United States Department of Energy

Savannah River Site

Explanation of Significant Difference (ESD) for Incorporating F-Area Diversion Boxes 5 and 6 into the Revision 1 Interim Record of Decision Remedial Alternative Selection for the F-Area Tank Farm, Waste Tanks 17 and 20 (U)

SEMS Number: 23

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APPROVAL SHEET

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Date	Henry J. Porter Chief Bureau of Land and Waste Management South Carolina Department of Health and Environmental Control
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CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ESD	Explanation of Significant Difference
FDB	F-Area Diversion Box
FFA	Federal Facility Agreement
FTF	F-Area Tank Farm
ICMI/RAIP	Interim Corrective Measures Implementation/Remedial Action Implementation Plan
IRA	Interim Remedial Action
IROD	Interim Record of Decision
LLC	Limited Liability Company
LUC	Land Use Controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OU	Operable Unit
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SCDHEC	South Carolina Department of Health and Environmental Control
SRS	Savannah River Site
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency

I. INTRODUCTION

This Explanation of Significant Difference (ESD) is being issued by the United States Department of Energy (USDOE), which functions as the lead agency for remedial activities at Savannah River Site (SRS), located near Aiken County, South Carolina ~~remedial activities~~, with concurrence by the United States Environmental Protection Agency (USEPA) and the South Carolina Department of Health and Environmental Control (SCDHEC). The purpose of this ESD is to announce the incorporation of F-Area Diversion Box (FDB)-5 and FDB-6 (Buildings 241- 33F and 241-32F, respectively) at the F-Area Tank Farm (FTF) into the interim response action selected in the *Interim Record of Decision Remedial Alternative Selection for the F-Area Tank Farm, Waste Tanks 17 and 20* (SRR-CWDA-2012-00111), which was issued on April 30, 2013.

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 117(c), SRS is required to publish an ESD whenever there is a significant change to a component of a remedy specified in a Record of Decision (ROD). Sections 300.435(c)(2)(i) and 300.825(a)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) require the lead agency to provide an explanation of the difference and to make this information available to the public in the Administrative Record File and information repositories.

The USDOE manages certain waste materials at the SRS that are regulated under the Resource Conservation and Recovery Act (RCRA), a comprehensive law requiring responsible management of hazardous waste. The USDOE received a RCRA hazardous waste permit from the SCDHEC, which was most recently renewed on February 11, 2014 (SC1 890 008 989). Module VIII of the Hazardous and Solid Waste Amendments portion of the RCRA permit mandates corrective action requirements for non-regulated solid waste management units subject to RCRA 3004(u). The SRS Federal Facility Agreement (FFA) lists the FTF as a RCRA/CERCLA Operable Unit (OU). The SRS FFA, Section IX.E, addresses the eventual removal of tanks and ancillary equipment from service and any appropriate CERCLA response action relating to the waste tank systems (WSRC-OS-94-42).

The USDOE intends to remove from service the high-level waste tank system(s) identified in Appendix B of the SRS FFA. Until the FTF waste tanks and ancillary structures are removed from service, they are regulated under the Industrial Wastewater Construction Permit #17,424-IW, issued to SRS under the South Carolina Pollution Control Act, S. C. Code Ann., Section 48-1-10, et seq. (DHEC_01-25-1993) and applicable regulations implementing that Act. Waste tanks and ancillary structures are removed from the conditions of Industrial Wastewater Construction Permit #17,424-IW when operationally closed and removed from service in accordance with an

approved General Closure Plan and waste tank/ancillary structure-specific Closure Module.

The Interim ROD (IROD) for FTF Waste Tanks 17 and 20 selected Annual Visible Engineered Barriers Inspection and Maintenance as the remedy to ensure that the integrity of the stabilization actions was protected from significant damage or deterioration during the interim period. The interim action is limited to any maintenance deemed necessary from the annual inspections from the time of removal of a waste tank or associated ancillary equipment from service until a final ROD is issued for the FTF OU. The IROD explained that an ESD would be used to incorporate the interim remedy for additional FTF waste tanks, group of waste tanks, and associated ancillary structures when satisfactorily removed from service in accordance with an SCDHEC approved closure module. ESDs were previously issued to modify the IROD to apply the selected remedy to FTF Waste Tanks 18 and 19 (SRR-CWDA-2013-00007) and to Waste Tanks 5 and 6 (SRR-CWDA-2014-00008).

The USDOE has submitted and implemented a Consolidated General Closure Plan for F-Area and H-Area Waste Tank Systems (SRR-CWDA-2017-00015) and the FDB-5 and FDB-6 Closure Module (SRR-CWDA-2020-00011) that describes the characterization of residuals, associated risk, and planned stabilization of the ancillary structures. This ESD incorporates FDB-5 and FDB-6 into the interim remedy selected in the IROD.

This ESD is part of the Administrative Record File and is available for public viewing during normal business hours at the following repositories.

US Department of Energy
Public Reading Room
Gregg-Graniteville Library
University of South Carolina – Aiken
471 University Parkway
Aiken, South Carolina 29801
(803) 641-3465

Thomas Cooper Library
Government Information and Maps Department
University of South Carolina
1322 Greene Street
Columbia, South Carolina 29208
(803) 777-4841

The FFA Administrative Record File is available electronically at the following address:

https://www.srs.gov/general/programs/soil/arf/arfirf.html

II. SITE HISTORY AND SELECTED REMEDY

This ESD documents the incorporation of FDB-5 and FDB-6 into the selected interim response action for the removed-from-service FTF waste tanks and ancillary structures as found in the *Interim Record of Decision Remedial Alternative Selection for the F-Area Tank Farm, Waste Tanks 17 and 20* (SRR-CWDA-2012-00111). After the ESD is signed and issued to the public, an Interim Remedial Action (IRA) Start notification will be submitted to SCDHEC and USEPA to notify those agencies that the IRA is initiated.

F-Area Tank Farm

The FTF is located at the SRS in Aiken County, South Carolina (Figure 1~~Figure 1~~). The FTF is a 22-

acre site within the General Separations Area, which encompasses E-, F-, H-, J-, S-, and Z-Areas (Figure 2). FTF consists of 22 liquid waste storage tanks, two evaporator systems, over 45,000 linear feet of transfer pipelines, six diversion boxes, one catch tank, a concentrate transfer system tank, and three pump pits. Figure 3 shows the layout of FTF and the locations of FDB-5 and FDB-6. There are three major waste tank types in FTF that range in size from 750,000 gallons (Type I tanks) to 1.3 million gallons (Type III and Type IV tanks) that have varying degrees of secondary containment and intra-tank interferences, such as cooling coils and roof support columns. FTF was constructed to receive waste generated by various SRS production, processing, and laboratory facilities. The use of FTF isolated these wastes from the environment, the SRS workers, and the public. With FTF and its sister facility, H-Area Tank Farm, facilities are in place to pretreat the accumulated sludge and salt solutions (supernate) to enable the management and treatment of these wastes within other SRS facilities (i.e., Defense Waste Processing Facility and Saltstone Production Facility). These treatment facilities convert the sludge and supernate to more stable forms suitable for permanent disposal in a Federal Repository or the Saltstone Disposal Facility, as appropriate.

FDB-5 was built in the mid-to-late 1970s to make waste transfers from the 242-3F Concentrate Transfer System to Tank 25F through Tank 28F, Tank 33F, and Tank 34F. It was used between March 1980 and September 1985. The transfers through FDB-5 were only concentrated evaporator discharge (concentrated supernate). No "fresh canyon waste" or "sludge slurry" was sent through FDB-5. FDB-6 was built in the late 1970s for feed material transfers to the 242-1F evaporator from Tank 26F and Tank 7F. The transfers through FDB-6 were only supernate (evaporator feed). No "fresh canyon waste" or "sludge slurry" was sent through FDB-6. FDB-6 usage stopped when the 242-1F evaporator went out of service in 1988. Figure 4~~Figure 4~~ provides a plan view of FDB-5, and Figure 5~~Figure 5~~ provides a cross-section view of the diversion box. Diversion boxes are shielded, reinforced concrete structures containing transfer line nozzles to which jumpers are connected to direct waste transfers to the desired location. This reduces the number of dedicated transfer lines necessary to perform transfers among tanks and other facilities. Each diversion box is associated with, and provides connections to, a group of waste tanks. The diversion boxes are often constructed in conjunction with a pump pit.

Most of the diversion boxes are located below ground and are either stainless steel lined or sealed with water proofing compounds to prevent ground contamination. Walls are approximately 2 to 3 feet thick and sloped floors are approximately 3 feet thick. Diversion boxes have concrete slab-type cell covers, approximately 2 to 3 feet thick that must be removed for changing jumper alignment (SRS-REG-2007-00002). Specific description details of FDB-5 and FDB-6 are included in the Closure Module (SRR-CWDA-2020-00011). Figure 6 shows FDB-5 during early construction phase, with wooden framing and rebar being installed in anticipation of the concrete pour of the side walls. FDB-6 was constructed similarly to FDB-5. Figure

7~~Figure 7~~ shows plan view and cross-section details of FDB-6.

F-Area Tank Farm Closure Activities

FDB-5 and FDB-6 were declared by the USDOE to be operationally closed and removed from service on November 14, 2022 (WDPD-23-03) in accordance with an approved Consolidated General Closure Plan (SRR-CWDA-2017-00015) and ancillary structure-specific Closure Module (SRR-CWDA-2020-00011). The diversion boxes were isolated from the remaining operating facility, filled with grout (i.e., stabilized), and the above-grade structure entombed with concrete as part of the stabilization process.

The USDOE is in the process of removing the remaining FTF waste tanks and ancillary structures from service in accordance with the Consolidated General Closure Plan (SRR-CWDA-2017-00015) and tank system-specific closure modules. FTF waste storage and removal operations are governed by Industrial Wastewater Construction Permit #17,424-IW issued by SCDHEC on January 25, 1993, and the FFA. The State of South Carolina has authority for approval of wastewater treatment facility operational closure under Chapter 61, Article 82 of the SCDHEC Regulations. The *Ronald W. Reagan National Defense Authorization Act (NDAA) for Fiscal Year 2005*, Section 3116(a) specifies the criteria for the USDOE to use to determine whether residuals remaining in the waste tanks and ancillary structures can be managed as non-high-level waste at a USDOE site in a "covered State" (e.g., South Carolina) where activities are regulated by the State's approved closure plan or permit, authority for the approval or issuance of which is conferred on the State outside of Section 3116. The *Basis for Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site* (DOE/SRS-WD-2012-001) was prepared for FTF, based in part on the environmental protection information provided in the FTF performance assessment (SRS-REG-2007-00002). Based on the information in the Section 3116 Basis Document and the performance assessment, the Secretary of Energy, in consultation with the Nuclear Regulatory Commission, determined that the residual material in the waste tanks and ancillary structures could be managed as non-high-level waste.

In accordance with the SRS FFA, when all FTF waste tanks and ancillary structures have been removed from service, an appropriate response action will be developed for the FTF OU, which includes the stabilized waste tanks and ancillary structures as well as the surrounding environmental media and groundwater directly below the FTF.

The Consolidated General Closure Plan requires monitoring of the groundwater under an approved FTF Groundwater Monitoring Plan, which describes the monitoring of the groundwater exiting the FTF. The Groundwater Monitoring Plan supports both the operation and removal from service of the FTF waste tanks and includes requirements for reporting the monitoring results (SRNS-RP-2011-00995). The Groundwater Monitoring Plan remains in effect until all waste tanks have been removed from service, at which time a remedial decision will be made for the FTF OU which includes the stabilized tanks, the surrounding soils, and the groundwater

below the FTF. Because these monitoring requirements are already in place, groundwater monitoring is not being considered as part of this interim action.

Selected Remedy

This ESD documents the incorporation of FDB-5 and FDB-6 into the selected interim response action for the FTF Waste Tanks 17 and 20.

The selected remedy, Annual Visible Engineered Barriers Inspection and Maintenance, includes annual inspections of the engineered barriers (e.g., visible grout and entombing concrete) for physical integrity. In addition, the area will be inspected for excessive water accumulation that may cause premature degradation of the engineered barriers associated with stabilization of the diversion boxes. The interim action is limited to any maintenance deemed necessary from the annual inspections from the time of removal of a waste tank or ancillary structure from service until a final ROD is issued for the FTF OU. This alternative was selected because it is protective of human health and the environment, and the requirement for annual inspections is consistent with the maintenance and monitoring requirements of the Consolidated General Closure Plan and the ancillary structure-specific closure module.

An Interim Corrective Measures Implementation/Remedial Action Implementation Plan (ICMI/RAIP) was prepared to include all waste tanks and ancillary structures in the FTF that are in the IROD and subsequent ESDs. The ICMI/RAIP initially included Waste Tanks 17 through 20 (SRR-CWDA-2013-00048). As additional tanks and ancillary structures in FTF are closed, an ESD will be used to apply the interim remedy selected in the IROD to those FTF waste tanks and associated ancillary structures removed from service. Because there is no change to the implementation of the interim remedial action selected in the IROD, the ESD will also refer to the same ICMI/RAIP for implementation of the selected remedy.

The current land use for the FTF is industrial with the USDOE maintaining control of the land. The FTF is currently in the operational phase and access is controlled by SRS facility security and administrative controls. Land use controls (LUCs) are not part of the interim action. LUCs may be included in the final ROD for the FTF OU to prevent inadvertent exposure to remaining contaminated media and to ensure the integrity of the closed tanks by restricting land and groundwater uses within the FTF OU. The Land Use Control Implementation Plan will be deferred until final closure of the entire FTF OU.

III. BASIS FOR THE EXPLANATION OF SIGNIFICANT DIFFERENCE

The purpose of this ESD is to document a post-IROD change by incorporating FDB-5 and FDB-6 into the Waste Tanks 17 and 20 selected interim remedial action for Annual Visible Engineered Barriers Inspection and Maintenance.

FDB-5 and FDB-6 have been operationally closed and removed from service under the Consolidated General Closure Plan (SRR-CWDA-2017-00015) and a Closure Module (SRR-CWDA-2020-00011).

FDB-5 and FDB-6 are in FTF as are Waste Tanks 17 and 20 and will be inspected and maintained until final closure of the FTF OU.

IV. DESCRIPTION OF SIGNIFICANT DIFFERENCE

The same interim action remedy selected for FTF Waste Tanks 17 and 20 is applied to FDB-5 and FDB-6. The selected remedy, Annual Visible Engineered Barriers Inspection and Maintenance, is protective of human health and the environment and will comply with applicable federal and state laws. In addition, it is consistent with the maintenance and monitoring requirements of the Consolidated General Closure Plan and the ancillary structure-specific closure module. The addition of FDB-5 and FDB-6 to the selected interim remedy does not significantly impact the cost of implementation.

V. STATUTORY DETERMINATIONS

The addition of FDB-5 and FDB-6 to the interim remedial action enhances protection of human health and the environment and complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action. Because the ESD does not fundamentally change the interim remedy, the Applicable or Relevant and Appropriate Requirements discussion presented in the IROD is not reevaluated in this ESD. This interim remedial action does not constitute the final remedy for the FTF. The statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element will be addressed by the final response action. A final remedial action will be evaluated and conducted in the future for the entire FTF OU according to the requirements of the FFA.

Based on information currently available, the lead agency believes the selected remedy provides the best balance of tradeoffs among the other alternatives with respect to the evaluation criteria. The USDOE expects the selected remedy to satisfy the statutory requirements in CERCLA Section 121(b) to: (1) be protective of human health and the environment and (2) be cost-effective. In accordance with Section 121(c) of CERCLA and NCP §300.430(f)(5)(iii)(c), a statutory review will be conducted within 5 years of initiation of the remedial action, and every 5 years thereafter, to ensure that the interim remedy continues to be protective of human health and the environment.

VI. PUBLIC PARTICIPATION

The public will be informed of the changes to the selected remedy as specified in this ESD through mailings of the *SRS Environmental Bulletin*, a newsletter sent to approximately 3,500 citizens in South Carolina and Georgia, and through notices in the *Aiken Standard*, the *Allendale Citizen Leader*, the *Augusta Chronicle*, the *Barnwell People-Sentinel*, and *The State* newspapers.

To obtain more information concerning this ESD, contact:

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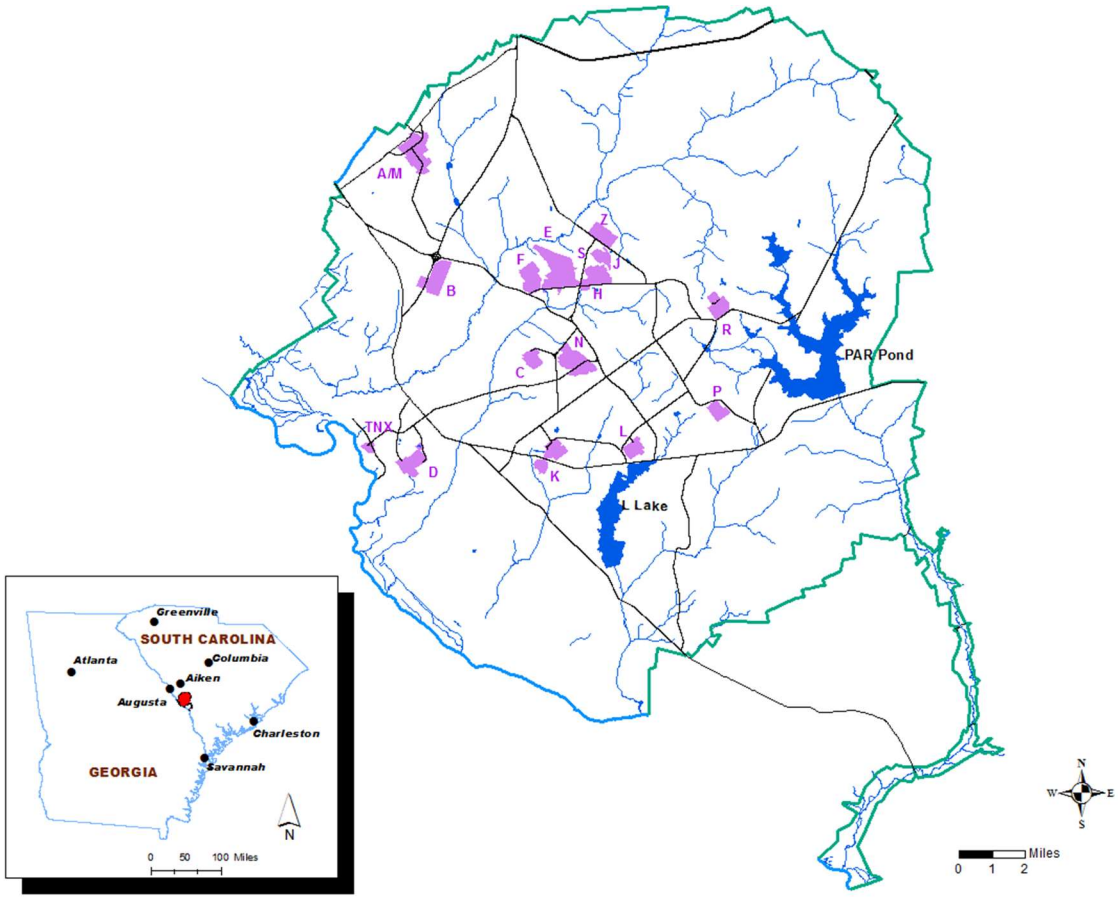

Figure 1: Location of the Savannah River Site

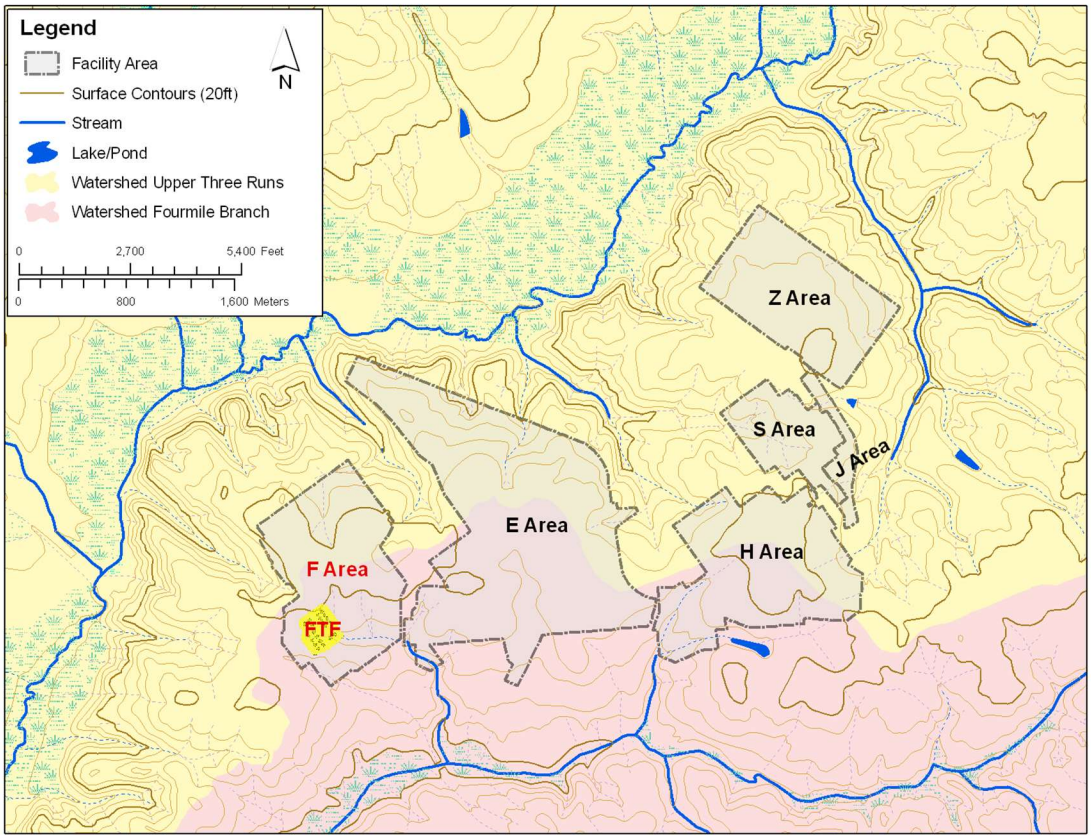

Figure 2: Layout of the General Separations Area

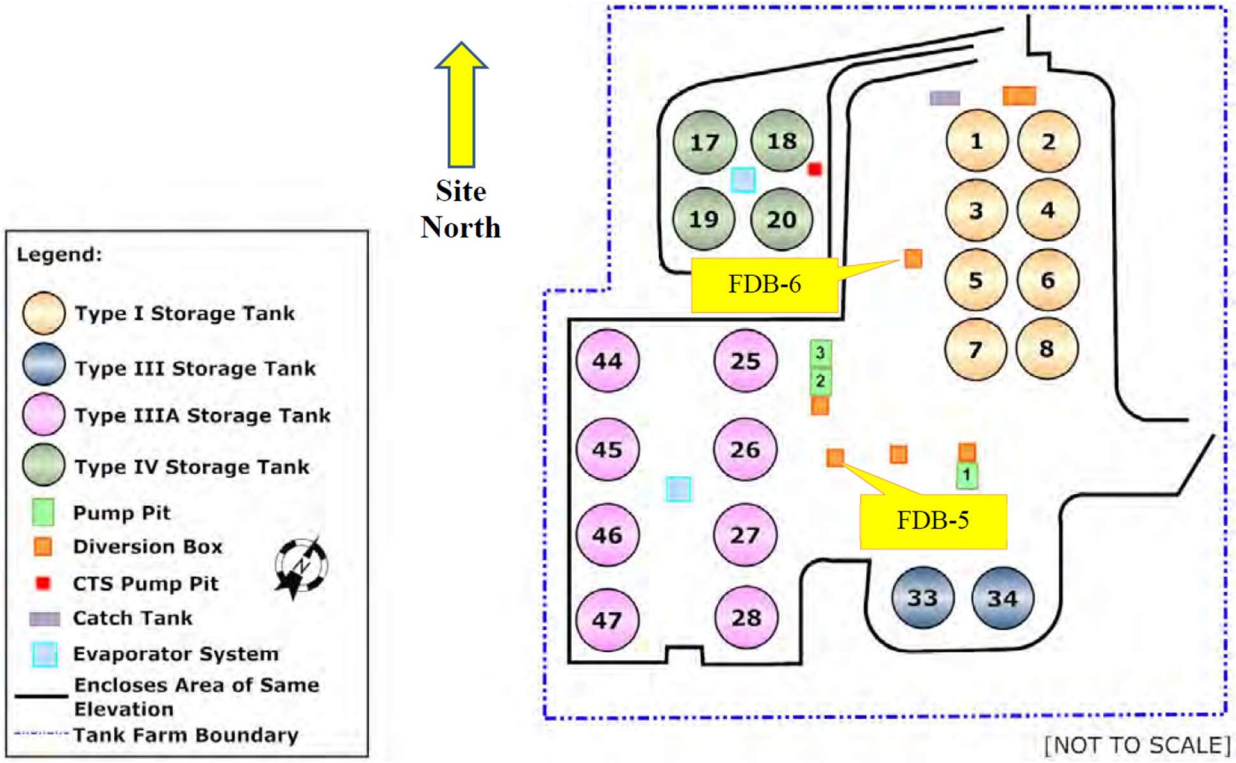

Figure 3: Layout of the F-Area Tank Farm and Locations of FDB-5 and FDB-6

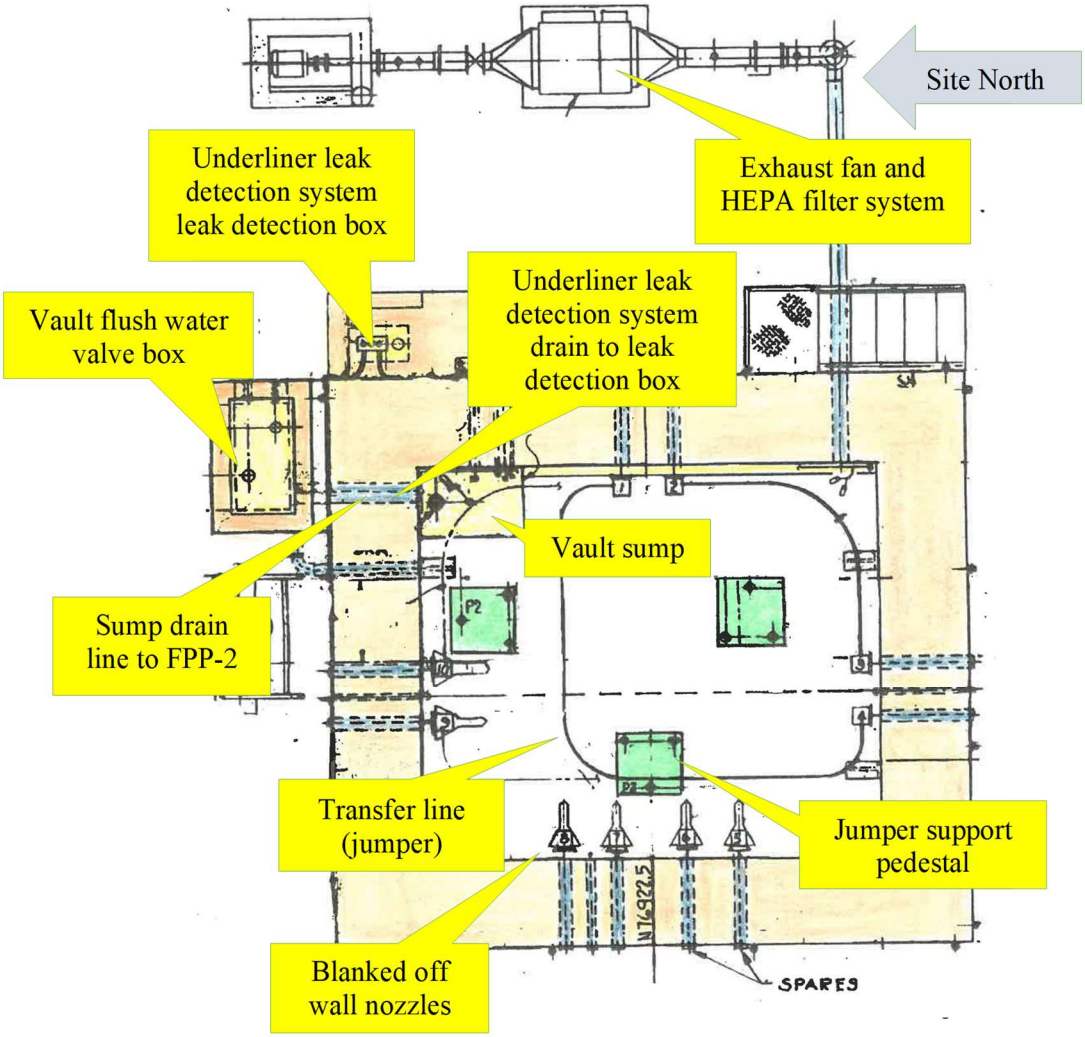

Figure 4: Plan View of FDB-5

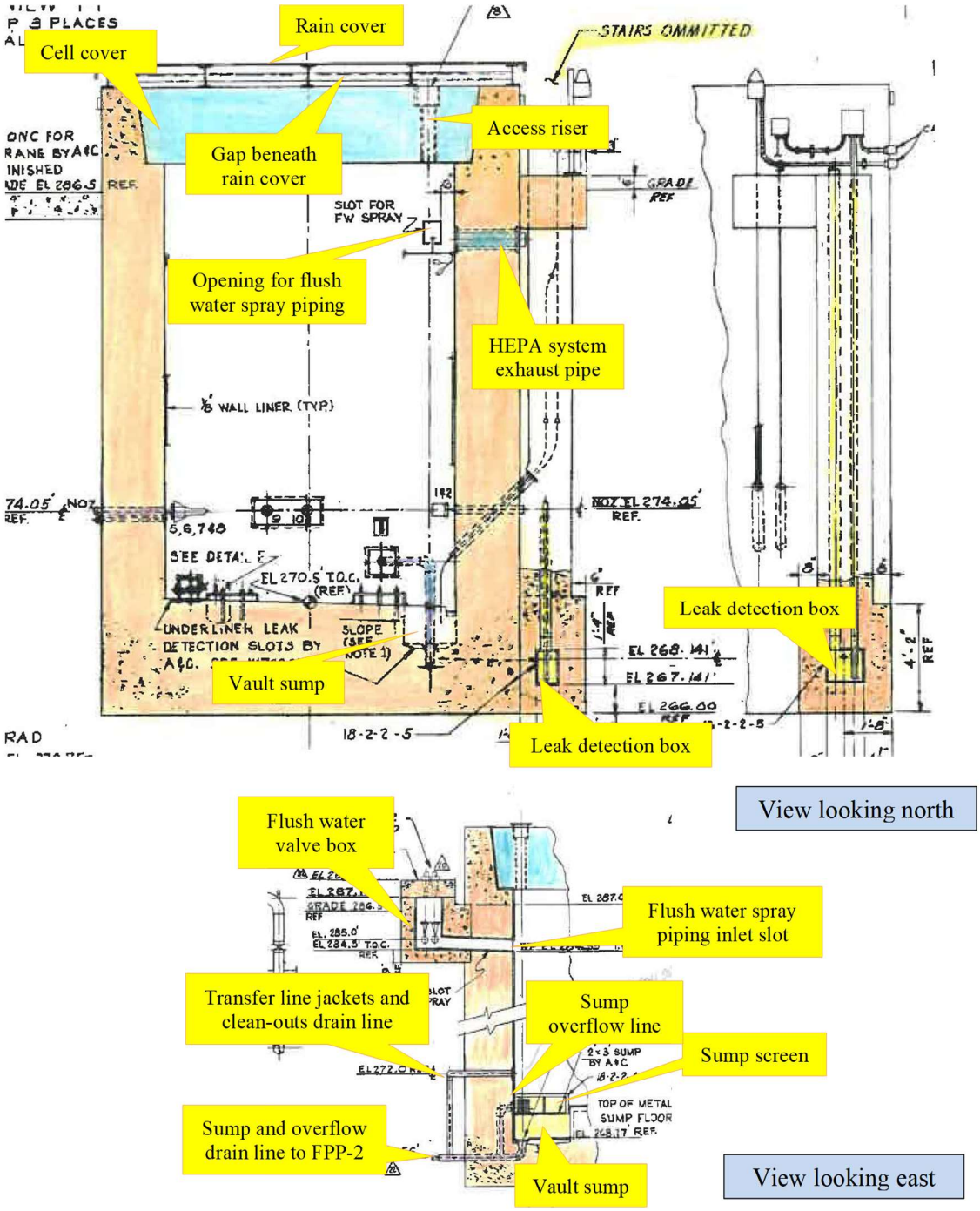

Figure 5: Cross-sections of FDB-5 Showing the Sump, Leak Detection Box, and Vault Flush Water Valve Box and Piping Inlet

Figure 6: FDB-5 Early Construction Phase

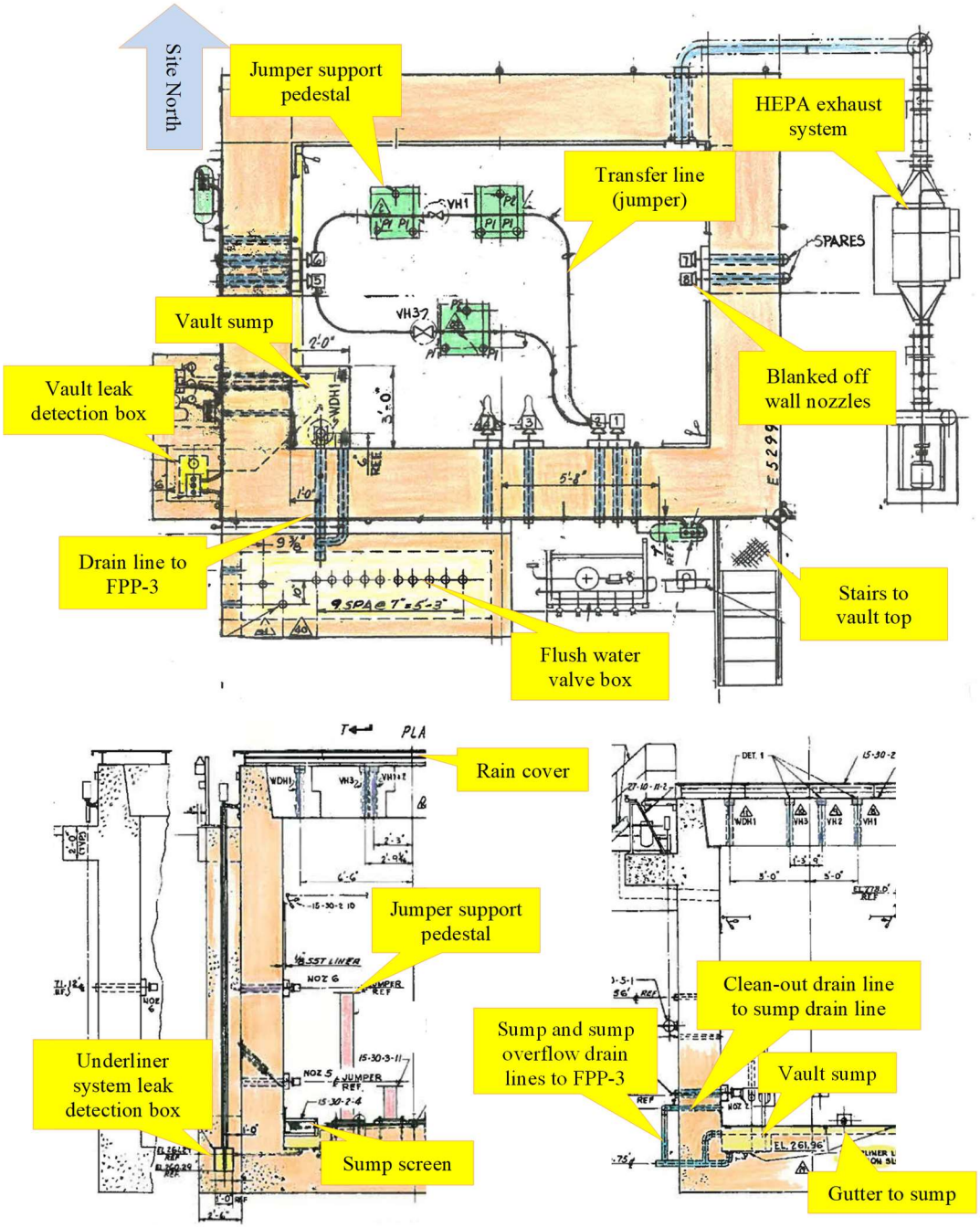

Figure 7: Plan View of FDB-6 and Cross-sections of the Vault Sump and Underliner Drain System