CHAPTER 1. BACKGROUND AND PURPOSE AND NEED FOR ACTION

1.1 Background

The Savannah River Site (SRS) occupies approximately 300 square miles adjacent to the Savannah River, primarily in Aiken and Barnwell Counties in South Carolina. It is approximately 25 miles southeast of Augusta, Georgia and 20 miles south of Aiken, South Carolina. The U.S. Atomic Energy Commission, a U.S. Department of Energy (DOE) predecessor agency, established SRS in the early 1950s. Until the early 1990s, the primary SRS mission was the production of special radioactive isotopes to support national programs. More recently, the SRS mission has emphasized waste management, environmental restoration, and decontamination and decommissioning of facilities that are no longer needed for SRS's traditional defense activities.

As a result of its nuclear materials production mission, SRS generated large quantities of highly corrosive and radioactive waste known as high-level waste (HLW). This waste resulted from dissolving spent reactor fuel and nuclear targets to recover the valuable isotopes.

1.1.1 HIGH-LEVEL WASTE DESCRIPTION

DOE Manual 435.1-1, which provides direction for implementing DOE Order 435.1, Radioactive Waste Management, defines HLW as "highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation." DOE M 435.1-1 also defines two processes for determining that a specific waste resulting from reprocessing spent nuclear fuel can be considered waste incidental to reprocessing (see Section 7.1.3). Waste resulting from reprocessing spent nuclear fuel that is determined to be incidental to reprocessing does not need to be managed as HLW, and shall be managed under DOE's regulatory authority in accordance with the requirements for transuranic waste or low-level waste, as appropriate.

1.1.2 HLW MANAGEMENT AT SRS

At the present time, approximately 34 million gallons of HLW are stored in 49 underground tanks in two tank farms, the F-Area Tank Farm and the H-Area Tank Farm. These tank farms are in the central portion of SRS. The sites were chosen in the early 1950s because of their proximity to the F- and H-Area Separations Facilities, and the distance (approximately 5.5 miles) from the SRS boundaries. Figure 1-1 shows the setting of the F and H Areas and associated tank farms.

The HLW in the tanks consists primarily of three physical forms: sludge, salt, and liquid. The sludge is solid material that precipitates and settles to the bottom of a tank. The salt is comprised of salt compounds[1] that have crystallized as a result of concentrating the liquid by evaporation. The liquid is highly concentrated salt solution. Although some tanks contain all three forms, many tanks are considered primarily sludge tanks while others are considered salt tanks (containing both salt and salt solution).

The sludge portion of the HLW currently is being transferred to the Defense Waste Processing Facility (DWPF) for vitrification in borosilicate glass to immobilize the radioactive constituents as described in the *Defense Waste Processing Facility Supplemental Environmental Impact Statement* (DOE 1994). [The plan and schedule for managing tank space, mixing waste to create an appropriate feed for the DWPF, and remov-

[1] A salt is a chemical compound formed when one or more hydrogen ions of an acid are replaced by metallic ions. Common salt, sodium chloride, is a well-known salt.

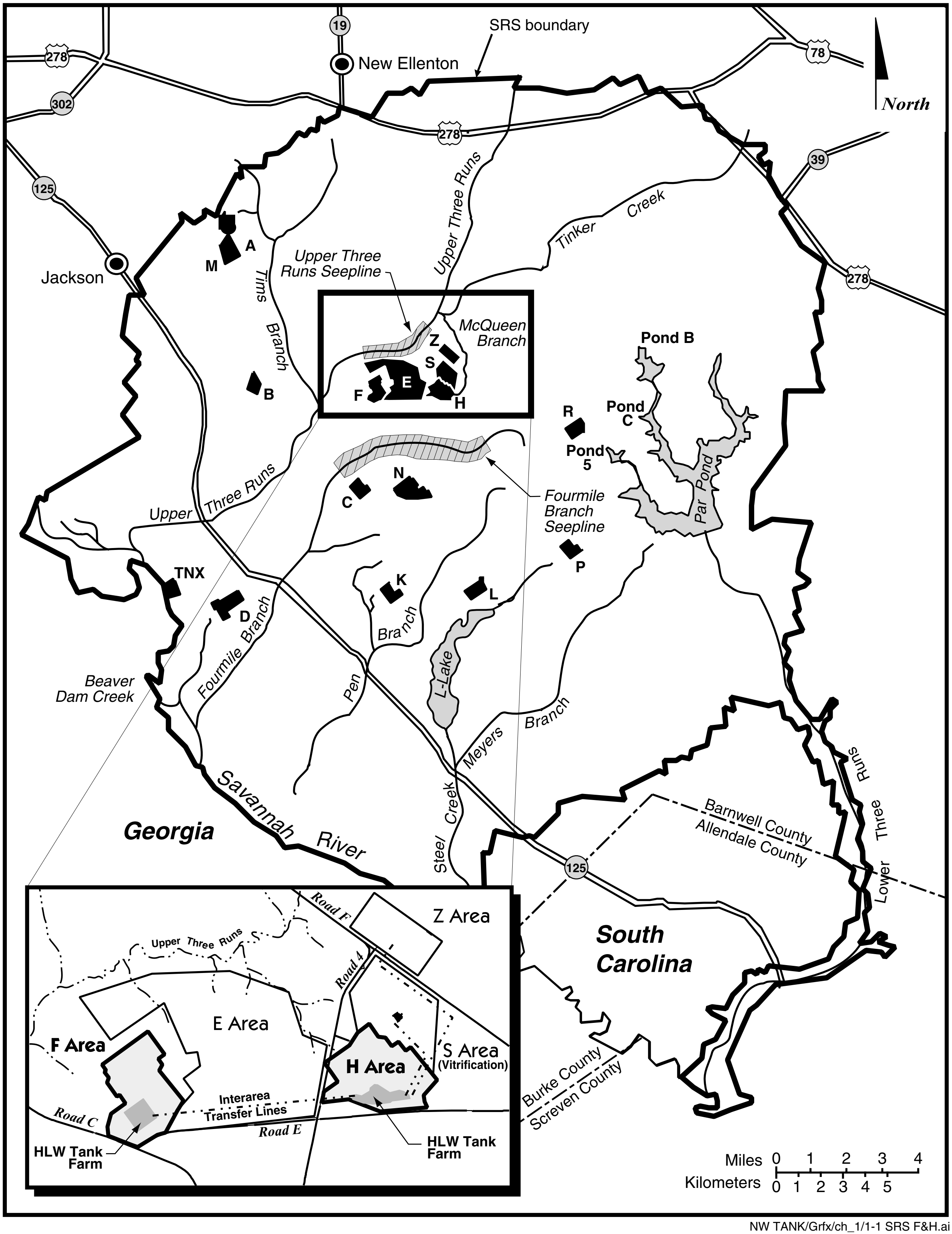


Figure 1-1. Savannah River Site map with F- and H-Areas highlighted.

ing bulk waste is contained in the *High Level Waste System Plan* (WSRC 1998 and subsequent revisions)]. The borosilicate glass is poured into stainless steel canisters that are stored in the Glass Waste Storage Building pending shipment to a geologic repository for disposal.

The salt and liquid portions of the HLW must be separated into high-radioactivity and low-radioactivity fractions before ultimate treatment. As described in DOE (1994), an In-Tank Precipitation process would separate the HLW into high- and low-activity fractions. The high-radioactivity fraction would be transferred to the DWPF for vitrification. The low-radioactivity fraction would be transferred to the Saltstone Manufacturing and Disposal Facility in Z-Area and mixed with grout to make a concrete-like material to be disposed in vaults at SRS. Since issuance of that EIS, DOE has concluded that the In-Tank Precipitation Process, as currently configured, cannot achieve production goals and meet safety requirements for processing the salt portion of HLW (64 FR 8559; February 22, 1999). The process for separating the HLW is the subject of an on-going EIS, *High-Level Waste Salt Disposition Alternatives at the Savannah River Site*. Figure 1-2 shows the SRS HLW management system as currently configured.

1.1.3 DESCRIPTION OF THE TANK FARMS

The F-Area Tank Farm is a 22-acre site that contains 20 active waste tanks, 2 closed waste tanks (Tanks 17 and 20), 2 evaporator systems, transfer pipelines, 6 diversion boxes, and 3 pump pits. Figure 1-3 shows the general layout of the F-Area Tank Farm. The H-Area Tank Farm is a 45-acre site that contains 29 waste tanks, 3 evaporator systems (including the new Replacement High-level Waste Evaporator, 242-25H), the In-Tank Precipitation Process, the Extended Sludge Processing facility, transfer pipelines, 8 diversion boxes, and 10 pump pits. Figure 1-4 shows the general layout of the H-Area Tank Farm.

The F- and H-Area Tank Farms were constructed to receive high-level radioactive waste generated by various SRS production, processing, and laboratory facilities. The use of the tank farms isolates these wastes from the environment, SRS workers, and the public. In addition, the tank farms enable radioactive decay by aging the waste, clarification of waste by gravity settling, and removal of soluble salts from waste by evaporation. The tank farms also pretreat the accumulated sludge and salt solutions (supernate) to enable the management of these wastes at other SRS treatment facilities (i.e., Defense Waste Processing Facility (DWPF) and Z-Area Saltstone Manufacturing and Disposal Facility (SMDF). These treatment facilities convert the sludge and supernate to more stable forms suitable for permanent disposal.

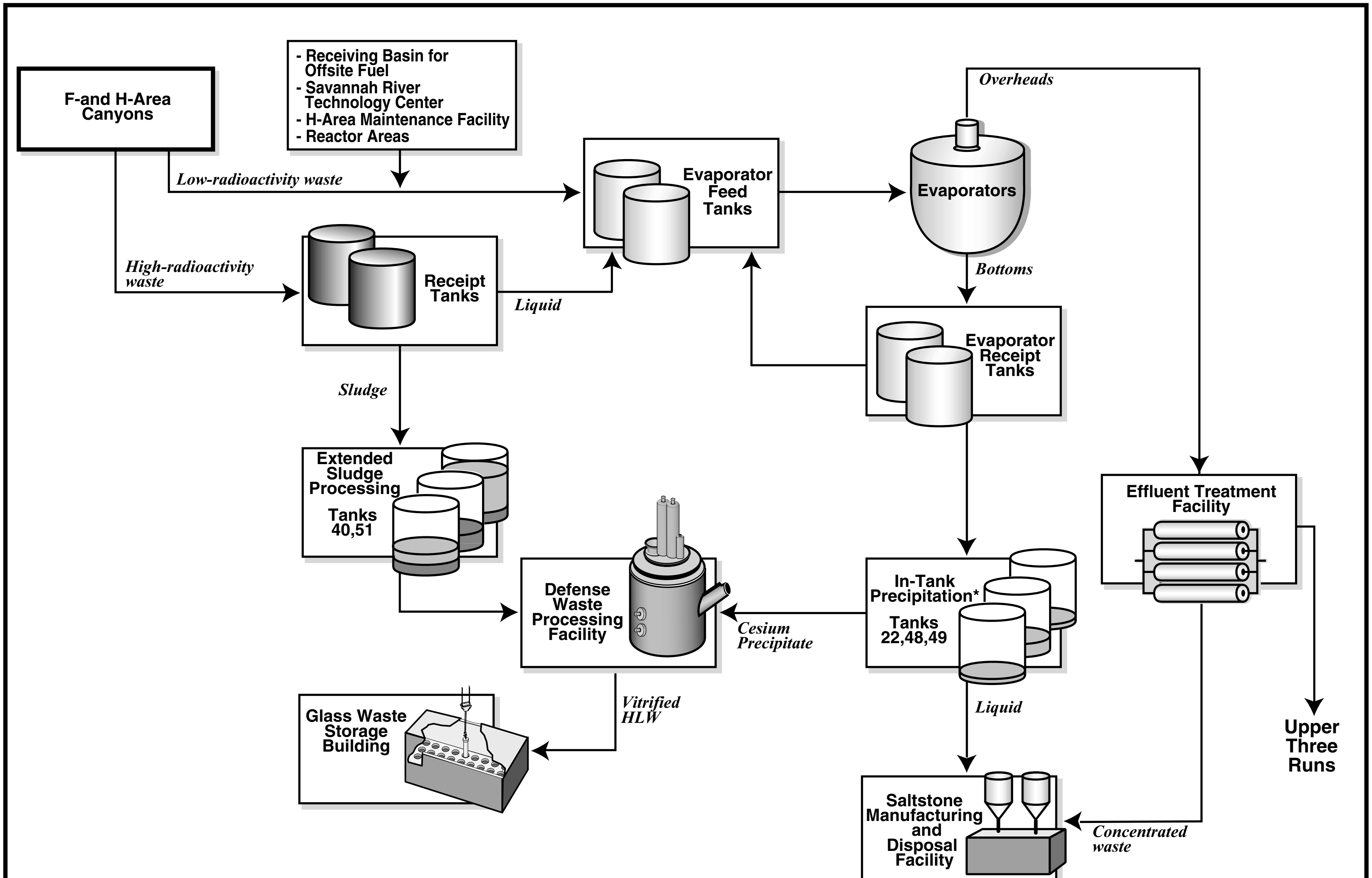
To accomplish the system operational objectives described above, the following units were assembled in the tank farms:

- Fifty-one large underground waste tanks to receive and age the waste, and allow it to settle

- Five existing evaporator systems to concentrate soluble salts and reduce the waste volume

- Transfer system (i.e., transfer lines, diversion boxes, and pump pits) to transfer supernate, sludge and other waste (e.g., evaporator condensate) between tanks and treatment facilities

- Precipitation/filtration system (i.e., ITP Facility) to separate the salt solution into high- and low-activity fractions for immobilization at the DWPF Vitrification Facility and Z-Area Saltstone Manufacturing and Disposal Facility, respectively [Operation of the ITP Facility was suspended in early 1998. DOE is currently evaluating alternate salt disposition technologies to replace the ITP process.]



*This process will be replaced. DOE is evaluating alternatives to this process in a separate EIS (see 64 FR 8559).

NW TANK/Grfx/1-2 Proc SRS HLW.ai

Figure 1-2. Process flows for Savannah River Site High-Level Waste Management System.

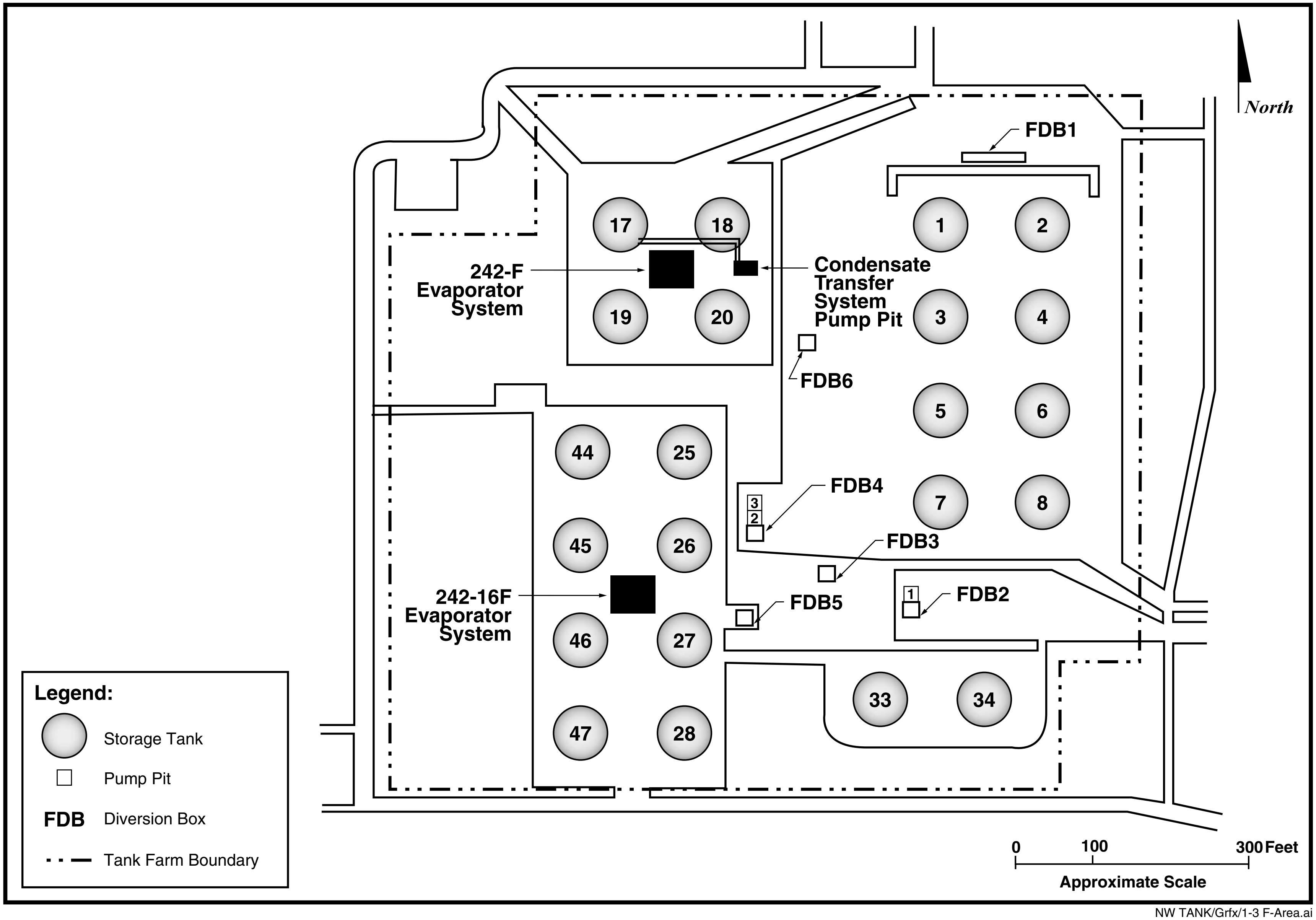
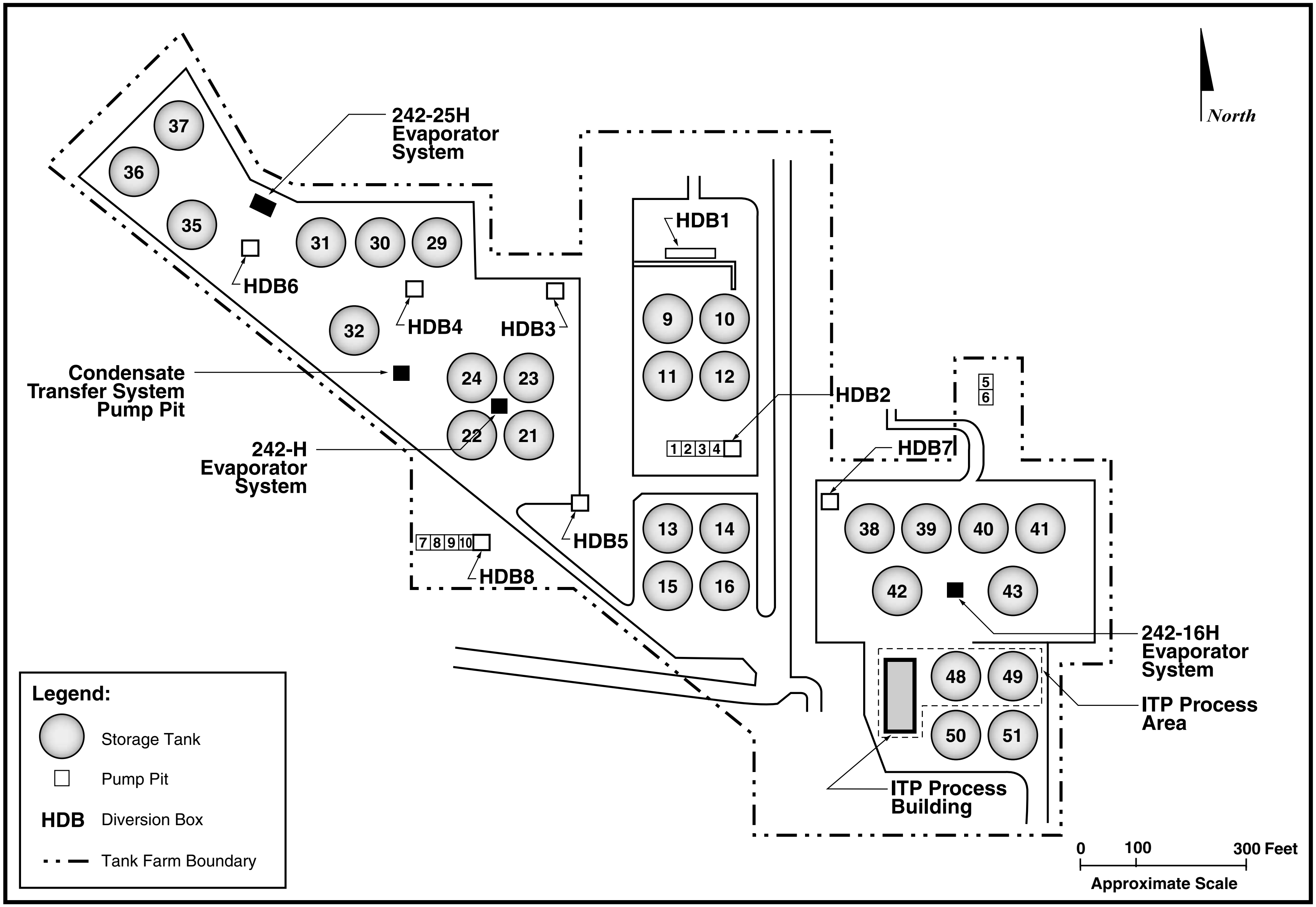


Figure 1-3. General layout of F-Area Tank Farm.



NW TANK/Grfx/1-4 H_Tank.ai

Figure 1-4. General layout of H-Area Tank Farm.

- Sludge washing system (i.e., Extended Sludge Processing) to pretreat the accumulated sludge prior to immobilization at the DWPF Vitrification Facility

Tanks

The F- and H-Area tanks are of four different designs, all constructed of carbon-steel inside reinforced concrete containment vaults. Two designs (Types I and II) have 5-foot high secondary annulus "pans" and active cooling (Figure 1-5). (An "annulus" is the space between two walls of a double-walled tank.)

The 12 Type I Tanks (Tanks 1 through 12) were built in 1952 and 1953, five of which (Tanks 1, 9 through 12) have known leak sites in which waste leaked from the primary containment to the secondary containment. The leaked waste is kept dry by air circulation, and there is no evidence that the waste has leaked from the secondary containment. The tank tops are about 9.5 feet below grade. The bottoms of Tanks 1 through 8, in F-Area, are situated above the seasonal high water table. Tanks 9 through 12 in the H-Area Tank Farm are in the water table.

The four Type II tanks (Tanks 13 through 16) were built in 1956 in the H-Area Tank Farm (Figure 1-5). All four have known leak sites in which waste leaked from primary to secondary containment. In Tank 16, the waste overflowed the annulus pan (secondary containment). The waste was still contained in the concrete encasement that surrounds the tank, but surveys indicated that some waste leaked into the soil, presumably through a construction joint on the side of the encasement that is located near the top of the annulus pan, about 25 feet below grade. Based on soil borings around the tank, it is estimated that some tens of gallons of waste leaked into the soil. Much of the leaked waste was removed from the annulus during the period 1976 to 1978; however, several thousand gallons remain in the annulus. Waste removal from the Tank 16 primary vessel was completed in 1980. Assuming that the waste did leak from the construction joint, the leaked waste is in the vicinity of the seasonal water table and is at times below the water table.

The eight Type IV tanks (Tanks 17 through 24) were built between 1958 and 1962. These tanks have a single steel wall and do not have active cooling (Figure 1-5). Tanks 17 through 20 are in the F-Area Tank Farm and Tanks 21 through 24 are in H-Area. Tanks 19 and 20 have known cracks that are believed to have been caused by corrosion of the tank wall from occasional groundwater inundation from fluctuation in the water table. Small amounts of groundwater have leaked into these tanks; there is no evidence that waste ever leaked out. Tanks 17 through 20 are slightly above the water table. Tanks 21 through 24 are above the groundwater table; however, they are in a perched water table caused by the original construction of the tank area. Tanks 17 and 20 have already been closed in a manner described in the Clean and Fill with Grout option of the Clean and Stabilize Tanks Alternative evaluated in this EIS (see Section 2.1.1).

The newest design (Type III) has a full-height secondary tank and active cooling (Figure 1-5). All of the Type III tanks (25 through 51) are above the water table. These 27 tanks were placed in service between 1969 and 1986 with 10 in the F-Area and 17 in the H-Area Tank Farms. None of them has known leak sites.

By 2022, DOE is required to remove from service and close all the remaining tank systems that have experienced leaks or do not have full-height secondary containment. The 24 Type I, II, and IV tanks have been or will be removed from service before the 27 Type III tanks. Type III tanks will remain in service until there is no further need for the tanks, which DOE currently anticipates would occur before the year 2030.

Summary information on the F-and H-Area HLW tanks is presented in Table 1-1.

Evaporator Systems

Each tank farm has two evaporators that concentrate waste following receipt from the canyons. At present, two evaporators are operating, one in each tank farm. Each operating evaporator is made of stainless steel and operates at near

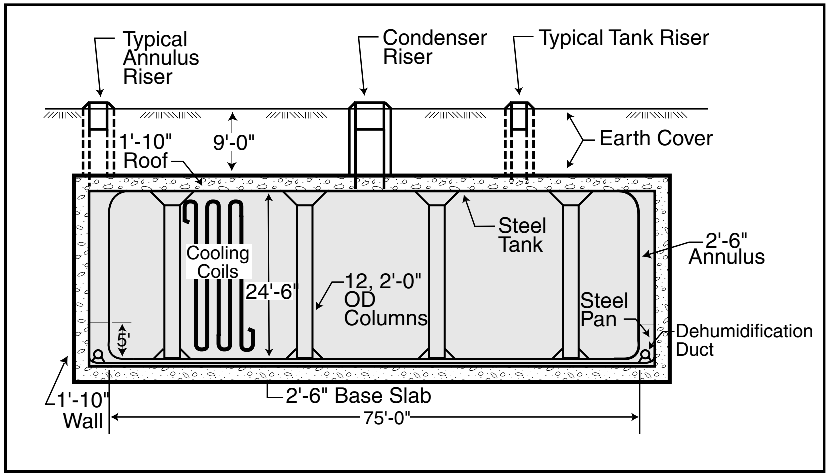


Figure A-4.A. Cooled Waste Storage Tank, Type I (Original 750,000 gallons)

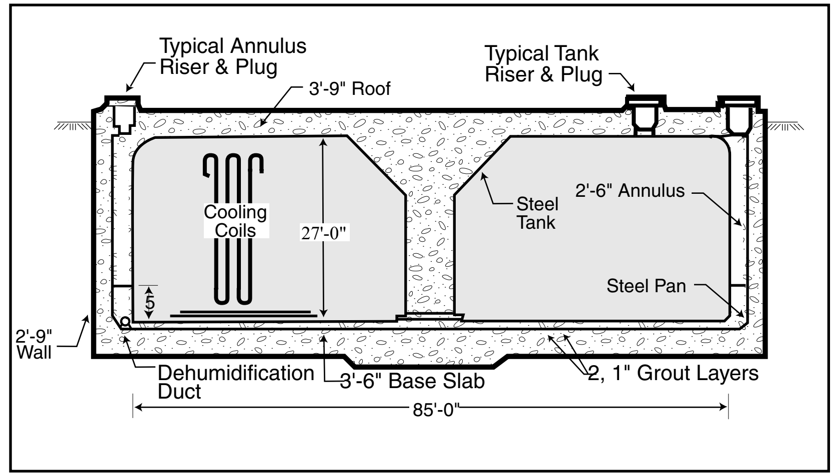


Figure A-4.B. Cooled Waste Storage Tank, Type II (1,030,000 gallons)

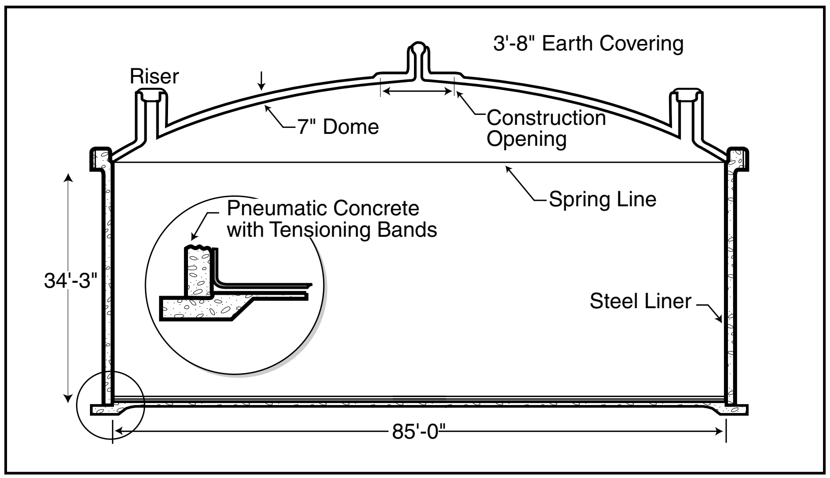


Figure A-4.C. Uncooled Waste Storage Tank, Type IV (Prestressed concrete walls, 1,300,000 gallons)

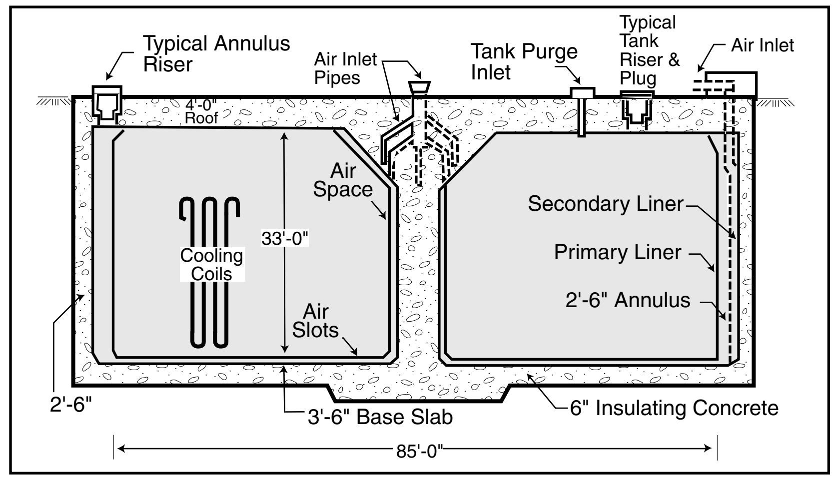


Figure A-4.D. Cooled Waste Storage Tank, Type III (Stress Relieved Primary Liner, 1,300,000 gallons)

NW TANK/Grfx/1-5 Tank config.ai

Figure 1-5. Tank configuration.

Table 1-1. Summary of high-level waste tanks.

Tank type	Number of tanks	Volume (gallons)	Area	Tank numbers	Year constructed	Year first used
I[a]	12	750,000	F	1 - 8	1952	1954-64
			H	9 - 12	1953	1955-56
II[a]	4	1,030,000	H	13 - 16	1956	1957-60
III	27	1,300,000	F	25 - 28	1978	1980
				33 - 34	1969, 1972	1969, 1972
				44 - 47	1980	1980-82
			H	29 - 32	1970	1971-74
				35 - 43	1976-79	1977-86
				48 - 51	1981	1983-86
IV[a]	8	1,300,000	F	17 - 20[b]	1958	1958-61
			H	21 - 24	1961-62	1961-65

a. Twenty-four Type I, II, and IV HLW tanks will be removed from service by 2022.
b. Two tanks (Tanks 17 and 20) have been closed.

atmospheric pressure under alkaline conditions. The evaporators are 8 feet in diameter and have an operating capacity of approximately 1,800 gallons. An additional evaporator system, the Replacement High-Level Waste Evaporator, has been built in H-Area. The Replacement High-Level Waste Evaporator has almost twice the operating capacity of the existing evaporators. Because of the radioactivity emitted from the waste, the evaporator systems are either shielded (i.e., lead, steel, or concrete vaults) or placed underground. The process equipment is designed to be operated and maintained remotely.

Waste supernate is transferred from the evaporator feed tanks and heated to the aqueous boiling point in the evaporator vessel. The evaporated liquids (overheads) are condensed and, if required, processed through an ion-exchange column for cesium removal. The overheads are transferred to the F/H Effluent Treatment Facility for final treatment before being discharged to Upper Three Runs. The overheads can be recycled back to a waste tank if evaporator process upsets occur. Supernate can be reduced to about 25 percent of its original volume and immobilized as crystallized salt by successive evaporations of liquid supernate.

Transfer System

A network of transfer lines is used to transfer wastes between the waste tanks, process units, and various SRS areas (i.e., F-Area, H-Area, S-Area, and Z-Area). These transfer lines have diversion boxes that contain removable pipe segments (called jumpers) to complete the desired transfer route. Jumpers of various sizes and shapes can be fabricated and installed to enable the transfer route to be changed. The use of diversion boxes and jumpers allows flexibility in the movement of wastes. The diversion boxes are usually underground, constructed of reinforced concrete, and either sealed with waterproofing compounds or lined with stainless steel.

Pump pits are intermediate pump stations in the F- and H-Area Tank Farm transfer systems. These pits contain pump tanks and hydraulic pumps or jet pumps. Many pump pits are associated with diversion boxes. The pits are constructed of reinforced concrete and have a stainless-steel liner.

1.1.4 HLW TANK CLOSURE

1.1.4.1 Closure Process

After the majority of the waste has been removed from the HLW tanks for treatment and disposal, the tank systems (including the tanks, evaporators, transfer lines, and other ancillary equipment) would become part of the HLW tank closure project, the potential environmental impacts of which are the subject of this EIS. In accordance with the SRS Federal Facility Agreement (EPA 1993), DOE intends to remove the tanks from service as their missions are completed. For 24 tanks that do not meet the U.S. Environmental Protection Agency's (EPA's) secondary containment standards under the Resource Conservation and Recovery Act, DOE is obligated to close the tanks by 2022. The proposed closure process specified by the Federal Facility Agreement is described in Appendix A beginning in Section A.4.

The process of preparing to close tanks began in 1995. DOE prepared the *Industrial Wastewater Closure Plan for F- and H-Area High-Level Waste Tank Systems* (DOE 1996a) that describes the general protocol for closing the tanks. This document (referred to as the General Closure Plan) was developed with extensive interaction with the State of South Carolina and EPA. Concurrent with the General Closure Plan, DOE prepared the *Environmental Assessment for the Closure of the High Level Waste Tanks in F- and H-Areas at the Savannah River Site* (DOE 1996b). In a Finding of No Significant Impact published on July 31, 1996, DOE concluded that closure of the HLW tanks in accordance with the General Closure Plan would not result in significant environmental impacts.

Accordingly, DOE began to close Tank 20, from which the bulk waste had already been removed. In accordance with the General Closure Plan, DOE prepared a tank-specific closure plan (DOE 1997a) that outlined the specific steps for Tank 20 closure and presented the long-term environmental impacts of the closure. The State of South Carolina approved the Closure Module, and Tank 20 closure was completed on July 31, 1997. Later in 1997, following preparation and approval of a tank-specific Closure Module, Tank 17 was closed.

DOE has decided to prepare an EIS before any additional HLW tanks are closed at SRS. This decision is based on several factors, including the desire to further explore the environmental impacts from closure and to open a new round of information sharing and dialogue with stakeholders. SRS is committed in the Federal Facility Agreement to close another HLW tank by Fiscal Year 2003. DOE has reviewed bulk waste removal of waste from the HLW tanks in the Waste Management Operations, Savannah River Plant EIS (ERDA-1537) and the Long-term Management for Defense High-Level Radioactive Wastes (Research and Development Program for Immobilization) Savannah River Plant EIS (DOE/EIS-0023). In addition, the SRS Waste Management EIS discusses high-level waste management activities as part of the No Action Alternative (continuing the present course of action), and the Defense Waste Processing Facility Savannah River Plant EIS (DOE/EIS-0082) and the Final Supplemental Environmental Impact Statement Defense Waste Processing Facility (DOE/EIS-0082S) discuss management of high-level waste after it is removed from the tanks.

The National Research Council released a study (National Research Council, 1999) examining the technical options for HLW treatment and tank closure at the Idaho National Engineering and Environmental Laboratory (INEEL). The Council concluded that clean closure is impractical, some residual radioactivity will remain, but with rational judgement and prudent management, that it is reasonable to expect all options will result in very low risks. Recommendations made by the NRC included: 1- establish closure criteria, 2-develop an innovative sampling plan based on risks, and 3-conduct testing to anticipate possible process failure. The SRS General Closure Plan had anticipated and includes points similar to those raised by the Council.

1.1.4.2 Waste Incidental to Reprocessing

An important issue associated with tank closure, and a subject of controversy, is the determination of the regulatory classification of residual waste in the tanks. Before bulk waste removal, the content of the tanks is HLW. The goal of the bulk waste removal and subsequent cleaning of the tanks is to remove as much waste as can reasonably be removed.

In July 1999, DOE issued Order 435.1, Radioactive Waste Management, and the associated Manual and Implementation Guide. DOE Manual 435.1-1 prescribes two processes, by citation or by evaluation (see text box), for determining that waste resulting from reprocessing spent nuclear fuel can be considered "waste incidental to reprocessing."

Waste Incidental to Reprocessing Determination

The two processes for determining that waste can be considered incidental to reprocessing are "citation" and "evaluation." Waste incidental to reprocessing by "citation" includes spent nuclear fuel processing plant wastes that meet the description included in the Nuclear Regulatory Commission's Notice of Proposed Rulemaking (34 FR 8712; June 3, 1969) for promulgation of proposed Appendix D, 10 CFR Part 50, Paragraphs 6 and 7 that later came to be referred to as "waste incidental to reprocessing." These radioactive wastes are the result of processing plant operations, such as, but not limited to contaminated job wastes, such as laboratory items (clothing, tools, and equipment).

Waste incidental to reprocessing by "evaluation" includes spent nuclear fuel processing plant wastes that meet the following three criteria: (1) have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical, (2) will be managed to meet safety requirements comparable to the performance standards set forth in Subpart C of 10 CFR 61 (if low-level waste) or will be incorporated in a solid physical form and meet alternative requirements for waste classification and characteristics authorized by DOE (if transuranic waste), and (3) managed as low-level or transuranic waste pursuant to DOE's authority under the Atomic Energy Act in accordance with the applicable provisions of DOE M 435.1-1.

According to Order 435.1, waste resulting from reprocessing spent nuclear fuel that is determined to be incidental to reprocessing is not HLW, and shall be managed under DOE's regulatory authority in accordance with requirements for transuranic waste or low-level waste, as appropriate.[2] Section 7.1.3 of this EIS discusses the waste incidental to reprocessing process in more detail.

1.2 Purpose and Need for Action

DOE needs to reduce human health and safety risks at and near the HLW tanks, and to reduce the eventual introduction of contaminants into the environment. If DOE does not take action after bulk waste removal, the tanks would fail, and contaminants would be released to the environment. Failed tanks would present the risk of accidents to individuals. Release of contaminants to the environment would present human health risks, particularly to individuals who might use contaminated water, in addition to adverse impacts to the environment.

1.3 Decisions to be Based on this EIS

This EIS provides an evaluation of the environmental impacts of several alternatives for closure of the high-level waste tanks at the Savannah River Site. The closure process will take place over a period of up to 30 years. The EIS provides the decisionmaker with an assessment of the potential environmental, health and safety effects of each alternative. The selection of a tank closure alternative, following completion of this EIS, will guide the selection and imple-

[2] The Natural Resources Defense Council (NRDC) has filed a Petition in the Court of Appeals for the Ninth Circuit asking the Court to review DOE Order 435.1 and claiming the Order is "arbitrary, capricious, and contrary to law." The Nuclear Regulatory Commission, in responding recently to a separate petition from the NRDC, has concluded that DOE's commitments to (1) clean up the maximum extent technically and economically practical, and (2) meet performance objectives consistent with those required for disposal of low level waste, if satisfied, should serve to provide adequate protection of public health and safety (65 FR 62377, October 18, 2000).

mentation of a closure method for each high-level waste tank at the SRS. Within the framework of the selected alternative, and the environmental impact of closure described in the EIS, DOE will select and implement a closure method for each tank.

In addition to the closure methods and impacts described in this EIS, the tank closure program will operate under a number of laws, regulations, and regulatory agreements described in Chapter 7 of this EIS. In addition to the General Closure Plan (a document prepared by DOE based on responsibilities under the AEA and other laws and regulations and approved by SCDHEC), the closure of individual tanks will be performed in accordance with a tank-specific Closure Module. Each Closure Module will incorporate a specific plan for tank closure and modeling of impacts based on that plan. Through the process of preparing and approving each Closure Module, DOE will select a closure method that is consistent with the closure alternative selected after completion of this EIS. The selected closure method for each tank will result in the closure of all tanks with impact on the environment equal to or less than those described in this EIS. If a tank closure that meets the performance objectives of the closure module cannot be accomplished using the selected alternative, DOE would prepare the appropriate additional NEPA review prior to implementing closure of the tank.

During the expected 30-year period of tank closure activities, new technologies for tank cleaning or other aspects of the closure process may become available. DOE would conduct the appropriate NEPA review for any proposal to use a new technology.

1.4 EIS Overview

1.4.1 SCOPE

This EIS analyzes the environmental impacts of cleaning, isolating, and stabilizing the HLW tanks and related systems such as evaporators, transfer piping, sumps, pump pits, diversion boxes, filtration systems, sludge washing equipment, valve boxes, and the condensate transfer system. Before tank closure can be accomplished, DOE must remove the waste stored in the tanks, a process called bulk waste removal. Bulk waste removal is discussed as part of the No Action Alternative (i.e., a continuation of the normal course of action) in the Savannah River Site Waste Management EIS (DOE/EIS-0217). In light of proposed changes in the bulk waste removal program, DOE will determine the need to supplement the Waste Management EIS. Bulk waste removal means pumping out all the waste that is possible with existing equipment. Bulk waste removal leaves residual contamination on the tank walls and internal hardware such as cooling coils. A heel of liquid, salt, sludge, or other material remains in the bottom of the tank and cannot be removed without using special means. Removal of this residual material is part of the cleaning stage of the proposed action.

Upon completion of closure activities for a group of tanks (and their related equipment) in a particular section of a tank farm, the tanks and associated equipment in the group would transition to the SRS environmental restoration program. The environmental restoration program would conduct soil assessments and remedial actions to address any contamination in the environment (including previous known leaks) and develop a post-closure strategy. Consideration of alternative remedial actions under the remediation program is outside the scope of this EIS, and would be conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. DOE, however, has established a formal process to ensure that tank closure activities are coordinated with the environmental restoration program. This process is described in the *High-Level Waste Tank Closure Program Plan* (DOE 1996c). This process requires that, once a group of tanks in a particular section of a tank farm is closed, the HLW operations organization and the environmental restoration organization would establish a Co-Occupancy Plan to ensure safe and efficient soils assessment and remediation.

The HLW organization would be responsible for operational control and the environmental restoration organization would be responsible for environmental restoration activities. The primary purpose of the Co-Occupancy Plan is to provide the two organizations with a formal process to plan, control, and coordinate the environmental restoration activities in the tank farm areas. The activities of the environmental restoration program would be governed by the CERCLA, RCRA corrective action, and the Federal Facility Agreement between DOE, SCDHEC, and EPA. As such, it is beyond the scope of this EIS.

1.4.2 ORGANIZATION

This EIS has seven chapters supported by four appendices. Chapter 2 describes the proposed action and alternatives for carrying it out. Chapter 3 discusses the SRS and describes the site and the surrounding environment the alternatives could impact. Chapter 4 presents the estimated impacts from tank closure. Chapter 5 discusses the cumulative impacts of this project plus other existing or planned projects that affect the environment. Chapter 6 presents resource commitments. Chapter 7 discusses applicable laws, regulations, and permit requirements.

This EIS also contains four appendices. Appendix A describes HLW management at SRS with an emphasis on the tank farms and the closure alternatives. Appendix B provides information on accident scenarios. Appendix C describes long-term closure modeling, and Appendix D describes public input received during the scoping period and provides DOE responses.

1.4.3 STAKEHOLDER PARTICIPATION

On December 29, 1998, DOE announced in the *Federal Register* (63 FR 71628) its intent to prepare an EIS on the proposed closure of High-Level Waste Tanks at SRS near Aiken, South Carolina. DOE proposes to close the tanks to protect human health and the environment and to promote safety. With the Notice, DOE established a public comment period that lasted through February 12, 1999.

DOE invited SRS stakeholders and other interested parties to submit comments for consideration in the preparation of the EIS.

DOE held scoping meetings on the EIS in North Augusta, South Carolina, on January 14, 1999, and in Columbia, South Carolina, on January 19, 1999. Each meeting included presentations on the NEPA process in relation to the proposed action, on the plan for closure of the tanks and on the alternatives presented in this EIS. The meetings also offered opportunities for public comment and general questions and answers.

From the scoping process the Department identified about 25 separate comments. Six comments recommended changes or additions to the alternatives, three comments suggested data to be included, eleven comments suggested evaluations to be used or concerns about analyses, six comments dealt with concerns about criteria used or regulatory compliance, two comments dealt with schedule or EIS process, and four comments dealt with a variety of topics that do not fit in any of the areas given above. DOE considered all of these comments in preparing this EIS.

A summary of the comments received during the pubic scoping period and how they influenced the scope of this Draft EIS is included as Appendix D.

1.4.4 RELATED NEPA DOCUMENTS

This EIS makes use of information contained in other DOE NEPA documents related to HLW management and tank closure. It is also designed to be consistent with DOE's parallel effort to prepare an EIS on HLW Salt Disposition Alternatives, which is related to activities in the H-Area Tank Farm. The NEPA documents related to this HLW Tank Closure EIS are briefly described below.

Environmental Assessment for the Closure of the High-Level Waste Tanks in the F- and H-Areas at the Savannah River Site – DOE prepared an environmental assessment (DOE 1996b) to evaluate the impacts of closing HLW tanks at the SRS after removal of the bulk waste. The proposed action was to remove the residual waste from the tanks and fill them with a material to prevent future collapse and bind up residual waste, to decrease human health risks, and to increase safety in the area of the tank farms. After closure, the tank system would be turned over to the SRS environmental restoration program for environmental assessment and remedial actions as necessary. A Finding of No Significant Impact was determined based on the analyses in the environmental assessment, and DOE subsequently closed Tanks 17 and 20. DOE has now decided to prepare an EIS for proposal to close the remaining HLW tanks.

Final Defense Waste Processing Facility Supplemental Environmental Impact Statement – DOE prepared a Supplemental EIS to examine the impacts of completing construction and operating the DWPF at the SRS. This document (DOE 1994) assisted the Department in deciding whether and how to proceed with the DWPF project, given the changes to processes and facilities that had occurred since 1982, when it issued the original *Defense Waste Processing Facility EIS*.

The Record of Decision (60 FR 18589) announced that DOE would complete the construction and startup testing of DWPF and would operate the facility using the In-Tank Precipitation process after the satisfactory completion of startup tests.

The alternatives evaluated in this EIS could generate radioactive waste that DOE would have to handle or treat at facilities described in the *Defense Waste Processing Facility Supplemental EIS* and the *SRS Waste Management EIS* (see next paragraph). The *Defense Waste Processing Facility Supplemental EIS* is also relevant to the assessment of cumulative impacts (see Chapter 5) that could occur at SRS.

Savannah River Site Waste Management Final Environmental Impact Statement – DOE issued the *SRS Waste Management EIS* (DOE 1995) to provide a basis for the selection of a sitewide approach to managing present and future (through 2024) wastes generated at SRS. These wastes would come from ongoing operations and potential actions, new missions, environmental restoration, and decontamination and decommissioning programs.

The *SRS Waste Management EI*S includes the treatment of wastewater discharges in the Effluent Treatment Facility, F- and H-Area tank operations and waste removal, and construction and operation of a replacement HLW evaporator in the H-Area Tank Farm. In addition, it evaluates the Consolidated Incineration Facility for the treatment of mixed waste. The Record of Decision (60 FR 55249) stated that DOE will configure its waste management system according to the moderate treatment alternative described in the EIS. The *SRS Waste Management EIS* is relevant to this HLW Tank Closure EIS because it evaluates management alternatives for various types of waste that actions proposed in this EIS could generate. The *Waste Management EIS* is also relevant in the assessment of cumulative impacts that could occur at the SRS (see Chapter 5).

Final Waste Management Programmatic Environmental Impact Statement for Managing, Treatment, Storage, and Disposal of Radioactive and Hazardous Waste – DOE published this EIS as a complex-wide study of the environmental impacts of managing five types of waste generated by past and future nuclear defense and research activities, including HLW at four sites (DOE 1997c). This NEPA analysis was the first time DOE had examined in an integrated fashion the impacts of complex-wide waste management alternatives and the cumulative impacts from all waste management activities at a specific site.

The EIS evaluated four alternatives, including the no action alternative, for managing immobilized HLW until such time as a geologic repository is available to receive it. The preferred alternative was for each site to store its immobilized waste onsite. The Record of Decision to proceed with DOE's preferred alternative of decentralized storage for immobilized HLW was issued August 26, 1999 (64 FR 46661).

Supplemental Environmental Impact Statement for High-Level Waste Salt Disposition Alternatives at the Savannah River Site – On February 22, 1999 DOE published a Notice of Intent to prepare a Supplemental EIS for alternatives to the In-Tank Precipitation process at

SRS (64 FR 8558). The In-Tank Precipitation process was intended to separate soluble, high-activity radionuclides from HLW before vitrifying the high-activity portion of the waste in the DWPF and disposing of the low-activity fraction as saltstone grout in vaults at SRS. However, the In-Tank Precipitation process as presently configured cannot achieve production goals and safety requirements for processing HLW. The Supplemental EIS will evaluate the impacts of alternatives to the In-Tank Precipitation process for separating the high- and low-activity fractions of the HLW currently stored in tanks at SRS. Although the *Salt Disposition Alternatives Supplemental EIS* addresses subject matter and some equipment in common with this EIS, the actions proposed in each EIS are independent and are thus appropriately considered in separate EISs.

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