 - (6) Provide early identification and recovery from performance problems;
 - (7) Resolve conflicts through a coordinated work effort that avoids adversarial relationships; and
 - (8) Reinforce the partnered relationship through honest feedback and continual improvement.

The Contractor(s) shall provide resources necessary to establish and implement the IPT approach. The Contractor(s) shall be responsible for actively participating in the IPT in a constructive manner.

- (b) DOE is responsible as the "Owner" and "Regulator" of the SWPF.
- (1) As the Owner, DOE will:
 - (i) Establish requirements, administer the Contract and confirm that the Contractor(s) meet Contract requirements;
 - (ii) Ensure the SPP is integrated into the overall HLW System;
 - (iii) Approve all changes to the technical baseline; e.g. such as system-level flowsheet, process flow diagrams, interface control documents (physical system interface definition), feed characteristics, and product specifications and future operations baseline;
 - (iv) Perform design, construction and operability oversight of the SPP, and, where required, engage other contractors to provide design and construction and operability oversight of the SPP;
 - (v) Perform review (and where required, engage other contractors) of Contractor(s) environmental, safety, quality, and health actions for compatibility and integration with site wide Environment, Safety, Health and Quality (ESH&Q) activities;
 - (vi) Inspect and accept the SWPF;
 - (vii) Manage project progression through the critical decision process (DOE Order 413.3, Program and Project Management for the Acquisition of Capitol Assets);
 - (viii) Provide Quality Assurance (QA) oversight; and
 - (ix) Require compatibility of reporting and management systems.
 - (x) Act as the interface for all information transferred between the EPC and M&O Contractors. All information will be provided from the M&O to DOE. DOE will then provide the information to the EPC contractors. Information requests from the EPC contractors will be provided to DOE who will then provide the request to the M&O or other appropriate party. DOE will attend and participate in all oral presentations between the M&O and EPC contractors related to this project.

- (2) As the Regulator, DOE will regulate radiological, nuclear, and process safety, and non-radiological worker safety and health.
 - (3) Provide for conduct of the R&D activities identified in the R&D Program Plan. These activities will be managed by DOE's Tank Focus Area for DOE-SR and will employ the DOE and National Laboratories, private vendors, and/or universities.
- (c) The Site M&O Contractor will:
- (1) Transition the SPP Design Data to the Contractor(s) upon Contract award.
 - (2) Provide site services to the Contractor(s) as directed by DOE (see Section C.9, *Interface Control Requirements*).
 - (3) Provide technical support to DOE when requested to review specified contract deliverables and provide to DOE their recommended changes and or comments.
 - (4) Process permit modifications/notifications/applications as necessary to include the SWPF in existing site-wide Permits. (i.e. Air and Waste Water Permits) (Permits for the SWPF that will be independent of existing site permits will be the contractor's responsibility).
 - (5) Provide R&D support through the Savannah River Technology Center as directed by DOE.
 - (6) Perform work to qualify HLW glass as required and directed by DOE.
 - (7) Team with the contractor(s) and DOE to develop and define the final Waste Feed Strategy and Product and Secondary Waste Specification.
- (d) The SPP Contractor(s) shall:
- (1) Perform the requirements of this Contract, integrating activities with DOE, and the Site M&O Contractor.
 - (2) In cooperation with DOE-SR (as lead), and the Site M&O Contractor establish an interface management process to assure effective control of technical, administrative, and regulatory interfaces.
 - (3) Support DOE in external communications on the SPP with stakeholders, regulators, and other special interest groups.
 - (4) Transition the commissioned SWPF to an Operating Contractor after one year of successful operation.
 - (5) Provide DOE or its designee(s) access to the Contractor(s) (and its subcontractors/ suppliers, at any level) records, premises, activities, and materials in possession or use related to the SPP, as necessary to effectuate the responsibilities of DOE while conducting assessments, independent reviews, audits, and/or surveillance.
 - (6) Team with the M&O contractor and DOE to develop and define the final Waste Feed Strategy and Product and Secondary Waste Specification.
 - (7) Be responsible for ensuring all R&D necessary to support their design is planned and performed.

C.4 ENVIRONMENT, SAFETY, QUALITY, AND HEALTH

- (a) The Contractor(s) will provide a SWPF that processes DOE-owned highly radioactive salt waste including small quantities of entrained solids and sludge. In order to deliver the SWPF within the appropriate level of controls consistent with the hazards to be encountered, the Contractor(s) shall establish and maintain an Integrated Safety Management System (ISMS) that meets the requirements of DOE Policy 450.4, Safety Management System Policy and is compatible with site requirements as defined in section C.6 Standard 7. Implementation of the ISMS shall be verified in accordance with the DOE Policy and its supporting DOE Guides. .

The Contractor(s) shall be responsible for protecting human health and the environment from radioactive chemicals, hazardous materials, and dangerous waste contamination;

and non-radiological worker safety and health from conventional, construction, industrial and occupational hazards. The Contractor shall also provide safe and healthful working conditions for employees, subcontractors and all other personnel under the Contractor's control who work in the general vicinity of the Contractor site and facilities.

The Contractor(s) shall comply with all applicable Federal, DOE, State, and local regulations and requirements for:

- (1) Non-radiological worker safety and health;
 - (2) Radiological, nuclear, and process safety;
 - (3) QA; and
 - (4) Environmental protection.
- (b) DOE will provide existing ESH&Q documentation with the SPP Design Data and supporting information, to allow the Contractor(s) to review, modify, and implement required ESH&Q actions under this Contract.
- (c) The regulatory environment for this Contract is structured into four principal areas of responsibility and requirements on Contractor(s) performance. Detailed Contractor(s) performance requirements are provided in section C.6 Standard 7.
- (1) Non-Radiological Worker Safety and Health: DOE will regulate non-radiological worker safety and health. The Contractor(s) shall develop and implement the SPP specific worker safety and health program.
 - (2) Radiological, Nuclear, and Process Safety: DOE will regulate radiological, nuclear, and process safety to ensure that the Contractor(s) provides for and operates within the required levels of public and worker protection. The Contractor(s) shall develop and implement SPP specific radiological, nuclear, and process safety program that can readily be integrated into existing site programs after facility commissioning.
 - (3) Quality Assurance: DOE will oversee all Contractor(s) performance in accordance with a Contractor(s)-developed DOE-approved program. The Contractor(s) shall develop and implement an integrated SPP specific QA Program, supported by documentation that describes overall implementation of QA requirements. QA requirements associated with the Quality Assurance Requirements and Description Document (QARD), DOE/RW-0333P will not be applied to the activities of this contract.
 - (4) Environmental Protection: The Contractor(s) shall develop and implement a SPP specific environmental protection program. In conjunction with DOE and or the Site M&O the Contractor(s) shall prepare all required permit applications, and obtain all necessary permits for the SPP. (M&O will assist when the SWPF must be included in existing sitewide permits. The Contractor(s) will be responsible for SWPF permits that stand alone)
 - (i) DOE is responsible for meeting compliance obligations under the *National Environmental Policy Act of 1969* (NEPA). If proposed Contractor actions are outside the analysis performed for the *Final Supplemental Environmental Impact Statement for High Level Waste Salt disposition Alternatives at Savannah River*, and/or related supplement analyses, the Contractor(s) shall provide technical information and support to DOE for NEPA compliance on the proposed Contractor(s) actions.

- (ii) The U.S. Environmental Protection Agency (EPA), and/or the South Carolina Department of Health and Environmental Control (SCDHEC) will regulate radioactive and non-radioactive air emissions. The Contractor shall support integration within the Savannah River Site-wide air compliance framework, including the Savannah River Air Operating Permit.
- (d) The Defense Nuclear Facilities Safety Board (DNFSB) is responsible for nuclear safety oversight authority of DOE and its activities related to the SPP. As directed by the Contracting Officer, the Contractor(s) shall conduct activities in accordance with DOE commitments to the DNFSB, which are contained in implementation plans and other DOE correspondence to the DNFSB. The Contractor(s) shall support preparation of DOE responses to DNFSB issues and recommendations that affect Contract scope. As directed by the Contracting Officer, the Contractor(s) shall fully cooperate with DNFSB and provide access to work areas, personnel, and information, as necessary. The Contractor(s) shall maintain a document process consistent with the DOE Manual on interface with the DNFSB (DOE Manual 140.1-1A, *Interface with the Defense Nuclear Facilities Safety Board*) and shall ensure that these requirements are followed by themselves and all subcontractors.

C.5 DESCRIPTION OF CONTRACT REQUIREMENTS AND DELIVERABLES

The Contractor(s) shall perform the following major activities:

- Transition of SPP Design Data , Perform Conceptual Design, estimate cost and schedule range for the project and a sensitivity Analysis of cost and schedule verses facility scale and through put;
- Continuation of Design to complete Preliminary Design and establish Project Cost and Schedule Baseline;
- Performance of Facility and Process Final Design, Construction and Procurement for building the facility. Acceptance, start-up and pilot testing, Commissioning, and Turnover of the completed facility. Financial closeout of the project.
- Summary-level requirements for each of these activities are provided in this section, with additional requirements provided in Sections C.6, Standards; C.7, Facility Specification, C.8, Operational Specifications; and C.9, Interface Control Requirements. Best commercial practices shall apply when a Standard, Specification, or Interface Control Requirements are not provided.

- (a) Design Transition: The Contractor(s) shall prepare a detailed transition plan, install Contractor management systems and evaluate the SPP Design Data and supporting information.
 - (1) Plan for Transition: The Contractor(s) shall submit a plan for transition to DOE in accordance with Standard 1, Management Products and Controls.
 - (2) Receive the SPP Design Data and Supporting Information: The Contractor(s) shall receive the SPP Design Data and supporting information from the Site M&O Contractor as described in Section J, Attachment H, Listing of SPP Pre-Conceptual Design and Supporting Information.
 - (3) Due-diligence Reviews: The Contractor(s) shall evaluate the SPP Design Data and supporting information as part of the Contractor's responsibility as design agent. Key areas of review include:
 - (i) All process and facility design documentation and analyses;
 - (ii) Technology planning and testing information including the R&D Program Plan and completed R&D results;
 - (iii) Waste product strategies;
 - (iv) Environmental permitting documentation (e.g., Industrial Waste Water Permit, Air Permits);

- (v) Hazards and safety analysis information, authorization basis, and safety standards; and
 - (vi) Safeguards and Security (S&S) requirements.
- (4) Project Baseline: The Contractor(s) shall develop the SPP Project Baseline range as part of the SPP Conceptual Design followed by the SPP Baseline Cost Estimate as part of Preliminary Design in accordance with requirements in Standard 1, Management Products and Controls and DOE Order 413.3, Program and Project Management for Acquisition of Capitols Assets.

(b) Facility and Process Design: The Contractor(s) shall prepare all design documents and required supporting information.

- (1) Design Process: The Contractor(s) shall prepare all design documents and required supporting information.
- (2) Design Requirements: The Contractor(s) shall ensure that the facility is designed to meet all requirements, and that these requirements are captured in a single location to achieve a systematic approach to design. The Contractor shall ensure the design is compatible with existing site facilities, practices, and policies to ensure smooth transition of operation responsibility to the operations contractor upon completion of this contract.
- (3) Design Documents: The Contractor(s) shall design the SPP (Alpha and Cesium Separations, and balance of plant facilities) consistent with the functional requirements identified in Standard 2, Research, Technology, and Modeling, Standard 3, Design, Section C.7, Facility Specifications, Section C.8, Operational Specifications, and Section C.9, Interface Control Requirements.
- (4) Salt Processing Project Optimization: The Contractor(s) shall perform optimization as described in Standard 3, Design.
- (5) Design Reviews: The Contractor(s) shall conduct periodic design, constructability, and operability reviews to status the design activities, and resolve design oversight comments from DOE in accordance with Standard 3, Design.

Additional requirements are provided in Standard 3, Design.

(c) Construction Management and Procurement: The Contractor shall plan and manage execution of all construction, procurement, and acceptance testing activities, both contracted and self performed.

- (1) Provide a Construction, Procurement, and Acceptance Testing Plan;
- (2) Identify all long lead procurement actions and describe the contracting approach and method of performance;
- (3) Procure all required material and equipment;
- (4) Prepare bid and work packages;
- (5) Manage all required construction; and
- (6) Manage the construction site and ensure all support services required by construction and testing are provided.

Additional requirements are provided in Standard 4, Construction, Procurement, and Acceptance Testing.

(d) Acceptance Testing: The Contractor shall provide integrated construction acceptance test plans and procedures for DOE approval.

Additional requirements are provided in Standard 4, Construction, Procurement, and Acceptance Testing.

- (e) Facility Pilot Testing/Commissioning: The Contractor shall start up, pilot test, commission, demonstrate operational performance, and transition the SWPF to the long-term operations contractor.

Additional requirements are provided in Standard 5, Pilot Testing and Commissioning.

- (f) Table C.5-1.1, Deliverables, summarizes the specific deliverables the Contractor(s) shall provide to DOE. Neither the DOE review of the deliverables nor the decision of the DOE to proceed with construction or commissioning shall impose any responsibility on the DOE for adequacy, quality or completeness of the deliverables. The Contractor(s) remains solely responsible for the adequacy, quality and completeness of such work and the performance of the SWPF under this Contract.

Unless otherwise specified, DOE will provide written comments to the Contractor(s) within 30 days of receipt of the deliverable identified in Section C, Statement of Work. DOE will utilize other contractors and/or organizations to assist their review. The SPP Contractor(s) will only accept and respond to comments from and/or endorsed by DOE.

If requested in writing by DOE, the Contractor(s) shall address all DOE mandatory comments and resubmit the deliverable within 30 days after receipt of DOE comments.

Any deliverable due date falling on a weekend or federal holiday shall be considered due on the following workday.

Table C.5-1.1, Deliverables

Item No.	Deliverable	Reference	Action Required	DOE Action Party	Contract Due Date	Contract Phase
1.1	Plan for Transition	Standard 1	A	D	Contract Award plus 30 days	I
1.2	Preliminary Project Execution Plan	Standard 1	A	D	Contract Award plus 30 days	I
1.3	Project Control System Description	Standard 1	A	D	TBD with updates as required	I & II
1.4	Interface Management Plan	Standard 1	A	D	TBD with updates as required	I & II
1.5	SPP Project Baseline	Standard 1	A	D	TBD with annual update in April	II
1.6	SPP Risk Assessment	Standard 1	A	D	TBD with quarterly update	I & II
1.7	Monthly Status Report	Standard 1	I	D	15 th day of each calendar month	I & II
1.8	Occurrence Reporting	Standard 1	A	D	as required	I & II
1.9	ES&H Reporting	Standard 1	A	D	as required	I & II
1.10	Quarterly Critical Analysis	Standard 1	A	D	quarterly	I & II
1.11	Sensitivity Analyses	Section C.2, C.5	I	D	TBD	I
2.1	Feed Strategy and Product and Secondary Waste Specification	Standard 2	A	D	TBD	I
2.2	Operational Research Assessment	Standard 2	C	D	TBD and update annually thereafter	I & II
2.3	SPP Tank Utilization Assessment	Standard 2	C	D	TBD and update annually thereafter	I
2.4	Material Balance and Process Flowsheet	Standard 2	A	D	TBD and update annually thereafter	I
3.1	Design Process	Standard 3	C	D	TBD	I & II
3.2	Functional Specifications	Standard 3	A	D	TBD and update as required	I & II
3.3	Basis of Design/Design Criteria Database	Standard 3	A	D	TBD and update as required	I & II
3.4	Operations Requirements Document	Standard 3	A	D	TBD	I
3.5	Design Products	Standard 3	M	D	ongoing	I & II

Item No.	Deliverable	Reference	Action Required	DOE Action Party	Contract Due Date	Contract Phase
3.5A	Conceptual Design Report, Preliminary Hazard Analysis Report and Critical Decision 1 Package	Standard 3	A	D	TBD	I
3.5B	Preliminary Design (~35%) and Preliminary Safety Analysis Report and Critical Decision 2 Package	Standard 3	A	D	TBD	II
3.5C	Final Design, Updated Preliminary Safety Analysis Report, and Critical Decision 3 Package	Standard 3	A	D	TBD	II
3.6	Process Flow Diagrams	Standard 3	A	D	TBD	I
3.7	Analytical Laboratory Design Requirements	Standard 3	A	D	TBD	I
3.8	Site Layout Drawings	Standard 3	A	D	TBD	I
3.9	Optimization/Value Engineering Study	Standard 3	A	D	TBD	I & II
3.10	Design Overviews	Standard 3	C	D	quarterly	I & II
4.1	Construction, Procurement, and Acceptance Testing Plan	Standard 4	A	D	TBD and update annually thereafter	II
4.2	Purchasing System	Standard 4	A	D	as required	I & II
4.3	Construction Bid and Work Packages	Standard 4	I	D	as required	II
4.4	Construction and Acceptance Testing Program	Standard 4	A	D	prior to start of construction	II
4.5	Construction Overviews	Standard 4	M	D	TBD	II
5.1	Pilot Testing and Commissioning Plan	Standard 5	A	D	24 months prior to start of commissioning, annually thereafter	II
5.2	Commissioning Review	Standard 5	M	D	TBD	II
5.3	Cold Commissioning Product Verification Report	Standard 5	A	D	During Cold Commissioning	II
5.4	Design Capacity Performance Tests	Standard 5	A	D	during cold commissioning	II
5.5	Off-standard Operational Testing	Standard 5	C	D	during cold commissioning	II
5.6	Environmental Performance Test	Standard 5	A	D	during cold commissioning	II
5.7	Cold Commissioning Results	Standard 5	A	D	prior to hot commissioning	II
5.8	Certification of Completion of Cold Commissioning	Standard 5	A	D	when complete	II

Item No.	Deliverable	Reference	Action Required	DOE Action Party	Contract Due Date	Contract Phase
5.9	Certification of Readiness for Hot Operations, Final Safety Analysis Report, Pilot Testing and Critical Decision 4 Package	Standard 5	A	D	3 months prior to hot commissioning	II
5.10	Certification of Pilot Testing and Hot Commissioning Start	Standard 5	A	D	when complete	II
5.11	Pilot Testing and Hot Commissioning Performance Tests	Standard 5	M	D	during hot commissioning	II
5.12	Pilot Testing and Hot Commissioning Results	Standard 5	M	D	upon completion of hot commissioning	II
5.13	Certification of Completion of Pilot Testing and Hot Commissioning	Standard 5	A	D	when complete	II
5.14	Facility Turnover	Standard 5	A	D	after successful commissioning and one full year of successful rad ops	II
7.1	SRID Compliance Plan	Standard 7	A	D	TBD	I
7.2	ISMS Description	Standard 7	C	D	TBD	I
7.3	Environmental Plan	Standard 7	A	D	TBD and update annually thereafter	I & II
7.4	Notice of Construction	Standard 7	A	D	TBD	II
7.5	Prevention of Significant Deterioration Permit Application	Standard 7	A	D	TBD	II
7.6	Quality Assurance Plan	Standard 7	A	D	TBD	I & II
8.0	Safeguards and Security Plan	Standard 8	A	D	TBD	I & II
9.1	Interface Control Documents	Section C.9	J	D	TBD	I & II

Legend Definitions:

- A Approval — The deliverable shall be provided to DOE for review and approval. DOE will review the deliverable and provide comments in writing. Comments will be discussed through the partnering process and the Contractor is required to provide written responses using Review Comment Records. Documents shall be re-written to incorporate all DOE mandatory comments. Once a deliverable or document has been approved upon by DOE, it shall be placed under change control and no changes to that document shall be made, without DOE approval.
- C Review and Comment — The deliverable shall be provided to DOE for review and comment. DOE will have the option for reviewing the information and providing comment. The Contractor shall respond to all written comments in Review Comment Records form. DOE comments that cannot be resolved in the appropriate partnering team shall be elevated to the Project Management Team for resolution.
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- I Information — The deliverable shall be provided for information purposes only. DOE will have the option of reviewing the information and providing comments through the partnering process. Such comments do not require resolution under the Contract.
- J Jointly Developed — The ICDs shall be jointly developed with DOE, and the Site M&O Contractor and provided to DOE for the DOE Contracting Officer's Representative to issue as the operative ICDs.
- M Monitor — The deliverable shall be developed with input from DOE. DOE will be highly involved as the deliverable is developed, and will monitor the progress of the deliverable. DOE comments shall be discussed in the partnering teams as the deliverable develops. If DOE direction is determined to be appropriate, DOE shall provide such direction in writing.

C.6 STANDARDS

This Section consists of the following Standards, which describe requirements for managing, constructing, commissioning the SWPF, and related activities:

- Standard 1: Management Products and Controls
- Standard 2: Research, Pilot Scale Testing, and Modeling
- Standard 3: Design
- Standard 4: Construction, Procurement, and Acceptance Testing
- Standard 5: Commissioning
- Standard 6: Reserved
- Standard 7: Environment, Safety, Quality, and Health
- Standard 8: Safeguards and Security

Standard 1: Management Products and Controls

This Standard describes the management products and controls required during the Contract period. DOE Order 413.3, Program and Project Management for Acquisition of Capitol Assets, with accompanying requirements and practices manuals provides the overall direction for DOE and Contractor project management activities, including baseline management, life-cycle planning, requirements management, and technical integration. The Contractor shall comply with DOE Order 413.3 throughout the performance of the contract, and is encouraged to use any existing corporate-level project management system that meets the requirements of the DOE Order and this Standard.

- (a) Transition Plan: The Contractor shall provide for DOE review and approval (Table C.5-1.1, Deliverable 1.1) an overall plan and schedule for achieving a smooth and expeditious transition of SPP activities and design assets/products from the M&O Contractor to the EPC Contractor(s). Emphasis should be placed on minimizing impacts on SPP schedule objectives and rapidly performing due-diligence reviews of technical information. This plan shall include, at a minimum, the approach and schedule for: (Note: It is DOE's expectation that this turnover will be completed in an expeditious manner and should not exceed 4 months duration following contract award.)
 - (1) SPP staffing plans for each project phase.
 - (2) Execution of necessary subcontracts or support needs including subcontractors/support from the Site M&O Contractor.
 - (3) Performing due-diligence reviews of existing technical information.
 - (4) Establishment of project management systems.
 - (5) Development of an integrated SPP scope, schedule, and cost baseline.
- (b) Project Execution Plan: Each Contractor shall prepare a Preliminary Project Execution Plan (PEP) in accordance with DOE Order 413.3. (Table C.5-1.1, Deliverable 1.2). DOE will integrate these documents into the PEP for the project.
- (c) Project Control System:

- (1) Project Control System Definition: The Contractor shall establish, maintain, and use a Project Control System that supports successful execution of the SPP during all activities (e.g., transition, design, construction, and commissioning). The System must produce accurate planning, budgeting, reporting, and change control data and meet the requirements of DOE Order 413.3. The Contractor shall provide all necessary technical information and support related to the SPP to enable DOE to proceed with the critical decision process of the Order and to enable DOE to meet the data requirements of the integrated planning, accountability, and budgeting system.
- (2) Project Control System Description: The Contractor shall provide for DOE approval (Table C.5-1.1, Deliverable 1.3) a Project Control System Description. Upon approval by the Contracting Officer, the Contractor shall fully implement the project control system. The Project Control System Description shall describe the management processes and controls utilized to manage and control work and complete Contract requirements. The Project Control System Description shall, at a minimum, include:
- (i) The work breakdown structure (WBS) including "dictionary" descriptions of elements of work.
 - (ii) The organizational breakdown structure, including roles and responsibilities of each major organization and identification of key management personnel.
 - (iii) The organizational and management interfaces between the Contractor and the Site M&O Contractor.
 - (iv) The approach the Contractor will use to implement the requirements of DOE Order 413.3 pertaining to project control processes including:
 - (A) Systems engineering;
 - (B) Configuration management;
 - (C) SPP process change control;
 - (D) Baseline change control;
 - (E) Contract management;
 - (F) Performance measurement;
 - (G) Information and reporting;
 - (H) Interface management;
 - (I) Work authorization;
 - (J) Work management;
 - (K) Risk management;
 - (L) Construction project management;
 - (M) Communications and stakeholder involvement;
 - (N) Start up, Pilot Testing, and Commissioning;
 - (O) Project Financial Closure.
 - (v) The technical, cost, and schedule baseline development process and the hierarchy of documents that will be used to describe and maintain that baseline.
 - (vi) The process the Contractor intends to use to complete design and engineering activities, including standards, design guides, and procedures for document control, configuration control, change control, and quality control.
 - (vii) A brief summary of any supporting procedures and plans that will be used to implement the project including applicable engineering standards, practices, or guides.
- (3) Project Controls Configuration Management: A revised Project Control System Description shall be submitted for DOE approval (Table C.5-1.1, Deliverable 1.3) when significant changes are required in management processes (e.g., prior to start of construction or prior to start of commissioning). The Contracting Officer may direct additional compliance reviews to determine whether the Contractor is operating the system efficiently and producing accurate planning, budgeting, reporting, and change control data. The Contractor shall provide the Contracting Officer or designated representatives with access to all pertinent records, data, and plans for purposes of initial approval, approval of proposed changes, and the ongoing operation of the project control system.

- (4) Interface Management: In concert with DOE and the Site M&O Contractor, the Contractor(s) shall develop and implement an interface management plan. The plan shall be submitted for DOE review and approval (Table C.5-1.1, Deliverable 1.4). The interface management plan shall provide the process to:
- (i) Recognize the DOE role as the owner of the SWPF and as the final decision authority for any interface issues that are not resolved between the other parties.
 - (ii) Define the scope of each interface and provide a brief description of the required deliverables (products, documents, procedures, services, etc.).
 - (iii) Define organizational points of contact for participants.
 - (iv) Define interface requirements, controls, and applicable source documents for each interface.
 - (v) Involve appropriate SRS organizations in the integration, review and approval of interface requirements and changes (leadership of interface groups should be chaired by DOE or the involved party with the primary responsibility for management of the receipt of material, goods or service, unless otherwise appropriate).
 - (vi) Develop Interface Control Documents (ICD) to define and document interface details and agreements. Any changes to established ICDs shall be processed through the appropriate change control process and, if necessary, contract changes.
 - (vii) Involve individuals with the appropriate level of organizational responsibility and authority to assure the interface is implemented and functioning.
 - (viii) Identify, track, and elevate issues for management review on a regular basis.

(5) SPP Baseline Development:

Baseline Requirements: The Contractor shall develop and maintain an integrated and traceable scope, schedule, and cost baseline for the SPP to be delivered to DOE for approval. Initial submittal shall be as a Baseline range following Conceptual Design. The Project Baseline will be submitted and approved following completion of Preliminary Design (Table C.5-1.1, Deliverable 1.5, Milestone M1). The baseline shall include the SPP project technical requirements; definition of work scope to achieve those requirements; schedule to implement project work scope; cost to implement project work scope on the projected schedule; and assessment of the risks to achieving the baseline. The SPP Project Baseline shall be summarized in the PEP and will be supported by additional baseline documentation, as necessary.

Salt Processing Project Baseline Description: The SPP Project Baseline description shall contain sufficient scope, schedule, and cost information to support the annual budget process. The SPP Project Baseline description shall, at a minimum, contain:

- (i) Scope:
- (A) SPP functional logic showing the relationships among SPP project activities and other SRS activities. The requirements shall also depict the relationships by facility and interdependencies among the top-level SPP activities.
 - (B) Summary of SPP top-level technical requirements with reference to supporting requirements documents and specifications (e.g., Sections C.7, C.8, and C.9; Functional Specification; Basis of Design/Design Criteria Database; and Operations Requirements Document).
 - (C) Key Assumptions List that includes assumptions made by the Contractor(s), especially those that indicate DOE or Site M&O Contractor input or output with performance need dates and quantities or milestones. The assumptions define the basis for the SPP schedule and cost baseline. Interface Control Documents shall be used to document services to be provided.

- (D) Key DOE activities and decision points that describe all DOE activities, including critical decisions (DOE Order 413.3, other decision points, and regulatory actions that must be accomplished for the Contractor's plan to be successful. The activities, decision points, ISMS implementation verification, and regulatory actions shall be specifically included in either the top-level or lower-level logics).
- (E) Salt processing process description and baseline.
- (ii) Schedule: The Contractor shall provide schedule information that meets the requirements of DOE Order 413.3 and the following. Each activity box in the top-level logic shall be further broken down into one or more lower level logic with key milestones and resource profile(s). There shall be a one-to-many relationship between the top-level and the lower-level logic. The schedule updates shall be provided to DOE as an electronic file on CD-ROM. Additionally, the Contractor shall provide DOE monthly schedule updates and shall work with the Site M&O Contractor and DOE to resolve schedule discrepancies. The schedule shall:
 - (A) Be logic driven and show the duration of tasks, completion milestones, critical path, and progress on each activity;
 - (B) Demonstrate the methodology utilized to accomplish the work and meet schedule milestones;
 - (C) Contain sufficient levels of detail to promote understanding of the logical sequence of activities and identify all interfaces between performing organizations;
 - (D) Be resource loaded with budget cost, labor hours, skill mix, and quantities, preserved by major groupings, design, construction, start up, and testing progress metrics; and
 - (E) Be consistent with the information provided in the top-level project logic.
- (ii) Cost: The SPP Project Baseline description shall include a summary of the project cost baseline, a life-cycle cost estimate, and a monthly spending plan for the current Fiscal Year (FY), next FY (FY +1), and one year out (FY+2). The SPP Project Baseline and supporting documentation package shall be submitted as a written report that contains the following information:
 - (A) Description of the type and purpose of the estimate being performed including a summary description of facility design, process design, operational concept, and schedule.
 - (B) Description of the completeness of the facility and process design.
 - (C) Description of the methodology of how the estimate was developed.
 - (D) Description of the WBS and a description of the methodology for its development.
 - (E) Detailed technical description of the scope to be performed for each of the WBS elements. This shall include, as a minimum, performance specification(s) and the work activities required, but it shall also identify any work specifically excluded, any constraints or special conditions, ground rules, assumptions, and drivers.
 - (F) Estimating backup materials, including quantity takeoffs, equipment lists, detailed specifications, plans and drawings, calculations, databases used, historical data, cost estimating relationships, and actual quotes.
 - (G) Details of indirect cost including field distributable costs and a description of the work covered by indirect costs and how the indirect costs were estimated and developed. Field distributable costs shall be in enough detail to describe what is included. If, for example, a cost calculation per job hour is used, a complete description of the scope covered by the calculation shall be included.
 - (H) Explanation and description of overhead and general and administrative rates, as well as the elements included.

- (I) Description and breakdown of how a standard base rate is burdened to arrive at the estimated hourly rate.
- (J) Definitions and delineation for and categorization of costs into labor, material, equipment, travel, financial, fee, taxes, contingency, and other.
- (K) Full delineation of any use of productivity or related factors that clearly identifies when and where used and basis for the utilization.
- (L) Written analysis of how contingency/risk was determined. This includes all pertinent information necessary to understand and perform the calculations. Project Contingency shall be clearly discernable from all other costs and shall be inclusive of all sources for assignment of contingency (i.e. risk assessment, estimating models such as Monte Carlo, estimator standard, etc.). The probability distribution curve and the cumulative probability distribution curve that reflects the costs used to establish cost shall be described.
 - (i) Estimate history, if the current estimate is a revision to an earlier estimate and a crosswalk between submitted revisions.
 - (N) Basis of escalation, if applicable.
 - (O) Sub-tier contractor estimates detailing the same information as required by the Contractor and be traceable to the cost estimate and WBS.
 - (P) Names of the key preparers of the estimate.
 - (Q) Information shall be provided at the level for which it was derived.
- (iii) Contingency Utilization Profile: A cumulative project contingency utilization profile that defines total cumulative Project Contingency utilization against time for the duration of the Contract. This profile shall incorporate all known sources of contingency including that identified within the SPP risk assessment described below.
 - (A) The cumulative project contingency utilization profile establishes projected contingency requirements, allocated to each major project phase (design, construction, acceptance testing, cold commissioning, and hot commissioning) and shall be directly traceable and linked to the schedule baseline and cost baseline. The Contractor(s) may utilize all contingency defined in the cumulative project contingency utilization profile up to the limits established for that point of time on the profile.
 - (B) DOE and the Contractor(s) shall review the Contractor's utilization of contingency relative to the cumulative project contingency utilization profile on a quarterly basis. The Contractor shall notify DOE, as soon as practicable but at least 30-days in advance, when contingency utilization is projected to exceed the cumulative project contingency utilization profile at any given period in performance. DOE approval shall be required to utilize contingency in excess of the cumulative project contingency utilization profile.
- (6) SPP Risk Assessment: The SPP risk assessment shall implement the risk management process defined in DOE Order 413.3 requirements and practices manuals and be provided to DOE for approval (Table C.5-1.1, Deliverable 1.6). A quantitative assessment of the SPP risks shall be maintained. The risk assessment shall identify the major risks to achieving the baseline and the Contractor's approach for managing those risks. The Contractor(s) shall include risk management status reports in the monthly status to DOE. The risk assessment shall meet the following requirements:
 - (i) Project risks shall be identified (Critical Risk List) and analyzed relative to their probabilities and consequences;
 - (ii) Risk management actions (either prevention or mitigation) shall be identified and implemented;
 - (iii) Risk and decision management activities shall be coordinated with DOE, including agreement as to who should have the risk management lead for each risk;
 - (iv) Performance against risk management actions shall be tracked and reported;

- (v) Project contingency fund requirements shall be calculated as a function of identified risks; and
 - (vi) Risk associated with ICDs shall be documented and issue resolution plans prepared.
- (7) Maintenance of the Salt Processing Project Baseline: The SPP baseline description shall be submitted every April for DOE review and approval (Table C.5-1.1, Deliverable 1.5). The SPP baseline description shall contain a summary of all approved changes to the baseline (scope, schedule, and cost). The summary shall include the serial number of each approved change, the WBS numbers affected, a description of the change, and the net cost and schedule impacts of the change. Annual updates, including the project cost and schedule baseline, shall reflect the most current information and logic and include the information at the same or greater level of detail as provided to DOE in the initial baseline and best available information for SPP performance.
- (d) Integrated Change Control:
- (1) Change Control Process: The Contractor(s) shall implement disciplined change control according to the methods approved in the Project Control System Description (Table C.5-1.1, Deliverable 1.3). Change control and trend monitoring shall be implemented concurrent with DOE approval of the SPP Project Baseline (Table C.5-1.1, Deliverable 1.5).
 - (2) Design Changes: Proposed design changes shall also require a technical analysis using process modeling to assess the impact on plant capacity, operability, and throughput. (See Standard 2, Research, Technology, and Modeling.)
 - (3) Baseline Thresholds: As part of the Project Control System Description (Table C.5-1.1, Deliverable 1.3), the Contractor(s) shall propose thresholds to define DOE and Contractor change authority. Thresholds do not apply to proposed changes in Target Cost and Target Schedule (for fee calculations as specified in Section B.5(b)), and fees. DOE approval is required for all such changes.
- (e) SPP Performance and Reporting System:
- (1) Baseline Reporting System: The Contractor(s) shall develop a reporting system that reports project performance on the technical work, schedule, and cost profile defined in the SPP baseline at a level agreed to by DOE. The requirements and procedures for this system shall be defined in the PEP.
 - (2) Monthly Status Reports: The Contractor(s) shall prepare status reports, monthly, and transmit to DOE by the 15th calendar day of the following month for information (Table C.5-1.1, Deliverable 1.7), commencing the first month after Contract award. Status reports shall include narrative and performance curves (earned value based on the schedule) for the cost and job hour status (e.g., planned, actual, and forecast percents complete). The percent variances shall be identified and addressed. Status reports shall include data for the total project cost and performance for the major WBS elements. The status report shall also include a written report and briefing that addresses:
 - (i) Project manager narrative assessment;
 - (ii) Significant accomplishments and progress towards completion of project goals, objectives, and milestones;
 - (iii) Construction Inspection and Acceptance status (per Standard 4);
 - (iv) Comparison of the amount of work completed against the project baseline, including an earned value analysis;
 - (v) Potential problems, impacts, and alternative courses of action, including staffing issues;
 - (vi) Performance, using schedule, earned value, and critical path methods, to identify potential schedule deviations and needed corrective actions before they impact the baseline;
 - (vii) Critical risks, actions planned, and actions taken to address those risks;
 - (viii) Status of decisions, including DOE decisions, and information requirements for those decisions;

- (ix) Ninety day forecast for major activities and milestones;
 - (x) Report of proposed changes that impact DOE, site interfaces, or major project milestones;
 - (xi) Updated baseline schedule (a statused, resource loaded cost performance measurement schedule) shall be submitted that reflects progress against the baseline. The schedule shall incorporate all approved changes to date. The schedule shall include actual information, including but not limited to, start and finish dates; hours expended; actual costs incurred; units installed; percent complete; and forecast dates;
 - (xii) Critical path analysis to monitor status of key activities;
 - (xiii) The performance reporting shall include current period, cumulative and at completion information in terms of budgeted cost of work scheduled, budgeted cost of work performed, actual cost of work performed including a summary of cost trends, and contingency utilization; and
 - (xiv) A change control section shall be included that summarizes the scope, technical, cost, and/or schedule impacts resulting from any implemented actions. A section shall be included that discusses any known or pending change control submittals.
- (3) Occurrence Reporting: The Contractor shall adhere to DOE Manual 232.1-1A, *Occurrence Reporting and Processing of Operations Information* (or current revision) with Site specific requirements and methods for notification (Table C.5-1.1, Deliverable 1.8).
- (4) Environment, Safety, and Health Reporting: In addition to *Occupational Safety and Health Act of 1970*, and the *Price Anderson Amendments Act of 1988* (10 CFR 820) reporting requirements, the Contractor shall report all events and information specified in DOE Order 231.1, *Environment, Safety and Health Reporting*. The process and form of reporting will meet the requirements specified in section C.6 Standard 7 Environment, Safety, Quality, and Health. The Contractor process will specify this requirement in Contracts down to the lowest tier subcontractor. The Contractor process will accumulate and provide a single report responding to required information for both the Contractor and all subcontractors (Table C.5-1.1, Deliverable 1.9).
- (5) Accident Investigation: The Contractor and, as necessary, all subcontractors shall support Type A and Type B accident investigations for accidents that may occur during the Contractors activities. The Contractor and all its subcontractors shall establish and maintain readiness to respond to accidents, mitigate potential consequences, assist in collecting and processing evidence, and assist with the accident investigation. This shall include preserving the accident scene and providing support to the accident investigation board.
- (6) Quarterly Critical Analysis: Once each quarter, the Contractor shall prepare and submit a comprehensive report that analyzes the overall status of the SPP and key metrics (Table C.5-1.1, Deliverable 1.10). The report shall include the following elements pursuant to Section B.7:
- (i) Narrative summary of overall project status;
 - (ii) Performance metrics reported quarterly, cumulative, and at completion for budgeted cost of work performed, budget cost of work scheduled, and actual cost of work performed pursuant to the requirements of Section B.7;
 - (iii) Analysis of schedule trends, project float, and critical path performance;
 - (iv) Analysis of cost trends;
 - (v) Analysis of critical manpower skills and other resources; and
 - (vi) Analysis of Contractor's use of contingency relative to the cumulative contingency utilization profile.

The Quarterly Critical Analysis will be signed by the Contractor (President, General Manager or Project Manager) to revalidate commitment and accountability for the SPP Project performance.

Standard 2: Research, Pilot Scale Testing, and Modeling

This Standard describes the R&D Program requirements and process and facility modeling requirements.

(a) R&D Testing Program:**(1) R&D Program Plan:**

A SPP R&D Program Plan was developed as part of the Technology Selection Process. The R&D Program Plan describes the research and testing work activities planned to support technology selection, process and facility design, and provide information to support environmental permitting and establishment of the authorization basis. R&D results from this program, both presently completed and future planned will be available to the Contractor(s).

The Contractor(s) will be responsible for ensuring all R&D needed to support their design efforts is performed. The R&D performed per the SPP R&D Program Plan through FY 02 is one source available to the Contractor(s). The Contractor(s) will be responsible for reviewing the R&D program plan and assessing its adequacy for meeting the design input needs. If the Contractor(s) determine that additional R&D is required, it shall be planned, contracted and managed by the contractor(s) with associated costs included in their design costs. At the contractor's request and with DOE approval additional R&D activities may be included in the SPP R&D Program with results shared by both contractors. The Contractor(s) shall focus on the remaining research and testing required for implementation of the Caustic Side Solvent Extraction technology including actinide/strontium removal. They should include all testing necessary to verify SPP process products will meet waste acceptance characteristics for the DWPF and Saltstone facilities as defined in the SWPF Feed Strategy and Product and Secondary Waste Specification (to be developed by the M&O and the Contractor(s)). The R&D activities will be logically tied to the project baseline and baseline risk assessment described in Standard 1, *Management Products and Controls*.

(2) Required Development of Waste Feed and Product Definition:

Characterization of HLW Salt Feeds: The Contractor(s) shall team with DOE and the Site M&O Contractor to review the HLW System Waste Characterization Database. Progress and assumptions resulting from the M&O contractor's alternative salt disposition initiatives shall also be evaluated. From this information a joint EPC/DOE/M&O Feed Strategy and Product and Secondary Waste Specification for the SWPF shall be developed and presented to DOE for approval. This deliverable shall provide to DOE the contractor(s) endorsement of the technical adequacy of the HLW characterization data or their recommended changes or actions required to conclude waste characterization is adequate to support facility design and the requirements of this contract. (Table C.5-1.1 Deliverable 2.1). Upon DOE approval, these specifications will become the metric for evaluation of facility performance. Open issues identified by this review shall be logically tied to the project baseline and baseline risk assessment described in Standard 1, *Management Products and Controls*. Additional analysis requirements if needed shall be defined by the Contractor in Contractor Data Request. All analytic results shall be reported to the contractor(s) and to DOE by the Site M&O Contractor prior to inclusion into the HLW Characterization Database.

(b) Process and Facility Modeling Requirements:

The Contractor(s) shall develop and use analytical models to support the design of the process and facility system, support pre-operational planning assessments, and provide technical integration with Site M&O Contractor waste feed staging and product acceptance activities. The Contractor(s) will, at a minimum, develop the following models:

- (1) Operations Assessment Model of the SPP Plant: The Contractor(s) shall model operations of the facility to verify that the facility design concept incorporates appropriate design and operational features to meet plant capacity requirements and reduce construction and/or operations costs. The scope of the assessment model shall include: sampling and analysis requirements including sample turnaround times; tank capacities and times to conduct individual process steps in unit operations; time for mechanical handling steps; equipment reliability; time estimates for maintenance and repair of facility and process systems; estimated spare equipment inventory; and recommendations to improve reliability and throughput of the production facilities. Modeling shall be employed to ensure appropriate reliability, availability, maintainability, and inspectibility (RAMI) for the SWPF including balance of facility systems. The Operations Model results, assumptions, and model input parameters shall be clearly documented and provided to DOE for review and comment (Table C.5-1.1, Deliverable 2.2). Input parameters shall be coordinated with the Site M&O Contractor and agree with the HLW System Plan. The Operations Model and outputs shall be updated at least annually, or more often, as necessary, to support design change assessments and reflect the latest design and information from R&D and Pilot Scale Testing.
- (2) SWPF Tank Utilization Assessment Model: The Contractor shall develop, and document Modeling based on the SWPF design. The Contractor shall assess utilization of process tank capacity and supporting equipment capability and operational characteristics, to ensure that the tanks are appropriately sized to support process operations, sampling and analysis turnaround times, process control requirements and product verification needs. The assessments shall include the baseline plant capacity. Results shall be provided to DOE for review and comment at least annually (Table C.5-1.1, Deliverable 2.3) or more often, as necessary, to support design change assessments and reflect the latest design and information from R&D and Pilot Scale Testing.
- (3) Material Balance and Process Flowsheet: The Contractor shall use Computer Modeling to conduct and document process and flowsheet material balance analyses for the treatment of tank waste. The data sources for the material balances will be reviewed by DOE for acceptability and will be based upon the compositional limits defined in the Feed Strategy and Product and Secondary Waste Specification. The flowsheet and material balances shall estimate the quantity of DWPF and Saltstone Feed, and relevant secondary streams on a feed blend campaign basis, as well as, annual estimates.

The flowsheet and material balances shall be sufficiently detailed to support permitting and licensing activities under Standard 7, Environment, Safety, Quality, and Health, and to track DOE-supplied feed through the HLW system for product acceptance and establishing that the waste treatment was performed.

An additional material balance referred to as "instantaneous" or "flowrate" material balance will be established to illustrate the adequacy of equipment capacity decisions for the purpose of estimating the ability to handle process startup, shutdown, and upset flow conditions. DOE and the Contractor(s) shall agree on the assumptions to be used for the instantaneous material balance.

The material balance and process flowsheet shall be updated at least annually, as significant changes occur and provided to DOE for approval (Table C.5-1.1, Deliverable 2.4). The material balance shall be maintained consistent with the latest process verification testing, and feed characterization information, as appropriate. The flowsheet and material balances shall also be updated during cold commissioning, pilot testing, and prior to and following hot commissioning operations.

As part of Deliverable 2.4, an electronic copy of the modeling data for the flowsheet and material balance shall be provided to DOE for review and comment at initial issuance and upon each revision, thereafter.

- (4) Configuration Control: The Contractor(s) will establish and maintain a configuration control system to manage the models and analyses. The models and analyses will be subject to the QA requirements in Section C.4, Environment, Safety, Quality, and Health, and configuration control requirements imposed upon the Design Process and Standard 1, Management Products and Controls and Standard 3 Design.

Standard 3: Design

This Standard describes the Contractor's responsibilities for conducting facility design functions, maintaining design documentation and conducting design reviews. The intent is to ensure that the Contractor(s) has the necessary systems, processes, information and deliverables in place to allow DOE evaluation that the SPP Project is proceeding appropriately.

- (a) Design Process: The Contractor shall perform the following activities:
- (1) Obtain the SPP Design Data and supporting information developed prior to Contract award. All records required to establish the contractor(s)'s technical baseline for the project shall be placed under their configuration control within one month of Contract award.
 - (2) Provide to DOE for review and comment the Contractor's design process (Table C.5-1.1, Deliverable 3.1). The process shall meet all requirements; laws and regulations; ensure that design is performed in controlled, safe, and efficient manner; and implement best industry practices. As changes to the process are made, the changes shall be provided to DOE for review and comment.
- (b) Establish and Maintain Facility Design Requirements: The Contractor shall comply with the Contract design process and the following:
- (1) Functional Specification: The Contractor(s) shall prepare for DOE review and approval (Table C.5-1.1, Deliverable 3.2), their proposed Functional Specification that defines the technical operational requirements of the SPP SWPF based on the SPP Design and supporting documentation. This document shall define the waste treatment requirements, environmental compliance requirements, and authorization basis requirements of the facility as currently known and understood. The Functional Specification shall describe the process/functional requirements of the SPP, including:
 - (i) SPP feed characteristics including quantities, treatment rates and mechanical, physical, chemical, radiological properties (by blend batches);
 - (ii) DWPF and Saltstone feed characteristics such as quantities, mechanical, physical, chemical, radiological properties (by blend batches);
 - (iii) Services and utility requirements, operating materials and supplies, and other inputs;
 - (iv) Estimates of effluents, emissions, solid wastes, by-products, and other outputs; and
 - (v) SWPF operations limits.

Upon approval of the Functional Specification, DOE will control the functional specification and will consider any proposed changes.

- (2) Basis of Design/Design Criteria Database: The Contractor shall prepare for DOE review and approval (Table C.5-1.1, Deliverable 3.3) and as significant changes occur, a Basis of Design/Design Criteria Database that lists the design requirements and design codes and standards that will serve as the basis for the continued design of the SPP based on the SPP Design Data and supporting documentation. The Basis of Design/Design Criteria Database shall, at a minimum define and describe:
- (i) Integration of the requirements from this Contract, environmental permitting requirements, and safety standards accepted by DOE, and operations requirements and documented functional specification requirements;
 - (ii) Summary of the SPP site characteristics, including climatic, geo-technical, and natural phenomena data;
 - (iii) Design requirements for the SPP facilities (Balance of Plant, Laboratory, alpha separation and cesium separation);
 - (iv) Product specification;
 - (v) Facility sub-system design requirements;
 - (vi) Allowable process and atmospheric temperatures, pressures, flow rates, for normal, upset, and design conditions;
 - (vii) Applicable codes and standards, regulations and standards, and guidelines correlated to each major structure, system, or component in the SPP;
 - (viii) Crosswalk comparison of proposed standards and requirements with existing SRS standard requirements. Rational and justification for areas of departure shall be included; and
 - (ix) Pertinent design criteria from the ICDs.
- (3) Operations Requirements Document (ORD): The Contractor shall prepare an ORD for DOE review and approval (Table C.5-1.1, Deliverable 3.4) based on the SPP Design Data and supporting documentation. The ORD shall define requirements for SPP life-cycle operations, including commissioning. These requirements will influence SPP design features to ensure cost efficient operations and provide for accurate life-cycle cost estimates, planning, and informed decision-making. The ORD shall address Operations and Support Concepts and shall include, at a minimum:
- (i) The operations and maintenance philosophy and requirements for the SPP, including requirements for reliability, availability, maintainability, and inspectability;
 - (ii) Description of the operations and maintenance philosophy for the SPP;
 - (iii) Estimate of operations and maintenance staffing including labor mix, crew size, and operating shift requirements;
 - (iv) Requirements for change rooms, first aid stations, decontamination facilities, lunch rooms, training facilities, control rooms, and operating galleries;
 - (v) Requirements for facilities and computer based (simulator) training facilities;
 - (vi) Equipment accessibility for maintenance and operations including both contact and remotely maintained systems, clearances and tolerances allowed in mechanical systems, and housekeeping features;
 - (vii) Instrument and control requirements for control room and local instruments;
 - (viii) General sampling and analyses requirements;
 - (ix) Ergonomics and human factors requirements for operations and maintenance;
 - (x) Maintenance and spares philosophy and requirements (including items to be present at transition to the future operations contractor);
 - (xi) Environmental compliance requirements; and
 - (xii) Health, safety, and site emergency services requirements.

Upon approval of the Operations Requirement Document, DOE will control the Operations Requirement Document. Any proposed changes will require DOE approval.

- (c) Establish and Maintain Design Documentation: The Contractor(s) is encouraged to use established design practices and shall ensure that design documentation and media comply with best industry practices and the requirements of Standard 7, Environment Safety Quality and Health. DOE shall have access to all Contractor-developed design documents and information, paper and electronic files (Table C.5-1.1, Deliverable 3.5). The information shall be in the form of controlled copies updated by the Contractor.

Information shall include, but not be limited to, the information described below. The design effort shall be programmed in three stages, Conceptual Design, Preliminary Design, and Final Design. Specific deliverables and Critical Decision requirements are defined in DOE Order 413.3 for each of these stages and its supporting manuals. Specifically a;

- Conceptual Design Report, Preliminary Hazard Analysis Report and Critical Decision 1 Package (Table C.5-1.1, Deliverable 3.5A) is required at the completion of Conceptual Design,
- Preliminary Safety Analysis Report (PSAR) and Critical Decision 2 Package is required with the Preliminary Design (Table C.5-1.1, Deliverable 3.5B, Milestone M1), and
- An Updated Preliminary Safety Analysis Report (PSAR) and Critical Decision 3 Package is required with the Final design (Table C.5-1.1, Deliverable 3.5C, Milestone M2).

Information shall contain relevant references, such as, system descriptions, process data sheets, and equipment data sheets and shall address Balance of Facility, Pretreatment, and Cs separation. Changes to the products shall be documented through engineering change notices. DOE shall be invited to attend configuration control board meetings or other meetings where design products are updated, revised or changed.

- (1) System Descriptions: The system descriptions shall include references to all design documents (process flow diagrams, piping and instrumentation diagrams, engineering calculations, process data sheets, R&D development work and test reports, material handling diagrams, mechanical flow diagrams, design proposal drawings, etc.) associated with the applicable systems.
- (2) Process Data Sheets (Equipment Database): Provide unrestricted access to a complete file that lists every piece of equipment in an electronic sortable file of all process data sheets with all available information including: the equipment identification number; equipment name and description; the piping and instrument diagrams where the equipment is shown; capacity and operation parameters and materials of construction.
 - (i) All non-U.S. standard (non-off-the-shelf in the U.S.) equipment must be clearly noted on the equipment item list and referenced to the corresponding equipment specification.
 - (ii) The equipment list must be provided in an electronically sortable format with all records and fields shown.
- (3) Process Data Sheets (Instrument Database): Provide unrestricted access to a complete file that includes every instrument as an electronic sortable file of all instrumentation process data sheets, with all available information, including:
 - (i) The instrument identification number;
 - (ii) The instrument name and/or description;
 - (iii) The piping and instrument diagrams where the instrument is shown; and
 - (iv) The associated R&D test plan results and references to the applicable test plans tied to design decisions via the design requirements documents.
- (4) Calculations for Equipment Sizing: The calculation and technical basis for the capacity of major vessels, equipment and piping shall be provided. The basis shall include sample analysis turnaround times and address reliability, availability, maintainability, and inspectability.

- (5) General Arrangement Drawings: General arrangement drawings for the SWPF. The general arrangement drawings shall identify plan and elevation views of the facilities in sufficient detail to understand facility layout and the preliminary layout of major equipment components.
- (6) 3-Dimensional Design Model (3-D Model): The Contractor(s) shall provide access to all files of the 3-Dimensional Design Model (3-D Model). Access is required to support DOE awareness of current and contemplated changes to the design layout and assess proposed changes to the SPP and associated processes.
- (7) Process Flow Diagrams and Material Balances: The Contractor(s) shall prepare process flow diagrams for the SWPF for DOE approval (table C.5-1.1, Deliverable 3.6). The process flow diagrams shall identify all main process equipment including in-cell equipment and supporting equipment for cold chemical makeup. Identification shall include names, functions, capacities, identification numbers, and include material balance line identifiers in the process flow lines using the numbers traceable to the material balance deliverable. Supporting documentation shall specify the capacity and duty of the equipment systems, the process scheme and sequence description and operating conditions.
- (8) Material Balance: See Standard 2, Research, Technology, and Modeling.
- (9) Piping and Instrument Diagrams: The Contractor(s) shall prepare the piping and instrument diagrams for the SWPF. The piping and instrument diagrams shall identify all process and support equipment, preliminary instrument and electrical requirements, and pipe sizes and line numbers. The control system information typically presented on piping and instrument diagrams shall instead be contained on separate instrument and control diagrams.
- (10) Instrument and Control Diagrams/Design: The Contractor(s) shall prepare the instrument and control diagrams for the SWPF. These diagrams/design documentation shall include control system specifications, identification of the main control interface, configuration diagrams, and sequence and interlock requirements. The instrument schedules shall be defined in the design documentation. This design shall include features to address process safety and process control for product quality.
- (11) Electrical Diagrams: The Contractor(s) shall prepare electrical one-line diagrams for all process and facility systems. Electrical loads and systems, and the basis to support specification of the electrical systems shall be identified.
- (12) Equipment Design/Equipment Arrangement Diagrams: The Contractor(s) shall prepare the design of all process and mechanical handling equipment for the SWPF. Equipment design data sheets shall be completed for all process equipment components. Equipment general arrangement drawings shall specify plan and elevation views.
- (13) Equipment Arrangement and Piping Diagrams: The Contractor(s) shall prepare pipe routing diagrams for the SWPF. Critical systems shall be modeled using three-dimensional analysis to assure that equipment systems are correctly positioned and primary cell penetration requirements are identified.
- (14) Facility Ventilation System Design: The Contractor(s) shall prepare the ventilation flow diagrams and heating, ventilation, and air conditioning system design for the SWPF. The diagrams shall identify the individual systems, all equipment components, and routing within and between the facilities. Sample locations and methods shall be specified. Equipment to provide motive force and ventilation control shall be identified.

- (15) Facility Civil, Structural, and Architectural Design: The Contractor(s) shall prepare the civil, structural and architectural designs of the SWPF. The building sizes, location and requirements of load-bearing, shielding and internal walls shall be identified. Major penetrations in walls and floors shall be identified. All crane structures, filter housings, and facility mechanical systems shall be identified. Seismic analysis for the facility shall be completed in accordance with DOE requirements to support structural analysis, definition of the facility, the Limited Work Authorization Request, and Construction Authorization Request.
- (16) Mechanical Flow Diagrams: The Contractor(s) shall prepare mechanical handling diagrams for the SWPF. The diagrams shall be prepared with sufficient detail to support the hazards analysis review and the operations research model. The diagrams shall identify mechanical equipment and each step and sequence of the operation.
- (17) Analytical Laboratory Facility Design: The Contractor(s) shall further develop and provide the sampling and analysis requirements to support process control, environmental compliance and Saltstone and DWPF Feed product verification for DOE review and approval (Table C.5-1.1, Deliverable 3.7). The information shall include sample locations, sample purpose, analysis requirements and frequency and turnaround times. Results of the assessment of process tank capacities and process operations will be used to verify and establish the specification and design of the Analytical Laboratory area of the SWPF and outside laboratory support requirements.
- The Analytical Laboratory Area design shall incorporate features and capability necessary to ensure efficient SPP operations and meet all permitting, process control, authorization basis and product verification requirements. The design should be validated with information from tank utilization modeling of the process tankage, and operational research modeling of the treatment process, as appropriate. Use of available outside laboratory facilities (SRS or Commercial) shall be considered to optimize cost of operation.
- (18) Site Layout Drawings: The Contractor(s) shall complete all site and facility general arrangement drawings for all facilities and structures. The drawings shall identify all above-grade and below-grade structures, piping, and electrical systems. The drawings will reflect requirements during the construction and operations activities. Site drawings and documents shall be updated and provided to DOE for review and approval (Table C.5-1.1, Deliverable 3.8).
- (19) Other Applicable Design Products Including:
- (i) Ventilation and instrumentation diagrams;
 - (ii) Instrument schedules;
 - (iii) Electrical load schedules;
 - (iv) Hydraulic gradient diagrams;
 - (v) Material handling diagrams; and
 - (vi) Design proposal drawings (equipment procurement drawings).

- (d) SPP Optimization/Value Engineering Study: The Contractor(s) shall prepare for DOE review and approval (Table C.5-1.1, Deliverable 3.9) a proposed set of optimization studies that improve life-cycle performance, cost, and schedule of the SWPF, including process design (such as, improved radiochemical separations or waste segregation or blending that may allow reduced waste treatment or improvements in sequencing of process operations), facility design (such as, improved space utilization), construction methods, and technologies (such as, second generation treatment technologies that are ready for demonstration and application), and affect the Contract requirements. Optimization/Value Engineering studies that do not affect the contract requirements are the Contractor's responsibility and are separate from this activity. The Contractor shall seek input from DOE and the Site M&O Contractor in developing the list of proposed studies. HLW System operations and waste removal constraints shall be factored into optimization efforts. DOE and the Contractor(s) shall jointly agree upon which studies shall be performed. All optimization studies shall address the following:
- (1) Description of item, process, system, or facility to be optimized and the basis for such optimization.
 - (2) Description of the research and technology program elements that are required to validate the required performance prior to incorporating the change into the baseline.
 - (3) Description of the design changes that are required to incorporate the change into the baseline.
 - (4) Effects of the proposed optimization on HLW facility authorization basis and the authorization basis interfaces between the SPP and the Site M&O Contractor.
 - (5) Affects on SPP cost, schedule, and plant capacity.
 - (6) Near-term impacts for Site M&O Contractor.
 - (7) Estimated life cycle cost impacts to DOE.
 - (8) An evaluation of potential impacts on long-term interfaces with the Site M&O Contractor.
 - (9) Technical risks eliminated, changed, or amplified by the proposed change.
 - (10) Regulatory issues, eliminated, changed, or amplified by the proposed change.
 - (11) Potential changes in secondary waste and on returnable material volume and type.
 - (12) An evaluation of the potential changes in energy needs and other DOE supplied material quantity.

The Contractor(s) shall involve all affected parties to ensure a balanced and complete picture. DOE will evaluate the studies and consider changes to the Contract requirements if they are found to be in the best interest of the Government.

- (e) DOE Participation in Design Process: DOE staff and supporting contractor staff identified by DOE, shall be invited to participate in all design overview activities (Table C.5-1.1, Deliverable 3.9). Design overview activities include any meeting that discusses significant issues associated with the establishment, development and/or progress of the technical requirements for the design. A multi-disciplined design overview shall be scheduled, conducted and documented quarterly (Table C.5-1.1, Deliverable 3.10). The Contractor(s) shall develop a list of systems and items for DOE review and approval at least 30 days in advance of the quarterly design overview. In order to improve communications, the Contractor(s) shall provide dedicated office space in the Contractor's design facility for six DOE and supporting contractor staff.

Standard 4: Construction, Procurement, and Acceptance Testing

The purpose of this Standard is to describe additional requirements for Construction, Procurement, and Acceptance Testing. In the context of this Standard, the terms "acceptance testing" and "acceptance" refer to the Contractor's testing and acceptance of systems, components, equipment, etc., as needed for mechanical completion of the SWPF. Acceptance does not refer to DOE acceptance of the SWPF from the Contractor. DOE acceptance of the SWPF will not occur until "Completion of Contract Requirements" (Milestone M7).

- (a) Construction, Procurement, and Acceptance Testing Plan: The Contractor shall prepare and submit a Construction, Procurement, and Acceptance Testing Plan for DOE (Table C.5-1.1, Deliverable 4.1) and update the Plan annually after initial submission. The Plan shall include:
- (1) Description of procurement, construction bid, and work packages;
 - (2) Construction management;
 - (3) Construction site management;
 - (4) Acceptance testing; and
 - (5) Descriptive linkage to the PEP described in Standard 1 and the Environment, Safety, Quality, and Health program described in Standard 7.
- (b) Procurement:
- (1) The Contractor shall procure all required material and equipment, including: prepare bid packages and solicitations; evaluate, award, and manage subcontracts; accept subcontractor materials and equipment; and verify subcontractor acceptance tests.
 - (2) The Contractor shall submit a purchasing system for DOE approval in accordance with Section I Clause entitled, Subcontracts (Table C.5-1.1, Deliverable 4.2).
- (c) Construction Bid and Work Packages: The Contractor shall prepare bid and work packages; solicit, evaluate, award, and manage subcontracts; accept subcontractor construction; and verify subcontractor acceptance tests (Table C.5-1.1, Deliverable 4.3).
- (d) Construction Management: The Contractor shall manage all: required construction labor, and supervision; equipment, and materials procurement; acceptance testing; and provide required systems and support for environmental protection, safety, quality, labor relations, and security.
- (e) Construction Site Management: The Contractor shall manage the construction site and provide all required construction support services, construction site security, industrial hygiene, and temporary and permanent construction facilities.
- (f) Construction and Acceptance Testing:
- (1) The Contractor shall maintain an adequate construction inspection system and acceptance testing system, and perform such inspections and testing, as well as ensure that the work performed under the Contract conforms to Contract requirements. The Contractor shall maintain complete inspection and testing records and make them available to DOE. The Contractor shall develop and submit an integrated construction and acceptance testing program to DOE for approval (Table C.5-1.1, Deliverable 4.4) that includes the following elements:
 - (i) Review and approval of all vendor's shop drawings to assure conformity with the approved design and working drawings and specifications;
 - (ii) Acceptance test plans and procedures for on-site Contractor/subcontractor inspection of construction workmanship, compliance with design drawings and specifications, management of the design construction changes, and criteria for acceptance of fabricated and constructed items;
 - (iii) Identification and description of Contractor and vendor components to be tested and accepted including the identification of component, systems, and integrated facility testing;
 - (iv) Inspection of construction to assure adherence to approved working drawings and specifications;
 - (v) Identification of Contractor proposed and DOE specified construction witness or hold points;
 - (vi) Methods to complete field and laboratory tests to verify construction workmanship and materials, and equipment, and approved working drawings and specifications;
 - (vii) Approaches and methods to troubleshoot and correct material acceptance and construction deficiencies;

- (viii) Preparation of partial, interim, and final estimates and reports of quantities and values of construction work performed, for payment or other purposes;
 - (ix) Approach to transition from acceptance to facility cold commissioning and hot commissioning; and
 - (x) Providing set(s) of reproducible "as-built" record drawings of the type specified by DOE and set(s) of marked-up specifications, showing construction as actually accomplished.
- (2) The Contractor shall prepare, as part of the monthly report defined in Standard 1, Management Products and Controls (Table C.5-1.1, Deliverable 1.7), a monthly Construction Inspection and Acceptance Status Report that will document the progress of construction and facility acceptance and include the following information:
- (i) Status on the deliverables of materials and fabricated items;
 - (ii) Estimates and reports on the quantities, value, and type of construction work completed for payment or other purposes; and
 - (iii) Status on the performance of the acceptance program and level of rework/non-conforming items received/constructed and identification of corrective actions.
- (3) During the construction and acceptance phase, the Contractor shall remain current on the process and facility as-built program. The status on the as-built program is to be reported as part of the monthly Construction Inspection and Acceptance Status Report.
- (4) The Contractor shall ensure all necessary labor, equipment, materials, test equipment, and other related resources are provided for the acceptance test.
- (g) Certification for Completion of Construction. The Contractor shall certify to DOE that construction has been completed (Milestone M3). Completion of Construction is defined as completion of initial installation of all facility systems and closure of fixed price construction contract(s).
- (h) DOE Participation in Construction Review: The DOE staff, and supporting contractor staff identified by DOE, shall be invited to participate in all overview activities (Table C.5-1.1, Deliverable 4.5). Construction overview activities include any meeting that discusses significant issues associated with the establishment, development, and/or progress of the SPP construction.
- (i) Certification of Facility Acceptance Completion. The Contractor shall certify to DOE that facility acceptance has been completed. Completion of Facility Acceptance is defined when all components and systems associated with the SWPF, have been installed, functionally tested and the facility design as-built in accordance with the Construction, Procurement, and Acceptance Testing Plan (Table C.5-1.1, Deliverable 4.1, Milestone M4).

Standard 5: Commissioning

The purpose of this Standard is to describe the requirements and deliverables to commission the SWPF, including cold commissioning performance testing and radioactive (hot) commissioning pilot and performance testing. Facility start up operations shall be conducted in accordance with DOE Order 425.1B, Startup and Restart of Nuclear Facilities.

- (a) The objectives of the Commissioning period for the SPP are to demonstrate:
- (1) Process and facility performance meets or exceeds Contract requirements.
 - (2) Adequate and correct procedures, and safety limits exist for operating the process systems and utility systems.
 - (3) Training and qualification programs for operations and operations support personnel are established, documented, and implemented. (The training and qualification program encompasses the required range of duties and activities.)
 - (4) SPP safety and environmental compliance documentation is in place and describes the safety and environmental compliance basis of the SPP.

- (5) Program(s) are in place to confirm and periodically reconfirm the condition and operability of safety systems, including important to safety process systems and safety related utility systems.
- (6) Processes are established to identify, evaluate, and resolve deficiencies and recommendations made by DOE oversight groups, official review teams, and audit organizations.
- (7) Management programs are established, sufficient numbers of qualified personnel are provided, and adequate facilities and equipment are available to ensure operational support services (e.g., training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, QA, S&S, criticality safety, and engineering) are adequate for operations.
- (8) Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.
- (9) SPP systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the authorization basis.
- (10) Modifications to the facility have been reviewed for potential impacts on procedures, training, and qualification. Procedures have been revised to reflect these modifications and training has been performed to these revised procedures. The SPP design documentation is complete.

- (b) Pilot Test and Commissioning Plan: The Contractor shall prepare a detailed Pilot Test and Commissioning Plan for DOE review and approval (Table C.5-1.1, Deliverable 5.1), a minimum of 24 months prior to the start of pilot test and commissioning. The Plan shall, at a minimum, define the SPP organization, specific tests, and procedures for pilot test and commissioning the SWPF. Pilot Testing shall be targeted with the objective of verification of process capabilities and limitations over the bounding range of feed and process variations anticipated. Exploration and evaluation of potential synergistic and cumulative effects should also be pursued. The plan shall define how pilot test objectives will be met and how the SWPF will transition to fully operational radioactive status, which will demonstrate the design criteria, process, safety, process and product control features, and environmental safety requirements of the Contract; and one full year of successful radioactive operation.

The plan shall identify the system acceptance and operability criteria by which that system will be released to support other systems. The Pilot Testing and Commissioning Plan shall be updated and provided to DOE for approval at least annually, thereafter, and as required.

- (c) Training and Qualification of SPP Facility Plant Operations and Maintenance (O&M) Staff: The Contractor shall contract or establish an O&M training organization that will:
- (1) Establish a training and certification organization to assure completion of staff training and certification activities.
 - (2) Prepare a staffing analysis for the SPP that identifies the types of skills, skill level, and number of personnel needed to operate and maintain the SWPF. The analysis shall include operations, maintenance, environmental safety and health, human resources, QA, and facility engineering management and staff. An operations organization shall be established.
 - (3) Identify training and qualification requirements for the O&M staff.
 - (4) Prepare training and certification procedures, tests, and other documentation methods to conduct training.
 - (5) Prepare O&M manuals, procedures, and other systems for SWPF commissioning (cold and hot), operations, and maintenance activities.
 - (6) Establish a system and procedures to schedule and manage SWPF maintenance requirements.

- (7) Conduct training and qualify staff responsible for commissioning, operating, and maintaining the SWPF.
- (d) Commissioning Review Board: The Contractor will chair a Pilot Testing/Commissioning Review Board with DOE and Site M&O Contractor participation (Table C.5-1.1, Deliverable 5.2). The Board will review the detailed plans, procedures, barriers, pilot testing and commissioning progress, and results. DOE will identify and control key hold-points throughout the commissioning process starting 12 months prior to commissioning. The Commissioning Review Board shall be conducted monthly and, as necessary, until facility turnover to the future operator. The Contractor shall be responsible for testing and commissioning the equipment and systems, as follows:
- (1) Demonstrate the correct functioning of systems important to safety, plant, and equipment;
 - (2) Demonstrate site emergency procedures;
 - (3) Test radiation instruments with sealed sources;
 - (4) Test systems with density changes;
 - (5) Start-up and recovery from an idle condition;
 - (6) Sample and analyze systems;
 - (7) Evaluate shielding;
 - (8) Validate operations and maintenance instructions;
 - (9) Validate operations and maintenance procedures;
 - (10) Train and certify SWPF operators and maintenance personnel;
 - (11) Perform full capacity system environmental performance tests with reagents, acids, and simulants;
 - (12) Perform SWPF integrity and equipment inspections;
 - (13) Demonstrate construction completeness; and
 - (14) Demonstrate process and product control features.
- (e) Cold Commissioning: During the cold commissioning test period, the Contractor shall conduct all necessary testing operations to verify that the SWPF will perform in accordance with design specifications, using DOE approved non-radioactive simulated feeds that demonstrate the ability of the facility to meet the Waste Feed Strategy and Product and Secondary Waste Specification developed per this contract. The cold commissioning test periods will also be used to train SWPF staff, and demonstrate that the SWPF can safely receive and treat radioactive waste feed (hot commissioning). Prior to cold commissioning, the Contractor shall have in-place all necessary permits, licenses, and demonstrated that all interfaces are ready to support the cold commissioning.

The Contractor shall certify to DOE that Cold Commissioning has completed. Completion of Cold Commissioning (Milestone M5) will occur when the testing with simulated salt solution is completed, in accordance with the Commissioning Plan. The Contractor shall carry out cold commissioning performance tests of the SWPF to meet the following objectives:

- Verify that the SWPF can produce products that meet the Feed Strategy and Product and Secondary Waste Specification;
- Demonstrate the SPP design capacity for process systems for the selected scale facility as defined in the Conceptual Design;
- Determine the operating characteristics of SPP processes under routine and off-standard operating conditions including: demonstration of all remote and hands-on maintenance activities; access to all equipment; ability to install, connect, disconnect, and reconnect all replaceable components; and calibrations of all instruments; and
- Verify that the SWPF will meet environmental, permitting, and safety requirements.

The tests, combined with other readiness activities, shall be planned and conceived to provide the operational and procedural basis necessary to support the hot operations request.

The Contractor shall provide a strategy to achieve the cold commissioning performance test objectives in the SPP Commissioning Plan, which may be performed sequentially or in parallel. Resultant non-radioactive products shall be disposed of as non-radioactive waste. Radioactive (spiked) products shall be transferred to the Site M&O Contractor in accordance with the Section C.9, Interface Control Requirements and disposed of as radioactive waste. During the tests, the Contractor shall provide documentation the products and secondary wastes are in accordance with Feed Strategy and Product and Secondary Waste Specification (Table C.5-1.1, Deliverable 5.3). No credit will be provided for non-conforming product, and if any out of specification product is produced during a test, the test shall be restarted after the condition that created the out of specification product is corrected.

- (1) Product Verification Tests: The Contractor shall complete SPP performance testing using a cold commissioned facility to demonstrate the production of non-radioactive products and secondary wastes in accordance with the Feed Strategy and Products and Secondary Wastes Specification. All process unit operations, sampling and analysis, and process control systems shall be utilized in these verification tests. Where needed, and determined beneficial, non-radioactive elements shall be used as a surrogate for radioactive elements. Test results will be evaluated and documented as part of the product verification reports (Table C.5-1.1, Deliverable 5.3).
- (2) Design Capacity Performance Tests: During the cold commissioning tests, the following minimum testing shall be conducted to demonstrate the treatment capacity of the SPP. For a minimum of 30 consecutive days, the facility shall operate at peak capacity and at nominal capacity for 60 days. All products and secondary wastes will be produced in accordance with the verification strategies and requirements identified in the Feed Strategy and Products and Secondary Wastes Specification and meet the relevant specification and interface requirements. The results shall be provided to DOE for review and approval. (Table C.5-1.1, Deliverable 5.4).
- (3) Off-Standard Operational Testing: The Contractor shall conduct testing of the process and facility system to test and evaluate effects of off-standard operating conditions and to determine the capability of the process and facility system for an increased production capacity above the design basis. The results shall be provided to DOE for review and comment (Table C.5-1.1, Deliverable 5.5). The operational tests shall be defined by the Contractor based upon design conservatism and design limitations in specific plant process and equipment systems. Testing may be conducted on individual unit operations or plant systems. During the tests, the safety of the facility, operational personnel, the public, or the environment shall not be challenged.
- (4) Environmental Performance Test: The Contractor shall complete environmental testing as required under the Air Permitting Requirements, and applicable Federal, State, and local laws, regulations, and permits to demonstrate the operation of the SWPF in accordance with the flowsheet design. The testing requirements shall be based upon the Environmental Performance Test Plan to be developed during conceptual design.

The Contractor shall produce an environmental performance test report(s) after the completion of each performance test trial (Table C.5-1.1, Deliverable 5.6). The report shall, at a minimum, provide the required information identified in the Risk Assessment Work Plan, including a description of the sampling and analysis activities conducted during the testing, definition of the simulants, and assess the performance of the SWPF. The report shall also provide recommended operating conditions for the SWPF.

- (5) Commissioning Results and Documentation: The Contractor shall provide all results from cold commissioning testing to DOE for review and approval (Table C.5-1.1, Deliverable 5.7). The information shall be in the form of controlled copies maintained and updated by the Contractor. Information shall include, but not be limited to:
 - (i) System start-up plans, work packages, and system verification reports;
 - (ii) Conduct of operations/maintenance plans;
 - (iii) Operating procedures;

- (iv) Test plans and outputs for demonstrating and/or establishing permitting conditions (authorization basis, air, performance test plans, etc.), including off normal conditions; and
 - (v) Test plans and outputs for process verification, product qualification.
- (6) Certification of Completion of Cold Commissioning: The Contractor shall certify to DOE that cold commissioning is complete and that the Contractor met the requirements contained in Standard 5(e) (Table C.5-1.1, Deliverable 5.8, Milestone M5).
- (f) Hot Commissioning: During hot commissioning, the Contractor shall conduct all necessary operations to ensure that the facility is ready for hot operations and facility turnover. During Hot commissioning, All products and secondary wastes shall be produced in accordance with the verification strategies and requirements identified in the Feed Strategy and Products and Secondary Wastes Specification and meet the relevant specification and interface requirements. The contractor shall receive no credit for product that does not meet requirements, and is responsible for reprocessing the product until it meets requirements. The results shall be provided to DOE for review and approval.
- (1) Certification of Readiness for Hot Operations: The Contractor shall certify to DOE that the facility is ready to receive waste feed 3 months prior to the requested date for waste transfer (Table C.5-1.1, Deliverable 5.9, Certification of Readiness for Hot Operations, Final Safety Analysis Report and Critical Decision 4 Package). At a minimum, the certification shall include demonstration in that:
 - (i) The Contractor has all necessary permits, licenses, and other such approvals, and can meet all related compliance conditions;
 - (ii) The interfaces are ready to support hot operations;
 - (iii) The facility can meet contractual requirements for all inputs and outputs; and
 - (iv) The SWPF products will meet requirements and that the mass and material balance tracking is sufficiently understood for safe and efficient operations.
 - (2) For hot commissioning, the Contractor shall provide a written notice to the DOE Contracting Officer, specifying:
 - (i) The type/batch of salt feed requested; and
 - (ii) The date the Contractor requests the start of a transfer of a batch of feed herein referred to the waste transfer date. The written notice shall be provided to the DOE Contracting Officer at least two months prior to the requested waste transfer date.
 - (3) Certification of Start of Hot Commissioning: The Contractor shall certify to DOE that the facility hot commissioning has started (Table C.5-1.1, Deliverable 5.10, Milestone M6). Start of hot commissioning is defined as having received the first batch of actual tank waste feed and having demonstrated the ability to remove cesium to the required levels to meet design and Contract requirements.
 - (4) Pilot and Hot Commissioning Performance Tests: The Contractor shall carry out pilot and hot commissioning performance tests as defined in the approved Pilot Test and Commissioning Plan. The results shall be provided to DOE for review and approval. Table C.5-1.1, Deliverable 5.11 states: Hot commissioning shall be completed upon the Contractor submitting certification for DOE approval that the SWPF has met the production rate requirements.
 - (5) Pilot Test and Hot Commissioning Results and Documentation: The Contractor shall provide all Contractor-operated hot commissioning planning information and information resulting from hot commissioning to DOE for review and approval (Table C.5-1.1, Deliverable 5.12). The information shall be in the form of controlled copies updated by the Contractor, or electronic access at the Contractor's discretion. Information shall include, but not limited to:

- System start-up plans, work packages, and system verification reports:
- (A) Conduct of operations plans;
 - (B) Operating procedures;

- (C) Test plans and outputs for demonstrating and/or establishing permitting conditions (authorization basis, air, performance test plan, etc.);
 - (D) Test plans and outputs for process verification and, product verification, including documentation and certification that the products meet all requirements;
 - (E) Updated or model assessments based on hot/cold commissioning information;
 - (F) Updated mass material balances to verify waste treatment services;
 - (G) Information sufficient to verify quantities subject to waste minimization; and
 - (H) Copies of all information sent to regulators (air, authorization basis, etc.), and as required elsewhere in the Contract.
- (6) Certification of Completion of Hot Commissioning: The Contractor shall certify to DOE that the hot commissioning is complete and the SWPF is operating as designed. Standard 5(f) (Table C.5-1.1, Deliverable 5.13) Waste processing operations to meet the one full year of successful radioactive operations requirement for completion of contract workscope will commence at this time.
- (7) One Year Commissioning Period: Following completion of the Hot Commissioning Throughput Tests, the Contractor shall operate the SPPD pilot plant for one year. During the year, the contractor shall attain 75% of the design annual through put of salt waste feed. In addition, the contractor shall demonstrate the facility's operational capability by performing continuous sustained operations for at least a 6-month period at or above nominal capacity. The Contracting Officer will take into account the extent to which any difference in actual and desired throughput was within the control of the contractor in assessing performance.
- (g) Completion of Contract Workscope Requirements. Following the successful completion of the pilot and hot commissioning testing followed by one full year of successful radioactive operations the Contractor shall complete, at a minimum, the following activities to ensure the effective and efficient transition of the SWPF to the long term operations contractor. (Note: successful radioactive operation is defined as processing HLW salt solution at the design through put and attainment producing decontaminated salt solution and DWPF feed within process specifications defined in the Feed Strategy and Product and Secondary Waste Specification. The Contract work scope is deemed complete, once these activities have been completed to the satisfaction of DOE, and the long term operations contractor has certified acceptable turnover of the facility (Table C.5-1.1, Deliverable 5.14, Milestone M7).

For a period of time of at least six months in duration, the Contractor shall maintain the presence of appropriately knowledgeable and trained personnel in the Central Savannah River Area to perform the following functions:

- (1) Prepare the as-built design of the SPP process and facility.
- (2) Complete the closeout of all punch list items that arise from the cold and hot commissioning tests. These items can include equipment and facility modifications and repairs, operations procedure revision, replenishment of spare parts, etc.
- (3) Resolve any product quality issues for the Saltstone and DWPF feed products and/or secondary wastes generated during cold and hot commissioning. This can include revision to the, Feed Strategy and Product and Secondary Waste Specification, and/or revisions to specific operations procedures and equipment systems.
- (4) Provide support for any modifications to the environmental compliance and/or safety authorization basis documentation as a result of the information obtained in the hot commissioning testing.
- (5) Assist the long-term operations contractor in updating operations procedures to reflect lessons learned during commissioning.
- (6) Ensure all documents, records, and procedures are complete and accurate and turned over to the future operations contractor.
- (7) Respond to technical questions from the future operations contractor.
- (8) Provide technical advice on proposed repairs and modifications to the SWPF.
- (9) Assure the resolution of all equipment warrantee issues.

- (10) Provide support to DOE in the conduct of internal and external technical reviews and presentations.
- (11) Assure all operations, maintenance, engineering, licensing and purchasing activities are transitioned to the future operations contractor.
- (12) Financial closure of the project.

Standard 6: Reserved

Standard 7: Environment, Safety, Health and Quality (ESH&Q)

The purpose of this Standard is to: (1) define Contractor(s) responsibilities for conventional non-radiological worker safety and health; radiological, nuclear, and process safety; environmental protection; quality assurance; and (2) identify specific deliverables the Contractor shall submit to DOE.

DOE will act as the regulator of radiological, nuclear, and process safety.

- (a) The primary objectives of ESH&Q are to:
- (1) Demonstrate compliance with established requirements;
 - (2) Apply best commercial practices to provide conventional non-radiological worker safety and health protection; radiological, nuclear, and process safety, and environmental protection; and
 - (3) Implement a cost-effective program that integrates environmental protection, safety, quality and health in all Contractor(s) activities.

Environmental protection, safety, quality, and health program activities and deliverables shall be integrated with all technical and regulatory aspects of the SPP.

- (b) The Contractor(s) shall integrate safety and environmental awareness into all activities, including those of subcontractors at all levels. Work shall be accomplished in a manner that achieves high levels of quality, protects the environment, the safety and health of workers and the public, and complies with all requirements. The Contractor(s) shall identify hazards, manage risks, identify and implement good management practices, and make continued improvements in ESH&Q performance.
- (c) The Contractor(s) is responsible for providing safe and healthful working conditions for employees and all other persons under the Contractor's control who work in the general vicinity of the Contractor site, including subcontractors. The Contractor(s) shall develop and implement integrated programs for conventional non-radiological worker safety and health; radiological, nuclear, and process safety; and environmental protection. The SWPF must function as an integral part of the site's HLW System. Products, documentation, processes, operational procedures and other deliverables developed under this contract must be merged into the site's systems. Therefore, in developing the implementing procedures for the Integrated Safety Management System (ISMS) and QA requirements, the Contractor(s) must plan and provide for total integration of the project with the full spectrum of site systems (both physical and administrative). A process shall be implemented that ensures all components of the project will interface both physically and functionally with all other site systems. In meeting this requirement, the contractor(s) shall develop implementing procedures/documents based upon existing requirements defined in the Westinghouse Savannah River Company (WSRC) Standard/Requirements Identification Document (SRID). The WSRC SRID, at the Functional Area Level, identifies all known DOE ESH&Q requirements set forth in applicable Federal, State, and local laws and regulation, DOE Rules, DOE Orders, and directives, relevant industry (consensus) codes and standards, international standards, established site safety practices, etc. The WSRC SRID has been tested and approved by DOE for work at the site. The contractor(s), however, are to review the SRID to ensure all requirements applicable to the contemplated work are addressed and appropriate. With DOE approval, requirements may be added or deleted as appropriate for the project. In developing its own system of implementing procedures/documents to ensure compliance with the SRID, the contractor(s) at its own discretion, may either: (a) totally adopt the existing WSRC procedures, including revisions as issued, as its own corporate procedures; (b)

utilize some or all of its existing corporate procedures and adapt or create new corporate procedures/documents as needed to meet requirements; or (c) merge applicable WSRC implementing procedures with its own existing, adapted or new corporate procedures/documents. The SMS must provide for linkage of implementing procedures/ documents to the SRID requirements, and for maintaining configuration control whenever changes are made in the ISMS. The crosswalk between the contractor(s) program and the SRID shall be documented in a SRID Compliance document developed for DOE approval (Table C.5-1.1, Deliverable 7.1).

An ISMS meeting the requirements of DOE Policy 450.4, Safety Management System Policy shall be developed and implemented. The contractor shall prepare a description of their ISMS for DOE review and comment (Table C5.1-1, Deliverable 7.2). Implementation of the ISMS shall be conducted in phases and with verification of implementation included in the Project Baseline Schedule.

- (d) The Contractor(s) shall identify all necessary permits, licenses and other regulatory approvals and authorizations for the design, construction, commissioning and operation of the SWPF, unless otherwise identified in this Contract. The Contractor(s) in conjunction with the site M&O contractor shall develop the necessary permit applications, license applications, requests for other regulatory authorizations, and supporting materials and documentation. The Contractor shall provide all technical and regulatory information and documentation and support to ensure that permits, licenses, and other regulatory authorizations and approvals are obtained in a timely manner to support the design, construction, commissioning, and operation of the SWPF.
- (e) The Contractor shall implement a program to track and address environmental compliance issues and implement and comply with all requirements (including, but not limited to, permitting, environmental reports, enforcement actions, consent decrees, milestones/reports/management commitments, NEPA, pollution prevention, and waste minimization).
- (f) The Contractor(s) shall work with the Site M&O contractor in providing legally and regulatory required air and liquid effluent and near facility environmental monitoring. The Contractor shall collect, compile, and/or integrate air and liquid effluent monitoring data from operations and activities under their control. The Contractor shall compare the monitoring data with regulatory and/or permit standards applicable to their activities and/or operations and provide the data and analyses to the Site M&O contractor for use in preparing the mandatory State and Federal environmental reports for the Site in a timely manner. In addition, the Contractor shall provide appropriate environmental data for the SPP to support Site assessments and preparation of the Site Environmental Report.
- (g) The Contractor shall prepare and submit to DOE for review and action the following environmental protection deliverables. The deliverables shall be consistent with the design and schedule for construction and commissioning the SWPF. Identification of the following deliverables does not modify or affect the Contractor's responsibilities for environmental permitting, compliance, and protection identified in the Contract or as required under applicable law or regulation. The Contractor shall have the responsibility to identify and develop any necessary modifications to existing permit applications, license applications, requests for regulatory authorizations/approvals and supporting materials to support the design, construction, commissioning, and operation of the SWPF.
 - (1) Environmental Plan: The Contractor shall develop a detailed plan that identifies the Contractor's structured approach for environmental protection, compliance, and permitting, including:
 - (i) planned environmental permitting and compliance activities for design, construction, testing, and commissioning the SWPF;
 - (ii) detailed permitting and compliance schedule integrated and linked to the technical baseline; and
 - (iii) environmental monitoring and reporting requirements.

The Environmental Plan (Table C.5-1.1, Deliverable 7.3) shall be submitted for DOE review and approval, and include identification of where and when DOE or site M&O Contractor action is anticipated or required. The Plan shall be submitted within three months after contract award. The Plan shall be updated at least annually or as significant changes to the permitting schedules warrant.

- (2) Notice(s) of Construction: The Contractor shall prepare Notice(s) of Construction (NOC) for both radioactive and non-radioactive air emissions related to Contractor activities in accordance with applicable regulations. NOCs (Table C.5-1.1, Deliverable 7.4) shall be submitted for DOE approval no less than 150 days prior to scheduled submission to the regulators. The Contractor shall also provide draft permit modification language for the air-operating permit to the appropriate site contractor based on regulator approvals of NOC and consistent with the project schedule, Environmental Plan, and provisions of this Contract.
- (3) Prevention of Significant Deterioration Permit Application: The Contractor working with the site M&O Contractor shall prepare a Prevention of Significant Deterioration (PSD) Permit Application for air emissions related to Contractor activities in accordance with applicable regulations. The Permit Application (Table C.5-1.1, Deliverable 7.5) shall be submitted for DOE review, comment, and approval no less than 150 days prior to scheduled submission to the regulators. The Contractor shall also be responsible for providing draft permit modification language to the appropriate site contractor for the air-operating permit consistent with the project schedule and provisions of this Contract.

Standard 8: Safeguards and Security (S&S)

The purpose of this Standard is to describe the S&S requirements relevant to the SWPF and operations.

- (a) The Contractor shall in conjunction with the Site M&O Contractor develop and implement a S&S Program to ensure the protection of DOE-owned material and information.
- (b) The S&S Program shall ensure the protection of DOE-owned property, material, and information.
 - (1) The scope of DOE S&S requirements includes:
 - (i) Physical protection;
 - (ii) Material control and accountability, if found applicable throughout the period of the contract;
 - (iii) Information and personnel security and the Site access requirements; and
 - (iv) Government property protection.
 - (2) The Contractor's program shall comply with the applicable regulations, WSRC SRID, and DOE Orders including vulnerability assessment requirements. The Contractor shall design the SWPF in a manner to provide adequate response time for SRS Security Personnel.
 - (3) The contractor(s) shall develop a S&S Plan for DOE (Table C 5-1.1 deliverable 8.1) that meets all requirements to operate a facility at SRS.
 - (4) The contractor shall support DOE in developing information for vulnerability assessments and all S&S requirements.

C.7 FACILITY SPECIFICATION

- 1.0 **Operating Capacity.** To process the entire HLW inventory a facility starting operations in 2010 would require an annual throughput of nominally 6 million gallons. A complete analysis of facility throughput put to meet process objectives is contained in the Bases, assumptions, and Results (BAR) report, WSRC-RP-99-00006, Rev 3 available on the SPP web page (password protected). Sizing for the initial SWPF should be scaled off of this design data for the full-scale facility.

- 2.0 Interface with Site Systems Facilities Equipment Procedures and Requirements. The Facility shall be designed for integrated long-term operations with existing site infrastructure. Efforts should be taken to ensure compatibility with site wide calibration, maintenance, and testing equipment, facilities, procedures, and requirements.
- 3.0 Design Conditions, Constraints, Codes and Standards. The Contractor shall develop a database of National Consensus Code and Standards to be used in the design of the SWPF. This Database will be the code of record for the SWPF and will be approved by DOE early in the Conceptual Design process. To assist in development of the code of record a preliminary listing of National Consensus Codes and Standards is provided. In addition, the SRS Engineering Standards listed in Section 3.24 are used to supplement the Code of record with specific SRS requirements. The contractor shall use this information and establish a code of record for the SWPF that provides the best value for the government while meeting safety, operational, maintenance, and environmental requirements. Areas that deviate from the codes and standards described below shall be highlighted when submitted to DOE for approval. Rational for the deviations shall also be provided.
 - 3.1 Process Materials
 - 3.1.1 Provisions in the Facility design shall be provided to allow positive isolation of SWPF from incoming waste streams.
 - 3.1.2 Process vessels shall be compatible with the process chemistry and shall have a minimum 10 year design life for removable vessels. Permanently installed vessels shall be designed for the life of the facility.
 - 3.1.3 Storage tanks shall be constructed of materials compatible with the stored fluids.
 - 3.1.4 Equipment and materials (such as gaskets, cables, etc.) shall be radiation-resistant and chemical resistant as to provide the intended service in the operating environment for the design life.
 - 3.1.5 The facility shall be designed to limit generation and dispersion of radioactive and hazardous material by providing designs to minimize generation and promote segregation of waste in accordance with DOE Order 435.1, Radioactive Waste Management.
 - 3.1.6 Materials in radiation areas will be capable of withstanding the total absorbed dose over the life of the system, or will be designed to be replaced. The use of Teflon in radiological areas is to be prohibited. Radiation resistant material such as Tefzel shall be used as an alternative.
 - 3.2 Environmental Constraints
 - 3.2.1 Design shall provide a secondary containment and systems to monitor, detect, collect and any leakage from in-ground waste transfer lines and in-ground radioactive waste handling and storage tanks.
 - 3.2.2 Individual Containment areas and or dikes capable of containing the tank volume shall be provided around each bulk chemical storage tank.
 - 3.2.3 Means to monitor airborne effluents from SWPF during normal operations shall be provided.
 - 3.2.4 Ground water monitoring wells shall be installed at SWPF in accordance with DOE Order 5400.1.
 - 3.3 Health Protection
 - 3.3.1 Monitoring equipment shall provide means for calibration to appropriate standards. Alarm and warning systems that are required to function during a loss of power shall be provided with a Uninterrupted Power Supply unless demonstrated that the system can tolerate a temporary loss of power without loss of data, and they are provided with standby power. Determination of the power supply type and quantity shall be based on the safety classification of the monitoring system or device.
 - 3.3.2 Area radiation monitors shall be installed in frequently occupied areas with the potential for unexpected increase in dose rates and where there is a need for local indication of dose rate prior to personnel entry. Monitors shall have local audio-visual alarms and remote alarms in the Central Control Room.
 - 3.3.3 Confinement barriers and associated ventilation systems, shall maintain a controlled, continuous airflow from the environment to the building and from non-contaminated areas of the building to

- potentially contaminated areas, to the normally contaminated areas and finally through HEPA filters prior to release to the environment.
- 3.3.4 Entry points into Radiological Buffer Areas (RBAs) shall be minimized. Within the RBA, entry controls shall be established for radiological areas. The design of the facility shall include controlled access to areas of potential hazards within the facility. Personnel entry control shall be established for each radiological area. The degree of control shall be commensurate with existing and potential radiological hazards.
 - 3.3.5 In addition to local alarm stations, radiation monitoring system signals, continuous air monitors and alarms associated with stack monitoring systems shall have central readout and alarm panels that are accessible after a Design Basis Accident (DBA) to evaluate internal conditions.
 - 3.3.6 System alignments, which include flow path and inadvertent flow path, shall be verifiable without requiring personnel entry into radiological areas.
 - 3.3.7 Remote handling equipment shall be considered where it is anticipated that exposures to hands and forearms would approach dose limits or where contaminated puncture wounds could occur.
 - 3.3.8 Shielding may be designed using any applicable method. The designer shall be aware of the limitations of the method employed per ANSI/ANS-6.4. The selection of shielding materials shall be such that calculation results are conservative. Reflection configurations shall be reviewed to determine the effect on the design radiation levels. Selection of shielding material shall consider minimization of hazardous materials and/or the encasing of materials to preclude the generation of mixed waste.
 - 3.3.9 Special features shall be considered for access through confinement barriers to minimize the impact of facility access requirements on the ventilation system and to prevent the release of airborne radioactive materials.
 - 3.3.10 Spill prevention and control shall be considered in the design stage of the facility to minimize the possibility of accidentally releasing hazardous waste to the environment.
 - 3.3.11 The design of the facility and the selection of materials shall include features that facilitate operations, maintenance, decontamination and decommissioning.
 - 3.3.12 Calculated radiation dose rates shall not exceed the maximum area radiation dose rates for designated radiation design basis zones. The radiation zoning criteria for the facility is given in the following radiation zoning criteria table:

Table 3.3-1 - Radiation Zoning Criteria

Radiation Design Basis Zone	Maximum Area Radiation Dose Rate
1	< 0.05 mrem/hr @ 30cm
2	< 0.25 mrem/hr @ 30cm
3	< 5.0 mrem/hr @ 30cm
4	< 100.0 mrem/hr @ 30cm
5	< 500,000 mrad/hr @ 1m
6	> 500,000 mrad/hr @ 1m

- 3.3.13 The design shall provide for monitoring of occupational workers in work areas where radioactive materials are stored and handled. The use of devices to warn personnel of possible contamination or other hazards shall be evaluated and provided. Whole body personnel contamination monitors shall be provided at the exit from Radiological Buffer Areas to prevent the spread of contamination. The background radiation dose rate at the personnel contamination monitors must be designed to meet the specifications of the unit.

- 3.3.14 The facility design shall provide for the minimization and segregation of radioactive, hazardous, and mixed wastes into compatible groups for the treatment, storage, and disposal of such wastes.
- 3.3.15 The Central Control Room shall have the capability to read all remotely instrumented radiological monitoring equipment.
- 3.3.16 Warning and alarm systems shall be designed, installed and tested to ensure that they are heard in the ambient condition of the area they cover. Safety alarm systems, such as evacuation alarms, shall enunciate inside and outside the monitored area to identify hazardous condition to anyone inside or outside in the vicinity of the monitored area. The use of visual as well as audible alarms shall be evaluated. Safety alarms in high noise areas shall be provided with audible and visual alarm systems.
- 3.3.17 Change rooms shall be provided for changing into and from protective clothing and for personnel monitoring. These rooms shall be adjacent to shower facilities. Change rooms shall be designed to ensure that clean clothing and protective clothing are segregated. The design shall ensure that storage of contaminated protective clothing will control contamination so that it does not spread beyond the storage container. The change room exhaust shall be HEPA filtered if dispersible radionuclides are handled in the process areas it serves.
- 3.4 Operating Conditions
 - 3.4.1 Tanks that contain or may contain flammable mixtures shall be continuously agitated and purged with sufficient nitrogen to dilute oxygen, and other oxidants produced from radiolysis, to well below the minimum oxidant concentration for the PHC process vessels gas mixture.
 - 3.4.2 Tanks that contain or may contain liquid organic waste shall be inerted with nitrogen at all times.
 - 3.4.3 The cross-flow filters shall be designed for backpulsing whenever an excessive pressure drop across the filter is detected.
 - 3.4.4 The cross-flow filters shall be designed for dynamic cleaning using recirculating streams of oxalic acid and caustic.
 - 3.4.5 The facility design shall permit the cross-flow filters to be placed in a wet lay-up using a dilute sodium hydroxide solution.
 - 3.4.6 Two independent level indications per tank shall be provided to support inter-area transfers.
- 3.5 Industrial Safety
 - 3.5.1 Engineered safety features shall be the primary method used to minimize exposure to carcinogens and to prevent the release of carcinogens into the work environment.
 - 3.5.2 Asbestos, asbestos-containing materials or materials containing refractory ceramic fibers shall not be used at SWPF.
 - 3.5.3 SWPF design shall comply with the safety requirements of DOE Order 440.1A
- 3.6 Waste Management
 - Design shall comply with the requirements of DOE Order 435.1, Radioactive Waste Management by providing for waste minimization and volume reduction of radioactive liquid wastes, reducing liquid usage and maximizing recycling activities.
- 3.7 Civil and Sitework
 - 3.7.1 The SWPF design shall include provisions for erosion control and soil stabilization in ditches, fill, slopes, embankments, and denuded areas, and restoration of areas disturbed by the project to original or improved conditions.
 - 3.7.2 Facility safeguards monitoring or detection devices shall be protected during operation by the use of soil erosion controls to ensure continued operation.
 - 3.7.3 Positive stormwater drainage shall be provided to prevent standing water within the facility area.
 - 3.7.4 SWPF shall be designed to connect with the existing SRS transportation infrastructure.
 - 3.7.5 A minimum 75-ft equipment zone shall surround SWPF to allow for crane and equipment access during construction.
 - 3.7.6 Where practical, roads, sidewalks and parking areas shall be constructed with porous paving materials.
 - 3.7.7 A cooling tower shall be used as the ultimate heat sink for the facility. The Cooling Tower shall have a 25% excess capacity, not including allowances for fouling.

- 3.7.8 A dedicated source of compressed air at 120 psig shall be provided for use as Breathing Air in the facility.
- 3.7.9 A dedicated steam system shall be used for any applications where there is cross contamination potentials. All steam systems shall be fed from the existing site steam distribution system.
- 3.7.10 Independent sources of compressed air shall be provided for Instrument Air and Plant Air in SWPF. A minimum 25% excess capacity shall be built into these systems to accommodate future users.
- 3.7.11 There shall be no interconnections among stormwater systems, the sanitary waste system and radioactive or other hazardous material handling systems.
- 3.7.12 There shall be no interconnections between the potable water system, the sanitary waste system, and process waste systems or any other gas or water system temporary or permanent.
- 3.8 Structural
- 3.8.1 Structures, systems and components shall be designed for Natural Phenomenal Hazards commensurate with their performance category. Performance categories shall be developed and applied in accordance with DOE Guide 420.1-Y, DOE-STD-1021 and DOE-STD-1020.
- 3.8.2 Structural analysis of piping shall be based on the end of life minimum wall (corroded) condition.
- 3.8.3 Straight-line penetrations of shield walls shall be avoided to prevent radiation streaming. Penetration locations should be selected to preclude direct line of sight with source of radiation through the penetrations. Penetration configurations in concrete shield walls shall be shown to provide adequate attenuation.
- 3.8.4 Concrete structures shall be designed to prevent acidic degradation.
- 3.8.5 Embedded process piping shall be designed for the life of the facility. Welds in embedded process piping shall be 100% radiographed.
- 3.8.6 A minimum of 20% spare embedded penetrations shall be provided.
- 3.9 Architectural
- 3.9.1 The facility layout shall provide separation of administrative and support personnel from operations and process activities. Facility layout shall be based on segregation of facility functional areas. The first level of segregation should separate process areas from non-process areas. Within process areas, rooms that have no radioactive material should be separated from rooms that contain radioactive material.
- 3.9.2 The facility shall contain:
- Areas for radiological support functions; specifically, for a Radiological Control Office, personnel decontamination, instrument storage and decontamination.
 - Shops to support maintenance and electronics and instrumental shop work and tool/measuring and test equipment storage/issue.
 - A classroom at the facility's simulator for training of operations personnel.
 - Facilities for storage of contaminated equipment which are accessible to allow decontamination, maintenance, repair or disposal operations to proceed when required.
 - An area(s) for the storage and staging of clean equipment.
 - A storage and unloading area for compressed gases (portable cylinders).
 - Floor space/wall space for status boards and manning of a facility emergency operations center.
 - Warehouse facility sized to suit the facility needs determined by the design.
- 3.9.3 The Facility architecture shall be designed to accommodate the following:
- Habitability provisions for Service Building personnel
 - Administration Building
- 3.9.4 Design shall ensure maintenance facilities, equipment and tools are capable of being maintained and are strategically located so that maintenance activities are effectively accomplished.
- 3.9.5 A mechanical equipment test control station will be provided to run-in and test repaired equipment.

3.10 Mechanical

General

- 3.10.1 The SWPF design life shall be 40 years.
- 3.10.2 Mechanical components located in high contamination potential areas shall be evaluated and if necessary shall be designed with a surface finish to facilitate decontamination.
- 3.10.3 Components (piping, storage tanks and instrumentation) susceptible to freezing shall be provided with freeze protection.

Thermal Insulation

- 3.10.4 Mechanical insulation shall be provided to minimize energy losses or gains, prevent condensation or freezing, reduce heat loads in areas requiring controlled temperatures, and provide for safe surface temperatures for piping and piping components.
- 3.10.5 Thermal insulation shall be non-combustible or fire resistant.

Vibration

- 3.10.6 Piping shall be supported/restrained to avoid vibration resulting from the flow of service medium. Transient loads under all modes of operation shall be considered in the design of the supports.
- 3.10.7 Equipment supports subjected to vibration shall be designed to avoid resonance between the operating frequency and the natural frequency of the equipment on its support.

Pressure

- 3.10.8 Pressure relief devices shall be vented to environmentally acceptable locations such as off-gas systems or evacuated relief tanks.
- 3.10.9 Pressure protection methods that use active systems shall be equipped to conduct periodic testing.
- 3.10.10 The outdoor relief valve discharge vent piping shall have drain holes to prevent the accumulation of water.
- 3.10.11 Systems which must remain in operation to support day to day operation shall have redundant pressure relief devices to support periodic testing.

Piping

- 3.10.12 Underground or embedded waste transfer piping shall be provided with cathodic protection.
- 3.10.13 Test capability shall be provided to enable in-service leak testing of process piping including process jumpers.
- 3.10.14 Process jumpers 3 inches diameter or less shall use Hanford connectors.
- 3.10.15 Gaseous and liquid piping systems shall include physical design features to prevent damage from "hydraulic" transients due to liquid and gas hammer and shall be designed to eliminate accumulation of condensate.
- 3.10.16 Piping runs under positive pressure shall have capability for venting, draining and refilling.

Valves

- 3.10.17 Inside the Process Building, valves shall include leakage minimization features.
- 3.10.18 Stop valves shall be provided to isolate equipment, or appurtenances for ease of maintenance.
- 3.10.19 Process cell valves shall be capable of being operated remotely and by devices on overhead crane.
- 3.10.20 All isolation valves shall be designed to be lockable or with the capability to be locked.

Pumps

- 3.10.21 Continuous operation pumps that are critical to the salt treatment process shall be provided with installed back-up capability to allow removal for maintenance and to minimize process interruption.
- 3.10.22 Pumps shall be designed for low shear application where required by service application.

Tanks

3.10.23 Process tanks shall be equipped with internal spray nozzles to facilitate decontamination.

3.10.24 Process tanks shall be properly grounded to prevent potential ignition source from static charges.

Cranes

3.10.25 The Cranes shall **not** have dual drive axles.

3.10.26 Overhead cranes shall be remotely operated from a remote control room.

3.10.27 An overhead crane shall be provided to support cell cover installation/removal and equipment installation and removal. The overhead crane shall be remotely controlled by a radio frequency control system and shall have a remote retrieval system.

3.10.28 A color television camera that can be lowered to the process cell floor by the overhead crane shall be provided. The camera shall be controlled remotely from the control room and will have pan, tilt and zoom capabilities.

3.11 HVAC

3.11.1 The design shall include a tornado protection system: tornado dampers, tornado doors, and a barometric pressure system, that works on a fail safe, two out of three, logic.

3.11.2 The location of air supply intakes shall be designed to avoid the possibility of drawing in fumes from diesel generator exhaust or from cold feed tanks.

3.11.3 Provisions shall be made to ensure that hazardous levels of contaminated air are not released into adjacent work areas or the outside environment.

3.11.4 The ventilation airflows shall be from zones of lower contamination potential toward zones of higher contamination potential using differential pressure to control the direction of airflow between rooms, corridors and zones in the facility. Air recirculation from a zone of higher contamination back to a zone of lesser contamination shall be prohibited.

3.12 Fire Protection

The Fire Protection program will be developed commensurate with the development of the facility design. The Conceptual Fire Hazard Analysis (FHA) will identify major fire protection features that must be included in the project to satisfy the various code requirements.

3.13 Process or Production Requirements

3.13.1 Process Tanks and inaccessible tanks shall be instrumented such that loops and sensors can be maintained, calibrated, and replaced without requiring entry into a Radiation Design Basis Zone greater than 2.

3.13.2 The design and installation of in-cell tanks $\leq 30,000$ gallons and equipment shall allow for remote removal and replacement.

3.14 Electrical

Non-fiber optic signal cables shall not be run in close proximity to power cables or other cables that could induce voltages into the signal cables.

3.15 Grounding

3.15.1 A means of lightning dissipation compatible with the system at DWPF is required.

3.15.2 Uninterruptible power shall be provided for equipment that is required to operate continuously and cannot sustain functions through the momentary power loss that occurs when a standby power source comes on line and picks up the load following a loss of normal power.

3.15.3 Safety class standby power shall meet the redundancy and seismic requirements of the safety class system(s) that it is supporting.

3.16 Instrumentation

3.16.1 Instrumentation shall be designed to monitor process variables and systems over their defined ranges for normal operation with the appropriate level of accuracy and repeatability, anticipated operational occurrences and accident conditions as appropriate to ensure adequate safety.

- 3.16.2 Instrumentation shall be selected to be compatible with the process conditions at its installed location.
- 3.16.3 Instrumentation shall be selected with environmental ratings which envelope the design conditions expected at their installed locations for the operating modes which they are required to support.
- 3.16.4 Instrumentation/controls and valves shall go to a safe state on loss of power or motive force.
- 3.16.5 Redundant thermocouples (RTDs) shall be provided where these instruments are direct immersion type, welded to a device or located in process area drywells.
- 3.16.6 Valves that are controlled remotely and valves within shielded cells shall be provided with means to indicate, (i.e. limit switches), whether the valve is fully open or fully closed.
- 3.16.7 Instrumentation shall be designed and installed to provide accessibility for maintenance, calibration, periodic online surveillance testing and troubleshooting.
- 3.16.8 Instrumentation shall be located outside of shielded cells where possible. Instrumentation that must be located inside a shielded cell shall be designed to allow remote maintenance and operations. Where access to instrumentation inside a shielded cell prohibits remote maintenance, redundant or alternative instrumentation shall be installed.
- 3.17 Control Systems
 - 3.17.1 SWPF shall be configured in such a way as to provide the capability for a safe and orderly emergency shutdown of the facility processing operations.
 - 3.17.2 SWPF emergency shutdown process must support the capability to successfully accomplish the operation by supporting manually activated automated shutdown sequences, manual single point emergency stop of all critical safety related equipment, and Emergency Operating Procedure (EOP) execution by local control operators.
 - 3.17.3 The design of the Human-Machine Interface (HMI) for operations and control of the SWPF (Control Rooms and Local Control Station environments) shall incorporate human factors, engineering principles and operating experience to promote safety and high operational reliability. The design should incorporate the appropriate instrumentation and controls to provide the operators with diagnostic and mitigation capability.
 - 3.17.4 The process shall be operated from a central location through an Integrated Control System (ICS) which shall integrate operation of the facility processes and infrastructure where appropriate.
 - 3.17.5 The Facility shall provide a Central Control Room (CCR) arranged in such a way that it is conducive to complying with Conduct of Operations requirements for the ICS.
 - 3.17.6 Requesting transfer of fresh waste from the Tank Farm shall be performed from within the SWPF CCR and shall be capable of providing immediate and direct notification to the Tank Farm operator to initiate or secure the transfer.
 - 3.17.7 Local Control stations shall be provided for continuous operating systems to maintain system functionality when the ICS is removed from service or in the event of an ICS failure.
 - 3.17.8 Design shall provide protection such that failure of any component in the control system shall not jeopardize the integrity of the plant systems.
 - 3.17.9 The ICS shall be constructed and arranged in such a way as to provide for regular maintenance.
 - 3.17.10 Controlled levels of access to the ICS equipment and operating system shall be maintained throughout the facility. Controls shall include a network firewall to protect against unauthorized access to the process computing devices.
 - 3.17.11 Project shall provide for a development control system identical to the primary process control system. This development system shall be isolated from the process system, and used for software development, testing, verification, and demonstrations in an off-line capacity prior to software being installed into the facility. This development system shall be equipped with input/output racks that will be used to test and/or troubleshoot control system hardware prior to field installation.
 - 3.17.12 Video and audio systems shall be provided to support remote operations within the Facility.
 - 3.17.13 The Facility shall provide sufficient space for control system I/O cabinets that have 20% spare capacity.
 - 3.17.14 Design shall provide a dedicated, redundant fiber optic network for the control system.

- 3.17.15 Systems that interface with the ICS (local control stations, manufacturing and engineering systems, etc.) shall have common network wiring, components, connections, and communication protocols throughout the Process Building as well as any remote locations.
- 3.17.16 The facility shall be provided with a Backup Control Room if the CCR design does not withstand a design basis accident(s).
- 3.17.17 The facility shall have the ability to distribute information among personnel electronically.
- 3.17.18 Design shall provide the capability to monitor and/or trend equipment performance.
- 3.18 Communication
- 3.18.1 Telephone, video, public address and computer communication systems shall be installed and shall be connected to the existing SRS communication systems.
- 3.18.2 A backup communication system shall be provided that does not rely on normal or emergency power for communication with the control-room operator.
- 3.18.3 Communication systems shall not interfere with or be interfered with by process equipment.
- 3.19 Safeguards and Security
- 3.19.1 Preliminary Vulnerability Assessment planning indicates Property Protection Area controls will be required. This assumption must be confirmed via the final Vulnerability Assessment.
- 3.19.2 Equipment lay down areas shall be protected by temporary barriers to impede access during facility construction.
- 3.19.3 Access points to the Administration and Miscellaneous Buildings shall be equipped with key type locks.
- 3.19.4 An electronic personnel accountability system shall be provided.
- 3.20 Permits
- 3.20.1 The SWPF shall meet the requirements of all applicable Local, State and Federal Permits.
- 3.20.2 A Power Service Utilization Permit (PSUP) shall be obtained during Conceptual Design.
- 3.21 Maintenance
- 3.21.1 The process area design shall provide for the removal, replacement, and maintenance of components.
- 3.21.2 The SWPF shall provide the following capabilities:
- Laydown Area to accommodate the staging of equipment during removal and installation.
 - Remote Equipment Decon to accommodate the remote decontamination of equipment.
 - Contact Decontamination and Maintenance to accommodate the contact decontamination and subsequent maintenance of equipment.
- Laydown, Remote Equipment Decon and Contact Decontamination and Maintenance capabilities shall be sufficient to accommodate the largest removable cell component.
- 3.21.3 Design shall provide an appropriate storage location at the facility for critical spare items.
- 3.21.4 The capability shall be provided to unload/load contaminated and clean equipment for shipment including the ability to handle, package and survey within a contamination area.
- 3.21.5 Stands, jigs and hoists to handle transport and repair equipment shall be provided.
- 3.21.6 Location, tools and equipment shall be provided to repair and clean contaminated equipment.
- 3.21.7 Design shall provide single point power source isolation for instruments and equipment whenever possible. Equipment isolation points shall be capable of accepting a lock.
- 3.21.8 Design shall incorporate the maximum use of installed test connections, jacks and plugs.
- 3.21.9 Systems shall be designed to allow testing at the component, system and integrated system level.
- 3.21.10 The capability to load, energize and monitor repaired equipment shall be provided in the Contact Decontamination and Maintenance Cell.
- 3.21.11 The maintenance organization shall be provided an appropriately designed and configured off-line control system for troubleshooting and running repaired equipment.
- 3.21.12 Equipment shall have access panels where replacement of parts is necessary.
- 3.21.13 Design shall incorporate drain and flush capability for process vessels/piping to support line break operation.

- 3.21.14 Reserved
- 3.21.15 Component isolation for removal of parallel instrumentation loops for critical systems shall have independent isolation.
- 3.21.16 Process system piping and instrumentation shall use the same configuration for the same functions to minimize maintenance and operation interface problems.
- 3.21.17 Designs for maintenance and in-service inspections within the process area shall not adversely affect operations.
- 3.21.18 The facility design shall provide for non-destructive, in-service inspections of safety-related and mission-related equipment by contact inspection, even though life-of plant design may be possible.
- 3.21.19 Provisions shall be incorporated into the design of the facility for the repair and replacement of materials handling equipment.
- 3.21.20 Provisions shall be incorporated into the design of the facility for the repair and replacement of major processing system components/equipment.
- 3.21.21 Where in-place handling is not practical, the design shall include maintenance or inspection facilities and carrier systems to transport components to and from the facilities.
- 3.21.22 Where radiation or other hazards create an undue risk to personnel and preclude contact inspection, the project shall provide for component removal and replacement by remote handling equipment.
- 3.21.23 Process systems and components, especially those performing safety-related functions, shall be designed and arranged so that they can be adequately inspected, tested and maintained as appropriate before being placed in service, and at suitable and regular intervals thereafter.
- 3.21.24 A list of spare parts necessary for routine operation and maintenance of equipment shall be provided.
- 3.21.25 Equipment shall be located a sufficient distance from stationary structures so that access is afforded for operation, inspection, and maintenance of equipment without the need to routinely remove additional structures or equipment.
- 3.21.26 Equipment located within gloveboxes shall be accessible for operation, inspection and planned maintenance without breaching glovebox integrity.
- 3.21.27 Safety-related systems shall be designed to allow for calibration of the instruments/equipment through redundant systems, or installation of isolation/test valves to calibrate in place.
- 3.21.28 The decontamination cells shall have service connections pre-plumbed/wired.

- 3.22 Manufacturing and Engineering Systems
 - 3.22.1 Design shall provide for collection, history, and trending of process data.
 - 3.22.2 Design shall provide for automated collection of equipment data including specifications and status.
 - 3.22.3 Design shall provide for data collected from laboratory procedures.
 - 3.22.4 Design shall provide for management of data on chemical materials contained within the facility, e.g. process chemicals such as caustic; industrial chemicals such as oxalic acid, chemical inhibitors; and miscellaneous chemicals such as floor cleaners, oils shall have inventory, physical, chemical toxicological, and health information data available.
 - 3.22.5 Design shall comply with Human Factors Engineering practices in design of electronic application user interfaces and local computing environments within the facility.
 - 3.22.6 Controlled levels of access to the Manufacturing and Engineering System equipment and software systems shall be maintained throughout the facility.
 - 3.22.7 Design shall integrate process, operations, maintenance and business applications where appropriate.
 - 3.22.8 Design shall provide standards for use in development of electronic applications.

- 3.23 Remotability
 - 3.23.1 Process Cell jumpers shall be designed to minimize crossing over other jumpers. Jumper arrangement shall be based on failure rates of equipment, maintenance frequencies and safety functions providing the optimum arrangement to minimize the number of jumpers removed, the frequency of removal and the potential for entering into Limited Conditions of Operations during jumper manipulation.

- 3.23.2 Stacking of process vessels shall be avoided and overhead access shall be provided to all process equipment.
- 3.23.3 Jumpers shall be balanced to suit their installation application (usually balanced vertically) by the addition of stainless steel encased counterweights.
- 3.23.4 Standard Hanford connectors shall be used to connect process jumpers within the SWPF cells for all process lines 3" diameter and smaller.
- 3.23.5 Electrical and instrumentation jumpers shall use SRS standard pin connections with upper and lower holder assemblies.
- 3.23.6 Acme studs shall be used to assemble and disassemble equipment remotely. When using Acme studs on equipment which will not permit the shank of the impact wrench to clear in the vertical direction, a dutchman shall be installed. When rotation of the impact wrench must be limited to prevent damage to nearby equipment, lugs shall be welded to the flange to restrict the movement of the wrench or a dutchman used.
- 3.23.7 Standard SRS nozzles and jumpers shall be used throughout the SWPF cells.
- 3.23.8 Standard locating dowels shall be utilized in the assembly and disassembly of removable equipment.
- 3.23.9 The construction and installation tolerances for removable equipment shall support full removability and be demonstrated through the use of mock-ups.
- 3.23.10 All equipment within the SWPF cells shall be designed to be handled remotely and whenever possible shall use a standard lifting yoke.
- 3.23.11 All removable tanks, vessels and specialized equipment shall be lifted and balanced after fabrication to allow them to remain in an upright condition during remote removal and installation.
- 3.23.12 All major in-cell equipment shall be provided with trunnions and permanently installed trunnion guides.
- 3.24 Decontamination and Decommissioning
- 3.24.1 The design of the area in the facility that may be contaminated with radioactive or other hazardous materials under normal or abnormal operating conditions shall incorporate measures to simplify future decontamination. Such items as service piping, conduits, and ductwork will be kept to minimum in these areas and will be arranged to facilitate decontamination.
- 3.24.2 The following design principles shall be considered:
- Use of modular confinements for radioactive and hazardous materials to preclude contamination of the fixed portions of the structure.
 - Long runs of buried contaminated piping will be minimized to the extent possible given process system constraints, and provisions will be included in the design to ensure the integrity of joints in buried pipelines.
 - A remote operated cutting tool shall be provided to cut up jumpers and steel structures to facilitate dismantlement, removal, and packaging of contaminated equipment from the facility.
 - Use of modular shielding in interior areas to permit modifications to larger shielded areas for future use.
 - Use of lifting lugs on equipment.
 - The process cells coated with a barrier that is resistant to chemical attack and resists degradation due to radiation exposure.
 - Decon Cells and Contact Maintenance Cells shall be lined with stainless steel to facilitate decon of the cells to minimize exposure.

3.25 Codes and Standards

The following is a preliminary listing of National Consensus Codes and Standards to be used in the design of the SWPF. The list is not to be considered all-inclusive. Additional Regulations, DOE Orders, codes and standards could become applicable throughout the project and shall be evaluated for application to this project. The most current document revision in effect at the time of the contract shall apply unless otherwise specified.

AASHTO	ACI
AWWA	ANS
ASHRAE	CGA
SDWA	API
SMACNA	ASCE
TIMA	ASHRAE
10CFR Part 55	ASME
10CFR1021"	ASTM
10CFR435"	CMAA
10CFR50	IEEE
10CFR835	IESNA
29CFR1910	ISA
29CFR1926	NACE"
40CFR125	NEMA
40CFR141"	NFPA
40CFR142	NUREG 700
40CFR61	NUREG CR 6393
40CFR68	TEMA
41CFR101	TIA/EIA
AABC	

The following SRS Standards shall be considered in the design of the SWPF:

01060	SRS Structural Design Criteria
01065	Strong Motion Seismic Monitoring Instrumentation for SRS
01101	Use of Listed Equipment & Components for Safety Class Applications
01110	SRS Civil Site Design Criteria
01120	SRS Fire Protection Design Criteria
01703	Application of ISA S84-01 for SRS Non-Reactor Facilities (U)
01709	Color Conventions for Process Displays
05951	Corrosion Evaluation: Stainless Steels & Other Corrosion Resisting Alloys
05952	Required Practices to Minimize Chloride Induced Stress Corrosion Cracking of Type 300 Series Austenitic Stainless Steel
07270	Installation and Inspection of Penetration Seals
13096	Field Installation of Nuclear Incident Monitors
15060	ASME B31.3 Additional Requirements for SRS Piping Systems
15888	HEPA Filter Requirements
15889	Confinement Ventilation Systems Design Criteria
15980	Mechanical Installation of Safety Class & Safety Significant Instrumentation
16050	SRS Electrical Design Criteria
16055	Telecommunications

C.8 BASELINE SPECIFICATION

Specifications for feeds to and products from the SWPF are subject to change based on the results from alternate salt processing initiatives. A Waste Feed Strategy and Product and Secondary Waste Specifications will be developed in conjunction with DOE and the M&O contractor as these variables are defined. A brief synopsis of tank waste characterization, Saltstone facility waste acceptance criteria, and DWPF feed data is provided to aid in proposal

preparation only. This data is subject to change as a function the volume of waste that can potentially be processed by alternate methods and changes in permits and other requirements. Once these variables and the process capacity of the SWPF are better defined a strategy for waste removal, blending, and SWPF feeding can be developed.

Baseline Specification 1:	Tank Waste Characterization Data
Baseline Specification 2:	Saltstone Facility Waste Acceptance Criteria
Baseline Specification 3:	High Activity Fraction Feed to the DWPF

Baseline Specification 1: Tank Waste Characterization Data

This information is available on the Salt Processing Project website. The website requires a password for access which may be obtained from the Contracting Officer.

Baseline Specification 2: Decontaminated Salt Solution (DSS) Feed to the Saltstone Facility

The Saltstone Production Facility (SPF) has been permitted by the SCDHEC as a totally enclosed, industrial wastewater treatment plant. The SPF operating permit currently limits the processing rate of DSS in the SPF to 12 million gallons annually. The Saltstone Disposal Facility (SDF), located near the SPF, is also permitted by SCDHEC as an industrial waste landfill. Current permitted capacity of the SDF for disposal of saltstone is 174 disposal cells contained in large concrete vaults (14 12-cell vaults and 1 6-cell vault). Each cell has the capacity to contain the volume of saltstone generated from about 1.1 million gallons of salt solution, corresponding to a total disposal capacity for about 190 million gallons of salt solution. Current and projected future salt inventory will require disposal of 80 to 100 million gallons of salt solution. The DOE regulates solid Low Level Waste (LLW) disposal using long-term performance criteria [3] for near-surface disposal, as described in DOE Order 435.1. Although the NRC does not regulate saltstone disposal, the NRC Class A LLW limits and landfill design and closure specifications for solid radioactive waste disposal are used as a guide to set limits for the DOE Authorization Basis (AB) and the SPF Waste Acceptance Criteria (WAC) for DSS transferred to the SPF.

The salt solution concentration limits for radioactive contaminants in the current SPF WAC are shown in Table 2-1. Decontaminated salt solution within these limits would yield saltstone that is well within the NRC Class A LLW disposal limits for radioactive contaminants in solid waste. The permit requires these concentrations to be monitored and reported if they differ significantly from the concentrations discussed in the permit, but the actual concentrations are not regulated by SCDHEC. Similar limits for chemical contaminants are shown in Table 2-2. Note that NaF is the only sodium salt for which a limit has been imposed in the SPF WAC because of potential impact on groundwater.

Saltstone is a solid waste form that is the product of chemical reactions between a salt solution and a blend of cementitious materials (slag, fly ash, and a lime source). An acceptable saltstone product can be produced over a broad range of these four components. Due to the heat of hydration generated as the saltstone cures, salt solution temperature must be less than 45 °C when processed in the SPF to assure acceptable physical properties and leach resistance of cured saltstone.

Table 2-1. SPF WAC for Radionuclide Contaminants

Radioactive Contaminant	SPF WAC Limit (nCi/g)	Basis for WAC Limits
Total Alpha	20	NRC Class A
Total with $T_{1/2} < 5$ yr	N/S	N/S
Total beta/gamma	7500	AB source term
Radiation Control Guide	< 1	Rad. Protection
GAMMA EMITTERS USED TO CALCULATE RCG		
^{60}Co	6.8	Rad. Protection
$^{106}\text{Ru/Rh}$	128	Rad. Protection
^{125}Sb	76	Rad. Protection
^{126}Sn	14	Rad. Protection
$^{137}\text{Cs/Ba}$	45	Rad. Protection
^{154}Eu	16	Rad. Protection
Calculated RCG (b)	< 1	USQE if > 1
OTHER RADIOACTIVE CONTAMINANTS		
^3H (HTO)	1800	SDF Rad. Prot.
^{14}C	800	NRC Class A
^{59}Ni (a)	23,000	NRC Class A
^{64}Ni	3700	NRC Class A
^{79}Se	12	Groundwater
$^{90}\text{Sr/Y}$	40	NRC Class A
^{94}Nb (a)	20	NRC Class A
^{99}Tc	320	NRC Class A
^{129}I	2	Groundwater
^{241}Pu	200	SDF Haz. Anal.
^{237}Np	0.03	Groundwater

- (a) NRC Limits for Ni-59 and Nb-94 are based on activated metal; limits may not be applicable to salt solution or saltstone, but were included in limits recommended by SRTC (DPST-88-372, Rev.1 dated 5/19/88).
- (b) Radionuclides that emit high-energy gamma radiation must be monitored to assure radiation exposure to Z Area personnel will not exceed RC&O guidelines. Based on process knowledge and waste tank histories, the 6 isotopes shown in the equation below are the principal gamma-emitting species in salt solution from ITP and ETF operations (concentrations expressed in nCi/g); these are used to calculate the Radiation Control Guide (RCG):

$$\text{RCG} = 0.145 \times [^{60}\text{Co}] + 0.0078 \times [^{106}\text{Ru}] + 0.013 \times [^{125}\text{Sb}] + 0.0705 \times [^{126}\text{Sn}] + 0.022 \times [^{137}\text{Cs}] + 0.061 \times [^{154}\text{Eu}]$$

The RCG must be < 1 to be within WAC limits based on present shielding design of Z-Area facilities. A USQE and installation of additional shielding in locations identified in OPS-DTZ-96-00006 is required to process waste in the SPF if the calculated RCG is ≥ 1 . Calculated RCG values (in nCi/g) for the AB and long-term ITP/ETF average assume all isotopes in the RCG equation are at the values shown in the table; Present saltstone properties and SDF disposal, vault and closure design meet NRC requirements for Class C waste disposal, and radioactive contaminants are well within NRC Class A limits.

Table 2-2. SPF WAC for Chemical Contaminants

Chemical Contaminant	SPF WAC Limit	Basis for AB / WAC Limits
HAZARDOUS METAL IONS (units are mg/L)		
Arsenic	230	SPF JCO, Pass TCLP
Barium	1000	Pass TCLP
Cadmium	110	SPF JCO, Groundwater
Chromium	1100	Pass TCLP
Lead	1000	Pass TCLP
Mercury	250	LDR (260 mg/L), pass TCLP
Selenium	350	Groundwater
Silver	230	SPF JCO, Pass TCLP
ORGANIC CONTAMINANTS (units are mg/L)		
Benzene	3	LFL in SSHT
Butanol + Isopropanol	3000	(b), (c)
Methanol	300	(b), (c)
Tetraphenylborate (TPB)	16,000	Tank 50-to-SPF AB Limit
Phenol	1000	(d)
Tributylphosphate (TBP)	400	Permit Modification (e)
Sodium EDTA	500	Permit Modification (e)
Other volatile organics	20	Permit Modification (e)
SOLUBLE SALT CONTAMINANTS (units are moles/L)		
Nitrate	4.5	N/A
Nitrite	1.0	N/A
Aluminate	0.6	N/A
Fluoride	1.0	Groundwater
Hydroxide	4.0	N/A
Carbonate	0.5	N/A
Sulfate	0.4	N/A
Chloride	0.3	N/A
Oxalate	0.2	N/A
Phosphate	0.2	N/A
Total Sodium	3.5 - 6.0 (f)	Range tested

(a) deleted

(b) Isopropanol and methanol are components of sodium titanate slurry. Butanol is generated from hydrolysis of tributylphosphate (TBP) that was used as an antifoam in the Benzene Stripper Column in ITP.

(c) Limit for methanol is based on the flammability equation developed for transfers from the ITP Filtrate Hold Tank to Tank 50 (WSRC-OX-89-15-001). Butanol+Isopropanol limit combines the limit for isopropanol (2827 mg/L) and the maximum concentration of butanol that could be generated from the limit for TBP (500 mg/L).

(d) Present phenol limit is based on the limit in EPA's proposed rule covering TCLP leachate. When promulgated in 1991, phenol was dropped from the EPA rule controlling limits on TCLP leachate from waste.

(e) Permits were modified, after saltstone product tests, to enable the use of cleaning agents in ETF containing EDTA, Tributylphosphate as an antifoam agent in the Benzene Stripper Column in ITP and the disposal of laboratory wastes (low volumes) containing small quantities of organic chemicals used in analytical procedures. Low concentrations of organic chemicals in the laboratory waste are exempted from regulatory control.

(f) Acceptable saltstone properties and processability demonstrated for this range in sodium molarity.

N/A = not applicable

**Baseline Specification 3: High Activity Fraction Feed to the DWPF
Caustic Side Solvent Extraction (CSSX)**

The CSSX process would send two streams forward to the DWPF. One stream is a solution of cesium nitrate in very dilute nitric acid. The second stream contains MST and sludge that is removed by filtration after treating with MST to remove soluble Sr and alpha contaminants from the salt solution processed through the pilot/demo facility. (Note: This stream could be eliminated from consideration by this project by the alternative salt processing initiatives.) The MST/sludge solids are concentrated to a maximum of ~7 wt%, washed to reduce the soluble salt concentration and transferred as a slurry to the DWPF. Projected composition of this stream is shown in Table 3.1.

Table 3-1. Baseline Feed Concentrations to the DWPF

Component	CSSX	
	CsNO ₃ Solution	MST/Sludge Slurry
H ₂ O	8.33 lb/gal	8.1 lb/gal
HNO ₃	6.3E-4 lb/gal	
HCOOH		
H ₃ BO ₃		
CsOH		1.4E-5 lb/gal
CsNO ₃	0.0035 lb/gal	
CsCOOH		
Cu(COOH) ₂		
alpha		9.5E-5 lb/gal
KOH		5.7E-4 lb/gal
KNO ₃		
KCOOH		
NaOH		0.062 lb/gal
NaNO ₃		0.12 lb/gal
NaCOOH		
NaNO ₂		0.023 lb/gal
Na ₂ SO ₄		
Na ₂ CO ₃		
NaAlO ₂		
Al(NO ₃) ₃		
Na ₂ C ₂ O ₄		8.6E-5 lb/gal
Other Salts		0.046 lb/gal
CST Resin	--	--
MST solids		0.20 lb/gal
Sludge solids		0.25 lb/gal
[¹³⁷ Cs]	21 Ci/gal	0.1 Ci/gal

C.9 INTERFACE CONTROL REQUIREMENTS

This Section provides the requirements for interface controls that describe the physical and administrative interfaces between the SPP Contractor(s), DOE, and the Site M&O contractor.

The objective of the interface management system is to assure documentation and management of shared responsibilities for: (1) transfer of energy, data, or materials; and (2) development, operation, and maintenance of a physical compatible facilities and subsystems.

The approach to managing the interfaces is based upon development of ICDs that identify the requirements, roles, and responsibilities for all parties to the interface. The overall strategy for provision of services will be as follows:

- Site M&O contractor provides needed services/equipment up to/near the SPP Facility boundary (junction to be mutually agreed upon),
- SPP contractor routes services within the SWPF.

The intent of this strategy is for the SPP contractor's work to remain within the confines of the "green field" SWPF with the Site M&O performing any work required out side of SWPF boundary.

(a) Proposed ICDs are:

ICD 1:	Raw Water
ICD 2:	Potable Water
ICD 3:	Radioactive Solid Wastes
ICD 4:	Non-Radioactive Liquid Effluents
ICD 5:	Radioactive, Liquid Effluents
ICD 6:	Liquid Sanitary Wastes
ICD 7:	Land for Siting
ICD 8:	Electricity
ICD 9:	Roads
ICD 10:	Waste Feed
ICD 11:	Waste Treatability Samples
ICD 12:	Emergency Response
ICD 13:	Telecommunications
ICD 14:	Steam
ICD 15:	SWPF Feed to the Saltstone Facility
ICD 16:	SWPF Feed to the DWPF

(b) The Contractor shall update the ICDs as required throughout the period of Contract performance, ICDs shall reflect all interfaces and services needed in the construction and performance testing phases, and projected interface and services needed for the future commissioning and operating phases. The ICDs shall be an element of the design basis.

(c) The Contractor shall ensure that the ICDs include, at a minimum, details on the following areas consistent with the maturity of the project:

(1) Physical Interfaces:

- (i) Location and description of each hand-off point;
- (ii) Interface block diagrams and schematics that clearly define organizational responsibilities for each interface (e.g., ownership, construction, and maintenance);
- (iii) Type, quantity and composition of material;
- (iv) Packaging requirements;
- (v) Design drawings (as appropriate); and
- (vi) Operations and maintenance requirements.

- (2) Administrative Interfaces:
 - (i) Procedures that define the administrative transfer of interface items (e.g., who, what, when, where, and how).
 - (ii) Linkage to the integrated Contractor project baseline. These schedules and logic must contain detail that demonstrates that the key ICD events or milestones are achievable.
 - (iii) Documentation necessary for official hand-off of interface items.
 - (iv) Authorization basis and permitting integration.
 - (3) Acceptance Criteria shall be developed for every hand-off item.
- (d) Changes to ICDs will be made in accordance with Standard 1.

PART I – THE SCHEDULE

SECTION D

PACKAGING AND MARKING

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PART I – THE SCHEDULE

SECTION D

PACKAGING AND MARKING

D.1 PACKAGING

Preservation, packaging, and packing for shipment or mailing of all work delivered hereunder shall be in accordance with good commercial practice and adequate to ensure acceptance by common carrier and safe transportation at the most economical rate(s).

D.2 MARKING

Each package, report or other deliverable shall be accompanied by a letter or other document which:

- (a) Identifies the Contract by number under which the item is being delivered.
- (b) Identifies the deliverable Item Number or Report Requirement that requires the delivered item(s).

PART I – THE SCHEDULE

SECTION E

INSPECTION AND ACCEPTANCE

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PART I – THE SCHEDULE

SECTION E

INSPECTION AND ACCEPTANCE

E.1 DEAR 952.236-71 INSPECTION (APR 1994)

The Government, through any authorized representatives, has the right at all reasonable times, to inspect, or otherwise evaluate the work performed or being performed hereunder and the premises in which it is being performed. If any inspection or evaluation is made by the Government on the premises of the Contractor or a subcontractor, the Contractor shall provide and shall require his subcontractors to provide all reasonable facilities and assistance for the safety and convenience of the Government representatives in the performance of their duties. All inspections and evaluations shall be performed in such a manner as will not unduly delay the work.

E.2 INSPECTION AND ACCEPTANCE

- (a) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the Contract conforms to Contract requirements. The Contractor shall maintain complete inspection records and make them available to DOE. All work is subject to DOE inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the Contract.
- (b) DOE inspections and tests are for the sole benefit of the Government, and do not:
 - (1) Relieve the Contractor of responsibility for providing adequate quality control measures;
 - (2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;
 - (3) Constitute or imply acceptance; or
 - (4) Affect the continuing rights of DOE after acceptance of the completed work.
- (c) The presence or absence of a DOE inspector does not relieve the Contractor from any Contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.
- (d) DOE will verify the Contractor's performance of inspection and acceptance.

E.3 PRODUCT ACCEPTANCE DURING COMMISSIONING

See Section C.

E.4 FINAL ACCEPTANCE

The Contracting Officer will determine final acceptance within 60 days after the Contractor has met the milestone "Completion of Contract Requirements," unless the Contracting Officer determines that there is a non-conformance with Contract requirements.

In the event that the Contracting Officer determines a non-conformance with Contract requirements, the Contracting Officer may require the Contractor to prepare a Corrective Action Plan. The Corrective Action Plan shall describe the non-conforming condition and the specific actions the Contractor will take to correct the non-conforming condition.

E.5 FAR 52.246-5 INSPECTION OF SERVICES--COST-REIMBURSEMENT (APR 1984)

- (a) *Definition.* "Services," as used in this clause, includes services performed, workmanship, and material furnished or used in performing services.
- (b) The Contractor shall provide and maintain an inspection system acceptable to the Government covering the services under this contract. Complete records of all inspection work performed by the Contractor shall be maintained and made available to the Government during contract performance and for as long afterwards as the contract requires.
- (c) The Government has the right to inspect and test all services called for by the contract, to the extent practicable at all places and times during the term of the contract. The Government shall perform inspections and tests in a manner that will not unduly delay the work.
- (d) If any of the services performed do not conform with contract requirements, the Government may require the Contractor to perform the services again in conformity with contract requirements, for no additional fee. When the defects in services cannot be corrected by reperformance, the Government may-
 - (1) Require the Contractor to take necessary action to ensure that future performance conforms to contract requirements; and
 - (2) Reduce any fee payable under the contract to reflect the reduced value of the services performed.
- (e) If the Contractor fails to promptly perform the services again or take the action necessary to ensure future performance in conformity with contract requirements, the Government may--
 - (1) By contract or otherwise, perform the services and reduce any fee payable by an amount that is equitable under the circumstances; or
 - (2) Terminate the contract for default.

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SECTION F

DELIVERIES OR PERFORMANCE

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PART I – THE SCHEDULE
SECTION F
DELIVERIES OR PERFORMANCE

F.1 PERIOD OF PERFORMANCE

(a) The period of performance shall be from the date of award of the contract through the completion of Phase I. Phase II of the contract will only be performed by the contractor selected to design, construct and commission the facility and on the below schedule (to be completed at the end of Phase I).

(b) Milestone due dates for specific activities are as follows:

Milestone No.	Activity	Date
M1	Completion of Preliminary Design/Project Baseline	Establish Date at the end of Phase 1
M2	Completion of Final Design	Establish Date at the end of Phase I
M3	Completion of Construction	Establish Date at the end of Phase I
M4	Completion of Acceptance Testing	Establish Date at the end of Phase I
M5	Completion of Cold Commissioning	Establish Date at the end of Phase I
M6	Start of Hot Commissioning	Establish Date at the end of Phase I (No later than 2010)
M7	Completion of Contract Requirements	Establish Date at the end of Phase I

F.2 PRINCIPAL PLACE OF PERFORMANCE (APR 1984)

See Section H Clause, entitled *DOE Access to Contractor Management and Contract Documentation*.

F.3 DELIVERABLES

See Section C.5, Table C.5-1.1, entitled *Deliverables*.

F.4 FAR 52.242-15 STOP-WORK ORDER (AUG 1989) -- ALTERNATE I (APR 1984)

- (a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this Contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this Clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allowable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either-
 - (1) Cancel the stop-work order; or
 - (2) Terminate the work covered by the order as provided in the Termination clause of this Contract.
- (b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule, the estimated cost, the fee, or a combination thereof, and in any other terms of the contract that may be affected and the contract shall be modified, in writing, accordingly, if--
 - (1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allowable to, the performance of any part of this contract; and
 - (2) The Contractor asserts a claim for the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon the claim asserted at any time before final payment under this Contract.
- (c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.
- (d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

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SECTION G

CONTRACT ADMINISTRATION DATA

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PART I – THE SCHEDULE

SECTION G

CONTRACT ADMINISTRATION DATA

G.1 CORRESPONDENCE PROCEDURES

To promote timely and effective administration, correspondence submitted under this Contract shall include the Contract number and be subject to the following procedures:

- (a) **Technical Correspondence.** Technical correspondence (as used herein, excludes technical correspondence where patent or technical data issues are involved and correspondence which proposes or otherwise involves waivers, deviations, or modifications to the requirements, terms, or conditions of this Contract) shall be addressed to the U.S. Department of Energy (DOE) Savannah River Operations Office (SR) Contracting Officer's Representative (COR), with an information copy addressed to the DOE-SR Contracting Officer.
- (b) **Other Correspondence.** All other correspondence shall be addressed to the DOE-SR Contracting Officer (CO) with information copies of the correspondence to the COR, and the DOE-SR Patent Counsel (when patent or technical data issues are involved).

G.2 CONTRACT ADMINISTRATION

The Contracting Officer's address is:

Contracts Management Division
Contracting Officer
U. S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, SC 29803

G.3 CONTRACTING OFFICER REPRESENTATIVE (COR)

The COR will be designated by separate letter and will represent the CO in the technical phases of the work. The COR is not authorized to change any of the terms and conditions of this Contract. The CO, through properly written modification(s) to the Contract, is the only person authorized to make changes to the work scope.

G.4 BILLING INSTRUCTIONS

- (a) **Invoices:** Invoices shall be submitted in triplicate (original and two copies), in accordance with the following:
 - (1) Original and copies of invoices shall be submitted simultaneously. Invoices not simultaneously received by all addressees may be rejected or have payment delayed.
 - (2) In addition to the information required by the Section I Clause entitled, *Prompt Payment* (FAR 52.232-25), the following information must be included on each invoice:

Budget and Reporting (B&R) Breakout (if required).

- (3) Original invoice shall be submitted to the paying office at either the postal address or express courier address, as follows:

PAYING OFFICE - POSTAL ADDRESS:

U.S. Department of Energy
Oak Ridge Financial Service Center
P.O. Box 4307
Oak Ridge, TN 37831

PAYING OFFICE - EXPRESS COURIER ADDRESS:

U.S. Department of Energy
Oak Ridge Financial Service Center
200 Administration Road
Oak Ridge, TN 37830
(Phone No. 423-241-5073)

- (4) One copy of each invoice shall be submitted to the COR and CO.

- (b) Payment of submitted invoices shall be made electronically and in accordance with the *Prompt Payment Act*. Specific payment instructions shall be included in the invoice.

G.5 DOE-SR PROPERTY ADMINISTRATION

For purposes of administering DOE-SR property, the point of contact is:

U. S. Department of Energy
Savannah River Operations Office
Site Services Division
P.O. Box A
Aiken, SC 29803

G.6 DOE PATENT COUNSEL

Correspondence being sent to the DOE Patent Counsel should be addressed as follows:

U.S. Department of Energy
Savannah River Operations Office
Office of Chief Counsel
Patent Counsel
P.O. Box A
Aiken, SC 29803

G.7 REPORTS AND DRAWINGS

The following requirements apply to submission of all data deliverables.

- (a) The Contractor shall ensure that all data deliverables are as follows:
- (1) Legible, sequentially numbered, and securely bound; and
 - (2) Clear, concise English using precise technical writing.

- (b) The Contractor shall prepare and submit reports as follows:
 - (1) Title page or cover sheet that identifies author, deliverable(s), and date;
 - (2) Text on standard 8 ½" x 11" letter size paper (one-way foldouts or larger sizes may be included with report text); and
 - (3) Other requirements identified in Section C, Standard 1, *Management Products and Controls*.
- (c) The Contractor shall prepare and submit drawings in accordance with American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) Standard Y-14 series, Drafting Standards and shall be assigned a unique number by the Contractor.
- (d) The Contractor shall submit deliverables, as follows:
 - (1) One reproducible hard copy with attachments and enclosures to the CO.
 - (2) Six reproducible hard copies with attachments and enclosures and six CD-rom electronic copies of all to the COR.
 - (3) All electronic files shall be editable and have all functions normally available in the software for which the data was originally generated. Electronic files will be complete and consist of all data used or developed by the Contractor to generate the submission. The Contractor shall also provide a list of the electronic files included in the submission, documenting the specific deliverable for which the electronic files pertain, and the software and version used. In the event that the Contractor uses an internal proprietary software package, a copy shall be provided to DOE-SR.
- (e) The Contractor shall maintain configuration control over changes to information provided to the Contractor by DOE-SR or Government contractors, including and not limited to drawings, specifications, electronic files, letter reports, calculations, analysis reports, etc., as appropriate, using Contractor's established policies and procedures. The Contractor shall assign their own identifying number to information that they either create or change.

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SPECIAL CONTRACT REQUIREMENTS

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SECTION H
SPECIAL CONTRACT REQUIREMENTS

H.1 TECHNICAL DIRECTION

- (a) Performance of the work under this contract shall be subject to the technical direction of U.S. Department of Energy (DOE) Contracting Officer's Representative (COR). The term "technical direction" is defined to include, without limitation:
- (1) Provision of written information to the Contractor, which assists in the interpretation of drawings, specifications or technical portions of the work description.
 - (2) Review and, where required by the contract, approval of technical reports, drawings, specifications and technical information to be delivered by the Contractor to the Government under the contract.
- (b) Technical direction must be within the scope of work stated in the contract. The COR does not have the authority to, and may not, issue any technical direction which:
- (1) Constitutes an assignment of additional work outside the *Statement of Work*;
 - (2) Constitutes a change as defined in the Contract Section I Clause entitled, *Changes*;
 - (3) Changes any of the express terms, conditions or specifications of the contract; or
 - (4) Interferes with the Contractor's right to perform the terms and conditions of the contract.
- (c) All technical direction shall be issued in writing by the COR.
- (d) The Contractor shall proceed promptly with the performance of technical direction duly issued by the COR in the manner prescribed by this clause and within its authority under the provisions of this clause. If, in the opinion of the Contractor, any instruction or direction by the COR falls within one of the categories defined in (b)(1) through (b)(4) above, the Contractor shall not proceed but shall notify the Contracting Officer in writing within five (5) working days after receipt of any such 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:
- (1) Advise the Contractor in writing within thirty (30) days after receipt of the Contractor's letter that the technical direction is within the scope of the contract effort and does not constitute a change under the Contract Section I Clause entitled, *Changes*.
 - (2) Advise the Contractor in writing within a reasonable time that the Government will issue a written change order.
- (e) A failure of the Contractor and Contracting Officer to agree that the technical direction is within the scope of the contract, or a failure to agree upon the contract action to be taken with respect thereto shall be subject to the provisions of the Section H Clause entitled, *Alternative Dispute Resolution*.

H.2 MODIFICATION AUTHORITY

Notwithstanding any of the other clauses of this Contract, the Contracting Officer shall be the only individual authorized to:

- (a) Accept nonconforming work,
- (b) Waive any requirement of this contract, or
- (c) Modify any term or condition of this contract.

H.3 KEY PERSONNEL

A listing of Key Personnel on this Contract is provided as Section J, Attachment F, *Key Personnel*. These Key Personnel are considered to be essential to the work being performed on this Contract. Prior to diverting to other positions or substituting any of the specified Key Personnel, or proposing them as a Key person under another contract, the Contractor shall notify the Contracting Officer in writing at least thirty (30) days in advance and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the work being performed under this Contract. No diversion or substitution shall be made by the Contractor without the written consent of the Contracting Officer, provided that the Contracting Officer may ratify in writing such diversion or substitution and such ratification shall constitute the consent of the Contracting Officer required by this Clause. Unless approved in writing by the Contracting Officer, no Key Personnel position will remain unfilled by a permanent replacement for more than 60 days. The Key Personnel list shall be amended during the course of the Contract to add or delete Key Personnel as appropriate and as approved by the Contracting Officer.

Anytime the Project Manager is replaced or removed for any reason under the Contractor's control within two (2) years of contract award, fee earned will be reduced by the amount of \$250,000. In addition, each time any other Key Personnel for the functions of ESH&Q; Project Cost and Schedule Control; Technology Management; Engineering; Design Management for Systems, Facilities, and/or Engineering Disciplines; and Construction Management are replaced or removed for any reason under the Contractor's control within two (2) years of Contract award, fee earned shall be reduced by the amount of \$125,000 for each removed or replaced individual. DOE will effectuate the appropriate reduction in fee by reducing the next provisional payment due to the Contractor for invoiced fee by the appropriate dollar amount as set forth in this Clause. If no or insufficient provisional fee is due the Contractor within 30 days, the Contractor shall refund to DOE the amount of the reduction due under this Clause. The Contractor may request, in writing, that the Contracting Officer waive all part or part of these reductions in fee, if special circumstances exist. The Contracting Officer shall have unilateral discretion to waive or not to waive all or part of a reduction.

H.4 SMALL BUSINESS SUBCONTRACTING PLAN

The Small Business Subcontracting Plan submitted by the Contractor and approved by the Contracting Officer (via contract award) is incorporated into this Contract as Section J, Attachment D, *Small Business Subcontracting Plan*. Any revisions thereto shall be approved by the Contracting Officer and incorporated into the contract by a separate contract modification.

H.5 DISPLACED EMPLOYEE HIRING PREFERENCE

- (a) Definition. Eligible employee means a former or current employee of a Contractor or subcontractor (1) who has been employed at a U.S. Department of Energy (DOE) Defense Nuclear Facility as defined in Section 3163 of the *National Defense Authorization Act for FY 1993* (Public Law 102-484) and the Interim Planning Guidance

for Contractor Work Force Restructuring (DEC 1998) or other applicable DOE guidance for Contractor work force restructuring, as may be amended or supplemented from time to time (hereinafter "Guidance"), (2) whose employment at such a Defense Nuclear Facility has been involuntarily terminated (other than for cause) or who has been notified that they are facing termination, (3) who has also met the job attachment test as set forth in applicable DOE Guidance, and (4) who is qualified for a particular position with the Contractor or, with retraining, can become qualified within the time and cost limits set forth in the DOE Guidance.

- (b) The Contractor will assess the skills needed for the work to be performed under this Contract and will provide to DOE Job Opportunity Bulletin Board System (JOBBS) all information relevant to the qualifications for all of the positions for which the Contractor has vacancies.
- (c) Consistent with the DOE Guidance as supplemented by the appropriate site work force restructuring plan, the Contractor agrees that it will provide to the extent practicable a preference in hiring to an eligible employee as defined other than for managerial positions (define as those above the first level of supervision) for work to be performed under this Contract.
- (d) The Contractor will develop training programs designed to improve the qualifications of employees to fill vacancies with the Contractor and will take such training into account in assessing the qualifications of eligible employees.
- (e) The requirements of this Clause shall be included in subcontracts at any tier (except subcontracts for commercial items pursuant to 41 United States Code 403) expected to exceed \$500,000.

H.6 IMPLEMENTATION OF SECTION 3161 POLICY ON WORK FORCE RESTRUCTURING AND PREFERENCE IN HIRING

- (a) After implementation of subpart (a), pursuant to the requirements of Section 3161 of the *National Defense Authorization Act for Fiscal Year 1993* (Public Law 102-484), and consistent with Clause H.5, preference is to be provided to displaced employees whose eligibility is defined in the U.S. Department of Energy (DOE) guidelines on work force restructuring and the *Savannah River Site Work Force Restructuring Plan*, including lower-tier subcontractor employees, for work at the Savannah River Site in accordance with the following, unless modified by Section 3161 guidance issued by DOE.
- (b) The Contractor and any lower-tier subcontractor subject to this Clause shall negotiate with affected unions to implement the hiring preference, including if necessary, special agreements for allocation of work or arrangements for exceptions to internal union rules that might otherwise be obstacles to implementation of the hiring preference, consistent with *Planning Guidance for Contractor Work Force Restructuring* (December 1998).
- (c) Where these requirements conflict with any existing contract or collective bargaining agreement, the Contractor may be relieved of the obligation to meet these requirements if it specifically identifies the conflict in its proposal and the reasons the conflict cannot be reasonably resolved by other means.
- (d) Nothing in this Clause shall be construed to excuse the Contractor or any subcontractor from compliance with the requirements of any applicable law.

H.7 LABOR RELATIONS

- (a) The Contractor, and its major subcontractors, will respect the rights of employees, (1) to organize, form, join, or assist labor organizations; bargain collectively through representatives of the employees own choosing; and engage in other protected concerted activities for the purpose of collective bargaining, or (2) to refrain from such activities.
- (b) To the extent required by law, the Contractor and its major subcontractors shall give notice to any lawfully designated representative of its employees for purposes of collective bargaining and, upon proper request, bargain to good faith impasses or agreement, or otherwise satisfy applicable bargaining obligations.
- (c) The Contractor shall promptly advise the Contracting Officer of, and provide all appropriate documentation regarding, any labor relations developments at the prime or subcontract level that involve or appear likely to involve:
 - (1) Possible strike situations affecting the facility;
 - (2) Referral to the Energy Labor-Management Relations Panel;
 - (3) The National Labor Relations Board at any level;
 - (4) Recourse to procedures under the *Labor-Management Act of 1947*, as amended, or any other Federal or state labor law; and
 - (5) Any grievance that may reasonably be assumed to be arbitrated under a Collective Bargaining Agreement.
- (d) Cost of wages and fringe benefits to employees represented by collective bargaining units, not in excess of those in appropriate collective bargaining agreements, shall be allowable. The costs associated with grievance processing and settlements, arbitration, and arbitration awards shall be allowable in accordance with the provisions of the Contract Section I Clause entitled, *Insurance - Litigation and Claims*.

H.8 DETERMINATION OF APPROPRIATE LABOR STANDARDS

- (a) The U.S. Department of Energy (DOE) shall determine the appropriate labor standards in accordance with the *Davis-Bacon Act*, which shall apply to work performed under this Contract. Where requested by DOE, the Contractor shall provide whatever information is relevant to labor standards determinations, in the form and timeframe required by DOE, as may be necessary for DOE to make such labor standards determinations. The Contractor will then be responsible for ensuring that the appropriate labor standards provisions are included in subcontracts.
- (b) Prior to submission of Phase II cost and fee proposals, the Contracting Officer shall provide the contractor the Davis-Bacon Wage Rate Determination applicable to the construction work required under this contract. The applicable Wage Rate Determination will be incorporated into the contract in Section J as Appendix C.

H.9 PAYMENT BONDS AND PERFORMANCE BONDS

The Contractor will not be required to furnish payment bonds and performance bonds. However, all fixed price subcontractors will be required to submit the necessary payment bonds and performance bonds as required by the *Miller Act*. Specific requirements and penal amounts can be found in Federal Acquisition Regulation (FAR) 28.102.

H.10 DOE ACCESS TO CONTRACTOR MANAGEMENT AND CONTRACT DOCUMENTATION

- (a) In order to facilitate interactions with the U.S. Department of Energy (DOE), support safe and efficient performance of the Contract and effective contract administration, the Contractor shall locate Contractor offices in the Aiken, South Carolina/Augusta, Georgia, area for, at a minimum, senior level management responsible for the following major project management functions: Project Management; Environment, Safety, Health and Quality (ESH&Q); Project Cost and Schedule Control; Procurement/Contracting; Environmental Compliance; Operations Interface; Labor Relations; Human Resources; Engineering; Construction Management; and Design Management for Systems, Facilities, and/or Engineering Disciplines.
- (b) Although not all work is required to be performed in the Aiken area, the Contractor shall use judgment in relocation of project staff to the Aiken area to facilitate the objectives of cost efficiency, project integration and meeting DOE's needs for frequent and informative interactions. Capability to meet face-to-face with key design personnel on short notice with minimal travel (i.e., less than a four-hour drive, near southeastern airline hubs, or with direct flight service from SRS area) would be desirable.
- (c) The design process must have the capability for efficient electronic integration. Video teleconferencing shall also be used to facilitate communications with satellite work locations where critical work is to be performed.

H.11 RESPONSIBLE CORPORATE OFFICIAL

The Government may contact, as necessary, the single responsible corporate official identified below, who is at a level above the Project Manager for the Contractor and who is accountable for the performance of the Contractor, regarding Contractor performance issues. Should the responsible corporate official change during the period of the Contract, the Contractor shall promptly notify the Contracting Officer in writing of the change in the individual to Contract. The following information must be provided:

Name:
Position:
Company/Organization:
Address:
Phone:
Facsimile:
E-mail:

H.12 ASSIGNMENT OF SUBCONTRACTS

The Government reserves the right to direct the Contractor to assign to the Government or another Contractor any subcontract awarded under this contract.

H.13 ASSIGNMENT

Neither this Contract nor any interest therein nor claim thereunder shall be assigned or transferred by the Contractor except as expressly authorized in writing by the Contracting Officer.

H.14 SUBCONTRACTOR ENVIRONMENT, SAFETY, QUALITY, AND HEALTH REQUIREMENTS

The U.S. Department of Energy (DOE) and the Contractor are committed to zero accidents on the SWPF Project. To that end, unless expressly approved by the Contracting Officer, the Contractor is required to subcontract only with subcontractors that have an acceptable Environmental, Safety, Health and Quality (ESH&Q) program and that satisfy the following minimum requirements:

- (a) An ESH&Q program that is compliant with applicable local, State, Federal and DOE regulatory requirements;
- (b) Employees are properly trained and equipped to perform their assigned work. The subcontractor has established an orientation program for new hires, which includes ESH&Q;
- (c) Policies and procedures are in place to eliminate accidents, injuries/illnesses, and damage to property and equipment;
- (d) ESH&Q records are adequately and properly maintained;
- (e) Accidents/incidents are investigated promptly and required reports are generated. If the investigation discovers inadequacies in either the work process or the policies and procedures, the appropriate processes are put in place to avert the accident/incident in the future and personnel are provided proper training;
- (f) Hazards are identified and appropriate measures are taken to ensure that personnel and equipment are adequately protected as a result of identified hazards;
- (g) Employees have the right to report unsafe conditions and to interrupt or stop work without fear of reprisal;
- (h) The frequency of ESH&Q meetings with employees to discuss the work to be performed and the hazards associated with the work is based on the scope of work and commensurate with the work hazards;
- (i) ESH&Q inspections/audits are conducted to evaluate effectiveness of the program;
- (j) The subcontractor has an average Experience Modification Rate (EMR), Occupational Safety and Health Administration (OSHA) Recordable, and Lost Workday case rate(s) of (1.0, 3.2, and 0.64), respectively, or less, for the previous three (3) years and shows an improving trend in safety performance; however, for construction subcontractors the values shall be less than 1.0, 3.2, and 3.0.
- (k) The subcontractor has an established written Hazard Communication Program and a system within the program to maintain Material Safety Data Sheets (MSDS);

- (l) The subcontractor has had no significant willful citations from OSHA or other regulatory organizations during the previous three (3) years;
- (m) The subcontractor has received no citations, other than those determined to be minor violations, or fines for Price-Anderson Amendments Act (PAAA) non-compliances during the previous three (3) years; and
- (n) The subcontractor has received no fines for Nuclear Regulatory Commission non-compliances during the previous three (3) years.

The Contractor shall flow down all applicable ESH&Q program criteria to the lowest tier subcontractor performing construction, equipment fabrication or commissioning.

H.15 EMERGENCY CLAUSE

- (a) The Manager, DOE-SR, or designee shall have sole discretion to determine when an emergency situation exists as a result of facility operations within the physical boundaries defined by this Contract affecting personnel, public health, safety, the environment, or security. In the event that the DOE-SR Manager or designee, determines that an emergency exists, the DOE-SR Manager, or designee will have the authority to direct any and all activities of the Contractor and subcontractors necessary to resolve the emergency situation. The DOE-SR Manager, or designee may direct the activities of the Contractor and subcontractors throughout the duration of the emergency.
- (b) The Contractor shall include this clause in all subcontracts at any tier for work performed at the Savannah River Site.

H.16 STOP WORK AND SHUT DOWN AUTHORITY-ENVIRONMENT, SAFETY AND HEALTH

- (a) Definition: Stop Work - The suspension of a specific activity or activities by the Contracting Officer or authorized designee based upon the determination or observation of conditions which are immediately dangerous to the life or health of the workers, the public, or the environment or for any other reason determined to be in the best interests of the Government from an environment, safety and health (ES&H) perspective. Stop-Work Orders for non-ES&H reasons shall be in accordance with the Contract Clause contained in Section F entitled, FAR 52.242-15 Stop-Work - Alternate I (APR 1984).
- (b) The Contracting Officer, or authorized designee, may at any time during the performance of this contract issue a stop-work order and shutdown facility operations or stop-work on specific activities of the Contractor or any Subcontractor, in accordance with the following:
 - (1) The Contracting Officer shall notify the Contractor, in writing, of any noncompliance with applicable ES&H requirements which come to the attention of the Contracting Officer. After receipt of such notice, the Contractor shall immediately take corrective action, consistent with the provisions of the Special Contract Clause entitled, Performance Direction. In the event that the Contractor fails to take corrective action, the Contracting Officer or authorized designee may, without prejudice to any other legal or contractual rights of DOE, issue a written order stopping all or any part of the work; thereafter, a start order for resumption of the work may be issued at the discretion of the Contracting Officer in accordance with applicable DOE Orders/Directive Implementation Instructions, if any. The Contractor shall not be entitled to an extension of time or additional

fee or damages by reason of, or in connection with, any work stoppage ordered in accordance with this clause.

- (2) If at any time during performance of the contract work, the Contractor's acts or failure to act causes substantial harm or an imminent danger to the health or safety of individuals or the environment, the Contracting Officer or authorized designees may, without prejudice to any other legal or contractual rights of DOE, issue a verbal order, to be immediately confirmed in writing before departing the incident site, stopping all or any part of the work; thereafter, a start order for resumption of the work may be issued at the discretion of the Contracting Officer in accordance with applicable DOE Orders/Directive Implementation Instructions, if any. The Contractor shall not be entitled to an extension of time or additional fee or damages by reason of, or in connection with, any work stoppage ordered in accordance with this clause.
- (c) The DOE-SR Deputy Manager, Assistant Managers, Director of the Office of Safeguards and Security, and duly appointed DOE Facility Representatives at SRS are authorized designees of the Contracting Officer for the purposes set forth in this clause. Other authorized designees may be appointed by the Contracting Officer.
- (d) The Contractor shall include this clause, modified appropriately to include Contractor Representatives, in all subcontracts containing the Contract Clause entitled, DEAR 970.5223-1 Integration of Environment, Safety and Health Into Work Planning and Execution (Dec 2000).

H.17 PERMITS AND CLEARANCES

The contractor is responsible for obtaining all necessary permits and clearances, including but not limited to environmental permits, from regulatory agencies for construction and operation of the contemplated facility. The Contractor also is required to comply with all laws, regulations, and procedures applicable to the work being performed under this Contract. This includes, but is not limited to, compliance with applicable Federal, State, and local laws and regulations, interagency agreements, consent orders, consent decrees, and settlement agreements between DOE and Federal and State regulatory agencies.

- (a) Environmental Permits: The Contractor is responsible to DOE for design, construction and commissioning of the salt waste processing facility (SWPF) in compliance with the laws, regulations, etc., as stated in the paragraph above and in accordance with the terms of the environmental permits.
- (b) Financial Responsibility: DOE agrees that if bonds, insurance, or administrative fees are required as a condition for permits obtained by the Contractor under this Contract, such costs shall be allowable. In the event such costs are determined by DOE to be excessive or unreasonable, DOE shall provide the regulatory agency with an acceptable form of financial responsibility. Under no circumstances shall the Contractor or its parent be required to provide any corporate resources or corporate guarantees to satisfy such regulatory requirements.
- (c) Copies of Technical Information: The Contractor shall provide DOE with copies of environmental permits, authorizations, and regulatory approvals issued to the Contractor by regulatory agencies. DOE shall provide the Contractor access to copies of environmental permits, authorizations, and approvals issued by the regulatory agencies to DOE that the Contractor may need to comply with applicable law.

The Contractor and DOE shall provide to the each other, copies of documentation, such as letters, reports, or other such materials transmitted either to or from regulatory agencies relating to the contract work.

The Contractor and DOE shall maintain all necessary technical information required to support applications for revision of DOE or other Savannah River Site contractor environmental permits when such applications or revisions are related to the Contractor's operations.

- (d) Certifications: The Contractor shall provide a written certification statement attesting that information DOE is requested to sign was prepared in accordance with applicable requirements. The Contractor shall include the following certification statement in the submittal of such materials to DOE:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

The certification statement shall be signed by the individual who is authorized, in writing, by the Contractor to sign such certification statements submitted to Federal or State regulatory agencies under the applicable regulatory program.

- (e) Negotiations: DOE may elect to be in charge of, and direct, all negotiations with regulatory agencies regarding permits, fines, penalties, and any other proposed notice, notice, administrative order, and similar type of notice. As directed or required by DOE, the Contractor shall participate in negotiations with regulatory agencies; however, the Contractor shall not make any commitments or offers to regulators purporting to bind or binding the Government in any form or fashion, including monetary obligations, without receiving written authorization or approval from the Contracting Officer or his/her authorized representative prior to making such offers/commitments. Failure to obtain such advance written approval may result in otherwise allowable costs being declared unallowable and/or the Contractor being liable for any excess costs to the Government associated with or resulting from such offers/commitments. In the event DOE elects to allow the Contractor to conduct such negotiations without direct DOE participation, the Contractor shall keep DOE fully advised as to the progress of such negotiations.
- (f) Permit Transfer Upon Contract Termination or Expiration: In the event of expiration or termination of this Contract, DOE may require the Contractor on an allowable cost basis to take all necessary steps to transfer to DOE some or all environmental permits held by the Contractor. DOE will assume responsibility for such permits, with the approval of the regulating agency, and the Contractor shall be relieved of all liability and responsibility to the extent that such liability and responsibility results from the acts or omissions of a successor contractor, DOE, or their agents, representatives, or assigns. The Contractor shall remain liable for all unresolved costs, claims, demands, fines, and penalties, including reasonable legal costs arising prior to the date such permits are transferred to another party in accordance with other provisions of the Contract. The Contractor shall not be liable for any such claims occurring after formal transfer of this contract unless said claims result from Contractor's action or inaction.

H.18 ALLOCATION OF RESPONSIBILITIES FOR CONTRACTOR ENVIRONMENTAL COMPLIANCE ACTIVITIES

- (a) This Clause allocates the responsibilities of the U.S. Department of Energy (DOE) and the Contractor, referred to collectively as the "parties" for implementing the environmental requirements at facilities within the scope of the Contract. In this Clause, the term "environmental requirements" means requirements imposed by applicable Federal, State and local environmental laws and regulations, including, without limitation, statutes, ordinances, regulations, court orders, consent decrees, administrative orders or compliance agreements, consent orders, permits and licenses.
- (b) Liability and responsibility for civil fines or penalties arising from or related to violations of environmental requirements shall be borne by the party that caused the violation irrespective of the fact that the cognizant regulatory authority may assess any such fine or penalty upon either party or both parties without regard to the allocation of responsibility or liability under this Contract. This contractual allocation of liability for any such fine or penalty is effective regardless of which party signs permit applications, manifests, reports or other required documents, is a permittee, or is the named subject of an enforcement action or assessment of a fine or penalty.
- (c) Fines and penalties received by the contractor are covered by the applicable Allowable Cost and Payment clause of this contract. If the named subject of an enforcement action or assessment of a fine or penalty is DOE and the enforcement action resulted from the contractor's operations, any payment made by DOE may be offset from any monies due for payment under this contract or any other Government contract in accordance with the Contract Disputes Act (CDA) unless the contractor's actions which gave rise to the fine or penalty were a result of direct compliance with the terms and conditions of the contract, or the contractor was complying with written direction from the Contracting Officer.

H.19 HAZARDOUS MATERIALS

In implementation of the Section I Clause entitled, *Hazardous Material Identification and Material Safety Data*, the Contractor shall obtain, review and maintain a Material Safety Data Sheet (MSDS) in a readily accessible manner for each hazardous material (or mixture containing a hazardous material) ordered, delivered, stored, or used; and maintain an accurate inventory and history of use of hazardous materials at each use and storage location. After Contract award the Offeror shall submit the information required by paragraph (b) of the Section I Clause referenced above. The MSDS shall conform to the requirements of 29 CFR 1910.1200 (g). MSDS shall be readily accessible during each work shift to employees when they are in their work areas.

H.20 PRESERVATION OF ANTIQUITIES AND LAND AREAS

Federal law provides for the protection of antiquities located on land owned or controlled by the U.S. Department of Energy (DOE). Antiquities include Indian graves or campsites, relics, and artifacts. The Contractor shall control the movements of its personnel and its subcontractors' personnel at the job site and provide appropriate training to ensure that any existing antiquities discovered thereon will not be disturbed or destroyed by such personnel. It shall be the duty of the Contractor to report to the Contracting Officer the existence of any antiquities so discovered. The Contractor shall also preserve all vegetation except where such vegetation must be removed for survey or construction purposes. Any removal of vegetation shall be in accordance with the terms of applicable habitat mitigation plans and permits.

H.21 INFORMATION

- (a) Release of Information
 - (1) The Contractor shall be responsible for developing, planning, and coordinating timely dissemination of information regarding performance of work under the Contract.
 - (2) The Contractor shall be responsible for following the U.S. Department of Energy (DOE) guidelines and/or procedures for all oral, written and audio/visual information material prepared for public use, including technical information.
- (b) Unclassified Controlled Nuclear Information (UCNI): Documents originated by the Contractor or furnished by the Government to the Contractor, in connection with this contract, may contain unclassified controlled nuclear information as determined pursuant to Section 148 of the *Atomic Energy Act of 1954*, as amended. The Contractor shall be responsible for protecting such information from unauthorized dissemination in accordance with applicable DOE regulations, directives and orders.
- (c) Confidentiality of Information: To the extent that the work under this contract requires that the Contractor be given access to confidential or proprietary business, technical, or financial information belonging to the Government or other companies, the Contractor shall, after receipt thereof, treat such information as confidential and agrees not to appropriate such information to its own use or to disclose such information to third parties unless specifically authorized by the Contracting Officer in writing. The foregoing obligations, however, shall not apply to:
 - (1) Information, which, at the time of receipt by the Contractor, is in the public domain.
 - (2) Information that is published after receipt thereof by the Contractor or otherwise becomes part of the public domain through no fault of the Contractor.
 - (3) Information that the Contractor can demonstrate was in its possession at the time of receipt thereof and was not acquired directly or indirectly from the Government or other companies.
 - (4) Information that the Contractor can demonstrate was received by it from a third party that did not require the Contractor to hold it in confidence.

The Contractor shall obtain the written agreement, in a form satisfactory to the Contracting Officer, of each employee permitted access to such information, whereby the employee agrees that he will not discuss, divulge or disclose any such information or data to any person or entity except those persons within the Contractor's organization directly concerned with the performance of the contract.

The Contractor agrees, if requested by the Government, to sign an agreement identical, in all material respects, to the provisions of this subparagraph (c), with each company supplying information to the Contractor under this contract, and to supply a copy of such agreement to the Contracting Officer. From time to time upon request of the Contracting Officer, the Contractor shall supply the Government with reports itemizing information received as confidential or proprietary and setting forth the company or companies from which the Contractor received such information.

The Contractor agrees that upon request by DOE, it will execute a DOE-approved agreement with any party whose facilities or proprietary data it is given access to or is furnished, restricting use and disclosure of the data or the information obtained from the facilities. Upon request by DOE, Contractor personnel shall also sign such an agreement.

- (d) The Government reserves the right to require the Contractor to include this clause or a modified version of this clause in any subcontract as directed in writing by the Contracting Officer.

H.22 COSTS ASSOCIATED WITH WHISTLEBLOWER ACTIONS

- (a) Definitions.

Covered contractors and subcontractors for the purposes of this Section means those contractors and subcontractors with contracts for an excess of \$500,000.

Employee whistleblower action encompasses any action filed by an employee in Federal and State court for redress of a retaliatory act by a contractor and any administrative procedure brought by an employee under 29 Code of Federal Regulations (CFR) Part 24, 48 CFR subpart 3.9, 10 CFR Part 708 or 42 United States Code (U.S.C.) 7239.

Retaliatory acts means discharge, demotion, reduction in pay, coercion, restraint, threat, intimidation, or other similar negative action taken against an employee by a contractor as a result of an employee's activity protected as a whistleblower activity by a Federal or State statute or regulation.

Settlement and award costs means defense costs and costs arising from judicial orders, negotiated agreements, arbitration, or an order from a Federal agency or board and includes compensatory damages, underpayment for work performed, and reimbursement for a complainant employee's legal counsel.

- (b) For costs associated with employee whistleblower actions where a retaliatory act is alleged against a covered contractor or subcontractor, the Contracting Officer:
 - (1) May authorize reimbursement of costs on a provisional basis, in appropriate cases;
 - (2) Must consult with the DOE Office of General Counsel whistleblower cost point of contact before making a final allowability determination; and
 - (3) Must determine allowability of defense, settlement, and award costs on a case-by-case basis after considering the terms of the contract, relevant cost regulations, and the relevant facts and circumstances, including Federal law and policy prohibiting reprisal against whistleblowers, available at the conclusion of the employee whistleblower action.
- (c) Covered contractors and subcontractors must segregate legal costs including costs of in-house counsel, incurred in the defense of an employee whistleblower action so that the costs are separately identifiable.
- (d) If a Contracting Officer provisionally disallows costs associated with an employee whistleblower action for a covered contractor or subcontractor, funds advanced by the U.S. Department of Energy (DOE) may not be used to finance costs connected with the defense, settlement and award of an employee whistleblower action.

- (e) Contractor defense, settlement and award costs incurred in connection with the defense of suits brought by employees under Section 2 of the *Major Fraud Act of 1988* are excluded from coverage of this Section.

H.23 CONTRACTOR LEGAL MANAGEMENT REQUIREMENTS

The Contractor shall prepare a Legal Management Plan that shall be submitted to the Contracting Officer for approval within ninety (90) days following Contract award. The purpose of the Plan will be to control the cost of litigation and implement the DOE policy favoring the use of Alternative Dispute Resolution (ADR) techniques where appropriate and beneficial to the Government. The *Legal Management Plan* shall follow the procedures and cost guidelines in 10 CFR 719, published in the Federal Register on January 18, 2001 (66 FR 4616 as modified by 66 FR 8746). The Plan should also cover legal costs not connected with litigation. The Plan will be revised from time to time to conform to litigation management and ADR policies established by DOE.

H.24 LOBBYING RESTRICTION (ENERGY AND WATER DEVELOPMENT APPROPRIATION ACT, 2000)

The Contractor agrees that none of the funds obligated on this award shall be expended, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 United States Code (U.S.C.) 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

H.25 ADDITIONAL RIGHTS IN INVENTIONS AND TECHNICAL DATA

- (a) In addition to rights specified elsewhere, the Contractor agrees that it will, upon request by the Government, grant to the Government for activities by or on behalf of the Government, an irrevocable, non-exclusive, paid-up license in and to any inventions or discoveries regardless of when conceived or actually reduced to practice or acquired by the Contractor, and any other intellectual property, including technical data which are owned or controlled by the Contractor, at any time through completion of this Contract. This right of the Government shall apply to inventions, discoveries, and intellectual property that are incorporated or embodied in the construction or design of the Salt Waste Processing Facility (SWPF) or which are utilized in the operation of the SWPF or which cover articles, materials, or products manufactured at the SWPF. The acceptance or exercise by the Government of the aforesaid rights and license shall not prevent the Government at any time from contesting the enforceability, validity, or scope of, or title to, and rights or patents or other intellectual property herein licensed.

The Contractor shall take all necessary steps to assign permits, authorizations, leases, and any licenses in any third party intellectual property for design, construction, operation, and closure of the SWPF to U.S. Department of Energy (DOE) or such other third party as DOE may designate.

- (b) Subcontracting.

Unless otherwise directed by the contracting officer, the Contractor agrees to use this clause in subcontracts in which technical data or computer software is expected to be produced or in subcontracts for supplies that contain a requirement for production or delivery of data.

H.26 PATENT INDEMNITY - SUBCONTRACTS

Except as otherwise authorized by the Contracting Officer, the Contractor must obtain indemnification of the Government and its officers, agents, and employees against liability, including costs, for infringement of any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a secrecy order by the Government) from the Contractor's subcontractors for any contract work subcontract in accordance with Federal Acquisition Regulation (FAR) 52.227-3.

H.27 RESERVED

H.28 THIRD PARTIES

Nothing contained in this Contract or its amendments shall be construed to grant, vest, or create any rights in any person not a party to this Contract. This provision is not intended to limit or impair the rights, which any person may have under applicable Federal Statutes.

H.29 USE OF MANAGEMENT AND OPERATING CONTRACTOR RESOURCES

- (a) The contractor shall obtain the written approval of the contracting officer prior to utilization of any personnel, services, equipment, resources, or any other function provided by the Government or reimbursed to SRS' management and operating (M&O) contractor.
- (b) The contractor shall keep detailed records, suitable for specific identification and audit, on the use of all personnel, services, equipment, resources, or any other function provided by the SRS M&O contractor to the contractor. Any support provided by the M&O shall be billed to the contractor by the Government on a full cost recovery basis. Any such billings shall not constitute a waiver of the Government's right to pursue any other remedy permitted by this contract or applicable Federal or state law.
- (c) The Government makes no warranty regarding the services or support provided by the M&O contractor and use of the M&O's services/support does not relieve the contractor of any of its responsibilities or liabilities under the terms of this contract.

H.30 OTHER CONTRACTS

- (a) The contractor shall be working on a Government installation under which a contractor is currently performing other work in the immediate areas of the contract work. Additionally, the Government may undertake or award other contracts for additional work, and the Contractor shall fully cooperate with Government employees and such other contractors and carefully fit its own work to such additional work as may be directed by the Contracting Officer. The Contractor shall not commit or permit any act, which will interfere with the performance of work by Government employees or by any other Contractor, particularly the management and operating (M&O) contractor at the Savannah River Site.
- (b) The contractor shall coordinate its work with designated representatives of the site M&O contractor to ensure site operations are not adversely impacted by work performed under this contract. The contractor is to work closely with the M&O's designated representative to ensure its design and/or construction plans and work will function in conjunction with existing site facilities and procedures. Any lack of cooperation or failure to provide needed information by any site contractor is to be immediately reported orally to the

Contracting Officer and confirmed in writing. Similarly, any failure of the Contractor to coordinate or cooperate with other site contractors may be considered a defect in services provided and may serve as a basis for a reduction in the Contractor's fee in accordance with the appropriate Inspection clause contained in Section I of this contract.

H.31 SUBCONTRACTING FOR DESIGN AND CONSTRUCTION WORK

- (a) The contractor acknowledges that under this contract, the work required for final construction shall be competitively subcontracted to the maximum practical extent in accordance with the contractor's Government approved purchasing system or as otherwise approved in accordance with the provisions of the clause entitled, FAR 52.244-2 Subcontracts (AUG 1998).
- (b) Notwithstanding the above, the contractor shall be responsible for ensuring compliance with all terms and conditions of this contract and delivering a complete and functional facility which satisfies the performance requirements of the contract.

H.32 PROJECT INTEGRATION AND THE SAFETY MANAGEMENT SYSTEM

- (a) Prior to performance of any work on Government-owned or leased facilities, the contractor shall develop and have approved by DOE a Safety Management System that complies with the following contract clauses: DEAR 952.223-71 Integration of Environment Safety and Health Into Work Planning and Execution and DEAR 970.5204-78 Laws, Regulations and DOE Directives (June 1997).
- (b) The salt waste processing facility must function as an integral part of the site's High Level Waste system and the products, documentation, processes, operational procedures and other contract deliverables developed under this contract must be merged into the site's systems. Therefore, in developing the implementing procedures for the Safety Management System (SMS) the contractor must plan and provide for total system integration of the project with the full spectrum of site systems (both physical and administrative) to ensure all design output components of the project interface both physically and functionally with all other site systems (i.e., configuration management). Consideration of integration with site systems must commence concurrent with formation of the design requirements for the project. The facility and process design must also incorporate human factors engineering (i.e., functionality of design from a day-to-day usage perspective).
- (c) In creating its SMS, the contractor shall develop its implementing procedures/documents based upon the existing Westinghouse Savannah River Company's (WSRC) Standards/Requirements Identification Document (S/RID). The WSRC S/RID, at the Functional Area Level, identifies all known DOE environment, safety and health requirements set forth in applicable Federal, State and local laws and regulations, DOE Rules, DOE Orders and directives, relevant industry (consensus) codes and standards, international standards, established site safety practices, etc. The WSRC S/RID has been tested and approved by DOE for work at the site; however, the contractor is to review the S/RID to ensure all requirements applicable to the contemplated work are addressed, add new requirements as necessary and delete, with DOE approval, those determined not to be applicable, if any. In developing its own system of implementing procedures/documents to ensure compliance with the S/RID the contractor, at its own discretion, may either: (a) totally adopt the existing WSRC procedures, including revisions as issued, as its own corporate procedures; (b) utilize some or all of its existing corporate procedures and adapt or create new corporate procedures/documents as needed to meet the requirements; or (c) merge applicable WSRC implementing procedures with its own existing, adapted or new corporate procedures/documents. The SMS must provide for linkage of implementing

procedures/documents to the S/RID requirements, and for maintaining configuration control whenever changes are made in the SMS. During design, construction, and preparation for startup phases, verification of ISMS implementation will be a key element of Critical Decision Reviews. Final verification of ISMS implementation will be part of Operational/Readiness Reviews.

- (d) Pending development and approval of its own Safety Management System, any time the contractor is on site, its employees and those of its subcontractors shall comply with all existing site policies, procedures and requirements. Assistance in identification and meeting the site requirements may be provided by the designated representative of the M&O contractor identified in the Section H clause entitled, Other Contracts. After approval of the SMS by DOE, the contractor shall manage and perform all work under this contract in accordance with the system as required by the Clause entitled DEAR 952.223-71, Integration of Environment, Safety and Health Into Work Planning and Execution.
- (e) For non-ES&H systems, the implementing procedures developed by the contractor for compliance with the non-Environmental Safety and Health requirements must similarly provide for system integration and maintaining configuration management as discussed above.

H.33 RESPONSIBILITY OF THE ARCHITECT-ENGINEER CONTRACTOR

- (a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished by the Contractor under this contract.
- (b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract.
- (c) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.
- (d) If the Contractor is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.