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MARTIN MARIETTA

ORNL CONTAMINATED SITE SUMMARY SHEETS

September 30, 1990

CAUTION

OPERATED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

9638

ORNL CONTAMINATED SITE

SUMMARY SHEET

September 30, 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0001

Unit Name: Mercury Contaminated Soil -- (3503)

Location of Unit: The contaminated soil is that surrounding Building 3503 on the corner of White Oak Avenue and Southside (main ORNL complex). ORNL grid coordinates are N 21,620 and E 31,400.

General Dimensions and Capacities: Data not available.

Function of the Unit: Building 3503 was used in the PUREX spent fuel reprocessing program.

Date of Operation: Site was in operation in the period 1950-1960.

Waste Characteristics: Major contaminant is liquid mercury.

Release Data: During the 1950s and early 1960s, substantial quantities of mercury were used in the spent fuel reprocessing program known as PUREX. No information exists on the amount of possible losses. Analyses of soil samples collected from various locations around Building 3503 ranged from 0.8 to 25 ppm.

Regulatory Authority: RCRA

Site Characterization Status: RFI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0002

Unit Name: Mercury Contaminated Soil -- (3592)

Location of Unit: The contaminated soil is that surrounding Building 3592 on the west corner (White Oak Avenue and Fourth Street (main ORNL complex). ORNL grid coordinates are N 21,7: and E 31,425.

General Dimensions and Capacities: Data not available.

Function of the Unit: The building around which the soil is located was used in componer development activities for a lithium separation process.

Date of Operation: Site was in operation in the 1950s.

Waste Characteristics: Main contaminant is liquid mercury.

Release Data: During 1956, equipment development work in Building 3592 was performed in suppor of the research activity in Building 4501 on lithium separation. Over a period of about two months more than 60,000 lb of mercury was used. No estimate of the amounts lost through spills is available however, operating personnel have estimated a total of 2000 to 3000 lb was lost due to spills an leaks. The facility is currently being used as a coal conversion pilot plant. Analyses of soil sample taken in 1983 from various locations around Building 3592 showed mercury concentrations rangin from 4.1 to 320 ppm.

Regulatory Authority: RCRA

Site Characterization Status: RFI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0003

Unit Name: Mercury Contaminated Soil -- (4501)

Location of Unit: The contaminated soil is that surrounding Building 4501 on the southeast corner of Fifth Street and Central Avenue. ORNL grid coordinates are N 21,980 and E 32,090.

General Dimensions and Capacities: Data not available.

Function of the Unit: The building around which the soil is located was used in a small pilot plant supporting the lithium separation process.

Date of Operation: Site was in operation April to November 1954.

Waste Characteristics: Main contaminant is liquid mercury.

Release Data: At Building 4501, ton quantities of mercury were used for about six months during 1954 for the operation of a small pilot plant for lithium separation (OREX process). Spills did occur. During a spill the visible mercury was cleaned up, but the concrete floor had cracks, and the mercury was able to escape in this manner. The building is currently used as a high-level radiochemistry laboratory. Analyses of soil samples collected from various locations in 1983 indicated that soils around Building 4501 had concentrations of mercury ranging from 0.05 to 465 ppm.

Regulatory Authority: RCRA

Site Characterization Status: RFI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0004

Unit Name: Mercury Contaminated Soil -- (4508)

Location of Unit: ORNL grid coordinates are N 21,580 and E 32,030.

General Dimensions and Capacities: Data not available.

Function of the Unit: General research and development activities.

Date of Operation: Data not available.

Waste Characteristics: Contaminant of concern is liquid mercury.

Release Date: Although research activities in Building 4508 are reported to have used inventories of less than 100 lb of mercury, there is no information available to indicate that a mercury spill has occurred.

Verification of Release: No soil sampling has been conducted around Building 4508. To establish information on releases it is suggested that a soil sampling program similar to that conducted around Building 4501 be initiated.

Regulatory Authority: RCRA

Site Characterization Status: RFI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005.

Unit Name: LLLW Lines and Leak Sites -- South of Building 3020

Location of Unit: Site is located due south of Building 3020.

General Dimensions and Capacities: SWMU X01-0005A is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: mid 1970s.

Waste Characteristics: The volume and composition of waste handled by the LLLW collection and transfer system have varied along with the R&D activities during the operating history of the Laboratory. No routine effort was made to determine the composition of the waste streams. Most sources generate dilute LLLW at the mCi/gal level, although wastes containing up to 20 Ci/gal were produced in certain operations and diluted to around 0.05 Ci/gal before entering the collection system. It has been estimated that the average activity of LLLW is about 30 mCi/gal. The major radionuclides present are Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes are also present. Wastes are generally nitrate solutions, although acid chlorides or other corrosive wastes were also generated. Wastes were normally neutralized prior to evaporation and tank storage.

Release Data: Leak site contains Pu, Sr, Cs, and other radionuclides; concentrations are unknown. The line served Building 3108, and leaks occurred at the vent stack and the valve pit areas. The initial leak occurred in the mid 1970s when a sight glass in the header froze and broke. Later a restriction downline caused a backup to occur with overflow at both locations. Leakage from this site, and from overflows that have occurred, has also contaminated the storm drainage system north of Building 3074 from east to west.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005L

Unit Name: LLLW Lines and Leak Sites -- East of the Building 3020 Stack

Location of Unit: The site is located east of the Building 3020 Stack.

General Dimensions and Capacities: SWMU X01-0005B is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: about 1960.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: The leak is believed to have occurred some 30 years ago, possibly from exhaust-gas duct leakage. A 1970 contamination survey of the area showed 20 mR/h on the soil surface. Data on the composition of the contaminants are not given. Most of the contamination is in the soil and concrete pad.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005C

Unit Name: LLLW Lines and Leak Sites -- West of Building 3082

Location of Unit: The site is located west of Building 3082.

General Dimensions and Capacities: SWMU X01-0005C is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: about 1960.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: This leak was thought to have occurred over 25 years ago. Readings in the area were 1 - 2 mR/h in surveys during the 1970s. The contamination was most probably caused by off-gas duct leakage or an LLLW line leak; however, no documentation is known to exist regarding the source. This site is also close to the location of an old plutonium facility that was housed in a wooden frame building. The building was destroyed early in the history of ORNL and is not listed on current maps. The area of contamination may or may not be affected by the past presence of this building. Data on contaminant composition are not available.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005D

Unit Name: LLLW Lines and Leak Sites -- North of Building 3019

Location of Unit: The site is located north of Building 3019 (West of the Building 3074/3019 gate).

General Dimensions and Capacities: SWMU X01-0005D is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak discovered. February 1985.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: A low-level waste line leak occurred in a concrete encased vitrified clay (Chemware) line that served the manipulator shop upstream and the Building 3020 stack; the line/header had deteriorated over time. There is no real estimate of the period of leakage; however, the leak was discovered in February 1985 after Sr-90 was found in the sewer system at higher than normal levels. The leak occurred at the T in the line. Upon excavation, a cavern was found in the area. Excavation was provided for access to the leak; no attempt was made to remove all the contaminated soil in the area. The contaminated earth removed was disposed of, and the excavation was backfilled with clean earth after the north and south lines into the T were capped.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005E

Unit Name: LLLW Lines and Leak Sites -- Southwest Corner of Building 3019

Location of Unit: The site is located at the southwest corner of Building 3019.

General Dimensions and Capacities: SWMU X01-0005E is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: 1970s (last occurring in 1978).

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: This leak is located in the LLLW line draining the analytical cells in Building 3019B. After the last occurrence in 1978, the leak was corrected; soil was removed during the corrective action only to make repairs. Samples of the soil removed had radiation levels of 100 mR/h. The line was known to contain Sr-90, Co-60, mixed fission products, and alpha emitters.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005F

Unit Name: LLLW Lines and Leak Sites – Between W-5 and WC-19

Location of Unit: The site is between W-5 and WC-19, 30 ft (9 m) east of the northeast corner of Building 3025 and 45 ft (14 m) from the south edge of the Hillside area.

General Dimensions and Capacities: SWMU X01-0005F is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks.

Date of Operation: Site leak date: October 16, 1972.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: Radiation readings of 700 mR/h were noted a the steam leak area (in earth around leak), and readings of 20 to 600 mR/h were found in mud in a half-round drain tile extending eastward to a storm sewer catch basin, in the general area of the leak.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared. Waste characteristics entry changed to agree with other leak site summary sheets.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005G

Unit Name: LLLW Lines and Leak Sites -- Underneath Building 3047

Location of Unit: The site is the area underneath Building 3047.

General Dimensions and Capacities: SWMU X01.0005G is a leak/spill site. No dimensions a available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s transfer wastes from various sources to the collection and storage tanks. The original system w constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lin others are along the lines themselves, and still others are not leaks at all but are spills, e.g., frc pumping accidents.

Date of Operation: Site leak date: undetermined.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laborato LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutoniu uranium, and TRU isotopes were also present in the waste streams from certain sources. (See was description entry for SWMU X01-0005A for additional details.)

Release Data: This site has suspect underground contamination due to its history of operations. Fe documented cases were found in Laboratory records; however, intralaboratory correspondenc documents the presence of contamination in this area. The main contaminant is Sr-90.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005H

Unit Name: LLLW Lines and Leak Sites -- General Isotopes Area (3037, 3038, 3034)

Location of Unit: The General Isotopes Area is located around buildings 3034, 3037, and 3038.

General Dimensions and Capacities: SWMU X01-0005H is a leak/spill site. No dimensions ar available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s tc transfer wastes from various sources to the collection and storage tanks. The original system wa constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many o the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: 1950s and 1960s (multiple events).

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: This general area is contaminated with Cs-137, Co-60, Ru-106, Sr-90, and possibly mercury. The amount of radioactivity discharged into the process waste system from this source has been listed as 4.3 Ci. Some mention of Pm-147 and Ce leakage has also been reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005I

Unit Name: LLLW Lines and Leak Sites -- Building 3092 Area

Location of Unit: Site is located around Building 3092.

General Dimensions and Capacities: SWMU X01-0005I is a leak/spill site. No dimensions available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s transfer wastes from various sources to the collection and storage tanks. The original system v constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lin others are along the lines themselves, and still others are not leaks at all but are spills, e.g., fro pumping accidents.

Date of Operation: Site leak date: unknown.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laborator LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium uranium, and TRU isotopes were also present in the waste streams from certain sources. (See wast description entry for SWMU X01-0005A for additional details.)

Release Data: This site was included in a tabulation of contaminated areas dated January 31, 1972. The writeup stated that a spill occurred onto grass alongside of Building 3092. The grass and soil was dug up and replaced with clean dirt.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared. Replaced function of SWMU and waste characteristics entries to agree with other leak site summary sheets.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005J

Unit Name: LLLW Lines and Leak Sites -- Underneath Building 3026

Location of Unit: The site is located beneath and around Building 3026.

General Dimensions and Capacities: SWMU X01-0005J is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: 1950s and 1960s.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: Because of its long use, Building 3026 area contamination may include isotopes of uranium, fission products, and transuranics. Numerous leaks have been reported during that time interval. Few quantitative data were found; however, the site is suspected to have contamination based on references from Operations Division reports.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared. Replaced function of SWMU and waste characteristics entries to agree with other leak site summary sheets.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-000 K

Unit Name: LLLW Lines and Leak Sites -- Between WC-1 and W-5

Location of Unit: The site is located in the Building 3024 area, between WC-1 and W-5.

General Dimensions and Capacities: SWMU X01-0005K is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: 1953 - 1979.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: The site is reported to consist of a break in the transfer line between waste tanks WC-1 and W-5. It is probable that a number of leaks have occurred in this area.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005[7].

Unit Name: LLLW Lines and Leak Sites – ORR Water Line (Building 3085)

Location of Unit: Excavation and repair of the site extended from #1 pump cell to approximately 80 ft (24 m) north of Building 3085 to the "Y" pit.

General Dimensions and Capacities: The leak was in the Oak Ridge Research Reactor (ORR) 24-in. (61-cm) waterline.

Function of the Unit: The waterline transports cooling water from the ORR to its heat exchangers.

Date of Operation: Site leak date: 1975.

Waste Characteristics: Water is the primary coolant for the ORR and contains activation products.

Release Data: Radiation levels were encountered to 2 R/h, and transferable contamination, which resulted from the leaks, was found up to 100 mR/h. The contamination was primarily Cd-115 with traces of Na-24, Sc-45, Cr-51, Zr-95, Cs-137, and Ce-141. All contaminated soil was transferred to SWSA 6. Following repair of the leaks, a 6-in. (15-cm) concrete wall was poured on each side of the pipe and covered with 3/8-in. (0.5-cm) aluminum treadplate.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005M

Unit Name: LLLW Lines and Leak Sites Building 3028

Location of Unit: Leak site is probably in an LLLW line serving Building 3028 and Building 3047.

General Dimensions and Capacities: SWMU X01-0005M is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Leak reported: March 1985.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: This leak was discovered in the LLLW line leading from Building 3028 during excavation for the construction of condensate traps in the LLLW lines serving buildings 3028 and 3047. After uncovering the 6-in.-diam stainless steel pipe, radiation levels of over 200 R/h were measured in contaminated soil at the contact with the pipe. Analysis of the contaminated soil revealed the presence of certain short-lived isotopes that could only have originated from the gadolinium process in Building 3047. The leaking section of pipe was abandoned and new lines installed to bypass the contaminated area. Contaminated soil from the excavation was removed, and the hole was backfilled with clean soil.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared. Replaced waste characteristics section to reflect information used for other leak site summary sheets.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005N

Unit Name: LLLW Lines and Leak Sites -- East of Building 2531

Location of Unit: The site is found east of Building 2531 in the area south of Central Avenue in the ORNL main complex.

General Dimensions and Capacities: SWMU X01-0005N is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: December 1971 and April 1978.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: The abandoned 2-in. (5-cm) cast-iron waste transfer line was broken by a communications construction group during trenching operations. The line was repaired with an Adam's clamp. Another leak was the result of an underground crossover that developed between the process waste line and a storm sewer.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005O

Unit Name: LLLW Lines and Leak Sites -- Underneath Building 3515

Location of Unit: The site is located underneath Building 3515 south of Central Avenue in the ORNL main complex.

General Dimensions and Capacities: SWMU X01-0005O is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Date site contaminated: August 1951.

Waste Characteristics: No information available.

Release Data: The area under Building 3515 is contaminated as a result of past use as a radioactive chemical processing plant. Radioactive material leaking into the condensate line was carried to the concrete drain pipe leading to White Oak Creek. A leaking joint in the concrete pipe about 100 ft (30 m) south of Building 3515 resulted in spreading contamination to a ditch and surrounding area. The contaminated earth in and near the ditch was removed. Cell floor and pan drains were diverted to W-12 hot waste storage. The concrete gallery floor was decontaminated by chipping. The entire floor was painted before operation was resumed. A pipe trench, which was dug at the southeast corner of the South Tank Farm, became highly contaminated when a weld in a process tank jacket failed in Building 3515; the water from the jacket was piped to the storm sewer located in this area. This area has been cleaned up by removing the contaminated soil.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared. Replaced function of SWMU entry to agree with other leak site summary sheets.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005P

Unit Name: LLLW Lines and Leak Sites -- Building 3525 to a Sump

Location of Unit: Contamination at the site is a sump in the area of Building 3525 south of Central Avenue in the ORNL main complex.

General Dimensions and Capacities: SWMU X01-0005P is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site leak date: prior to January 1972.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: In this approximate area, severe contamination may be found resulting from leaking LLLW lines discharging water into a ventilation duct, which in turn feeds a sump located at this point.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005Q

Unit Name: LLLW Lines and Leak Sites -- Underneath Building 3550

Location of Unit: The site is designated as the area around and underneath Building 3550 south of Central Avenue in the ORNL main complex.

General Dimensions and Capacities: SWMU X01-0005Q is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Date leak: Prior to January 1972.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: Ground beneath the former semi-works ports of Building 3550 may be contaminated. Part of this building was demolished, and all material from the building was removed for disposal.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005R

Unit Name: LLLW Lines and Leak Sites -- Sewer Near Building 3500

Location of Unit: The site is south of Central Avenue in the ORNL main complex. It is the 3500 Block area of the sanitary sewer system.

General Dimensions and Capacities: SWMU X01-0005R is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines; others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Site contamination date: 1958-1980.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: Contamination of the 3500 Block area of the sanitary sewer system has resulted from inleakage of various LLLW sources, such as Building 3026 and other radioisotope areas. The leaks were active solutions of radioisotopes; composition data are not available.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005S

Unit Name: LLLW Lines and Leak Sites -- Abandoned Line Central Avenue Area

Location of Unit: The site is located near Building 3026 and north of Central Avenue in the ORN main complex.

General Dimensions and Capacities: SWMU X01-0005S is a leak/spill site. No dimensions ar available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Date site indicated as contaminated: January 31, 1972.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: The activity in the storm sewer discharge seeped into an abandoned section of clay pipe from contaminated soil. The activity in the sanitary sewer came mainly from inleakage under Central Avenue in front of Building 3026, although some traces of activity have also been found in the sewer running east to west on the north side of Building 4508. The leak into the sewer in front of Building 3026 was undoubtedly from earth contaminated by an old line that leaked and was taken out of service years ago.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005T

Unit Name: LLLW Lines and Leak Sites -- Building 4508, North

Location of Unit: The site is located just north of Building 4508 in the area south of Central Avenue in the ORNL main complex.

General Dimensions and Capacities: SWMU X01-0005T is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Date site indicated as contaminated: January 31, 1972.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: The ground north of Building 4508 was contaminated by Sr-90. An unsuccessful attempt was made in 1970 to determine the source of this contamination. This area has since been paved.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In May of 1990 an area around an oak tree just north of Building 4508 was discovered to have contaminated leaves. The area around the tree is now roped off as a contaminated zone. This contamination may have come from this leak site.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005U

Unit Name: LLLW Lines and Leak Sites -- Building 3518, West

Location of Unit: The site is north of Building 3544 and Building 3518, west of the Equalization Basin (3524), and south of White Oak Avenue.

General Dimensions and Capacities: SWMU X01-0005U is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Process Waste Treatment Plant treats the very low-level liquid wastes that are termed process waste (normally does not contain radioactivity but could be contaminated as the result of equipment failure or human error).

Date of Operation: Date leak discovered: 1978.

Waste Characteristics: The material was a concentrated strip solution from the Process Waste Treatment Plant (PWTP) that was contaminated with low-level amounts of Sr-90 and Cs-137.

Release Data: The spill of less than 100 gal (378 L) required the removal of about 6 cubic yards of contaminated dirt. The line was punctured by an air hammer bit during the installation of a waste transfer line from Building 1504.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005V

Unit Name: LLLW Lines and Leak Sites -- Northwest of Solid Waste Storage Area (SWSA) 1

Location of Unit: The site is located just northwest of SWSA 1.

General Dimensions and Capacities: SWMU X01-0005V is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The low-level liquid waste (LLLW) system at ORNL was designed to collect radioactive waste solutions from the various sources at the Laboratory. Virtually all of the buildings within the Laboratory that were involved in radionuclide operations were served by this system.

Date of Operation: Date site indicated as contaminated: January 31, 1972.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: A break that occurred in the LLLW transfer line northwest of SWSA 1 permitted leakage into White Oak Creek.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0005W

Unit Name: LLLW Lines and Leak Sites -- Building of 3503, Ground Contamination

Location of Unit: The site is located at the Solvent Column Pilot Plant, Building 3503, south of White Oak Avenue in the ORNL main complex.

General Dimensions and Capacities: SWMU X01-0005W is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Main Plant Area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines, others are along the lines themselves, and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: Date site contaminated: 1954.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: Much of the activity was the result of a series of operating accidents at the Solvent Column Pilot Plant (Building 3503). One of the accidents was the leaking of a discharge line from a waste tank. The other was a spill at the thorium waste tank that overflowed and contaminated the surrounding ground and groundwater. The groundwater surrounding these tanks is pumped to the equalization basin.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0006

Unit Name: Contaminated Surfaces and Soil from 1959 Explosion in Building 3019 Cell

Location of Unit: Building 3019 is located on the northeast corner of Hillside Avenue and Third Street in the ORNL complex in Bethel Valley. The approximate ORNL grid coordinates are N 22,530, E 31,100.

General Dimensions and Capacities: Unavailable.

Function of the Unit: Building 3019 houses the Radiochemical Processing Pilot Plant.

Date of Operation: Pilot plant (3019) was constructed in 1943. Site was contaminated in 1959.

Waste Characteristics: Plutonium was released from the processing cell as an aerosol of fine particles of plutonium oxide contaminating Building 3019, the Graphite Reactor (Building 3001), and nearby streets and building surfaces. The Pu-239 inventory of the contaminated surfaces and soil was calculated to be less than 0.047 Ci.

Release Data: In 1959, a non-nuclear explosion in a shielded cell in the Radiochemical Processing Pilot Plant (3019-A) contaminated Building 3019, the Graphite Reactor (3001), and nearby streets and building surfaces. All contaminated areas were decontaminated, or were covered with paint to shield alpha radioactivity. Some soil was removed from contaminated areas; however, all contaminated soil was not removed.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0007

Unit Name: Contamination at Base of 3019 Stack

Location of Unit: The area of concern is now referred to as the "3019 Hot Bank." This area is located south of Building 3020 and west of Building 3091 (the building that houses the 3019 stack). The approximate ORNL grid coordinates are N 22,680 and E 30,995.

General Dimensions and Capacities: This is the area around the base of the 3019 stack.

Function of the Unit: Data unavailable.

Date of Operation: Site contaminated: 1950s and 1960s.

Waste Characteristics: Soil analyses taken in August 1985 of the 3019 bank showed elevated levels of gross alpha and gross beta, Pu, Am, Cm, Cs, and Co.

Release Data: Building 3019 stack emissions may have contributed to the overall contamination of the bank; however, other contributors to contamination in this area include low-level waste line leak sites located in this area. The 3019 bank has been a reported source of surface and surface water contamination.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A radiological survey of the 3019 stack area was conducted by ORNL in 1987. Results from this survey show significant radiological contamination in the storm sewer catch basin at the base of the Building 3019 stack/bank area. The S1 sediment sample contained the highest radionuclide concentrations and gross alpha and beta activity. These results support the findings of the June 1985 scoping survey, in which the highest concentrations of radiological contaminants were found in a soil sample taken south of the chimney-vent station. However, it is significant that the W1 surface water sample collected from the storm sewer catch basin southwest of the chimney-vent station contained 200 pCi/L of Sr-90 and a gross beta activity of 260 pCi/L. Additionally, the S2 sediment sample contained 51 pCi/g of Sr-90 and a gross beta activity of 190 pCi/g. Residual radiological contamination from the 3019 hot bank area is being washed (by means of rainwater runoff) downhill (south) into the storm sewer catch basin.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0.38

Unit Name: Graphite Reactor Storage Canal Overflow -- (3001/3019)

Location of Unit: The canal runs under buildings 3001 and 3019 on Hillside Avenue. The approximate ORNL coordinates are N 22,530 and E 31,100.

General Dimensions and Capacities: The canal is 7.0 ft (2.1 m) wide, 11.5 ft (3.5 m) deep, and 101.0 ft (31.0 m) long. The canal is covered with a concrete structure and soil.

Function of the Unit: The Oak Ridge Graphite Reactor fuel storage canal connected the fuel discharge pit to the adjoining chemical-processing building (3019). It is currently used for storage of radioisotopes but was originally used for storage and handling of irradiated fuel and radioisotope targets.

Date of Operation: Site commissioned: 1943. Site is still in use.

Waste Characteristics: Stored isotopes include Co-60 and Sr-90. The canal also contains approximately 1 m(E+3) of contaminated sludge containing Pu-239 (primarily), Pu-238, Am-241, and Cm-244.

Release Data: The canal has bare concrete walls that have absorbed long-lived fission products and Co-60, and probably TRU. Results of radiation surveys were reported in 1984. One ORNL engineering drawing contains the notation "overflow"; however, no documentation of this event can be found; as a result, the exact nature of the overflow or extent of contamination, if any, is not known.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0009

Unit Name: Oak Ridge Research Reactor Decay Tank Rupture Site – (3087)

Location of Unit: The Oak Ridge Research Reactor Decay Tank is located near Building 3042 in the ORNL main complex. The ORNL grid coordinates are N 22,738 and E 31,660.

General Dimensions and Capacities: Capacity of the tank is 11,000 gal (41,635 L).

Function of the Unit: The tank contains water coolant.

Date of Operation: Site commissioned: unknown. Site leaked: 1974.

Waste Characteristics: Isotopes present in the primary coolant water include Na-24, Sr-90, I-131, Ru-106, and Cs-137. There is no available information concerning the quantity of radionuclides leaked to surrounding soil.

Release Data: The tank developed a leak in 1974 that released primary coolant water at the rate of 1.5 gal/min (5.7 L/min). Surveys detected radiation levels up to 2 R/h. There is no available information concerning the quantity of radionuclides leaked to surrounding soil. Cleanup efforts (in April 1974) included removing, cleaning, and rewelding the tank, but documentation of the removal of contaminated soil is lacking.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0010A

Unit Name: Storage Pads -- (3503 and 3504)

Location of Unit: This storage pad is located southwest of Building 3503. The ORNL grid coordinates are N 21,520 and E 31,310.

General Dimensions and Capacities: The concrete pad is approximately 39 x 29 ft (15 x 12 m). A portion of the pad has a covering over two areas that are used for storage of barrels and surplus miscellaneous equipment and crates. The two areas have metal tray floorings.

Function of the Unit: The unit has been used as storage for containers of radionuclide-contaminated materials, scrap material, and metal recovery operations equipment.

Date of Operation: Site commissioned: late 1950s. Site is still in use.

Waste Characteristics: The major radioactivity present is believed to be associated with the storage of U-233 and Pu-239. Prior to the addition of a 4-in. layer of concrete to the pad in the 1970s, the surface contamination was estimated at 100,000 dpm 100 sq cm. No alpha radioactivity was detected during the latest survey.

Release Data: Although the major radioactivity beneath the top layer of concrete is believed to be U-238 and Pu-239, the source of radioactivity in the areas surrounding the pad and the metal trays has not been determined. The pad is located just north of White Oak Creek, and migration of contaminants by runoff is possible.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: A radiological and hazardous waste scoping survey of the storage pad southwest of Building 3503 at Oak Ridge National Laboratory (ORNL) was conducted September 8-12, 1986. The purposes of the scoping survey were to identify levels of radioactive contamination and hazardous waste that may be present from storage of nuclear materials and/or hazardous waste chemicals and to determine if the concentrations of these contaminants dictate corrective actions. Survey results show significantly elevated gamma exposure rates due to contamination around the perimeter of the concrete pad, emanation of radiation from extraneous sources (interior of Building 3581), and contaminated items located on the pad. Results of biased soil samples indicate Cs-137 as the dominant detectable radionuclide. Seven biased soil samples taken at the survey site did not exhibit the four characteristics that define hazardous waste under RCRA (extraction procedure toxicity, ignitability, corrosivity, and reactivity).

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0010B

Unit Name: Storage Pads -- (3503 and 3504)

Comment: The storage pad is composed of two parts. See X01-0010A for more detailed information on the pad.

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0011

Unit Name: Decommissioned Waste Holding Basin -- (3512)

Location of Unit: This site is the location of the present parking lot for Building 3544. ORNL grid coordinates are N 21,370 and E 30,780.

General Dimensions and Capacities: 3512 was an earthen-diked pond approximately 40 x 40 ft (12 x 12 m), with a holding capacity of 30,000 gal (113,000 L).

Function of the Unit: The pond was dug up and backfilled with gravel during construction of the Process Waste Water Treatment Plant (3544). Used as a retention pond for storage tank drainage from 1944 to 1950, it is presumed to have handled hazardous substances.

Date of Operation: Site commissioned: early 1940s. Site taken out of service: 1957.

Waste Characteristics: Information concerning waste characteristics could not be found. Substantial quantities of process waste water that probably contained various radionuclides were discharged to the pond. During the late 1940s as much as 1300 gal (950 L) of isobutyl methyl ketone were discharged to the pond.

Release Data: Total radioactive contamination has been estimated at less than 10 Ci.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared. Minor editorial changes have been made in the information presented.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0012

Unit Name: Waste Holding Basin -- (3513)

Location of Unit: Settling Basin 3513 is located in the settling basin area in the southwest corner of the ORNL complex in Bethel Valley, overlying the limestone bedrock of the Chickamauga Group. It is approximately 110 ft (33 m) north of White Oak Creek between Building 3544 and the two 190 Process Waste ponds (3539 and 3540). ORNL grid coordinates are N 21,320 and E 31,100.

General Dimensions and Capacities: This unlined surface basin has been taken out of service but remains uncovered. Dimensions are approximately 220 x 220 ft (67 x 67 m), sloping 200 x 200 ft (61 x 61 m) at the bottom with a normal storage capacity of about 1,880,000 gal (7,116,574 L) of water and sediment.

Function of the Unit: The impoundment was constructed to act as a settling basin for wastes prior to their discharge into White Oak Creek. It was in operation until 1976 when a new process waste treatment plant began operation.

Date of Operation: Site commissioned: 1944. Site inactive: 1976.

Waste Characteristics: Wastes to the basin included supernatant from the gunite tanks until 1949. Additional wastes were from laboratory floor and sink drains, chemical process cells, and cooling water from the graphite reactor. Following construction of the Process Waste Treatment Plant, the basin served as a settling basin for treated effluent prior to release to WOC. At the time of a September 1983 survey the sediment layer ranged from 1.6 ft to 3.3 ft (0.5 m to 1 m) thick and contained approximately 71,428 cubic ft (2000 cubic m) of residue. In addition to Cs-137 and Sr-90, the sediment contained measurable quantities of Co-60, Eu-154, Pu-238, Pu-239, Am-241, and Cm-244. In an earlier study, total inventory of radionuclides was estimated to be 235 Ci, with Cs and Sr accounting for 84% and 13%, respectively. The remaining radionuclides 3% of the total inventory. EP Toxicity analysis of the sediment showed that it was toxic by characteristic because of elevated levels of mercury.

Release Data: From four quarters of groundwater monitoring, it was observed that concentrations of Fe, chlorides, Mn, Zn, total organic carbon, and gross alpha and beta activity in downgradient wells were significantly greater than measurements in groundwater taken from monitoring wells upgradient from the impoundment.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-013

Unit Name: Equalization Basin -- (3524)

Location of Unit: The Equalization Basin (3524) is in the southcentral portion of the Bethel Vall ORNL complex. This pond is on the southeast corner of the intersection of Third Street and Whi Oak Avenue. ORNL grid coordinates are N 21,550 and E 30,935.

General Dimensions and Capacities: This unlined basin measures 95 x 250 ft (29 x 76 m) with maximum depth of 6.5 ft (2 m). It is capable of storing 1,000,000 gal (3,785,000 L) of liquid Elevation at the top of the berm is approximately 787 ft (240 m). The present Basin 3524 wa constructed in two stages. The original pond was one half the size of the present pond and occupie only the eastern half of the present area.

Function of the Unit: Process wastes from the ORNL building complexes were delivered to th Equalization Basin prior to discharge to the process waste treatment facility (Building 3544). Basi 3524 normally received process wastes from the Bethel Valley ORNL facility, but on occasion som waste from the Melton Valley facilities was received.

Date of Operation: The site operated from 1945 to April 1989.

Waste Characteristics: Sludge samples were collected from the Equalization Basin (3524) during January and February 1986. Analysis of sludge by the EP leach test revealed no toxicity characteristics. Benzene, chloroform, and methylene chloride were three non-EP-TOX limited volatile organics present, with average concentrations of 6.8, 3.6, and 6.4 ug/L, respectively. In 1984, analysis of the sludge indicated an inventory of 150 Ci. Of this total, 100 Ci was Cs-137, 30 Ci was Sr-90, and 11 Ci was Th, U, and TRU.

Release Data: Four quarters of groundwater monitoring showed the major groundwater contaminants in downgradient wells to be gross alpha and beta radionuclides.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at the Equalization Basin (3524) site from November 1988 through April 1989. Four areas with surface gamma levels ranging from 0.9 to 6 mR/h and surface beta-gamma dose rates ranging from 3 to 10 mrad/h were identified outside the Contamination Area fence. The area with the highest radiation levels (6 mR/h, 10 mrad/h) was roped and placarded with "Contamination Zone" signs. Cs-137 and Sr-90 were the major contaminants in soil and vegetation samples; Pu-239 was identified in one soil sample. Gamma exposure rates over the site fluctuated daily because they were inversely related to the water level in the basin.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0014

Unit Name: Process Waste Pond -- (3539)

Location of Unit: The 190 Process Pond (Basin 3539) is an open pond, located in the central ORNL complex (Bethel Valley), south of Building 3584 and east of the Holding Basin 3513. ORNL grid coordinates are N 21,355 and E 31,340.

General Dimensions and Capacities: The pond has a capacity of 150,000 gal (567,812 L) and measures 65 x 90 ft (20 x 28 m) at the top of the berm. Elevation at the top of the berm is 787 ft (240 m) MSL. Maximum depth is 8 ft (2.4 m). At 6-in.-thick compacted clay liner serves as the bottom of the basin.

Function of the Unit: The two 190 Process Waste ponds (see also X01-0015) are paired surge basins, designed to receive process waste streams from the Building 4500 complex. Waste streams from Building 4500 are split into the basins and monitored for radionuclide content before discharge to White Oak Creek or to the Equalization Basin (3524) and the process waste treatment system (Building 3544). The basins are operated in such a manner that when one pond is filling the other is empty or in the process of being emptied.

Date of Operation: Site commissioned: 1964. Operation suspended in March 1990.

Waste Characteristics: Wastes are derived from floor drains, laboratory drains, steam condensates, and process vessel cooling waters. During January and February 1986, sludge samples were collected from the 190 Process Waste ponds (3539 and 3540) and analyzed for metal, pesticide, herbicide, and volatile organic constituents. A comparison of metal concentrations in EP-TOX extracts from sludge with EP toxicity limits indicated that none exceeded the EP toxicity limits. Pesticide/herbicide extracts were also below limits. Methylene chloride and 1,2-transdichloroethylene were two non-EP-TOX limited volatile organics present with average concentrations of 3.6 and 2.1 ug/L, respectively. Total radioactivity present in the ponds is estimated to be less than 10 Ci.

Release Data: Four quarters of groundwater monitoring revealed significantly higher concentrations of chlorides, Fe, Mn, Pb, and gross beta in groundwater from wells downgradient from the waste pond, as compared to groundwater sampled from upgradient monitoring wells.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0015

Unit Name: Process Waste Pond -- (3540)

Location of Unit: This basin is located South of Basin 3539 and East of the Holding Basin 3513. ORNL grid coordinates are N 21,290 and E 31,340.

General Dimensions and Capacities: The pond has a capacity of 150,000 gal (567,812 L) and measures 65 x 90 ft (20 x 28 m) at the top of the berm. Elevation at the top of the berm is 787 ft (240 m) MSL. Maximum depth is 8 ft (2.4 m). A 6-in.-thick compacted clay liner serves as the bottom of the basin.

Function of the Unit: The two 190 Process Waste ponds (see also X01-0015) are paired surge basins, designed to receive process waste streams from the Building 4500 complex. Waste streams from Building 4500 are split into the basins and monitored for radionuclide content before discharge to White Oak Creek or to the Equalization Basin (3524) and the process waste treatment system (Building 3544). The basins are operated in such a manner that when one pond is filling the other is empty or in the process of being emptied.

Date of Operation: Site commissioned: 1964. Operation suspended in March 1990.

Waste Characteristics: Wastes are derived from floor drains, laboratory drains, steam condensates, and process vessel cooling waters. During January and February 1986, sludge samples were collected from the 190 Process Waste ponds (3539 and 3540) and analyzed for metal, pesticide, herbicide, and volatile organic constituents. A comparison of metal concentrations in EP-TOX extracts from sludge with EP toxicity limits indicated that none exceeded the EP toxicity limits. Pesticide/herbicide extracts were also below limits. Methylene chloride and 1,2-transdichloroethylene were two non-EP-TOX limited volatile organics present with average concentrations of 3.6 and 2.1 ug/L, respectively. Total radioactivity present in the ponds is estimated to be less than 10 Ci.

Release Data: Four quarters of groundwater monitoring revealed significantly higher concentrations of chlorides, Fe, Mn, Pb, and gross beta in groundwater sampled from upgradient monitoring wells.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0016

Unit Name: Sewage Aeration Pond (East) -- 2543

Location of Unit: The sewage aeration ponds (see also SWMU X01-0017) are located at the west end of the main plant area. ORNL grid coordinates are N 21,380 and E 30,060.

General Dimensions and Capacities: The capacity of the lagoon is 1 x 10(E+6) gal (3.8 x 10(E+6) L), or a retention time of about 3 days at normal design flow [300,000 gal/d (1.1 x 10(E+6) L/d)].

Function of the Unit: The site was used to replace an existing primary sewage treatment plant. The basin is lined with plastic and contains aeration systems. The site is available for emergency use.

Date of Operation: Site constructed: 1974. The site has been removed from service.

Waste Characteristics: Waste is domestic sewage produced at the ORNL. Because of leakage into sewers, some radioactivity can be detected in the sewage. The inventory of radionuclides is estimated to be less than 10 Ci.

Release Data: When in operation, treated effluent was released to the west sewage lagoon.

Regulatory Authority: NPDES

Site Characterization Status: RFI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0017

Unit Name: Sewage Aeration Pond (West) -- 2544

Location of Unit: The sewage aeration ponds (see also SWMU X01-0017) are located at the west end of the main plant area. ORNL grid coordinates are N 21,330 and E 29,870.

General Dimensions and Capacities: The capacity of the lagoon is 1 x 10(E+6) gal (3.8 x 10(E+6) L), or a retention time of about 3 days at normal design flow [300,000 gal/d (1.1 x 10(E+6) L/d)].

Function of the Unit: The site is used to replace an existing primary sewage treatment plant. The basin is lined with plastic and contains aeration systems.

Date of Operation: The site is still in operation as an equalization basin for the new sewage treatment plant (SWMU X01-0052). Site constructed: 1974.

Waste Characteristics: Waste is domestic sewage produced at the ORNL. Because of leakage into sewers, some radioactivity can be detected in the sewage. The inventory of radionuclides is estimated to be less than 10 Ci.

Release Data: Treated effluent was released to White Oak Creek after chlorination. Effluent from the basin now is discharged to the sewage treatment plant (SWMU X01-0052). Leaks may have occurred through the plastic liner.

Regulatory Authority: NPDES

Site Characterization Status: RFI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0018

Unit Name: Coal Pile Settling Basin -- (2545)

Location of Unit: The basin is located at the southwest corner of the coal storage pile at the ORNL steam plant. ORNL grid coordinates are N 20,890 and E 30,130.

General Dimensions and Capacities: Capacity of basin is 300,000 gal (1.1 x 10(E+6) L).

Function of the Unit: The basin collects and treats (by pH adjustment and gravity settling) runoff from the coal storage pile and wastewater from an ash transfer operation. Site is now used as a surge basin for the coal pile runoff treatment facility.

Date of Operation: Basin installed: 1978. Site is currently in operation.

Waste Characteristics: Waste has chemical composition representative of normal coal pile drainage. No hazardous waste is generated. Drainage release is covered in the ORNL NPDES permit. Average pH of drainage prior to treatment is 2.5.

Release Data: After pH adjustment and settling, the effluent is released to White Oak Creek. It is estimated that the maximum discharge would be around 6.5 x 10(E+6) gal/year (2.5 x 10(E+7) L/year).

Regulatory Authority: RCRA; NPDES

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0019

Unit Name: Low Intensity Test Reactor (LITR) Pond -- (3085W)

Location of Unit: This site is located in the northern part of the main ORNL complex near Building 3005. The two ponds are located about 300 ft (92 m) east of the building. ORNL grid coordinates are N 22,790 and E 31,760.

General Dimensions and Capacities: Each pond is about 8 x 40 ft (2.5 x 12 m). Holding capacity is 18,000 gal (68,000 L).

Function of the Unit: These ponds were used to retain process waste water before its release into the Fifth Street branch of White Oak Creek. In 1964, the ponds were filled with clay and earth and covered with grass.

Date of Operation: Reactor commissioned: 1951. Site inactive: 1964.

Waste Characteristics: Very little information is available. Principal contamination was probably Na-24 (half-life of 15 h). Hydrogeological conditions are similar to sites in the main ORNL installation in Bethel Valley.

Release Data: A radiological study of the site in 1985 showed average activities of Sr-90, Pu-238, and Pu-239 in the soil higher than background, and that there was some contamination due to Cs-137 and Co-60. The radionuclide inventory was estimated at 20 mCi of Cs-137, 1 mCi of Sr-90, and 100 uCi of Pu-239.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0020

Unit Name: 3517 Filter Pit (Fission Product Development Laboratory) -- (3517)

Location of Unit: Located east of Building 3517. ORNL coordinates are N 21,750 and E 31,100.

General Dimensions and Capacities: Unit consists of two banks of fiber roughing filters arranged in series. In the 1960s, the roughing filters were replaced with stainless steel back-washable filters, which were replaced with high efficiency particulate absolute (HEPA) finishing filters.

Function of the Unit: The unit was designed to filter building air exhaust from the Fission Product Development Laboratory.

Date of Operation: Began operation in 1958. Operation continues at present. (Facility upgrade was completed in 1986.)

Waste Characteristics: Present levels of radiation at the filters measure approximately 200 R/h. The main radionuclides are Cs-137 and Sr-90.

Release Data: The stainless steel roughing filters were acid backwashed, and the leakage from this operation has contaminated the filter pit. Recent excavation at the site resulted in the removal of large quantities of contaminated soil, with maximum levels of 30 R/h at one meter. An undetermined amount of contaminated soil remains.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0021

Unit Name: FPDL LLLW Transfer Line

Location of Unit: The line runs from the Fission Product Development Laboratory (FPDL, Building 3517) to the South Tank Farm (area 3507). ORNL grid coordinates are N 21,740 and E 30,910.

General Dimensions and Capacities: Originally the line was a 1.5-in. (3.8-cm) diameter stainless steel pipe about 30 ft (9 m) long and covered with a 3-ft (1-m) layer of soil. Part of the line goes near two waste storage tanks (gunite tanks). This portion of the line was abandoned after the gunite tanks (W-5 and W-6) were removed from service.

Function of the Unit: The line was designed to transfer LLLW from the FPDL to collection tanks at the South Tank Farm (area 3507).

Date of Operation: The line was operated from 1958 to 1978. Low-level wastes from the FPDL are currently carried to a collection header on the west side of the South Tank Farm. This line is 1.5-in. diameter and 300 ft (92 m) long. Both lines are now out of service.

Waste Characteristics: No inventory of radiological wastes exists. The line is thought to be contaminated with Cs-137 and Sr-90.

Release Data: There is no evidence of release from the new or old LLLW line.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0022

Unit Name: Isotopes Ductwork/3110 Filter House

Location of Unit: Located on Hillside Avenue, between Third Street and Fifth Street in the ORNL main plant area. ORNL grid coordinates are N 22,400 and E 31,290.

General Dimensions and Capacities: Site consists of a filter house connected to nearby buildings by underground ductwork. For specific information, see engineering drawings D39120 - D39125, D43475, D45152, and D45155.

Function of the Unit: The Filter House is designed to handle air exhaust from cell ventilation in the isotopes area (buildings 3028, 3029, 3030, 3031, 3032, 3033, and 3033A). This site also served Building 3038 and Building 3047. The Filter House receives exhaust from connected buildings and transfers air to the 3029 stack. Inside the Filter House are 42 HEPA filters. Also inside is a floor drain that collects groundwater and transports it by gravity to a sump; water is then pumped to Tank WC-10 (LLLW system).

Date of Operation: Site began operation in early 1960s. Site was removed from service in 1986.

Waste Characteristics: Type of wastes are not identified but are known to include radionuclides.

Release Data: Contamination results from continuous operation of the Filter House. Specific details of characterization and release data are not available.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-002^A

Unit Name: Inactive LLLW Collection/Storage Tank W-1

Location of Unit: Located in the North Tank Farm (3023 Area) near the intersection of Third Street and Central Avenue. ORNL grid coordinates are N 22,210 and E 30,809.

General Dimensions and Capacities: The tank is constructed of gunite (sprayed concrete) and is 12 ft (3.6 m) in diameter and 8 ft (2.4 m) tall. Capacity of tank is 4800 gal (18,200 L). The tank is dome-shaped and covered with 6 ft (1.8 m) of compacted soil.

Function of the Unit: The tank was designed to hold waste from the 3019 Radiochemical Pilot Plant.

Date of Operation: Site commissioned: 1943. Taken out of service: 1960.

Waste Characteristics: Wastes resulted from the Radiochemical Processing Plant (3019). Major contaminants are Sr-90, Cs-137, Eu-152, TRU, and Pu-238. Total inventory of radioactivity in the tank has been calculated to be 142 mCi. No sludge is reported to be in the tank. Major radionuclides are Sr-90 (90 mCi), Cs-137 (20 mCi), and TRU (0.7 mCi). The tank contains 1200 gal (4500 L) of liquid, and no sludge.

Release Data: An undetermined amount of leakage occurred in 1960, causing the tank to be taken out of service.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank W-1 was sampled in the 1988 inactive tank analysis program and was found to not contain RCRA liquid waste. No sludge was reported in the tank.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0023B

Unit Name: Inactive LLLW Collection/Storage Tank W-2

Location of Unit: Located in the North Tank Farm (3023 Area) near the intersection of Third Street and Central Avenue. ORNL grid coordinates are N 22,210 and E 30,830.

General Dimensions and Capacities: The tank is constructed of gunite (sprayed concrete) and is 12 ft (3.6 m) in diameter and 8 ft (2.4 m) tall. Capacity of tank is 4800 gal (18,200 L). The tank is dome-shaped and covered with 6 ft (1.8 m) of compacted soil.

Function of the Unit: This tank was designed to hold the overflow from tank W-1.

Date of Operation: Site commissioned: 1943. Taken out of service: 1960.

Waste Characteristics: Wastes resulted from Radiochemical Processing Plant (3019). Major contaminants are Sr-90, Cs-137, Eu-152, TRU, and Pu-238. Total inventory of radioactivity in the tank was 33 Ci, almost all contained in tank sludge (less than 6 mCi in liquid). Major radionuclides are Pu-238, Sr-90 (10 Ci), Cs-137 (10 Ci), and TRU (7 Ci). The Pu-238 inventory has been reported to be 200 Ci; however, this value is questionable. Tank is reported to contain 650 gal (2500 L) of liquid and no sludge.

Release Data: An undetermined amount of leakage occurred in 1960, causing tank operation to stop.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank W-2 was sampled in the 1988 inactive tank analysis program and was found to not contain RCRA liquid waste. No sludge was reported in the tank.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-002'A

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-3

Location of Unit: Located in the Tank Farm (3023 Area). ORNL coordinates are N 22,180 and E 30,885.

General Dimensions and Capacities: The tank is 25.0 ft (7.6 m) diameter; sidewalls are 12.0 ft (3.6 m) high. The tank is made of gunite and covered with 6.0 ft (1.8 m) of compacted soil. Capacity is 42,500 gal (161,000 L).

Function of the Unit: The tank was designed to hold metal waste from Building 3019. Tank W-3 received plutonium waste.

Date of Operation: Site commissioned: 1943. Taken out of service: 1960s.

Waste Characteristics: Inventory estimates of major radionuclides are Cs-137 (<1000 Ci) and Sr-90 (<100 Ci) and TRU (<100 Ci). Others include Pu-238, Pu-239, Am-241, Cm-244, U-233, U-238. The tank contains 2300 gal (8700 L) of sludge and 31,800 gal (120,000 L) of liquid.

Release Data: Tank collected surface water. Soil around the tank is contaminated by Cs-137 and Sr-90.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents are above regulatory thresholds listed in the TCLP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0024B

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-4

Location of Unit: Located on North Tank Farm (3023 Area). ORNL coordinates are N 22,180 and E 30,920.

General Dimensions and Capacities: The tank is 25.0 ft (7.6 m) diameter; sidewalls are 12.0 ft (3.6 m) high. Tanks are made of gunite and covered with 6.0 ft (1.8 m) of compacted soil. Capacity per tank is 42,500 gal (161,000 L).

Function of the Unit: The tank was designed to hold metal waste from Building 3019. Tank W-4 received uranium waste.

Date of Operation: Site commissioned: 1943. Taken out of service: 1960s.

Waste Characteristics: Tank W-4: Major radionuclides in the high activity sludge are Cs-137, Sr-90, U-238, U-233. Others include Pu-238, Pu-239, Am-241, Cm-244, U-235. Estimated tank inventory is Cs-137 (100 Ci) and Sr-90 (100 Ci), and TRU (4.2 Ci). The tank contains 4000 gal (15,100 L) of sludge and 17,100 gal (65,000 L) of liquid.

Release Data: Tank collected surface water. It is known that the soil around the tank is contaminated by Cs-137 and Sr-90.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0025A

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-13

Location of Unit: Located at the North Tank Farm (3023 Area). ORNL coordinates N 22,230 and E 30,865.

General Dimensions and Capacities: Tank W-13 is a horizontal tank 11.0 ft (3.35 m) long and 6.0 ft (1.83 m) diameter, capacity of 2000 gal (7000 L). Walls of the tank are stainless steel. It is buried in concrete to a depth of 7.5 ft (2.3 m).

Function of the Unit: Tank W-13 collected waste from the Chemistry Division Hot Laboratory Group.

Date of Operation: Site commissioned: 1940s. Taken out of service: 1958.

Waste Characteristics: Estimated inventory is Sr-90 (300 Ci), Cs-137 (30 Ci), and TRU (0.043 Ci). The tank contains 460 gal (1700 L) of liquid, and not sludge.

Release Data: Reason for decommissioning not documented. No major releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples of liquid in this tank indicate that the liquid should be classified as having RCRA waste characteristics. No sludge was found in the tank.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0025B

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-14

Location of Unit: Located at the North Tank Farm (3023 Area). ORNL coordinates are N 22,230 and E 30,872.

General Dimensions and Capacities: Tank W-14 is a horizontal tank 11.0 ft (3.35 m) long and 6.0 ft (1.83 m) diameter, capacity of 2000 gal (7600 L). Walls of the tank are stainless steel. It is buried in concrete to a depth of 7.5 ft (2.3 m).

Function of the Unit: Tank W-14 collected wastes from the Operations Division.

Date of Operation: Site commissioned: 1940s. Taken out of service: 1958.

Waste Characteristics: Tank W-14 inventory is Sr-90 (8.0 Ci), Cs-137 (6.0 Ci), and TRU (0.0006 Ci). The tank contains 260 gal (1000 L) of liquid and no sludge.

Release Data: Reason for taking out of service not documented. No major releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples of liquid in this tank indicate that the liquid should be classified as having RCRA waste characteristics. Liquid is also classified as corrosive (pH=0.5). No sludge was found in the tank.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0025C

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-15

Location of Unit: Located at the North Tank Farm (3023 Area). ORNL coordinates are N 22,222 and E 30,880.

General Dimensions and Capacities: Tank W-15 is a vertical cylinder tank 6.0 ft (1.8 m) tall, 8.0 ft (2.4 m) in diameter. Capacity is also 2000 gal (7600 L). Walls of the tank are stainless steel. It is buried in concrete to a depth of 7.5 ft (2.3 m).

Function of the Unit: Tank W-15 collected wastes from the Operations Division.

Date of Operation: Site commissioned: 1940s. Taken out of service: 1958.

Waste Characteristics: No inventory estimate is available for Tank W-15. The tank contains 600 gal (2500 L) of liquid and no sludge.

Release Data: Major radionuclides are the same as for W-14. Reason for taking out of service not documented.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples of liquid in this tank indicate that the liquid should be classified as having RCRA waste characteristics. Liquid is also classified as corrosive (pH=0.2). No sludge was found in the tank.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0026A

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-5

Location of Unit: Located at South Tank Farm (3507 Area), near the intersection of Central Avenue and Third Street. ORNL grid coordinates are N 22,000 and E 30,850.

General Dimensions and Capacities: Constructed of reinforced gunite. The tanks are underground (two rows of three each) on a 60.0-ft (18.3-m) grid. Inside diameter is 50.0 ft (15.2 m), and the height is 12.0 ft (3.7 m). Each tank is covered with a 6-ft (1.8-m) layer of compacted soil. Capacity is 170,000 gal (643,000 L).

Function of the Unit: The tank was designed to store wastes from various ORNL projects and programs.

Date of Operation: Site commissioned: 1943. Taken out of service: 1978. The tank was emptied in the early 1980s.

Waste Characteristics: Major contaminants are Sr-90, Cs-137, Th-232, U-238, and TRU. Inventory: Sr-90 (0.3 kCi), Cs-137 (0.02 kCi), and others (0.01 kCi). Volume of sludge in tank is estimated to be 5100 gal (19,300 L) and liquid is 10,300 gal (39,000 L).

Release Data: Rainwater has infiltrated the tank. No out-of-tank leakage reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents were above the regulatory thresholds listed in the TCLP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0[illegible]6B

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-6

Location of Unit: ORNL grid coordinates are N 21,940 and E 30,850.

General Dimensions and Capacities: Constructed of reinforced gunite. The tanks are underground (two rows of three each) on a 60.0-ft (18.3-m) grid. Inside diameter is 50.0 ft (15.2 m), and the height is 12.0 ft (3.7 m). Each tank is covered with a 6-ft (1.8-m) layer of compacted soil. Capacity is 170,000 gal (643,000 L).

Function of the Unit: The tank was designed to store wastes from various ORNL projects and programs.

Date of Operation: Site commissioned: 1943. Taken out of service: 1978. The tank was emptied in the early 1980s.

Waste Characteristics: Major contaminants are Sr-90, Cs-137, Th-232, U-238, and TRU. Inventory is Sr-90 (2.0 kCi), Cs-137 (0.15 kCi), and others (0.04 kCi). Volume of sludge remaining in tank is estimated to be 5100 gal (10,300 L) and liquid is 77,000 gal (291,000 L).

Release Data: Rainwater has infiltrated the tank. No out-of-tank leakage reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents were above the regulatory thresholds listed in the TCLP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-002:C

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-7

Location of Unit: ORNL grid coordinates are N 22,000 and E 30,910.

General Dimensions and Capacities: Constructed of reinforced gunite. The tanks are underground (two rows of three each) on a 60.0-ft (18.3-m) grid. Inside diameter is 50.0 ft (15.2 m), and the height is 12.0 ft (3.7 m). Each tank is covered with a 6-ft (1.8-m) layer of compacted soil. Capacity is 170,000 gal (643,000 L).

Function of the Unit: The tank was designed to store wastes from various ORNL projects and programs.

Date of Operation: Site commissioned: 1943. Taken out of service: 1978. The tank was emptied in the early 1980s.

Waste Characteristics: Major contaminants are Sr-90, Cs-137, Th-232, U-238, and TRU. Inventory is Sr-90 (2.0 kCi), Cs-137 (0.15 kCi), and others (0.04 kCi). Volume of sludge remaining in tank is 5100 gal (19,300 L) and liquid is 7000 gal (26,500 L).

Release Data: Rainwater has infiltrated the tank. No out-of-tank leakage reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents were above the regulatory thresholds listed in the TCLP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0026D

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-8

Location of Unit: ORNL grid coordinates are N 21,940 and E 30,910.

General Dimensions and Capacities: Constructed of reinforced gunite. The tanks are underground (two rows of three each) on a 60.0-ft (18.3-m) grid. Inside diameter is 50.0 ft (15.2 m), and the height is 12.0 ft (3.7 m). Each tank is covered with a 6-ft (1.8-m) layer of compacted soil. Capacity is 170,000 gal (643,000 L).

Function of the Unit: The tank was designed to store wastes from various ORNL projects and programs.

Date of Operation: Site commissioned: 1943. Taken out of service: 1978. The tank was emptied in the early 1980s.

Waste Characteristics: Major contaminants are Sr-90, Cs-137, Th-232, U-238, and TRU. Inventory is Sr-90 (2.0 kCi), Cs-137 (0.15 kCi), and others (0.04 kCi). Volume of sludge remaining in tank is 2600 gal (9800 L) and liquid is 28,200 gal (107,000 L).

Release Data: Rainwater has infiltrated the tank. No out-of-tank leakage reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents were above the regulatory thresholds listed in the TCLP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0026E

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-9

Location of Unit: ORNL grid coordinates are N 22,000 and E 30,970.

General Dimensions and Capacities: Constructed of reinforced gunite. The tanks are underground (two rows of three each) on a 60.0-ft (18.3-m) grid. Inside diameter is 50.0 ft (15.2 m), and the height is 12.0 ft (3.7 m). Each tank is covered with a 6-ft (1.8-m) layer of compacted soil. Capacity is 170,000 gal (643,000 L).

Function of the Unit: The tank was designed to store wastes from various ORNL projects and programs.

Date of Operation: Site commissioned: 1943. Taken out of service: 1978. The tank was emptied in the early 1980s.

Waste Characteristics: Major contaminants are Sr-90, Cs-137, Th-232, U-238, and TRU. Inventory is Sr-90 (2.0 kCi), Cs-137 (0.15 kCi), and others (0.04 kCi). Volume of sludge remaining in tank is estimated to be 2600 gal (9800 L) and liquid is 13,000 gal (49,200 L).

Release Data: Rainwater has infiltrated the tank. No out-of-tank leakage reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents were above the regulatory thresholds listed in the TCLP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0026T

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-10

Location of Unit: ORNL grid coordinates are N 21,940 and E 30,970.

General Dimensions and Capacities: Constructed of reinforced gunite. The tanks are underground (two rows of three each) on a 60.0-ft (18.3-m) grid. Inside diameter is 50.0 ft (15.2 m), and the height is 12.0 ft (3.7 m). Each tank is covered with a 6-ft (1.8-m) layer of compacted soil. Capacity is 170,000 gal (643,000 L).

Function of the Unit: The tank was designed to store wastes from various ORNL projects and programs.

Date of Operation: Site commissioned: 1943. Taken out of service: 1978. The tank was emptied in the early 1980s.

Waste Characteristics: Major contaminants are: Sr-90, Cs-137, Th-232, U-238, and TRU. Inventory is Sr-90 (7.0 kCi), Cs-137 (0.96 kCi), and others (0.33 kCi). Volume of sludge remaining in tank is estimated to be 6400 gal (24,200 L) and liquid is 70,600 gal (267,000 L).

Release Data: Rainwater has infiltrated the tank. No out-of-tank leakage reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents were above the regulatory thresholds listed in the TCLP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0027

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-11

Location of Unit: Located on the southeast corner of the South Tank Farm (3057 Area), about 100 ft (30 m) north of the east of Building 3517 and about 50 ft (15 m) from Building 3515. ORNL coordinates N 21,865 and E 31,050.

General Dimensions and Capacities: Tank W-11 measures 8.0 ft (2.4 m) in diameter and 5.5 ft (1.7 m) in height. Its capacity is 1500 gal (5677 L); it is covered with 6.0 ft (1.8 m) of soil overburden. It is a gunite tank.

Function of the Unit: The tank was designed to serve in waste collection and monitoring for research laboratories in Building 3550.

Date of Operation: Site commissioned: 1943. Taken out of service: about 1948.

Waste Characteristics: The tank contains about 305 gal (1200 L) of liquid and sludge residue. Major radionuclides present are Cs-137, Sr-90, and Pu-238. The interior surface of the tank access is contaminated with transferable beta-gamma and alpha activities of 700 and 300 dpm/100 sq cm, respectively. Near the surface of the tank, direct beta-gamma absorbed dose rates were mostly below 1 mrad/h, except in the pump pit area, where a maximum rate of 28 mrad/h was measured. Estimated inventory is Sr-90 (0.001 Ci), Cs-137 (0.001 Ci), and TRU (0.001 Ci). Of the 960 gal (3600 L) remaining in the tank, 60 gal (230 L) is sludge and 900 gal (3400 L) is liquid.

Release Data: Tank was removed from service because of leaks. Surface soil samples show that the tank site is contaminated with Sr-90 and Cs-137.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples of liquid and sludge in this tank indicates that the liquid is not RCRA waste; however, the sludge has the characteristics of RCRA waste.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0028

Unit Name: Inactive LLLW Waste Collection/Storage Tank W-1A

Location of Unit: Located at the North Tank Farm (3023 Area), northeast of the intersection of Third Street and Central Avenue. ORNL coordinates are N 22,255 and E 30,810.

General Dimensions and Capacities: Tank is made of stainless steel and has a capacity of 4000 gal (15,100 L). It is covered with more than 6.0 ft (1.8 m) of soil. Tank is horizontal. Diameter is 7.5 ft (2.3 m) and length is 13.5 ft (4.1 m).

Function of the Unit: Tank W1-A collected wastes from the high radiation level analytical facilities of buildings 2026, 3019-B, and the Radiochemical Processing Pilot Plant (3019).

Date of Operation: Site commissioned: mid 1950s. Taken out of service: about 1986.

Waste Characteristics: Major contaminants: Sr-90, Cs-137, U-233, TRU. Radionuclide inventory is unknown. Volume of liquid remaining in tank is 20 gal (80 L) and no sludge is present.

Release Data: The transfer line to Tank W-1A from buildings 2026 and 3019 is strongly suspected of leaking and contaminating soil near the tank. For this reason, Tank W-1A was removed from service.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples of liquid in this tank indicate that the liquid should be classified as having RCRA waste characteristics. No sludge was found in the tank.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0029

Unit Name: Inactive LLLW Waste Collection/Storage Tank WC-1

Location of Unit: Tank is located east of Bldg. 3038 and west of Bldg. 3037 near the center of the main ORNL complex. Fifth Avenue Creek is about 150 ft (46 m) east of the tank. ORNL coordinates are N 22,144 and E 31,676.

General Dimensions and Capacities: Tank is 8.66 ft (2.6 m) in diameter, 6.0 ft (1.8 m) high, and constructed of stainless steel. Capacity is 2000 gal (7600 L).

Function of the Unit: The tank was used for the collection and monitoring of process liquid waste from isotope production and development laboratories (buildings 3038, 3029, 3028, 3030, 3031, 3032, 3033, and 3047). The tank also collected waste from the Building 3110 filter, 3039 stack, and 3092 scrubber.

Date of Operation: Site commissioned: 1950s. Taken out of service: 1968.

Waste Characteristics: Main contaminants: Sr-90 (<10 Ci estimated), Cs-137 (<10 Ci estimated), and TRU (<0.1 Ci estimated). Curie amounts of Co-60 are also detectable. No information is available on sludge or liquid volumes in tank.

Release Data: Maximum direct beta-gamma absorbed dose is 0.23 mrad/h at 0.4 to 1.2 in. (1 to 3 cm) above surface and 10 ft (3 m) from tank. Highest Cs-137 and Co-60 activities were 1188 pCi/g and 567 pCi/g, respectively. Highest Sr-90 concentrations were 207 pCi/mL and 97 pCi/mL.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not sampled during the 1988 inactive tank sampling program. Tank has since been sampled but results are not yet available.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0030A

Unit Name: Inactive LLLW Waste Collection/Storage Tank WC-15

Location of Unit: Located south of Building 3587 and west of Building 4508 near the intersection of Fifth Street and White Oak Avenue. Fifth Creek is about 65 ft (20 m) east of the tank site. ORNL grid coordinates are N 21,730 and E 31,771.

General Dimensions and Capacities: Tank is made of stainless steel and is placed underground, with about 10.0 ft (3.0 m) of soil and gravel cover. Diameter: 5.5 ft (1.7 m). Height: 7.33 ft (2.23 m). It is not accessible from ground level. Capacity is 1000 gal (3800 L).

Function of the Unit: Tank was designed to receive waste from research laboratories in Building 4500.

Date of Operation: Site commissioned: 1951. Taken out of service: 1960.

Waste Characteristics: Main radionuclides are probably the same as tank WC-17 (Cs-137, Sr-90, and TRU). Radionuclide inventory unknown but estimated to be less than 0.1 Ci. No records of sludge or liquid volume exist.

Release Data: Tank was taken out of service because of leaks. Soil cores taken in the vicinity of tanks WC-15 and WC-17 are contaminated over their full length with no predominant distribution pattern. Radionuclides observed in the soil include Cs-137, Sr-90, Co-60, Am-241, and Cm-244.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not sampled during the 1988 inactive tank sampling program. Tank has since been sampled but results are not yet available.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0030R

Unit Name: Inactive LLLW Waste Collection/Storage Tank WC-17

Location of Unit: Located south of Building 3587 and west of Building 4508 near the intersection of Fifth Street and White Oak Avenue. Fifth Creek is about 65 ft (20 m) east of the tank site. ORNL grid coordinates are N 21,736 and E 31,771.

General Dimensions and Capacities: Tank is made of stainless steel and is placed underground, with about 10.0 ft (3.0 m) of soil and gravel cover. Diameter: 5.5 ft (1.7 m). Height: 7.33 ft (2.23 m). It is not accessible from ground level. Capacity is 1000 gal (3780 L).

Function of the Unit: Tank was designed to receive waste from research laboratories in Building 4500.

Date of Operation: Site commissioned: 1951. Taken out of service: 1960.

Waste Characteristics: Main radionuclides are Cs-137, Sr-90, and TRU. The tank is full of oil (approximately 80 gal) and water. The total radionuclide inventory is 2.2 mCi of Sr-90, 0.5 mCi of Cs-137, and 1.2 mCi of TRU. Liquid volume in tank is 370 gal (1400 L) and there is only a trace of sludge.

Release Data: Tank was taken out of service because of leaks. Soil cores taken in the vicinity of tanks WC-15 and WC-17 are contaminated over their full length with no predominant distribution pattern. Radionuclides observed in the soil include Cs-137, Sr-90, Co-60, Am-241, and Cm-244.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0031A

Unit Name: Inactive LLLW Waste Collection/Storage Tank TH-1

Location of Unit: Located near Building 3503 (south of the building) and south of White Oak Avenue. ORNL coordinates are N 21,520 and E 31,400.

General Dimensions and Capacities: Volume: 2500 gal (9500 L). Length is 10 ft (3 m), diameter is 7.0 ft (2.1 m). The tank is subsurface and made of stainless steel, with about 5.0 ft (1.5 m) of soil cover. TH-1 was a used tank prior to being installed. The tank is mounted on a flat surface concrete pad with U-bolts. It is not embedded in concrete.

Function of the Unit: Tank received waste from the thorium pilot plant project in Building 3503.

Date of Operation: Site commissioned: 1948. Taken out of service: 1970.

Waste Characteristics: Tank contains an estimated 280 gal (1100 L) of liquid. Major radionuclides are Cs-137, Co-60, Sr-90, and traces of TRU. Inventory is Sr-90 (0.6 Ci), Cs-137 (0.5 Ci), and TRU (0.2 mCi).

Release Data: A walk-over survey found absorbed dose rates to be 3.2 mrad/h. The highest levels of Cs-137 and Sr-90 in surface soils were 7.6 nCi/g and 4.6 nCi/g, respectively. Groundwater was encountered at a core site (16.1 ft [4.9 m] below grade) and determined to be contaminated with Sr-90 at a concentration of 97 pCi/mL.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples of liquid in this tank indicate that the liquid should be classified as having RCRA waste characteristics. No sludge was found in the tank. Liquid should also be classified as corrosive (pH=1.8).

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0031B

Unit Name: Inactive LLLW Waste Collection/Storage Tank TH-2

Location of Unit: The site is located near Building 3503 (south of the building) and south of White Oak Avenue. ORNL coordinates are N 21,524 and E 31,420.

General Dimensions and Capacities: The tank is 7.0 ft (2.1 m) in diameter and 10 ft (3.0 m) tall. Capacity is 2400 gal (9100 L).

Function of the Unit: The tank received waste from the thorium pilot plant project in Building 3503.

Date of Operation: Site commissioned: 1952. Taken out of service: 1970.

Waste Characteristics: Because of high radiation levels, Tank TH-2 was not sampled for radioactivity. The direct reading at the top of the tank measured 150 mrad/h, and the transferable counts were 50 dpm alpha and 3000 dpm beta-gamma per 100 sq cm. Dose rate increased after shielding was removed, direct dose rate was 6 rad/h, and transferable contamination was 100 dpm alpha and 22,000 dpm beta-gamma per 100 sq cm, respectively.

Release Data: A walk-over survey found absorbed dose rates to be 3.2 mrad/h. The highest levels of Cs-137 and Sr-90 in surface soils were 7.6 nCi/g and 4.6 nCi/g, respectively. Groundwater was encountered at a core site (16.1 ft [4.9 m] below grade) and determined to be contaminated with Sr-90 at a concentration of 97 pCi/mL.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not sampled during the 1988 inactive tank sampling program. Tank has since been sampled but results are not yet available.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-003 C

Unit Name: Inactive LLLW Waste Collection/Storage Tank TH-3

Location of Unit: The site is located near Building 3503 (south of the building) and south of White Oak Avenue. ORNL coordinates are N 21,524 and E 31,436.

General Dimensions and Capacities: Capacity is 3300 gal (12,500 L), diameter is 9.2 ft (2.8 m), and height is 10 ft (3 m).

Function of the Unit: The tank received waste from the thorium pilot plant project in Building 3503.

Date of Operation: Site commissioned: 1952. Taken out of service: 1970.

Waste Characteristics: The tank contains an estimated 140 gal (530 L) of liquid and no sludge. Major radionuclides are Cs-137, Co-60, Sr-90, and traces of TRU. Inventory is Sr-90 (0.6 Ci), Cs-137 (0.6 Ci), and TRU (0.0002 Ci). Total radioactivity measures about 1 Ci.

Release Data: A walk-over survey found absorbed dose rates to be 3.2 mrad/h. The highest levels of Cs-137 and Sr-90 in surface soils were 7.6 nCi/g and 4.6 nCi/g, respectively. Groundwater was encountered at a core site (16.1 ft [4.9 m] below grade) and determined to be contaminated with Sr-90 at a concentration of 97 pCi/mL.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples of liquid in this tank indicate that the liquid should be classified as having RCRA waste characteristics. No sludge was found in the tank. Liquid should also be classified as corrosive (pH=1.8).

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0032

Unit Name: Inactive LLLW Waste Collection/Storage Tank TH-4

Location of Unit: Located in the central ORNL complex between Central Avenue and White C Avenue. The nearest building is Bldg. 3500. See ORNL coordinates N 21,760 and E 31,515.

General Dimensions and Capacities: Tank is made of gunite. Capacity is 14,000 gal (53,000 l diameter is 20 ft (6 m); height is 9.0 ft (2.7 m). Tank is covered with about 6.0 ft (1.8 m) of soil.

Function of the Unit: Tank was placed in service to receive waste from the irradiated thorium a uranium pilot plant development projects.

Date of Operation: Site commissioned: 1943. Taken out of service: 1970.

Waste Characteristics: At present, the tank is filled with alkaline thorium and uranium sludge. Mo of the radioactivity in the tank is due to Cs-137 and small amounts of TRU. Total radioactivity estimated to be < 1 Ci. Maximum absorbed dose rate above the tank contents was 8.1 mrad/h. Th direct reading at the tank opening was 0.5 mrad/h. No direct dose rate greater than 0.1 mrad/h wa detected at the tank site, except for readings of 0.26 mrad/h and 0.32 mrad/h at pipe locations. Majo radionuclide inventory is Sr-90 (0.06 Ci), Cs-137 (0.5 Ci), TRU (0.085 Ci).

Release Data: Soil samples revealed that there was no significant contamination at this site, with no activity exceeding 27 pCi/g.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Analysis of 1988 samples in the tank of liquid and sludge indicates that both should be classified as having RCRA waste characteristics. Volatile organic RCRA constituents above the regulatory thresholds listed in the TCLP were also found.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-003

Unit Name: Active LLLW Waste Collection Tank 2026

Location of Unit: Located east of Building 2026. ORNL coordinates are N 22,550 and E 30,655.

General Dimensions and Capacities: Tank type: Vertical. Diameter is 4.0 ft (1.2 m); height is 6.5 ft (1.9 m); capacity is 500 gal (1900 L). Tank is in a concrete vault covered by 11.3 ft (3.4 m) of soil.

Function of the Unit: Tank collects LLLW streams from Building 2026 and discharges into Tank W-1A through a 2.0-in. (5.1-cm) diameter Hastalloy line.

Date of Operation: Site commissioned: 1961. Tank is still in service. ORNL is currently rerouting the effluent of this tank to discharge into one of the valve boxes located at the South Tank Farm.

Waste Characteristics: Tank 2026 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0034

Unit Name: Active LLLW Waste Collection Tank WC-2

Location of Unit: The site is located east of Building 3092. ORNL coordinates are N 22,210 and I 31,445.

General Dimensions and Capacities: The tank is vertical. Diameter is 5.5 ft (1.7 m). Height is 7.33 ft (2.2 m). Capacity is 1000 gal (3800 L).

Function of the Unit: The purpose of the tank is to collect LLLW streams contaminated with I-131 from buildings 3028, 3038, and 3110. The tank discharges to Valve Box No. 2 at the South Tank Farm by way of a 2-in. (5-cm) stainless steel line.

Date of Operation: Site commissioned: 1951. Tank is still in service.

Waste Characteristics: Tank WC-2 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0035

Unit Name: Active LLLW Waste Collection Tank WC-3

Location of Unit: Located south of Building 3025. ORNL coordinates are N 22,310 and E 31,175.

General Dimensions and Capacities: Vertical tank. Diameter is 5.5 ft (1.7 m). Height is 7.3 ft (2.2 m). Capacity is 1000 gal (3800 L).

Function of the Unit: Purpose is to collect LLLW streams from buildings 3025 and 3110. This tank discharges into Valve Box No. 1 by way of a 2-in. (5-cm) stainless steel line.

Date of Operation: Site commissioned: 1950. Tank is still in service.

Waste Characteristics: Tank WC-3 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0036

Unit Name: Inactive LLLW Waste Collection Tank WC-4

Location of Unit: The ORNL coordinates for the tank are N 22,210 and E 31,145. This tank is locat west of Building 3026.

General Dimensions and Capacities: The tank is a vertical stainless steel tank that rests on a concre slab. The tank is 7.0 ft (2.1 m) in diameter and 7.0 ft in length. The top of the tank is located 8 ft (2 m) below the surface. It has a volume of 1700 gal (6400 L) and a normal operating volume of 12(gal (4500 L). The tank receives waste through a 1-in.-diam (2.5-cm-diam) stainless steel line. discharges through a 2-in. (5-cm) stainless steel pipe.

Function of the Unit: The tank receives waste from Building 3026 and discharges to Valve Box N(2 at the South Tank Farm.

Date of Operation: Date installed: early 1950s. Taken out of service.

Waste Characteristics: Tank WC-4 is an inactive waste collection tank. In general, the major nuclide of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts o uranium and plutonium isotopes.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMA; Y SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0037.'.

Unit Name: Inactive LLLW Waste Collection Tank WC-5

Location of Unit: The ORNL coordinates for the tank are N 21,515 and E 31,425. This tank is located south of Building 3503.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 5.5 ft (1.7 m) in diameter and 7.3 ft (2.2 m) in length. The tank top is located 8 ft (2.4 m) below the surface. It has a volume of 1000 gal (3800 L) and a normal operating volume of 750 gal (2800 L). All lines entering or leaving the tank are 2-in.-diam (5-cm-diam) stainless steel.

Function of the Unit: The tank receives waste from Building 3503 and discharges to Valve Box No. 2 at the South Tank Farm.

Date of Operation: Date installed: 1952. Tank is still in service.

Waste Characteristics: Tank WC-5 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0037B

Unit Name: Inactive LLLW Waste Collection Tank WC-6

Location of Unit: The ORNL coordinates for the tank are N 21,510 and E 31,425. This tank is located south of Building 3503.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 4.5 ft (1.4 m) in diameter and 5.67 ft (1.7 m) in length. The tank top is located 9.7 ft (2.9 m) below the surface. It has a volume of 500 gal (1900 L) and a normal operating volume of 350 gal (1300 L). All lines entering or leaving the tank are 2-in.-diam (5-cm-diam) stainless steel.

Function of the Unit: The tank receives waste from buildings 3508, 3541, and 3592. It discharges to Valve Box No. 2 at the South Tank Farm.

Date of Operation: Date installed: 1952. Tank is still in service.

Waste Characteristics: Tank WC-6 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-003°C

Unit Name: Inactive LLLW Waste Collection Tank WC-8

Location of Unit: The ORNL coordinates for the tank are N 21,505 and E 31,425. This tank is located south of Building 3503.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 5.5 ft (1.7 m) in diameter and 7.3 ft (2.2 m) in length. The tank top is located 4.0 ft (1.2 m) below the surface. It has a volume of 1000 gal (3800 L) and a normal operating volume of 750 gal (2800 L). All lines entering or leaving the tank are 2-in.-diam (5-cm-diam) stainless steel.

Function of the Unit: The tank receives waste from Building 3503 and discharges to Valve Box No. 2 at the South Tank Farm.

Date of Operation: Date installed: 1952. Tank is still in service.

Waste Characteristics: Tank WC-8 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-00^7D

Unit Name: Active LLLW Waste Collection Tank WC-9

Location of Unit: The ORNL coordinates for the tank are N 21,500 and E 31,400. This tank is located south of Building 3503.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 7.0 ft (2.1 m) in diameter and 10.75 ft (3.3 m) in length. The tank top is located 6.5 ft (1.9 m) below the surface. It has a volume of 2140 gal (8100 L) and a normal operating volume of 1550 gal (5900 L). All lines entering or leaving the tank are 2-in.-diam (5-cm-diam) stainless steel.

Function of the Unit: The tank receives waste from Building 3503 and discharges to Valve Box No. 2 at the South Tank Farm.

Date of Operation: Date installed: 1952. Tank is still in service.

Waste Characteristics: Tank WC-9 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0038

Unit Name: Active LLLW Waste Collection Tank WC-7

Location of Unit: The ORNL coordinates for the tank are N 21,600 and E 31,200. This tank is locatec west of Building 3504.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 5.3 ft (1.6 m) in diameter and 7.4 ft (2.2 m) in length. The tank top is located 4.7 ft (1.4 m) below the surface. It has a volume of 1100 gal (4200 L) and a normal operating volume of 750 gal (2800 L). The lines entering and leaving the tank are 2-in.-diam (5-cm-diam) steel pipes.

Function of the Unit: The tank collects low-level waste from Building 3504. It discharges to Valve Box No. 1 at the South Tank Farm.

Date of Operation: Date installed: 1951. Tank is still in service.

Waste Characteristics: Tank WC-7 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1 3

WAG Name: Main Plant Area

Unit ID Number: X01-0039A

Unit Name: Active LLLW Waste Collection Tank WC-10

Location of Unit: The ORNL coordinates for the tank are N 21,715 and E 31,765. This tank is locat south of Building 3587.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank enclosed in a concre vault. The tank is 6.3 ft (1.9 m) in diameter and 10.3 ft (3.1 m) long. The depth from the groun surface to the top of the tank is 10.3 ft. The unit has a volume of 2300 gal (8700 L) and a norma operating volume of 1650 gal (6200 L).

Function of the Unit: The tank collects low-level waste streams from buildings 3029, 3030, 3031, 3032 3033, 3047, 3092, and 3039. It discharges to Valve Box No. 1 at the South Tank Farm.

Date of Operation: Date installed: 1951. Tank is still in service.

Waste Characteristics: Tank WC-10 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-003-3

Unit Name: Active LLLW Waste Collection Tank WC-11

Location of Unit: The ORNL coordinates for the tank are N 21,730 and E 31,765. This tank is located south of Building 3587.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank. The tank is 7.7 ft (2.3 m) in diameter and 13.7 ft (4.2 m) long. The depth from the ground surface to the top of the tank is 9.0 ft (2.7 m). The unit has a volume of 4600 gal (17,400 L) and a normal operating volume of 2900 gal (11,000 L).

Function of the Unit: The tank receives waste from buildings 4500N Wing 1, 4505, 4507, and 4556. It discharges to Valve Box No. 1 at the South Tank Farm.

Date of Operation: Date installed: 1951. Tank is still in service.

Waste Characteristics: Tank WC-11 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0039C

Unit Name: Active LLLW Waste Collection Tank WC-12

Location of Unit: The ORNL coordinates for the tank are N 21,710 and E 31,770. This tank is located south of Building 3587.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 5.5 ft (1.7 m) in diameter and 7.9 ft (2.3 m) long. The depth from the ground surface to the top of the tank is 9.1 ft (2.8 m). The unit has a volume of 1000 gal (3800 L) and a normal operating volume of 700 gal (2600 L).

Function of the Unit: The tank receives waste from buildings 4505 and 4507. It discharges to Valve Box No. 1 at the South Tank Farm.

Date of Operation: Date installed: 1951. Tank is still in service.

Waste Characteristics: Tank WC-12 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-003OD

Unit Name: Active LLLW Waste Collection Tank WC-13

Location of Unit: The ORNL coordinates for the tank are N 21,725 and E 31,770. This tank is locate south of Building 3587.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concret slab. The tank is 5.5 ft (1.7 m) in diameter and 7.3 ft (2.2 m) long. The depth from the ground surfac to the top of the tank is 9.3 ft (2.8 m). The unit has a volume of 1000 gal (3800 L) and a norma operating volume of 700 gal (2600 L).

Function of the Unit: The tank receives waste from buildings 4500S, 4500N, 4501, and 4508. I discharges to Valve Box No. 1 at the South Tank Farm.

Date of Operation: Date installed: 1951. Tank is still in service.

Waste Characteristics: Tank WC-13 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0039E

Unit Name: Active LLLW Waste Collection Tank WC-14

Location of Unit: The ORNL coordinates for the tank are N 21,720 and E 31,770. This tank is located south of Building 3587.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 5.5 ft (1.7 m) in diameter and 7.3 ft (2.2 m) long. The depth from the ground surface to the top of the tank is 9.3 ft (2.8 m). The unit has a volume of 1000 gal (3800 L) and a normal operating volume of 700 gal (2600 L).

Function of the Unit: The tank receives waste from Building 4501. It discharges to Valve Box No. 1 at the South Tank Farm.

Date of Operation: Date installed: 1951. Tank is still in service.

Waste Characteristics: Tank WC-14 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0040

Unit Name: Active LLLW Waste Collection Tank WC-19

Location of Unit: The ORNL coordinates for the tank are N 22,430 and E 31,595. This tank is locatec northeast of Building 3028.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank enclosed in a concrete vault. The tank is 6.1 ft (1.8 m) in diameter and 9.7 ft (2.9 m) long. The depth from the ground surface to the top of the tank is 12.9 ft (3.9 m). The unit has a volume of 2100 gal (7900 L) and a normal operating volume of 1500 gal (5700 L).

Function of the Unit: The tank receives low-level waste streams from buildings 3001, 3002, 3003, 3004, 3005, 3008, 3109, 3010, 3119 and 3042. It discharges to Valve Box No. 1 located at the South Tank Farm.

Date of Operation: Date installed: 1953. Tank is still in service.

Waste Characteristics: Tank WC-19 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0041

Unit Name: Inactive LLLW Waste Collection Tank W-12

Location of Unit: The ORNL coordinates for the tank are N 21,875 and E 31,060. This is locatec southwest of Building 3525.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 4.0 ft (1.2 m) in diameter and 5.33 ft (1.6 m) long. The tank has a volume of 700 gal (2600 L) and a normal operating volume of 400 gal (1500 L).

Function of the Unit: The tank receives waste from buildings 3525 and 3517.

Date of Operation: Date installed: 1951. Tank is still in service.

Waste Characteristics: Tank W-12 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0042A

Unit Name: Active LLLW Waste Collection Tank W-16

Location of Unit: The ORNL coordinates for the tank are N 22,035 and E 31,065. This tank is locate east of the South Tank Farm.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concret slab. The tank is 5.5 ft (1.7 m) in diameter and 7.3 ft (2.2 m) long. The depth from the ground surfac to the top of the tank is 9.3 ft (2.8 m). The unit has a volume of 1000 gal (3800 L) and a norma operating volume of 700 gal (2600 L).

Function of the Unit: This tank collects LLLW from hot cells in Building 3026.

Date of Operation: Date installed: 1950. Tank is still in service.

Waste Characteristics: Tank W-16 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0042B

Unit Name: Active LLLW Waste Collection Tank W-17

Location of Unit: The ORNL coordinates for the tank are N 22,030 and E 31,065. This tank is locate east of the South Tank Farm.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concret slab. The tank is 5.5 ft (1.7 m) in diameter and 7.3 ft (2.2 m) long. The depth from the ground surfac to the top of the tank is 9.3 ft (2.8 m). The unit has a volume of 1000 gal (3800 L) and a norma operating volume of 700 gal (2600 L).

Function of the Unit: This tank collects LLLW from hot cells in Building 3026.

Date of Operation: Date installed: 1950. Tank is still in service.

Waste Characteristics: Tank W-17 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0042C

Unit Name: Active LLLW Waste Collection Tank W-18

Location of Unit: The ORNL coordinates for the tank are N 22,030 and E 31,700. This tank is located east of the South Tank Farm.

General Dimensions and Capacities: The unit is a vertical stainless steel tank that rests on a concrete slab. The tank is 5.5 ft (1.7 m) in diameter and 7.3 ft (2.2 m) long. The depth from the ground surface to the top of the tank is 9.3 ft (2.8 m). The unit has a volume of 1000 gal (3800 L) and a normal operating volume of 700 gal (2600 L).

Function of the Unit: This tank collects LLLW from hot cells in Building 3026 and liquids from the 3500 Area cell ventilation duct.

Date of Operation: Date installed: 1950. Tank is still in service.

Waste Characteristics: Tank W-18 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No new information has been reported since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0043A

Unit Name: Active LLLW Waste Collection/Storage Tank W-21

Location of Unit: The ORNL coordinates for the tank are N 21,935 and E 30,550. This tank is located near Building 2537.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank enclosed in a stainless-steel-lined concrete vault (double containment). The tank is 12.0 ft (3.6 m) in diameter and 60.0 ft (18.3 m) long. The depth from the ground surface to the top of the tank is 10.0 ft (3.1 m). The unit has a volume of 50,000 gal (189,000 L) and a normal operating volume of 40,000 gal (151,000 L).

Function of the Unit: The unit receives LLLW streams from Valve Box No. 1 and Valve Box No. 2 located at the South Tank Farm. The tank functions as a collection and holding tank for feed wastes to the LLLW evaporator.

Date of Operation: Date installed: 1976. Tank is still in service.

Waste Characteristics: Tank W-21 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0043B

Unit Name: Active LLLW Waste Collection/Storage Tank W-22

Location of Unit: The ORNL coordinates for the tank are N 21,935 and E 30,570. This tank is located near Building 2537.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank enclosed in a stainless-steel-lined concrete vault (double containment). The tank is 12.0 ft (3.6 m) in diameter and 60.0 ft (18.3 m) long. The depth from the ground surface to the top of the tank is 20.0 ft (6.1 m). The unit has a volume of 50,000 gal (189,000 L) and a normal operating volume of 40,000 gal (151,000 L).

Function of the Unit: The unit receives LLLW streams from Valve Box No. 1 and Valve Box No. 2 located at the South Tank Farm. The tank functions as a collection and holding tank for feed wastes to the LLLW evaporator.

Date of Operation: Date installed: 1976. Tank is still in service.

Waste Characteristics: Tank W-22 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0044

Unit Name: Active LLLW Waste Concentrate Tank W-23

Location of Unit: The ORNL coordinates for the tank are N 21,935 and E 30,510. This tank is located at Building 2537.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank enclosed in a stainless-steel-lined concrete vault (double containment). The tank is 12.0 ft in (3.6 m) diameter and 60.0 ft (18.3 m) long. The depth from the ground surface to the top of the tank is 5.5 ft (1.7 m). The unit has a volume of 50,000 gal (189,000 L) and a normal operating volume of 40,000 gal (151,000 L).

Function of the Unit: The unit receives and stores the concentrated waste from the evaporator facility prior to transfer to tanks W-24 - W-31 in Melton Valley.

Date of Operation: Date installed: 1976. Tank is still in service.

Waste Characteristics: Tank W-23 is an active waste collection tank. The waste in the tank is pumped or jetted to the waste storage tanks at a preset time interval, or when the tank is filled. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0045A

Unit Name: Active LLLW Waste Concentrate Storage Tank C-1

Location of Unit: The ORNL coordinates for the tank are N 21,820 and E 30,600. This tank is located at Building 2531.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank enclosed in a concrete vault (double containment). The tank is 12.0 ft (3.6 m) in diameter and 60.0 ft (18.3 m) long. The unit has a volume of 50,000 gal (189,000 L) and a normal operating volume of 40,000 gal (151,000 L).

Function of the Unit: The tank is part of an additional storage system to receive concentrates from the evaporator facility prior to transfer to tank W-23 and then to W-24 - W-31 in Melton Valley.

Date of Operation: Date installed: 1964. Tank is still in service.

Waste Characteristics: Tank C-1 is an active waste concentrate collection tank. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0045B

Unit Name: Active LLLW Waste Concentrate Storage Tank C-2

Location of Unit: The ORNL coordinates for the tank are N 21,820 and E 30,600. This tank is located at Building 2531.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank enclosed in a concrete vault (double containment). The tank is 12.0 ft (3.6 m) in diameter and 60.0 ft (18.3 m) long. The unit has a volume of 50,000 gal (189,000 L) and a normal operating volume of 40,000 gal (151,000 L).

Function of the Unit: The tank is part of an additional storage system to receive concentrates from the evaporator facility prior to transfer to tanks W-23 and then to W-24 - W-31 in Melton Valley.

Date of Operation: Date installed: 1964. Tank is still in service.

Waste Characteristics: Tank C-2 is an active waste collection tank. Because the waste is continuously being collected and discharged, available analyses indicate the contents of the tank only at the time of measurement. In general, the major nuclides of concern are Sr-90, Cs-137, Co-60, and TRU, although some tanks also contain small amounts of uranium and plutonium isotopes. Because of the sample dilutions required to allow handling of radioactive tank liquids, the detection limits are considerably above those required for RCRA hazardous waste determinations. As a result, only limited chemical analyses have been conducted to date. These analyses, however, appear to indicate a greater concern due to radionuclides than to the hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0046

Unit Name: Solid Waste Storage Area (SWSA) 1 -- (2624)

Location of Unit: SWSA 1 is located in Bethel Valley at the foot of Haw Ridge, and the closest edge is approximately 25.0 ft (7.6 m) south of White Oak Creek. ORNL grid coordinates are N 20,980 and E 30,710.

General Dimensions and Capacities: The site is triangle shaped and encompasses approximately 1 acre (0.4 ha). It is fenced and grassed.

Function of the Unit: SWSA 1 was the first area used for burial of low-level solid wastes.

Date of Operation: Site commissioned: 1943. Taken out of service: 1944.

Waste Characteristics: The burial ground is contaminated with unknown radionuclides and unidentified chemical constituents. Only a small amount (2000 - 4000 Ci) of solid radioactive waste was buried in SWSA 1.

Release Data: Groundwater movement in the area is to White Oak Creek and is, therefore, monitored via the ORNL Stream Monitoring System. Monitoring activity in 1973 (when water samples were taken from two monitoring wells and a surface seep) indicated a low concentration of Sr-90. In 1975, water samples were taken from two wells and a surface seep and analyzed for Sr-90, Cs-137, and transuranic elements. The results from one well indicated low concentrations of Sr-90 (9.4 dpm/mL) and no indication of Cs-137 or transuranic elements.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In 1987 a surface radiological investigation of SWSA 1 was conducted by ORNL. Results from this survey show that most of the surface gamma radiation of SWSA 1 is due to radiation emanating from nearby White Oak Creek. Measurements of gamma levels determined that exposure rates at the surface were generally elevated above typical ORR background values (13 uR/h), ranging from 20 to 200 uR/h.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0047

Unit Name: Solid Waste Storage Area (SWSA) 2 – (4003)

Location of Unit: SWSA 2 is located on the south side of a hill near the east entrance and main parking area of ORNL, northwest of Building 4500. ORNL grid coordinates are N 22,420 and E 32,310.

General Dimensions and Capacities: The disposal area encompassed approximately 3.5 acres (1.4 ha). It is currently unfenced and has a grass cover.

Function of the Unit: The area was the second used to dispose of solid waste contaminated with beta or gamma activity, liquid waste contaminated with plutonium in stainless steel drums, and alpha-contaminated material from off-site.

Date of Operation: Site commissioned: 1944. Taken out of service: 1946.

Waste Characteristics: The burial site is reported to contain no waste. The burial waste and contaminated soil were moved to another site (SWSA 3) some time after the site was closed in 1946.

Release Data: No significant migration of radionuclides has taken place from SWSA 2. Coring was conducted in 1976 on the site as a part of subsurface investigations for a new building. Analysis of these samples indicated that the soil and water from 25 locations around the site did not contain concentrations of tritium, gross beta, or gross alpha levels that were significantly higher than background samples collected throughout eastern and central Tennessee.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0048

Unit Name: Low-Level Waste Evaporator -- (2531)

Location of Unit: The Low-Level Waste Evaporator is located south of Central Avenue and west of Third Street, close to the South Tank Farm. ORNL grid coordinates are N 21,820 and E 30,600.

General Dimensions and Capacities: Two 600-gal/h (2270-L/h) evaporators are provided. All stainless steel vessels are contained in reinforced concrete vaults. Sumps and leak detection devices are provided.

Function of the Unit: The Evaporator is used to concentrate LLLW prior to storage or further treatment.

Date of Operation: Initiated: 1965. Second evaporator installed in 1979. The site is currently operational.

Waste Characteristics: Feed to the Evaporator is ORNL LLLW. Major radionuclides are Sr-90, Cs-137, Co-60, Ru-106, and trivalent rare earths (TRE). Some uranium, plutonium, and TRU are also present.

Release Data: No releases reported.

Regulatory Authority: Permit-by-Rule

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0049

Unit Name: Neutralization Facility – (3518)

Location of Unit: The Neutralization Facility is located in the southwest part of ORNL just east of the current PWTP (Building 3544). ORNL grid coordinates are N 21,400 and E 30,900.

General Dimensions and Capacities: Concrete tank is divided into sections. Total capacity is about 40,000 gal (151,416 L).

Function of the Unit: The main source of wastewater routed to Building 3518 is blowdown from the ORNL steam plant located to the west of the facility.

Date of Operation: Constructed in the late 1950s, the Neutralization Facility treated the radioactive contaminated process wastewater. In 1979, the PWTP was constructed, and Building 3518 was converted to provide neutralization of wastewater from various ORNL operations.

Waste Characteristics: Waste currently being treated is feed water treatment from the ORNL steam plant. Waste currently being treated is ion exchange regenerant solution from the treatment of ORNL steam plant boiler feed water. The primary species are sulfate ions.

Release Data: Once the wastewater has been neutralized and allowed to pass through the clearwell, it is routed directly to the Nonradiological Wastewater Treatment Plant (NRWTP). The typical flow through the system is 40,000 gal/d (151,416 L/d).

Regulatory Authority: RCRA; NPDES

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-005^

Unit Name: PCB Storage Area -- (2018 N)

Location of Unit: Storage area is located immediately north of (behind) Building 2018 on the north side of Central Avenue. ORNL grid coordinates are N 22,280 and E 30,320.

General Dimensions and Capacities: The area is surfaced with asphalt and concrete. Dimensions are 70 ft (21 m) by 15 ft (4.5 m).

Function of the Unit: The unit is designed for temporary storage of PCB-containing materials.

Date of Operation: Installed: September 1985. Site is still in use.

Waste Characteristics: The waste consists of PCB-contaminated materials.

Release Data: No releases or spills have been reported.

Regulatory Authority: CERCLA

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0051

Unit Name: Process Waste Treatment Plant -- (3544)

Location of Unit: The site is located inside the main plant area along White Oak Creek. ORNL grid coordinates are N 21,320 and E 30,830.

General Dimensions and Capacities: Average flow rate is about 105 gal/min (397 L/min). Basin 3524 is used to store excess flow during periods of high waste production. Design capacity of plant is 288 gal/d (1090 L/d). The open, unlined, 750,000-gal (2,835,000-L) basin (3524) provides surge capacity for the plant.

Function of the Unit: The site is used to treat process waste for removal of Sr-90 and Cs-137. Treatment plant uses a scavenging precipitator - ion exchange (SP - IX) process developed at ORNL. This process involves chemical precipitation, filtration, and ion exchange. Effluent is discharged to White Oak Creek through an NPDES discharge point.

Date of Operation: Installed: 1976. Site is still in operation.

Waste Characteristics: Very low-level liquid waste streams are termed process waste and are primarily streams that would contain no radioactivity under normal operations but could become contaminated as a result of equipment failure or human error. Also, due to infiltration of contaminated groundwater into the system and the addition of LLLW evaporator overhead, radionuclides are normally detected in the process waste. Major radionuclides are Sr-90 and Cs-137.

Release Data: Ion exchange resin is regenerated with nitric acid, and the solution is concentrated by evaporation and transferred to the low-level waste evaporator facility for storage. Sludge from the clarifier/precipitator is filtered to a dry solid cake, drummed and shipped to K-25 for storage. Treated effluent is released to the NRWTP.

Regulatory Authority: RCRA/CERCLA; NPDES

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0052

Unit Name: Sewage Treatment Plant -- (2521)

Location of Unit: The sanitary wastewater treatment facility, located in Building 2521 at the west end of ORNL near the steam plant, serves a major portion of ORNL. ORNL grid coordinates are N 21,110 and E 29,980.

General Dimensions and Capacities: Capacity of the new plant is 300,000 gal/d (1.1 x 10 (E+6) L/d).

Function of the Unit: The facility treats sanitary wastes from the main plant area prior to release to White Oak Creek. In recent years, the previous waste treatment system occasionally failed to meet the discharge limitations of its NPDES permit issued by the EPA. The new extended-aeration activated sludge treatment system consists of an aeration chamber, a clarifier, sludge holding and recirculation equipment, aeration equipment, and sludge piping. Influent to the treatment system is directed to the aeration tank and then to the clarifier. Excess sludge from the clarifier is sent to the sludge holding basin. When sludge wasting is necessary, it is gravity fed to the sludge drying beds. Dewatered sludge is landfilled in SWSA 6.

Date of Operation: Site commissioned: 1986. Site is still in operation.

Waste Characteristics: Waste treated is representative of domestic sewage, although infiltration into the sewer system may introduce trace levels of radionuclides. No process wastes are included in the domestic waste.

Release Data: Wastewater effluent from the final clarifier flows to the filter system and then to the existing Parshall flume-chlorine contact structure where it is measured, sampled, and chlorinated prior to discharge to the chlorine contact basin. The existing chlorination system feeds a chlorine solution in the upstream portion of the chlorine contact basin. After sufficient contact time, the basin effluent is discharged into White Oak Creek through an NPDES discharge point.

Regulatory Authority: RCRA/CERCLA; NPDES

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0053

Unit Name: Septic Tank for Building 3000 -- (3078)

Location of Unit: Site is located north of the 3000 substation. ORNL grid coordinates are N 23,1(and E 31,300.

General Dimensions and Capacities: Tank is 36 years old, constructed of concrete, and has a capaci of 580 gal (2190 L).

Function of the Unit: Septic tank servicing Building 3000.

Date of Operation: Site commissioned: 1950. Site is still in operation.

Waste Characteristics: Wastes are domestic sewage; there is not indication that hazardous o nonhazardous chemical wastes have been discharged to the tank. No radioactive waste was added t tank.

Release Data: No reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-005

Unit Name: Waste Oil Storage Tanks -- (2525)

Location of Unit: The two oil storage tanks are located on the southeast side of Building 2325. ORNL grid coordinates are N 21,930 and E 30,310.

General Dimensions and Capacities: The tanks are steel and located above ground. Each tank has a capacity of 500 gal (1893 L). Tanks are contained within a 36-in. (91-cm) steel dike.

Function of the Unit: These units are holding tanks for waste oil. One tank is designed for soluble oils.

Date of Operation: Site installed: 1984. Tanks are still in service.

Waste Characteristics: Waste is used oil. When the tanks are filled, oil is transferred to 55-gal drums and stored for recycling.

Release Data: No releases have been reported from these tanks.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: During subsequent examination, stains were noted near the tank. The nature of these stains is subject to further examination.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0055

Unit Name: Septic Tank for Building 5505 -- (5507)

Location of Unit: The septic tank is located southwest of Building 5505 in the Main Plant Area. The ORNL grid coordinates are N 20,910 and E 33,090.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 750 gal (2840 L).

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from Building 5505.

Date of Operation: Septic tank was installed in 1967 and is still in use (20 years).

Waste Characteristics: Only domestic sewage from Building 5505 has been collected/stored in the tank. No hazardous or radioactive wastes have been added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0056A

Unit Name: Inactive LLLW Collection Tank W-19

Location of Unit: Tank is located north of Building 3517 (Fission Product Development Laboratory) and west of Building 3505 (Metal Recovery Facility). ORNL grid coordinates are N 21,815 and E 31,008.

General Dimensions and Capacities: Tank is 7.5 ft wide by 8.5 ft long and is constructed of stainless steel. Capacity of the tank is 2250 gal (8500 L).

Function of the Unit: This tank [and W-20 (SWMU X01-0056B)] were installed for the purpose of collecting LLLW solutions from Building 3505. After closure of the Metal Recovery Facility in 1960, the tanks were used for a period of 1-2 years by the Fission Product Development Laboratory for LLLW collection.

Date of Operation: The Metal Recovery Facility was constructed in 1951 and commissioned in 1952. The tanks collected wastes from 1955 until the early 1960s, when they were removed from service.

Waste Characteristics: The tanks are reportedly empty but they remain internally contaminated. Primary wastes handled by the Metal Recovery Facility contained Sr-90, Cs-137, Pu-238, Pu-239, and Pu-240. In addition, wastes from the Fission Product Development Laboratory contained significant quantities of Ce-144 and Pm-147.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet. Tank is empty - not able to sample.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0056B

Unit Name: Inactive LLLW Collection Tank W-20

Location of Unit: Tank is located north of Building 3517 (Fission Product Development Laborator and west of Building 3505 (Metal Recovery Facility). ORNL Grid coordinates are N 21,805 and 31,008.

General Dimensions and Capacities: Tank is 7.5 ft wide by 8.5 ft long and is constructed of stainle steel. Capacity of the tank is 2250 gal (8500 L).

Function of the Unit: This tank [and W-19 (SWMU X01-0056A)] were installed for the purpose o collecting LLLW solutions from Building 3505. After closure of the Metal Recovery Facility in 1960 the tanks were used for a period of 1-2 years by the Fission Product Development Laboratory fo LLLW collection.

Date of Operation: The Metal Recovery Facility was constructed in 1951 and commissioned in 1952 The tanks collected wastes from 1955 until the early 1960s, when they were removed from service.

Waste Characteristics: The tanks are reportedly empty but they remain internally contaminated. Primary wastes handled by the Metal Recovery Facility contained Sr-90, Cs-137, Pu-238, Pu-239, and Pu-240. In addition, wastes from the Fission Product Development Laboratory contained significant quantities of Ce-144 and Pm-147.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet. Tank is empty - not able to sample.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-00[illegible]7

Unit Name: Nonradiological Wastewater Treatment Plant (NRWTP) Site

Location of Unit: South of White Oak Creek directly across from the waste impoundment 35[illegible] ORNL grid coordinates are N 20,948 and E 31,295.

General Dimensions and Capacities: Unknown.

Function of the Unit: Apparently a landfill/borrow pit for trash, construction debris and other refu[illegible] disposed during early years of ORNL.

Date of Operation: Unknown, waste found during routine geotechnical site investigation utilizing so[illegible] borings.

Waste Characteristics: Trash, construction debris, and other refuse. No reporting of radionuclides o[illegible] hazardous chemical wastes. Lead above EP-tox limits was found. Lead was removed and disposed a[illegible] hazardous waste. Site was then resampled to verify that levels were below EP-tox.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: June 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0058

Unit Name: Former Waste Pile Area

Location of Unit: Directly south of the site of the Nonradiological Wastewater Treatment Plant. Approximate ORNL grid coordinates are N 20,780 and E 31,250.

General Dimensions and Capacities: Unknown.

Function of the Unit: Apparently used for disposal of waste from construction operations. May be an extension of SWMU X01-0057.

Date of Operation: Unknown.

Waste Characteristics: Construction trash and debris.

Release Data: No releases reported.

Regulatory Authority: RCRA

Site Characterization Status: RFI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: June 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0059

Unit Name: Old Incinerator Site

Location of Unit: Located south of White Oak Creek and just west of SWMU X01-0057. Approximate ORNL grid coordinates are N 21,030 and E 30,950.

General Dimensions and Capacities: Unknown.

Function of the Unit: Incineration of paper - The facility was used for the destruction of classified documents and other similar materials. The incinerator was demolished in the 1960's and the site was cleared and graded. A gravel road and construction staging area is presently located at the old site.

Date of Operation: Estimated at 1944 - 1967.

Waste Characteristics: Waste paper.

Release Data: No reported releases.

Regulatory Authority: No Applicable Regulation

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: June 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0060

Unit Name: Office Building for Efficiency and Renewable Energy Research

Location of Unit: East of Building 3114 - Shock Tube Laboratory. ORNL coordinates are N 23,015 and E 31,205.

General Dimensions and Capacities: Unknown.

Function of the Unit: Apparently site of excavation was used as a disposal area for unused lead.

Date of Operation: Unknown.

Waste Characteristics: Solid blades and sheets of lead partially enclosed in plastic bags. The lead, free of radioactivity, was removed to the ORNL lead shop for recycling.

Release Data: Soil samples were taken from the area beneath and immediately surrounding the lead burial site. Samples were analyzed by the EP toxicity test and all were below the analytical detection limit of 0.20 ppm. Since no lead contamination was detected, excavation and construction at the site was allowed to continue.

Regulatory Authority: RCRA

Site Characterization Status: NFA

Comment: No new information has been developed since original data sheet was prepared.

Date Prepared: September 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061A

Unit Name: Waste Accumulation Area (1503)

Location of Unit: The 1503 Dock is an old cylinder dock located southwest of Building 1503.

General Dimensions and Capacities: The dock is a covered 10 ft x 30 ft concrete pad that is elevated 4 ft. A 30 ft x 30 ft concrete pad is located in front of the old cylinder dock. One drum of waste vacuum oil and nine drums of potentially hazardous sludges (lab packed) are on the dock. The pad in front of the old cylinder dock supports a dumpster for solid low-level waste, one drum of noncompactible solid low-level waste, one drum for disposal of aerosol cans, and one drum for disposal of scintillation vials packed in vermiculite.

Function of the Unit: Storage of wastes prior to pickup.

Date of Operation: Since 1978

Waste Characteristics: Waste oil, scintillation vials, solid low-level waste, and some potentially hazardous wastes awaiting disposal.

Release Data: No release has been reported. One section of the dock is scheduled to be diked to further minimize potential for release.

Regulatory Authority: RCRA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities. Site is no longer in use.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061B

Unit Name: Oil Storage Area (2013)

Location of Unit: This unit is located on the north side of Building 2013.

General Dimensions and Capacities: SWMU X01-0061B is bulk oil storage unit consisting of four 55-gal drums and several 4- to 5-gal storage containers.

Function of the Unit: Bulk oil storage is provided at Building 2013 in a shed with metal framing. Both new and used oil is stored at the site.

Date of Operation: Since 1967

Waste Characteristics: New and used oil.

Release Data: No reported releases.

Regulatory Authority: Clean Water Act

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061C

Unit Name: Waste Oil Storage Area (2018)

Location of Unit: This unit is an oil storage house attached to Building 2018.

General Dimensions and Capacities: SWMU X001-0061C is an oil storage house that has been operational for approximately two years. Dimensions are approximately 25 x 12 feet. It has a total storage capacity of 1500 gal. One 500-gallon tank is housed at this facility and is used for transformer oil storage.

Function of the Unit: This site has been utilized for oil storage during the last 24 months.

Date of Operation: Since late 1985.

Waste Characteristics: Various storage oils include transformer oil, refrigerator oil, BG oil, and PCB-contaminated oil.

Release Data: The oil storage house has a concrete floor with a sump and is diked. A spill occurred from a non- PCB-containing transformer. All oil was absorbed by "Absorb All" (an oil absorbent). The spill was contained within the oil house and no environmental release occurred. In addition to the dike and sump, the use of secondary catch basins filled with oil absorbent minimizes the potential for release.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061D

Unit Name: Fluorescent Tube Container Storage Area (3025)

Location of Unit: This unit is a dock located south of Room E-101.

General Dimensions and Capacities: The area is on a covered porch and receives approximately 50 gal of crushed fluorescent tubes per year.

Function of the Unit: Waste Storage.

Date of Operation: This area is currently operational; however, the date these operations began is unknown.

Waste Characteristics: Crushed fluorescent tubes contained in bags within steel drums.

Release Data: No reported releases.

Regulatory Authority: RCRA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061?

Unit Name: Waste Oil Storage Area (3038)

Location of Unit: This unit consists of a dock located on the east end of Building 3038.

General Dimensions and Capacities: The area receives about 10 gal of contaminated vacuum pump oil per year.

Function of the Unit: Waste storage prior to pickup.

Date of Operation: Currently operational. The exact date that these activities began is unknown.

Waste Characteristics: Contaminated vacuum pump oil.

Release Data: No reported releases.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061F

Unit Name: Oil Storage Area (3103)

Location of Unit: Outside cooling tower, Building 3103.

General Dimensions and Capacities: A 60-gal fiberglass vessel is contained within a 95-gal fiberglass container.

Function of the Unit: Storage of gear oil.

Date of Operation: Although this area has been in use for several years, the date that storage began is unknown.

Waste Characteristics: Gear oil.

Release Date: No reported releases.

Regulatory Authority: Clean Water Act

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-006'G

Unit Name: Hazardous Waste Accumulation Area (3500)

Location of Unit: The storage area is located on a dock on the lower right (southeast) side of Building 3500.

General Dimensions and Capacities: A 10 x 10 ft metal building is located on the southeast side of the dock and is newly designated for storage of hazardous chemicals awaiting waste pickup.

Function of the Unit: This unit has functioned in the past as a receiving dock and a storage site for small quantities of hazardous chemical waste awaiting pickup. No waste storage will remain on the dock. The newly acquired metal building will be utilized solely for chemical waste storage, and the access door at this facility will remain locked.

Date of Operation: The area has been used for approximately 40 years as a receiving dock. Dates of operation for storage of hazardous chemicals is unknown.

Waste Characteristics: Various hazardous chemicals, including discarded laboratory reagents and flammable liquids.

Release Data: A small quantity of nickel chloride was released during August 1986. Rain washed material onto the asphalt, where it remained. The laboratory Shift Supervisor was notified of the incident, which occurred on the weekend. The damaged vessel was contained in a large barrel and picked up for disposal. By Monday there was no remaining chemical residue to clean. Because of the new storage building and its secondary containment features, the potential for future releases is very low.

Regulatory Authority: RCRA/<90 day storage area

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities. This area will be a <90 day storage area. The volume of waste stored is not limited but will only be allowed to accumulate for less than 90 days before transfer to a permitted storage facility.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061I

Unit Name: Waste Oil Storage Area (3550)

Location of Unit: The unit is located on the south side of Building 3550.

General Dimensions and Capacities: The area contains two 55-gal storage drums. The drums are stored on an asphalt paved site that is not diked.

Function of the Unit: This area is used to accumulate used oil. The accumulated oil is stored until the containers are full, when they are removed for disposal.

Date of Operation: Since 1960 until the present.

Waste Characteristics: Waste petroleum oil.

Release Data: There have been no reported releases at this facility. Plans are in process for installation of a concrete diked storage pad with cover.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061'

Unit Name: Waste Oil Storage Area (4500N)

Location of Unit: This area is known as the north elevator dock and is located in the center section of Building 4500N.

General Dimensions and Capacities: Typically one to two 55-gal storage drums are located at this site.

Function of the Unit: Oil drums are stored at the unit awaiting waste disposal pickup.

Date of Operation: The operational history of the site cannot be determined. It is likely, however, that the dock has been used for oil storage for several years.

Waste Characteristics: Petroleum.

Release Data: The drums are stored on a rack with trays or catch pans filled with oil absorbent. In the past it was noted that one drum was delivered with a puncture. This was identified and controlled promptly. This is the only known release.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

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CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061J

Unit Name: Oil Storage Area (4500S)

Location of Unit: This unit is located at the west end of Building 4500S between Buildings 4508 and 4500S.

General Dimensions and Capacities: Typically 4 to 10 storage drums (55-gal capacity) are stored at this unit.

Function of the Unit: Petroleum storage.

Date of Operation: From about 1983 to the present.

Waste Characteristics: Petroleum (new and used).

Release Data: This facility is located on a concrete pad with a ramp. The area was sealed with an absorbent mortar-type mixture. A dike-like installation will be installed in the spring of 1988 to provide additional control. There have been no reported releases at this facility.

Regulatory Authority: Clean Water Act

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061F

Unit Name: Waste Oil Storage Area (4509)

Location of Unit: This area is located near the cooling tower just behind 4500S, south of White Oak Creek.

General Dimensions and Capacities: The area accumulates about one 55-gal drum of oil per year.

Function of the Unit: Waste oil storage prior to pickup and disposal.

Date of Operation: Currently operational. The date that storage began is unknown.

Waste Characteristics: Waste oil.

Release Date: A leak of a small amount of oil occurred in 1986. The oil was transferred to another drum and the contaminants were removed.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0061L

Unit Name: PCB Waste Container Storage Area (6000)

Location of Unit: This unit is located on the south side of Building 6000 near the shop.

General Dimensions and Capacities: The area receives about 250 gal of waste per year.

Function of the Unit: Storage of wastes awaiting pickup.

Date of Operation: Currently operational. The date that storage began is unknown.

Waste Characteristics: Light fixtures, ballasts, capacitors, and PCB-contaminated oil (approximately 50 gal per year); vacuum pump oil (approximately 200 gal per year).

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: NFA

Comment: In order to complete the requirements of II.A.1 of the Hazardous and Solid Waste Amendments (HSWA) Permit, it was necessary to identify areas where waste are accumulated prior to storage in permitted facilities.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-00[illegible]

Unit Name: Waste Evaporator Facility (3506)

Location of Unit: The Waste Evaporator Facility is located at ORNL in Building 3506. ORNL grid coordinates are N 22,000 and E 30,800.

General Dimensions and Capacities: The facility consists of a reinforced concrete cell with underground piping, a valve pit, and an attached wood-framed operating area.

Function of the Unit: The Waste Evaporator Facility was used for concentration and volume reduction of the liquid waste prior to its final disposal in excavated pits and trenches.

Date of Operation: Site commissioned: 1949 Taken out of service: 1954.

Waste Characteristics: The volume and composition of waste handled by the LLLW collection and transfer system has varied along with R&D activities during the operating history of ORNL. No routine effort was made to determine the composition of the waste streams. Most sources generate dilute LLLW at the mCi/gal level, although wastes containing up to 20 Ci/gal were produced in certain operations and diluted to around 0.05 Ci/gal before entering the collection system. It has been estimated that the average activity of LLLW is about 30 mCi/gal. The major radionuclides present are Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes are also present. Wastes are generally nitrate solutions, although acid chlorides or other corrosive wastes were also generated. Wastes were normally neutralized prior to evaporation and tank storage.

Release Data: The structure developed leaks around cell blocks on the roof, and all miscellaneous debris and material were removed and buried. Water from the leaks was pumped from the floor to process drains. These leaks are currently being repaired, and the building is not being used. Contaminated pipe chases and surplus support equipment associated with the previous evaporator operations exhibit dose rates up to 10 mrad/h, with transferable surface contamination of several thousand dpm/100 sq cm. Curie levels of activity remain in the abandoned valve pit on the north side of the cell and the fixed contamination in the cell floor. Estimated exposure rates in these areas are 1-100 R/h. Soil in the vicinity of the site is also contaminated. About 645 sq m (6901 sq ft) of solid radioactive waste and 30 sq m (321 sq ft) of liquid radioactive waste will be generated during the decommissioning of this facility.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: The SWMU was originally listed as surplus facility X01-A010 in original RFA.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0063

Unit Name: Transfer Canal and Dissolver Pit (3505)

Location of Unit: Located on the west side of the Metal Recovery Facility Building (3505). ORNL grid coordinates are N 21,860 and E 30,830.

General Dimensions and Capacities: Transfer canal is about 50-ft long, 6.5-ft wide, and 14-ft deep. Dissolver pit is about 10-ft by 6.5-ft by 10-ft deep.

Function of the Unit: Used to handle fuel elements (slugs) prior to dissolving the fuel element cladding for uranium recovery. Water was used as shielding.

Date of Operation: 1952 - 1960.

Waste Characteristics: Canal wall and water probably slightly contaminated with Sr-90, Cs-137, Co-60 and uranium and plutonium isotopes.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: September 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-00[illegible]A

Unit Name: Active LLLW Collection Tank S-223

Location of Unit: This tank is located in an underground vault adjacent to the northwest corner of Building 3517 (Fission Products Pilot Plant). Approximate ORNL coordinates are N 21,780 and E 30,950.

General Dimensions and Capacities: Tank S-223 is a 2500 gallon, 304L stainless steel tank housed in an epoxy lined concrete vault. A continuously monitored sump is present in the vault.

Function of the Unit: Tank S-223 is designed to collect radioactive low-level waste prior to transfer to the LLLW treatment plant.

Date of Operation: 1955 - Present

Waste Characteristics: LLLW resulting from fission product separations in Building 3517.

Release Data: No leakage from tank reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0064B

Unit Name: Active LLLW Collection Tank S-324

Location of Unit: This tank is located in an underground vault adjacent to the northwest corner of Building 3517 (Fission Products Pilot Plant). Approximate ORNL coordinates are N 21,780 and E 30,950.

General Dimensions and Capacities: Tank S-324 is a 1000 gallon, 304 L stainless steel tank housed in an epoxy lined concrete vault. A continuously monitored sump is present in the vault.

Function of the Unit: Tank S-324 is designed to collect radioactive low-level waste prior to transfer to the LLLW treatment plant.

Date of Operation: 1955 - Present

Waste Characteristics: LLLW resulting from fission product separations in Building 3517.

Release Data: No leakage from tank reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-006-C

Unit Name: Inactive LLLW Collection Tank S-424

Location of Unit: This tank is located in an underground vault adjacent to the northwest corner of Building 3517 (Fission Products Pilot Plant). Approximate ORNL coordinates are N 21,780 and E 30,950.

General Dimensions and Capacities: Tank S-424 is a 500 gallon, glass lined carbon steel tank housed in an epoxy lined concrete vault. A continuously monitored sump is present in the vault.

Function of the Unit: Tank S-424 is designed to collect radioactive low-level waste prior to transfer to the LLLW treatment plant.

Date of Operation: 1955 - Present

Waste Characteristics: LLLW resulting from fission product separations in Building 3517.

Release Data: No leakage from tank reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0064D

Unit Name: Active LLLW Collection Tank S-523

Location of Unit: This tank is located in an underground vault adjacent to the northwest corner of Building 3517 (Fission Products Pilot Plant). Approximate ORNL coordinates are N 21,780 and E 30,950.

General Dimensions and Capacities: Tank S-523 is a 1000 gallon, 304 L stainless steel tank housed in an epoxy lined concrete vault. A continuously monitored sump is present in the vault.

Function of the Unit: Tank S-523 is designed to collect radioactive low-level waste prior to transfer to the LLLW treatment plant.

Date of Operation: 1955 - Present

Waste Characteristics: LLLW resulting from fission product separations in Building 3517.

Release Data: No leakage from tank reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0065A

Unit Name: Active LLLW Collection Tank F-201

Location of Unit: Tank is located in an unlined off-gas pit south of Building 3525. Approximate ORNL grid coordinates are N 21,925 and E 31,238.

General Dimensions and Capacities: Tank F-201 is 50 gallon, stainless steel.

Function of the Unit: Tank F-201 was designed to collect condensate from the Building 3525 off-gas system. Tank is currently used as a surge tank to the LLLW system.

Date of Operation: 1962 - Present

Waste Characteristics: LLLW resulting from operations in Building 3525 (High Radiation Level Examination Laboratory).

Release Data: No reported releases or leaks.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-006°B

Unit Name: Active LLLW Collection Tank F-501

Location of Unit: Tank is located adjacent to the southeast corner of Building 3525. Approximate ORNL coordinates are N 21,890 and E 31,238.

General Dimensions and Capacities: Tank F-501 is constructed of stainless steel and is housed in an unlined concrete vault. The tank volume is 200 gallons; the operating capacity is 150 gallons.

Function of the Unit: Tank F-501 is currently used as surge tank for the liquid low-level waste system between Building 3525 and Tank W-12.

Date of Operation: 1962 - Present

Waste Characteristics: LLLW resulting from operations in Building 3525 (High Radiation Level Examination Laboratory).

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0066

Unit Name: Inactive LLLW Collection Tank W-1 I

Location of Unit: Tank is located under Building 3028. ORNL coordinates are N 22,354 and E 31,555.

General Dimensions and Capacities: Horizontal tank, 4-ft diameter by 5-ft long, stainless steel. Capacity is 500 gallons.

Function of the Unit: Collects LLLW from hot cell in Building 3028 and discharge from tank is pumped to tank WC-10.

Date of Operation: 1959 to present.

Waste Characteristics: No reported chemical or radionuclide analyses.

Release Data: No leaks or releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0067A

Unit Name: Inactive LLLW Collection Tank 4501-C

Location of Unit: Located in basement room BG74 of Building 4501. Approximate ORNL grid coordinates are N 21,980 and E 32,090.

General Dimensions and Capacities: Tank has a capacity of 100 gallons.

Function of the Unit: Used to collect LLLW from cells and laboratories in the High Level Radiochemical Laboratory (4501). Tank 4501-C is not currently in use and has been disconnected from the ancilliary piping.

Date of Operation: Unknown, currently out of service.

Waste Characteristics: No analyses reported for tank contents. Based on building usage it appears that waste was typical of ORNL LLLW (see SWMU X01-0005A). Tank is currently reported to be empty.

Release Data: No leaks or releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0067B

Unit Name: Inactive LLLW Collection Tank 4501-D

Location of Unit: Located in basement room BG74 of Building 4501. Approximate ORNL grid coordinates are N 21,980 and E 32,090.

General Dimensions and Capacities: Tank has a capacity of 100 gallons.

Function of the Unit: Used to collect LLLW from cells and laboratories in the High Level Radiochemical Laboratory (4501). Tank 4501-C is not currently in use and has been disconnected from the ancilliary piping.

Date of Operation: Unknown, currently out of service.

Waste Characteristics: No analyses reported for tank contents. Based on building usage it appears that waste was typical of ORNL LLLW (see SWMU X01-0005A). Tank is currently reported to be empty.

Release Data: No leaks or releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0067C

Unit Name: Inactive LLLW Collection Tank 4501-P

Location of Unit: Tank 4501-P is located under the basement of Building 4501, in Room BG74. The approximate ORNL grid coordinates are N 21,980 and E 32,090.

General Dimensions and Capacities: Tank 4501-P is a cylindrical, single-walled, 140 gallon tank housed approximately 12" underneath the floor of the basement. The tank is constructed of 347 stainless steel with 1/4 inch wall thickness and 3/8 inch head section thickness. The tank's O.D. is 32 inches and it has a height of 42 inches.

Function of the Unit: Tank 4501-P was installed in 1955 to serve the Aqueous Homogeneous Reactor Project as a holding tank for plutonium solutions prior to treatment in the LLLW system. In 1963, the tank was used with the Thorium Utilization Project as a holding tank for thorium solutions. The tank is inactive, it has been out of service for many years. All of the entries to the tank are sealed or valved.

Date of Operation: 1955-?

Waste Characteristics: The tank contains an estimated 7 gallons of liquid. A radiation survey indicates approximately 25 micro-curies of alpha activity per gallon. No analyses of hazardous constituents are available.

Release Data: No leaks or releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0068

Unit Name: Inactive Filter House Seal Tank 3002-A

Location of Unit: Tank 3002-A is located about 20 ft south of Building 3002. ORNL grid coordinates are N 22,715 and E 31,100.

General Dimensions and Capacities: Tank 3002-A is a 2200 gallon, stainless steel tank.

Function of the Unit: Tank 3002-A collects drainage from the 3002 filter house; effluent is transferred to tank WC-19. This tank is no longer in use.

Date of Operation: Unknown (~1948). Tank is no longer in service.

Waste Characteristics: No analyses have been reported for hazardous waste components or radionuclides.

Release Data: No leaks or releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original ORNL tank inventory in 1987.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0069A

Unit Name: Active LLLW Waste Collection Tank N-71

Location of Unit: Tank N-71 is located in Cell VII of Building 3019. The approximate ORNL coordinates are N 22,530 and E 30,970.

General Dimensions and Capacities: Tank N-2 is constructed of 304 ELC stainless steel. Capacity is 240 gallons.

Function of the Unit: Tank N-71 is a waste tank designed to collect radioactive low-level waste (LLLW) prior to transfer to the LLLW treatment system. It is located in a hot cell in Building 3019. It is currently in use, collecting LLLW.

Date of Operation: 1954-present

Waste Characteristics: LLLW resulting from hot cell operations. Chemical and radionuclide analyses have not been reported

Release Data: No releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included on original SWMU list because it was within a building. Tank has been added to the SWMU list because it is now considered a part of the ORNL LLLW system.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0069B

Unit Name: Active LLLW Waste Collection Tank P-3

Location of Unit: Tank P-3 is located in Cell VI of Building 3019. The approximate ORNL coordinates are N 22,530 and E 30,970.

General Dimensions and Capacities: Tank P-3 is constructed of 309 SCB stainless steel. Capacity is 200 gallons.

Function of the Unit: Tank P-3 is a waste tank designed to collect radioactive low-level waste (LLLW) prior to transfer to the LLLW treatment system. It is located in a hot cell in Building 3019. It is currently in use, collecting LLLW waste.

Date of Operation: 1954-present

Waste Characteristics: LLLW resulting from hot cell operations. Chemical and radionuclide analyses have not been reported

Release Data: No releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included on original SWMU list because it was within a building. Tank has been added to the SWMU list because it is now considered a part of the ORNL LLLW system.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0069C

Unit Name: Active LLLW Waste Collection Tank P-4

Location of Unit: Tank P-4 is located in Cell VI of Building 3019. The approximate ORNL coordinates are N 22,530 and E 30,970.

General Dimensions and Capacities: Tank P-4 is constructed of 309 SCB stainless steel. Capacity is 200 gallons.

Function of the Unit: Tank P-4 is a waste tank designed to collect radioactive low-level waste (LLLW) prior to transfer to the LLLW treatment system. It is located in a hot cell in Building 3019. It is currently in use, collecting LLLW waste.

Date of Operation: 1954-present

Waste Characteristics: LLLW resulting from hot cell operations. Chemical and radionuclide analyses have not been reported

Release Data: No releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included on original SWMU list because it was within a building. Tank has been added to the SWMU list because it is now considered a part of the ORNL LLLW system.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0070

Unit Name: Inactive LLLW Collection Tank LA-104 (F-104)

Location of Unit: Tank LA-104 (F-104) is located under the floor at the west end of Building 3047. Approximated ORNL grid coordinates are N 22,733 and E 31,232.

General Dimensions and Capacities: The tank has a capacity of 296 gal (1120 L). Tank is stainless steel and is located in a concrete vault.

Function of the Unit: Collect LLLW from operations in Building 3047. Tank discharges to WC-10.

Date of Operation: Unknown.

Waste Characteristics: LLLW resulting from hot cell operations. Chemical and radionuclide analyses have not been reported.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA: Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: September 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0071

Unit Name: Inactive LLLW Tank H-209

Location of Unit: Tank is located at the southwest corner of the Fission Product Development Laboratory (3517). Approximate ORNL grid coordinates are N 21,693 and E 30,916.

General Dimensions and Capacities: Tank is reported to be a horizontal 2500 gallon unit.

Function of the Unit: Used to collect condensate and contaminated process waste from the floor drains in Building 3517.

Date of Operation: 1961-?.

Waste Characteristics: Unknown.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0072

Unit Name: Inactive LLLW Collection Tank 3001-A

Location of Unit: West of Building 3001. Approximate ORNL grid coordinates are N 22,530 and E 31,120.

General Dimensions and Capacities: Tank is above ground, square, steel, approximately 5 ft 10 in on a side. Estimated capacity is 1500 gal. Reported to be half full.

Function of the Unit: This tank is a borates water storage tank that was used to supply a shield tank mounted high on the side of the graphite reactor. The shield tank was used for attenuation experiments, and water could be pumped to it from 3001-A as needed. Steam coils were used to keep the boron in solution, particularly in the winter.

Date of Operation: 1949 - 1965.

Waste Characteristics: Unknown, but the waste is not suspected to be contaminated with radioactive materials. There may be boron containing sludge in the tank.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original ORNL tank inventory in 1987.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0073

Unit Name: Inactive LLLW Collection Tank 3001-B

Location of Unit: Tank 3001-B is located south of the Graphite Reactor Building (3001). ORNL grid coordinates are N 22,494 and E 31,161.

General Dimensions and Capacities: Stainless steel tank. Capacity not known, but estimated to be from 50 to 500 gal.

Function of the Unit: This tank is thought to have been a hold up tank for the hot lab drains in Building 3001. This hot lab handled mostly irradiated samples, and any radioactive waste from it has probably decayed to very low levels.

Date of Operation: 1943 - 1965.

Waste Characteristics: Unknown.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original ORNL tank inventory in 1987.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-007.4

Unit Name: Inactive LLLW Collection Tank 3003-A

Location of Unit: Tank 3003-A is located about 15 ft south of Building 3003. Approximate ORNL grid coordinates are N 22,723 and E 31,232.

General Dimensions and Capacities: Tank is 11 ft OD with 2-ft thick walls and is 21-ft tall. Material of construction is concrete. Capacity is 16,000 gal.

Function of the Unit: Collects waste from floor drains in cells in Building 3003 (Fan House for Graphite Reactor), and from the Graphite Reactor Stack.

Date of Operation: 1943 - 1965.

Waste Characteristics: Unknown.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original ORNL tank inventory in 1987.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0075

Unit Name: Inactive LLLW Collection Tank 3004-B

Location of Unit: Tank is located east of Building 3008 (Source and Special Materials Vault). Approximate ORNL grid coordinates are N 22,662 and E 31,320.

General Dimensions and Capacities: Tank is a vertical, cylindrical, 347 stainless steel tank. Diameter is 30" and height is 3-ft, with dished heads. Located in underground concrete pit.

Function of the Unit: Tank 3004-B is called the Low Intensity Test Reactor (LITR) Hot Waste Holdup Tank. It appears that this tank, similar to the other hold-up tanks, could be emptied to the process water system or the LLLW system, depending on the contamination level of the water.

Date of Operation: 1956 - ?.

Waste Characteristics: Unknown.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original ORNL tank inventory in 1987.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-007t

Unit Name: Inactive LLLW Collection Tank 3013

Location of Unit: Tank 3013 is located south of Building 3013 (now Biological Disposal Laboratory, but formerly called the Source Building). Approximate ORNL grid coordinates are N 22,750 and E 31,010.

General Dimensions and Capacities: Tank is 3.5 ft diameter by 5.5 ft high. Tank is 304 stainless steel. Capacity is 350 gal.

Function of the Unit: This tank is connected to the drains in Building 3013. Building 3013 was originally an environmental processing lab that dealt with very low level contaminated environmental samples. It was later a source storage building that held sealed sources, which should not have led to contaminated discharges.

Date of Operation: 1946 - ?.

Waste Characteristics: Unknown.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original ORNL tank inventory in 1987.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0077

Unit Name: Active LLLW Collection Tank L-11

Location of Unit: Tank L-11 is located within the Process Waste Treatment Plant (3544). Approximate ORNL grid coordinates are N 21,320 and E 30,830.

General Dimensions and Capacities: Tank capacity is 400 gal.

Function of the Unit: Tank is designed to collect evaporator bottoms from regeneration of ion exchangers.

Date of Operation: 1976 - present.

Waste Characteristics: Waste nitric acid from regeneration of ion exchangers plus radionuclides removed from the process waste stream. Major radionuclides are Sr-90 and Cs-137.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0078

Unit Name: Inactive LLLW Collection Tank T-30

Location of Unit: Tank T-30 is located near the southwest corner of Building 4507. Approximate ORNL grid coordinates are N 21,760 and E 32,100.

General Dimensions and Capacities: Tank has a reported capacity of 824 gal. Tank is reported to contain 40-gal of LLLW.

Function of the Unit: Collect LLLW from hot cell operations in the High Radiation Level Chemical Development Laboratory (4507).

Date of Operation: 1945 - ?.

Waste Characteristics: LLLW from hot cell operations. Sampling of liquid contents indicate that liquid phase is not a RCRA waste. No sludge is reported in the tank.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-0079

Unit Name: 3001 Storage Canal

Location of Unit: Canal connects the Graphite Reactor (3001) with the Radiochemical Processing Pilot Plant (3019). Approximate ORNL grid coordinates are N 22,510 and E 31,120.

General Dimensions and Capacities: The canal is 7.0 ft (2.1 m) wide, 11.5 ft (3.5 m) deep, and 101.0 ft (31.0 m) long. The canal is covered with a concrete structure and soil. Water capacity of canal is 62,000 gal (235,000 L).

Function of the Unit: The 3001 Storage Canal connected the fuel discharge pit to the adjoining chemical-processing building (3019). It is currently used for storage of radioisotopes but was originally used for storage and handling of irradiated fuel and radioisotope targets.

Date of Operation: 1943 - present.

Waste Characteristics: Canal wastes may be contaminated with radionuclides and RCRA heavy metals released from ruptured fuel slugs. Activity levels should be low with Sr-90 and Co-60 as main constituents.

Release Data: The canal has bare concrete walls that have absorbed long-lived fission products and Co-60, and probably TRU. Results of radiation surveys were reported in 1984.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In March 1990 a leak of 428 gal/day was discovered in the canal. Sources present in the canal are currently being removed for storage elsewhere. Preliminary testing indicates that water in canal does not exceed TCLP limits. However, the sludge may exceed the TCLP limits for lead and cadmium.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A001A

Unit Name: Graphite Reactor Building 3001

Location of Unit: The Graphite Reactor is located in Building 3001 at the ORNL complex in Bethel Valley. Building 3001 is just north of Hillside Avenue between Third and Fifth streets. ORNL grid coordinates are N 22,570 and E 31,190.

General Dimensions and Capacities: Building 3001 is a five-story corrugated metal structure. The reactor was originally designed for a 1-MW power level, but in 1944 improvements in the cooling system and fuel cladding allowed the power level to be increased to an average rate of 3.6 MW.

Function of the Unit: The Graphite Reactor was built to produce the first gram-size quantities of plutonium to provide information for the construction of the large plutonium production reactors located at Hanford, Washington. It was later converted to a training reactor. In 1966, the fuel was removed from the reactor.

Date of Operation: Date commissioned: 1943. Taken out of service: 1963.

Waste Characteristics: The reactor is reported to contain 16 Ci of C-14, 5000 uCi (80 mg) of Pu-239, 200 uCi (< 0.5 kg) of uranium oxide, and lesser radiation sources. Gamma spectroscopy indicates the presence of Cs-137 and Co-60. An order-of-magnitude of less than 10 Ci of each is estimated. Thus, the radionuclide inventory in the reactor probably totals less than 50 Ci. The demineralization room, or hot cell, was checked, and Cs-137 and Co-60 were detected in the gamma spectrum. Five percent of the alpha readings (only one reading) were above the ORNL guidelines for establishing a contamination zone. The beta-gamma contamination levels ranged from less than 500 dpm/100 sq cm to 1670 dpm/100 sq cm, with an average of approximately 500 dpm/100 sq cm. The only alpha contamination measured 32 dpm/100 sq cm.

Release Data: No releases reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A001B

Unit Name: Fan House 3003

Location of Unit: The Fan House is located north of the Graphite Reactor (Building 3001). ORNL grid coordinates are N 22,765 and E 31,225.

General Dimensions and Capacities: Building is 53 ft wide by 88 ft long by 18 ft high.

Function of the Unit: Originally contained the fans (3) that were used to exhaust air from the Graphite Reactor to the stack (3010). At present, only one small auxiliary blower remains in service to exhaust air from the shutdown reactor.

Date of Operation: 1943 - present.

Waste Characteristics: Gaseous waste. Building probably is contaminated in certain areas.

Release Data: No releases have been reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: Building was initially considered a part of site X01-A001A but has been separated from the Graphite Reactor Facility.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A001

Unit Name: Filter House 3002

Location of Unit: Filter House (3002) is located northwest of Building 3001. ORNL grid coordinates are N 22,765 and E 31,110.

General Dimensions and Capacities: Filter House has dimensions of 53-ft by 69.5-ft by 27 ft high.

Function of the Unit: Located between the Graphite Reactor outlet air duct and the Fan House (3003). Function was to halt the release of radioactive particulates (from the stack, 3010) caused by fuel cladding failure.

Date of Operation: 1948 - present.

Waste Characteristics: Gaseous waste. Interior of building is probably contaminated with Sr-90, Cs-137, and uranium.

Release Data: No reported releases from building.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: Building was initially considered a part of site 1A.1a but has been separated from the Graphite Reactor Facility.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A00'D

Unit Name: Stack (3010)

Location of Unit: Stack 3010 is located at the southwest corner of the Fan House (3003). ORNL grid coordinates are N 22,740 and E 31,170.

General Dimensions and Capacities: The 200-ft stack is made of concrete, heavily reinforced with steel. The bottom 20 ft of the stack is 12 ft 8 in. OD and has a 24 in. thick wall. On this base rests a tapered stack which is 10 ft 8 in. OD with a 12 in. wall at the bottom, tapering to 6 ft 9 in. OD with a 6 in. thick wall at the top.

Function of the Unit: Used to release filtered air from the air-cooled Graphite Reactor.

Date of Operation: 1943 - present.

Waste Characteristics: Gaseous waste. Stack is probably contaminated on the inside with fission products.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A001E

Unit Name: Underground Exhaust Ducts 3001-3003

Location of Unit: ORNL grid coordinates vary. Duct is mainly north of Building 3001.

General Dimensions and Capacities: Not applicable.

Function of the Unit: The underground duct system transmits the Graphite Reactor cooling air fr the reactor (3001) to the Filter House (3002), the Fan House (3003), and then to the stack (301

Date of Operation: 1943 - present. Duct changes were made in 1948 when Filter House was add to the cooling system.

Waste Characteristics: Unknown, duct walls are probably contaminated with fission products. Bo alpha and beta-gamma contamination has been reported on the duct walls.

Release Date: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of informatio on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A002A

Unit Name: Low Intensity Test Reactor (LITR) -- (3005)

Location of Unit: The LITR is located in the northern portion of the main ORNL complex in Building 3005. ORNL grid coordinates are N 22,730 and E 31,400.

General Dimensions and Capacities: The LITR began operation as a 500-kW reactor but was converted and reached a final power level of 3000 kW.

Function of the Unit: The LITR began operation as a training reactor and was later converted to a test reactor. After shutdown in 1968, all fuel and shim safety rods were removed from the reactor tank, water was drained, and connections were made to exhaust continuously to the normal off-gas system.

Date of Operation: Date commissioned: March 1951. Taken out of service: October 1968.

Waste Characteristics: Interior surfaces of the reactor tank and primary water piping system are contaminated with radioactive corrosion products and fission products. It has been estimated that the reactor core contains between 6 and 45 Ci of Co-60, less than 50 Ci of Ni-63, and less than 10 Ci of Fe-55, which are all activation products. It was also estimated that the core might give a reading of about 200-300 rad/h. The core still contains beryllium reflector elements.

Release Data: No releases reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A002[illegible]

Unit Name: Heat Exchangers (3077)

Location of Unit: Heat exchangers are located north of the LITR (3005). ORNL grid coordinates are N 22,855 and E 31,390.

General Dimensions and Capacities: Not applicable.

Function of the Unit: Reject heat from the cooling water from the LITR.

Date of Operation: 1951-1968.

Waste Characteristics: Water containing traces of neutron activation of reactor cooling water. Only very slight amounts of contamination (Co-60, Ni-63, Fe-55) are indicated on the interiors of the LITR heat exchanger and on pipes in the upper levels of Building 3005.

Release Data: No releases reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A003

Unit Name: Oak Ridge Research Reactor (3042)

Location of Unit: The Oak Ridge Research Reactor (ORR) is located just north of Hillside Avenue between Third and Fifth streets. ORNL grid coordinates are N 22,570 and E 31,400. All of the experimental facilities are housed in the reactor building except for some equipment associated with the Maritime Ship Reactor Loop that is buried underground outside Building 3042 and a portion of the pneumatic tube facility that runs between Building 3042 and Building 3001.

General Dimensions and Capacities: The ORR is a 30-kW pool-type research reactor housing several experimental facilities.

Function of the Unit: Several experimental facilities have been installed in the ORR for testing of various materials, analysis of liquid and gaseous coolant systems, and transfer of irradiated samples.

Date of Operation: Site commissioned: 1959. Reactor shut down 1989.

Waste Characteristics: The ORR produced activation products in the primary coolant water. It does not produce waste during normal operations.

Release Data: The only reported releases were due to a break in the primary water line (see SWMU X01-0005L) and some leakage caused by the rupture of the decay tank (see SWMU X01-0009).

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A004

Unit Name: Cobalt-60 Storage Garden (3029)

Location of Unit: The Cobalt-60 Storage Garden is located in Building 3029 between Central and Hillside avenues and between Fourth Street and Fifth Street. ORNL coordinates are N 22,290 and E 31,530.

General Dimensions and Capacities: This 19.6-sq-ft (1.8-sq-m) subterranean area [8.5 ft (2.6 m) deep] is made of 92 stationary stainless steel tubes surrounding a 1-sq-ft (0.09-sq-m) by 6.8-ft-long (2.1-m) irradiator plug. Each tube is plugged at the top with a lead-filled stainless steel tube. The Co-60 storage cans located at the bottom of the tubes, which terminate about 1 ft above the floor of the facility, surround an irradiation chamber. This chamber is shielded at the bottom with 10.6 cubic ft (0.03 cubic m) of lead. The entire facility is shielded with 22 in. (56 cm) of lead bricks plus 22 in. of barytes concrete. This facility is capable of gamma irradiation doses of up to 1.5 x 10(E+6) rad/h.

Function of the Unit: The Storage Garden is a radioisotope storage facility.

Date of Operation: Site commissioned: late 1950s. Site is still operable but not in use.

Waste Characteristics: The Garden currently has an inventory of about 50,000 Ci of metallic form Co-60. The Garden does not produce waste.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A005

Unit Name: Fission Product Development Laboratory (FPDL) – (3517)

Location of Unit: The FPDL is located in Building 3517 at ORNL. ORNL coordinates are N 21,730 and E 31,000.

General Dimensions and Capacities: The FPDL consists of 23 large-volume, stainless steel lined, concrete-shielded hot cells with associated manipulator galleries and operating areas.

Function of the Unit: The FPDL was constructed to separate kilocurie quantities of Cs-137, Sr-90, Ce-144, and Pm-147. It was modified in 1963 to allow production of megacurie amounts of Cs-137, Sr-90, and Ce-144.

Date of Operation: Site commissioned: 1958. Site placed in standby condition: 1975.

Waste Characteristics: Primary wastes are Sr-90 and Cs-137.

Release Data: The inactive process cells contain an array of contaminated tanks, piping, samplers, services, and instrumentation with background radiation levels ranging 1-100 rad/h, with isolated hot spots of 100-1000 rad/h. During decontamination, which is still continuing, an estimated 8013 cubic ft (227 cubic m) of solid LLLW waste and 9354 cubic ft (265 cubic m) of liquid waste will be generated. Approximately half of this waste has already been disposed of.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A005

Unit Name: Fission Product Pilot Plant (3515)

Location of Unit: The Fission Product Pilot Plant (FPPP) is located at ORNL on the east side of the South Tank Farm in Building 3515. ORNL coordinates are N 21,960 and E 31,030.

General Dimensions and Capacities: Formally known as the Ru-106 tank arrangement, the facility consisted of a concrete pad with tanks surrounded by stacks of concrete blocks. The present facility consists primarily of an unlined concrete-shielded cell, approximately 19.7 x 9.9 x 7.9 ft (6.0 x 3.0 x 2.4 m high), with an adjacent shielded operating area.

Function of the Unit: From 1950-1951, the facility functioned as a hot cell facility. It was then used to separate curie quantities of various radionuclides from low-level liquid wastes.

Date of Operation: Site commissioned: 1948. Taken out of service: 1958.

Waste Characteristics: Specific waste information is not available.

Release Data: The current residual radionuclide inventory is believed to be in the range of 10 to 100 Ci, although no recent survey information is available due to lack of direct access. About 3313 cubic ft (92.7 cubic m) of solid radioactive waste and 7063 cubic ft (200 cubic m) of liquid radioactive waste will be generated during decommissioning of this facility.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: A release was discovered from the inside of the facility in 1988. The exterior of the facility was cleaned and repainted, a roof cover installed, and the ground immediately to the east was covered with Hypalon and gravel and placarded as a contamination area. No estimate of radionuclides released is available.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A007

Unit Name: Metal Recovery Facility (3505)

Location of Unit: The Metal Recovery Facility is located at ORNL in Building 3505. ORNL grid coordinates are N 21,840 and E 31,910.

General Dimensions and Capacities: The Metal Recovery Facility consists of Building 3505, an adjacent below-grade canal, and two waste tanks buried nearby. The building is a one-story steel siding structure constructed around seven above-grade concrete process cells and a below-grade dissolver pit. The canal is a 14-ft-deep (4.3-m-deep) concrete basin that was once water-filled and used for storing and handling fuel slugs. The two waste tanks [32,190 gal (8516 L) capacities] are located below grade approximately 45 ft (15 m) east of the building.

Function of the Unit: The Metal Recovery Facility was a small-scale reprocessing plant originally constructed for the recovery of uranium from fuel and waste solutions. The facility was later found to be useful for recovering U, Pu, Am, and other miscellaneous materials from a variety of low-burnup reactor fuels and other feed materials.

Date of Operation: Site constructed: 1951. Site commissioned: 1952. Taken out of service: 1960.

Waste Characteristics: Primary wastes are Sr-90, Cs-137, Pu-238, Pu-239, and Pu-240.

Release Data: Abandoned contaminated process equipment (located in the process cells, the dissolver pit, and the canal) exhibited significant levels of alpha and beta-gamma contamination. Isolated spots in almost every cell exceed 500,000 dpm/100 sq cm, and direct alpha and beta-gamma dose rates in one cell exceed 400 mrad/h. Samples from the cell walls and floors indicate the presence of significant transuranic contamination. Dose rates in the canal which is now filled with gravel, range from 1 to 100 rad/h, and the dissolver pit walls are also heavily contaminated with alpha and beta-gamma emitters. The buried waste tanks are known to be internally contaminated. Radionuclide inventories of the Metal Recovery Facility are estimated at 10 Ci of Sr-90 and Cs-137 and 1 Ci of Pu-238, Pu-239, and Pu-240. Approximately 13,414 cubic ft (380 cubic m) of liquid radioactive waste and 11,654 cubic ft (330 cubic m) of solid radioactive waste is expected to be generated during decontamination of this facility. All of the contaminated process equipment has been removed from the facility comprising most of the solid waste. Decontamination media and residual solid waste will be generated in later phases of decontamination.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A008

Unit Name: Storage Garden (3033)

Location of Unit: This storage area is located just north of Building 3033 at ORNL. ORNL grid coordinates are N 22,660 and E 31,670.

General Dimensions and Capacities: The storage area consisted of seven buried stainless steel cylinders (or wells) about 1 ft (0.3 m) in diameter and 5 ft (1.5 m) long, set in concrete with about 0.25 in. (6.3 mm) extending above ground level.

Function of the Unit: Sealed radioactive sources, miscellaneous contaminated items, and irradiated targets prior to processing were stored in this location.

Date of Operation: Site commissioned: 1956. Taken out of service: 1975. Site decommissioned in 1990.

Waste Characteristics: No information about the specific wastes is available.

Release Data: No stored radioactive materials or radiation sources remain in any of the seven wells. Beta-gamma dose rates on the interior of the steel wells range from < 0.1 to 40 mrad/h, with measured transferable contamination levels from < 200 to 9400 dpm/100 sq cm. About 71 cubic ft (2.0 cubic m) of solid waste will be generated during decontamination of the facility.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: The storage garden wells were exhumed in 1990. The site was backfilled with clean material and capped with concrete to match the surroundings. Prior to exhumation, the wells were leak tested and determined to be leak-tight.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A009

Unit Name: Strontium-90 Power Generators (3028)

Location of Unit: Four Sr-90 thermoelectric generators identified as Sentry, SNAP-7B, SNAP-7C, and SNAP-7D are stored at ORNL. All four generators are stored outdoors in a staging area west of Building 3028.

General Dimensions and Capacities: Each unit consists of one or more welded strontium titanate sources inside a shielded thermoelectric device.

Function of the Unit: The unit is designed for storage.

Date of Operation: Early 1960s.

Waste Characteristics: Primary waste is Sr-90. The Sr-90 is contained in sealed thermoelectric generators.

Release Data: The current Sr-90 inventories of these generators are Sentry, 8895 Ci; SNAP-7B, 119,480 Ci; SNAP-7C, 20,260 Ci; and SNAP-7D, 117,470 Ci.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A011

Unit Name: Ceramic Processing Laboratory (4508)

Location of Unit: This facility was located in the Room 139 complex of Building 4508 of the main ORNL complex. ORNL grid coordinates are N 21,580 and E 32,030.

General Dimensions and Capacities: No information.

Function of the Unit: No information.

Date of Operation: 1960 to present.

Waste Characteristics: The inventory at this site was estimated at less than 1.0 Ci (composed of Th-232, U-232, and U-233) and < 1.0 kg due to polynuclear aromatic hydrocarbons.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: The laboratory was decontaminated and made available for reuse in 1985.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A012

Unit Name: High-Level Chemical Development Laboratory (4507)

Location of Unit: This facility is located in Building 4507 of the main ORNL complex. ORNL grid coordinates are N 21,800 and E 32,135.

General Dimensions and Capacities: This facility contains four hot cells and associated equipment for handling highly irradiated alpha-beta-gamma sources on the ground level and a chemical make-up area on the second level. The building is also equipped with a penthouse superstructure above the hot cells that contains glove boxes, a shielded manipulator cave for small-scale work, and a gantry crane for handling shielded casks.

Function of the Unit: This laboratory was constructed to be used as a small-scale pilot plant laboratory for conducting research on reactor fuel reprocessing. The facilities in Building 4507 have been used in development studies on fuels, separation and recovery of transuranic isotopes, and separation of fission products during the 1960s and 1970s.

Date of Operation: Date constructed: 1957. Taken out of service: 1980.

Waste Characteristics: The inventory of transuranium radionuclides at this site has been estimated to be less than 1000 Ci.

Release Data: Research activities were terminated in 1980, and the building was subsequently placed in its present mothballed condition.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A013

Unit Name: Remote Coating Furnace Loop (4508)

Location of Unit: This facility and associated support equipment is located in room 265A of Building 4508 of the main ORNL complex. ORNL grid coordinates are N 21,580 and E 32,030.

General Dimensions and Capacities: Equipment associated with this facility, with the exception of the controls and instruments, is contained in a transparent plexiglass enclosure of approximately 19 sq ft (1.8 sq m).

Function of the Unit: The Remote Coating Furnace Loop was used to prepare coated-particle fuels for the High Temperature Gas-Cooled Reactor fuel refabrication cycle.

Date of Operation: Site commissioned: 1960s. Taken out of service: 1980.

Waste Characteristics: Primary wastes are U-238 and Th-232.

Release Data: The maximum transferable contamination levels within the enclosure are less than 5000 dpm/100 sq cm alpha, and the maximum background levels are less than 10 mR/h. Radiation measurements within the furnace loop were less than 600 dpm/100 sq cm alpha. Standard decontamination procedures should be sufficient for handling the coating equipment.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A014

Unit Name: Transuranium Research Laboratory 45 (5505)

Location of Unit: This facility is located in Room 45 of Building 5505 at ORNL. ORNL grid coordinates are N 21,320 and E 33,280.

General Dimensions and Capacities: Building 5505 contains 16 laboratories; Room 45 is about 24 x 48 ft (7 x 15 m) and contained 13 surplus glove boxes.

Function of the Unit: Room 45 was used to provide a central holding area for radionuclides and to provide additional security and accountability for special materials.

Date of Operation: Site commissioned: 1967. Site is still in use as equipment storage area.

Waste Characteristics: Transuranic waste is the principal waste.

Release Data: Equipment formerly contained within this room was relatively free of external transferable contamination; however, most of the surplus equipment contained significant levels of radioactivity internally. The 13 portable glove boxes in Room 45 had no external transferable contamination greater than 20 dpm/100 sq cm alpha or 200 dpm/100 sq cm. Maximum radioactivity of approximately 4 mR/h was measured at the glove boxes. Alpha contamination within the glove boxes varied considerably, with levels ranging from 1000 dpm/100 sq cm to an approximate maximum of 1,000,000 dpm/100 sq cm. Environmental risks are minimal because of the inherent ventilation-filtration system in Building 5505 and glove boxes being operated at a greater negative pressure than the surrounding laboratories.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: The gloveboxes were removed and disposed from room 45 in 1989. This area is now used for other purposes.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A015

Unit Name: High Level Radiochemical Analytical Laboratory (3019B)

Location of Unit: The analytical facility is located at the intersection of Third Street and Hillside Avenue. ORNL grid coordinates are N 22,550 and E 30,800.

General Dimensions and Capacities: The facility measures approximately 36 by 64 ft (11 by 19.5 m) and contains seven manipulator-equipped hot cells and a centrally located storage cell.

Function of the Unit: The facility was used to perform chemical analyses on highly radioactive materials in support of ongoing ORNL program. The hot cells contained sampling, handling, preparation, and analytical equipment to conduct a wide variety of chemical analyses.

Date of Operation: Site was in operation from 1955 to 1980.

Waste Characteristics: The hot cells contain residual contamination of radionuclides from past operation, including Sr-90, Cs-137, and TRU materials. No accurate estimate of Ci content is currently available.

Release Data: No reported leaks or releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No new information has been developed since the original data sheet was prepared.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A016

Unit Name: Oak Ridge Research Reactor Heat Exchanger (3087)

Location of Unit: The heat exchangers are located southwest of the intersection of Northside Drive and First Street. ORNL grid coordinates are N 23,000 and E 31,660.

General Dimensions and Capacities: The facility consists of seven water-to-air heat exchangers measuring 20 by 20 ft (6 by 6 m) each. The exchangers are located adjacent to each other above a concrete pad measuring 25 by 180 ft (7.6 by 55 m).

Function of the Unit: The units formerly provided the primary cooling for the Oak Ridge Research Reactor prior to being replaced by a cooling tower.

Date of Operation: Site was in operation from 1959 to 1961.

Waste Characteristics: The heat exchangers' tubes are internally contaminated with Cs-137, Co-60, Cr-51, and Ce-144. No accurate estimate of Cl content is currently available.

Release Data: No reported leaks or releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 1.0

WAG Name: Main Plant Area

Unit ID Number: X01-A017

Unit Name: Off-Gas Filter House (3121)

Location of Unit: Filter House (3121) is located southeast of Building 3019. ORNL grid coordinates are N 22,470 and E 31,070.

General Dimensions and Capacities:

Function of the Unit: Used to filter exhaust air from hot cells in Building 3019 prior to release.

Date of Operation: 1966 - 1986.

Waste Characteristics: Gas probably contained volatile fission product from hot cell fuel reprocessing operations.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 2.0

WAG Name: White Oak Creek/White Oak Lake

Unit ID Number: X02-0001

Unit Name: White Oak Lake and Embayment (7846)

Location of Unit: This site is located upstream and downstream of White Oak Dam, south of the ORNL main complex, and near Clinch River Mile 20.8 (CRK 33.5). The Dam was built about 0.6 mile (1.0 km) upstream from where White Oak Creek empties into the Clinch River. ORNL grid coordinates of the White Oak Dam are N 15,330 and E 23,360.

General Dimensions and Capacities: The lake forms a body of water about 20 acres (8 ha) in area. Estimated volume in 1979 was 4,589,000 cubic ft (130,000 cubic m).

Function of the Unit: The site is a surface impoundment for radioactive and other hazardous wastes that drain from ORNL via the White Oak Creek Watershed. It serves as a final settling basin for waste released from ORNL operations and waste storage areas.

Date of Operation: Site commissioned: 1943. Site is still operating (after being drained in 1954).

Waste Characteristics: Main radioactive contaminants are Sr-90, Cs-137, Th, U, and TRU. No accurate estimates exist for the inventory of hazardous chemicals in the lake; however, preliminary scoping surveys have shown contamination by Cd and Cr in stream gravels. The average 1985 concentrations of radionuclides in the water discharged at White Oak Dam were Co-60, 63 x 10(E-9) uCi/mL; Cs-137, 42 x 10(E-9) uCi/mL; Sr-90, 300 x 10(E-9) uCi/mL; and H-3, 350 x 10(E-6) uCi/mL. The lake bed contains an estimated sediment volume of 1.3 x 10(E+5) cubic m of sediment, with estimated activities of Cs-137, 591 Ci; Co-60, 33 Ci; and Sr-90, 20 Ci.

Release Data: Total curie discharge from WOD in 1985 was Sr-90 (3.0 Ci), Cs-137 (0.42 Ci), Co-60 (0.62 Ci), and H-3 (3700 Ci).

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In response to a condition of the National Pollutant Discharge Elimination System (NPDES) permit issued to Oak Ridge National Laboratory (ORNL) on April 1, 1986, a Biological Monitoring and Abatement Program (BMAP) was developed for White Oak Creek (WOC); selected tributaries of WOC, including Fifth Creek, First Creek, Melton Branch, and Northwest Tributary; and the Clinch River (Loar et al. 1986). The BMAP currently consists of six major tasks that address both radiological and nonradiological contaminants in the aquatic and terrestrial environs onsite and the aquatic environs offsite. These tasks are: (1) toxicity monitoring, (2) bioaccumulation monitoring of nonradiological contaminants in aquatic biota, (3) biological indicator studies, (4) instream ecological monitoring, (5) assessment of contaminants in the terrestrial environment, and (6) radioecology of WOC and White Oak Lake (WOL). To date four annual reports have been issued describing the findings of the BMAP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 2.0

WAG Name: White Oak Creek/White Oak Lake

Unit ID Number: X02-0002

Unit Name: White Oak Creek and Tributaries (0853)

Location of Unit: The site is located in Melton and Bethel valleys, and provides drainage for the ORNL installation. The creek flows into the Clinch River about 1.5 miles (2.4 km) north of the junction of Interstate 40 and State Highway 95.

General Dimensions and Capacities: This system drains an area of 3830 acres (1550 ha).

Function of the Unit: The creek drains the ORNL installation. Treated sewage and process wastes are released to the creek after treatment. LLLW after treatment in the PWTP is also discharged to the creek.

Date of Operation: The creek and its tributaries have been used for waste disposal purposes since ORNL was opened.

Waste Characteristics: Main contaminants are Sr-90, Co-60, Cs-137, H-3, and metals (Hg, Zn, and Cr). Hazardous chemicals, including PCBs, may also be present in the stream sediments. The estimated inventory is Sr-90 (>5.0 Ci), Cs-137 (>100.0 Ci), Pu-239 (0.5 Ci).

Release Data: See SWMU X02-0001.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In response to a condition of the National Pollutant Discharge Elimination System (NPDES) permit issued to Oak Ridge National Laboratory (ORNL) on April 1, 1986, a Biological Monitoring and Abatement Program (BMAP) was developed for White Oak Creek (WOC); selected tributaries of WOC, including Fifth Creek, First Creek, Melton Branch, and Northwest Tributary; and the Clinch River (Loar et al. 1986). The BMAP currently consists of six major tasks that address both radiological and nonradiological contaminants in the aquatic and terrestrial environs onsite and the aquatic environs offsite. These tasks are: (1) toxicity monitoring, (2) bioaccumulation monitoring of nonradiological contaminants in aquatic biota, (3) biological indicator studies, (4) instream ecological monitoring, (5) assessment of contaminants in the terrestrial environment, and (6) radioecology of WOC and White Oak Lake (WOL). To date four annual reports have been issued describing the findings of the BMAP.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 3.0

WAG Name: Solid Waste Storage Area (SWSA) 3

Unit ID Number: X03-0001

Unit Name: SWSA 3 (1001)

Location of Unit: SWSA 3 is located in Bethel Valley in a fenced area at the foot of Haw Ridge about 0.6 mile (1.0 km) west of the ORNL complex. ORNL grid coordinates are N 21,760 and E 26,200.

General Dimensions and Capacities: Approximate total area is 7 acres (2.8 ha). It is estimated that 44,000 to 56,000 Ci of radioactive waste was buried in SWSA 3. It is estimated that 600,000 cu ft of LLW was buried.

Function of the Unit: The site was used as a landfill for the storage of low-level solid radioactive waste. The site was also used to store scrap metal. (See X03-0002)

Date of Operation: Site commissioned: 1946. Taken out of service: 1951.

Waste Characteristics: Little is known about the kinds of wastes stored at this site. Large items were stored aboveground within the fenced-in area. Alpha wastes contained in drums were deposited in concrete-lined trenches and covered with concrete. Beta-gamma wastes were buried in unlined trenches and backfilled with soil.

Release Data: In 1964, well water samples were analyzed and indicated the presence of small amounts of trivalent rare earths (TRE), Sr-90, and H-3. Well water samples collected in 1973 indicated Sr-90 levels up to 3.0 dpm/mL. Soil samples analyzed in 1978 indicated levels higher than natural background. Geologic and hydrologic factors of this area favor a complex pattern of radionuclide movement. Fractures and solution cavities of the limestone represent potential pathways for groundwater movement and radionuclide migration. A connection from SWSA 3 to Raccoon Creek has also been demonstrated and is thought to represent a solution channel that allows rapid transmission of water during storms. The quantities of radionuclides transported are small.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Solid Waste Storage Area 3 (SWSA 3) was surveyed to determine the level and extent of surface radiological contamination. Inside the fence, gamma exposure rates above background levels were identified at 98 areas totaling ~800 m2. Of most immediate concern was a 38-m2 area by the south fence that had gamma exposure rates of 1 mR/h at 1 m above the ground surface and 10 mR/h at the surface. Beta activity was detected in the leaves of several small saplings growing in this area, and some spillover of contaminated leaves outside the fence was evident. Other elevated areas inside the fence ranged from 17 uR/h to 1400 uR/h, except for seven scattered spots that had readings of 2 or 3 mR/h. No contamination was found outside the fence on the west, south, and east sides. Three areas of contamination ranging from 17 to 340 uR/h were defined outside the fence on the north side.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 3.0

WAG Name: Solid Waste Storage Area (SWSA) 3

Unit ID Number: X03-0002

Unit Name: Closed Scrap Metal Area (1562)

Location of Unit: A triangle-shaped section (approximately 4 acres [1.6 ha]) is situated south of a portion of the fenced area of SWSA 3 and is called the Scrap Metal Area. ORNL grid coordinates are N 21,270 and E 26,290.

General Dimensions and Capacities: The area covers about 4 acres (1.6 ha).

Function of the Unit: The purpose of the site was to serve as a storage site for contaminated metal. Most of the scrap has now been buried in other SWSAs (1984), and the area is posted.

Date of Operation: Site commissioned: 1951. Site inactive: 1976.

Waste Characteristics: Some contaminated tanks and equipment are still stored aboveground. Tanks may be contaminated. The amount of material stored is not reported.

Release Data: Health Physics surveys of the area indicated that a radioactive tank is buried near the SWSA 3 boundary. One area showed gross radioactivity or Cs-137 levels significantly above background. It is suspected that this contamination came from runoff from SWSA 3. Surveys indicate that contamination of the scrap metal is very low, if present at all.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 3.0

WAG Name: Solid Waste Storage Area (SWSA) 3

Unit ID Number: X03-0003

Unit Name: Contractors' Landfill -- (1554)

Location of Unit: The site is located west of SWSA 3, which is located west of the main ORNL plant area. ORNL grid coordinates are N 21,420 and E 25,000.

General Dimensions and Capacities: The area of the site is approximately 7 acres (2.8 ha). Access is limited by a locked gate.

Function of the Unit: The purpose of the landfill is disposal of debris from construction sites and noncontaminated demolition activities. The site is also used as a disposal area for fly ash from the ORNL steam plant.

Date of Operation: Opened: 1975. Site is still in operation.

Waste Characteristics: This facility is now permitted by TDHE. Only noncontaminated debris and construction materials are allowed in the landfill. No hazardous or radioactive wastes are allowed. Prior to permitting, it is believed that similar materials were disposed of in the Contractors' Landfill; however, there is no documentation to support this and it is possible that contaminated soil from construction activities in the main plant was disposed of here. Monthly inspections are conducted to ensure compliance.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 4.0

WAG Name: Solid Waste Storage Area (SWSA) 4

Unit ID Number: X04-0001

Unit Name: Low-Level Waste Line North of Lagoon Road (7800)

Location of Unit: The site is located along Lagoon Road. ORNL grid coordinates are N 19,880 and E 29,400.

General Dimensions and Capacities: SWMU X04-0001 is the LLLW transfer line that is located on the north side of Lagoon Road. Line was used to transfer LLLW to the Pits and Trenches (WAG 7).

Function of the Unit: The first 1.5-mile (2.4-km) section of the waste transfer line is 2-in.-diam (5-cm-diam) cast-iron pipe installed in June 1954 to transfer LLLW from the Bethel Valley waste storage tanks to Waste Pit 2. Carbon steel extensions to Trench 5 (1960), Trench 6 (1961), and finally to Trench 7 (1962) completed the transfer line to the waste pit area. In 1966, a cast-iron line was installed from Trench 7 to the Old Hydrofracture Facility (1.5 miles). This line was replaced in 1971 by a stainless steel line installed next to the old cast-iron line. This line was taken out of service in 1975.

Date of Operation: Site commissioned: 1960. Site inactive: about 1980.

Waste Characteristics: Wastes handled in the transfer system were routinely generated laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: Radiation measurements at 3 ft above the ground and at ground surface were systematically made along the entire transfer line with Geiger-Muller (G-M) counters equipped with beta shields. The measurements were made directly above the pipeline and 5 ft (1.5 m) to the right and left of the line. More than 700 readings were made beginning at the hydrofracture site; although three definite areas defining leaks were identified, those areas adjacent to SWSA 4 typically yielded activity rates of only about 0.04 mR/h, thus indicating no leaks detectable at ground level.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 4.0

WAG Name: Solid Waste Storage Area (SWSA 4)

Unit ID Number: X04-0002

Unit Name: Pilot Pits 1, 2 (7811)

Location of Unit: This site is located south of SWSA 4 on the road leading to the waste pits and trenches. ORNL grid coordinates are N 18,620 and E 26,980.

General Dimensions and Capacities: The area is fenced and paved with asphalt. Approximate size is 150 ft x 150 ft (46 m x 46 m).

Function of the Unit: The site was originally constructed to perform pilot scale experiments related to fixation of high-level radioactive wastes.

Date of Operation: As experimental facility: 1955-1959. The site is now used for storage of equipment and leaching tests on coal and municipal solid wastes. Site inactive: 1976.

Waste Characteristics: The only radioactivity used at the site was approximately 100 mCi of mixed fission products. This activity was removed. Some sediment cores from a previous Clinch River study are stored at the site, as are certain radionuclides.

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 4.0

WAG Name: Solid Waste Storage Area (SWSA) 4

Unit ID Number: X04-0003

Unit Name: SWSA 4 (7800)

Location of Unit: Latitude 35.91586, longitude 84.31989. SWSA 4 is located in Melton Valley about 0.5 mile (805 m) southwest of the main ORNL complex. The site is bounded on the northern side by Lagoon Road. ORNL grid coordinates are N 19,220 and E 28,180.

General Dimensions and Capacities: SWSA 4 covers an area of 23 acres (9.3 ha). This landfill was used for about 8.5 years and contains an estimated 2,000,000 cu ft (57,000 cubic m) of waste.

Function of the Unit: The unit was a solid waste landfill designed to contain radioactive solid waste. For a period of time, the landfill was designated as the Southern Regional Burial Ground by the Atomic Energy Commission (AEC) and received wastes from nuclear installations in the eastern United States.

Date of Operation: Site commissioned: February 1951. Taken out of service: 1959.

Waste Characteristics: Little information exists to characterize the type, concentration, or quantity of radionuclides placed in SWSA 4. Radioactive elements include Sr-90, Cs-137, Co-60, Po-210, H-3, Sb-125, and Pu-239. About 90,000 to 120,000 Ci of waste has been buried, but the actual amount is difficult to assess. Types of waste include paper, glassware, scrap metal, dirt, filters, oils, powders, depleted uranium, animal carcasses, and large pieces of equipment.

Release Data: Much of the waste in SWSA 4 is located in or very near the water table. Principal radionuclides present in groundwater in and near SWSA 4 are H-3 and Sr-90, with occasional readings of Co-60, Sb-125, and Cs-137. SWSA 4 contributes about 35 to 50% of the Sr-90 that is discharged yearly from the WOC basin at White Oak Dam. A surface runoff collector and diversion system was constructed in 1975; a second system was built in 1983. These diversion systems show early indications of reducing Sr-90 releases to WOC. Stream gravel surveys have shown that SWSA 4 is a significant source of Sr-90 and Cs-137.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Solid Waste Storage Area 4 (SWSA 4) was surveyed to determine the level and extent of surface radiological contamination. Inside the fenced area, surface gamma exposure rates above background levels were identified at 95 areas and 58 smaller, isolated spots for a total of ~2000 m2. Most of the elevated gamma exposure rates ranged from 12 to 240 uR/h. Levels ranging from 241 to 420 uR/h were measured at six surface areas, and levels of greater than 1700 uR/h were identified at nine areas. Highest surface gamma radiation levels were found along the southernmost perimeter of SWSA 4 in the "bathtub seeps" area where ground-level gamma exposure rates reached 15 mR/h. A second contaminated area, encompassing 126 m2 and located in grid blocks N 19,200/E 27,700 and N 19,300/E 27,700, had surface gamma exposure rates up to 14 mR/h.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0001A

Unit Name: LLLW Lines and Leak Site -- OHF, Release of Grout

Location of Unit: This site is a spill that resulted from water flowing from an observation well drilled as a part of the fracturing experiments at the OHF. ORNL coordinates are N 17,050 and E 28,620.

General Dimensions and Capacities: No dimensions for the contaminated area have been reported. Amount (volume) of waste spilled is not known.

Function of the Unit: The well was being drilled as a part of research related to the grout sheets produced at the Old Hydrofracture Facility.

Date of Operation: Spill reported in 1968.

Waste Characteristics: The waste is water containing Sr-90.

Release Data: Strontium (0.72 Ci) from the well, as measured at monitoring station No. 4 in Melton Branch, accounted for 70% of the total Sr released to the lake.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0001B

Unit Name: LLLW Lines and Leak Site -- Building 7852 Hydrofracture Injection Area

Location of Unit: This site is a grout leak at the Old Hydrofracture Facility. See ORNL grid coordinates N 17,200 and E 28,550.

General Dimensions and Capacities: SWMU X05-0001B is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is reported to be approximately 2300 gal (8700 L) of waste-grout slurry released to the waste pit at the facility.

Function of the Unit: The leak occurred because a valve failed at the Old Hydrofracture Facility. Waste grout was directed to the waste pit.

Date of Operation: Date leak occurred: July 31, 1977.

Waste Characteristics: Wastes handled were evaporator concentrated LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams.

Release Data: On June 30, 1977 at approximately 3:30 p.m., a valve at the Shale Fracture Facility failed when the waste slurry was being pumped at 130 gal/min to a depth of 820 ft (250 m) at 3200 psi. An estimated 2300 gal (8700 L) of waste slurry leaked into the waste pit designed to handle such events. The injection was terminated. A by-pass was installed around the faulty valve, and the well and the associated pipe system were flushed with water, thereby placing the facility in stand-by condition. All of the valves in the high-pressure system were reinspected and cores, seats, and seals were replaced. The contents of the waste pit were retrieved and included in the injection. The injection was completed on July 2, 1977.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0002

Unit Name: Old Hydrofracture Facility (OHF) Pond (7852A)

Location of Unit: The pond is located at the southwest corner of SWSA 5, near Building 7852. ORNL grid coordinates are N 17,300 and E 28,530.

General Dimensions and Capacities: This site is an unlined pond whose dimensions are 20 x 100 ft (6 x 30 m) with an average depth of about 6.0 ft (1.8 m). Capacity is about 100,000 gal (380,000 L). The sides are lined with limestone rip-rap. The bottom of the pond contains about 15,000 gal (57,000 L) of contaminated sediment.

Function of the Unit: The pond was designated to receive the accidental release of waste grout mixture in the event of a wellhead rupture.

Date of Operation: Site commissioned: 1964. Taken out of service: 1980.

Waste Characteristics: More than 95% of the radioactivity is in the approximately 1-ft-deep sediment. Main radionuclides include Cs-137, Sr-90, Co-60, and Cs-134. Maximum dose rates are 100 and 300 mrad/h at a height of 4 in. (10 cm) above the pond water. Total activity of water, sediment, and clay is 71 mCi, 404 Ci, and 11.7 Ci, respectively.

Release Data: Four quarters of groundwater monitoring indicated that Sr-90 is the major radionuclide contaminating groundwater.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0003

Unit Name: OHF Site Surface Facilities (7852)

Location of Unit: This site is located 1.0 mile (1.6 km) southwest of the main ORNL complex, in the southwest corner of SWSA 5. ORNL grid coordinates are N 17,160 and E 28,620.

General Dimensions and Capacities: This facility consists of a mixing cell, pump cell, well cell, and transite-roof-covered engine pad (all part of Building 7852). The site also contains three dry storage bins, a water tank, waste pit, and a pump house. Not covered here are the waste storage tanks, (SWMU X05-0005) and emergency waste pond (SWMU X05-0002).

Function of the Unit: The function of the OHF is to provide for the permanent disposal of liquid radioactive waste in impermeable shale formations at a depth of about 1000 ft (300 m). This is accomplished by mixing the radioactive waste with solids (such as cement), forming a grout that can be pumped into shale, where it solidifies in thin sheets.

Date of Operation: Site commissioned: 1963. Taken out of service: 1980.

Waste Characteristics: Wastes injected were similar to those discharged to the pits and trenches (evaporator concentrated LLLW). Main radionuclides were Sr-90, Cs-137, Co-60, and TRE. No analyses of hazardous constituents are reported. In the control room, absorbed dose rates ranged from 75 to 600 mrad/h, while the maximum transferable beta-gamma activity and alpha activities were 49000 dpm/100 sq cm and 40 dpm/100 sq cm, respectively. Higher dose rates were observed in the mixing, pump, and well cells.

Release Data: No information exists for releases from this SWMU.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0004

Unit Name: New Hydrofracture Site Surface Facility (7860)

Location of Unit: The New Hydrofracture Facility (Building 7860) is located in Melton Valley about 1 mile (1.6 km) south of the main ORNL facilities in Bethel Valley. The new site is about 800 ft (244 m) south of the original shale fracturing facility, and it is on the south side of Melton Branch and Melton Branch Road. See ORNL coordinates N 16,500 and E 28,180.

General Dimensions and Capacities: The new facility houses the injection cell, a pump cell, a mixing cell, a control room, an emergency waste tank, and service areas. Recently installed LLLW storage tanks located adjacent to the site served as the liquid waste feed tanks for the process. The grout is injected into the shale formation at a depth of about 1000 ft (300 m). The plant is designed to handle 150,000 gal (567,800 L) per injection.

Function of the Unit: Hydrofracture is a large-scale batch process for the permanent disposal of liquid or slurried radioactive waste. In this process, the waste is mixed with cement and a blend of other solids to form a grout. The grout is then injected into an underground impermeable shale formation and hardens within about 12 h.

Date of Operation: Facility commissioned: May 1982. Facility placed on standby: 1985.

Waste Characteristics: The waste was grout in the form of concentrated LLLW mixed with cement and a blend of other solids. The source of LLLW was evaporator concentrates and sludges removed from the gunite tanks in Bethel Valley.

Release Data: During injection operations, failure of equipment could result in grout being discharged to an underground waste holding tank.

Regulatory Authority: RCRA-Permit

Site Characterization Status: RFI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0005A

Unit Name: Inactive OHF Waste Storage Tank T-1

Location of Unit: ORNL coordinates are N 17,170 and E 28,498. The tanks are located at the OHF and are used to store LLLW prior to injection.

General Dimensions and Capacities: Tank T1: Outside diameter is 8.0 ft (2.4 m). Length is 44.2 ft (13.5 m). The tank is made of carbon steel. All tanks are covered with 4.0 ft (1.2 m) of soil (minimum) and are cathodically protected. Capacity is 15,000 gal (56,800 L).

Function of the Unit: The site is used to store radioactive waste prior to blending with grout.

Date of Operation: Site commissioned: 1963. Taken out of service: 1980.

Waste Characteristics: Major radionuclides are Cs-137, Sr-90, Co-60, and TRU materials. A radiological characterization of the OHF showed that T1 tank may contain 1000 Ci in 1100 gal (4200 L) of sludge.

Release Data: In a direct walk-over survey, the direct beta-gamma absorbed dose rate in the vicinity of the waste storage tanks was less than 1 mrad/h at 0.4 to 1.2 in. (1 to 3 cm) above the surface. No tank leaks have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was sampled as part of the 1989 inactive tank sampling program. Both liquid and sludge phases are non-RCRA.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0005B

Unit Name: Inactive OHF Waste Storage Tank T-2

Location of Unit: ORNL grid coordinates are N 17,170 and E 28,510. The tanks are located at the OHF and are used to store LLLW prior to injection.

General Dimensions and Capacities: Tank T2: Outside diameter is 8.0 ft (2.4 m). Length is 44.2 ft (13.5 m). The tank is made of carbon steel. All tanks are covered with 4.0 ft (1.2 m) of soil (minimum) and are cathodically protected. Capacity is 15,000 gal (56,800 L).

Function of the Unit: The tank is used to store radioactive waste prior to blending with grout.

Date of Operation: Site commissioned: 1963. Taken out of service: 1980.

Waste Characteristics: Major radionuclides are Cs-137, Sr-90, Co-60, and TRU materials. A radiological characterization of the OHF showed that tank T2 may contain 1000 Ci in 1100 gal (4200 L) of sludge.

Release Data: In a direct walk-over survey, the direct beta-gamma absorbed dose rate in the vicinity of the waste storage tanks was less than 1 mrad/h at 0.4 to 1.2 in. (1 to 3 cm) above the surface. No tank leaks have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was sampled as part of the 1989 inactive tank sampling program. Both liquid and sludge phases are non-RCRA.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0005C

Unit Name: Inactive OHF Waste Storage Tank T-3

Location of Unit: ORNL grid coordinates are N 17,143 and E 28,540. The tanks are located at the OHF and are used to store LLLW prior to injection.

General Dimensions and Capacities: Tank T3: Outside diameter is 10.5 ft (3.2 m). Length is 42.0 ft (12.8 m). The tank is made of carbon steel and rubber lining. All tanks are covered with 4.0 ft (1.2 m) of soil (minimum) and are cathodically protected. Capacity is 25,000 gal (94,600 L).

Function of the Unit: The tank is used to store radioactive waste prior to blending with grout.

Date of Operation: Site commissioned: 1963. Taken out of service: 1980.

Waste Characteristics: Major radionuclides are Cs-137, Sr-90, Co-60, and TRU materials. A radiological characterization of the OHF showed that tank T3 may contain 1000 Ci in 1300 gal (4900 L) of sludge.

Release Data: In a direct walk-over survey, the direct beta-gamma absorbed dose rate in the vicinity of the waste storage tanks was less than 1 mrad/h at 0.4 to 1.2 in. (1 to 3 cm) above the surface. No tank leaks have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was sampled as part of the 1989 inactive tank sampling program. Both liquid and sludge are RCRA wastes.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0005D

Unit Name: Inactive OHF Waste Storage Tank T-4

Location of Unit: ORNL grid coordinates are N 17,140 and E 28,550. The tanks are located at the OHF and are used to store LLLW prior to injection.

General Dimensions and Capacities: Tank T4: Outside diameter is 10.5 ft (3.2 m). Length is 42.0 ft (12.8 m). The tank is made of carbon steel and rubber lining. All tanks are covered with 4.0 ft (1.2 m) of soil (minimum) and are cathodically protected. Capacity is 25,000 gal (94,600 L).

Function of the Unit: Used to store radioactive waste prior to blending with grout.

Date of Operation: Site commissioned: 1963. Taken out of service: 1980.

Waste Characteristics: Major radionuclides are Cs-137, Sr-90, Co-60, and TRU materials. A radiological characterization of the OHF showed that tank T4 may contain 1000 Ci in 1300 gal (4900 L) of sludge.

Release Data: In a direct walk-over survey, the direct beta-gamma absorbed dose rate in the vicinity of the waste storage tanks was less than 1 mrad/h at 0.4 to 1.2 in. (1 to 3 cm) above the surface. No tank leaks have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was sampled as part of the 1989 inactive tank sampling program. Both liquid and sludge are RCRA wastes.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0005E

Unit Name: Inactive OHF Waste Storage Tank T-9

Location of Unit: ORNL grid coordinates are N 17,170 and E 28,520. The tanks are located at the OHF and are used to store LLLW prior to injection.

General Dimensions and Capacities: Tank T9: Outside diameter is 10.0 ft (3.0 m). Length is 19.5 ft (5.9 m). The tank is made of carbon steel (straight side dimensions). All tanks are covered with 4.0 ft (1.2 m) of soil (minimum) and are cathodically protected. Capacity is 13,000 gal (49,200 L).

Function of the Unit: The tank is used to store radioactive waste prior to blending with grout.

Date of Operation: Site commissioned: 1963. Taken out of service: 1980.

Waste Characteristics: Major radionuclides are Cs-137, Sr-90, Co-60, and TRU materials. A radiological characterization of the OHF showed that tank T9 may contain 600 Ci in 600 gal (2200 L) of sludge.

Release Data: In a direct walk-over survey, the direct beta-gamma absorbed dose rate in the vicinity of the waste storage tanks was less than 1 mrad/h at 0.4 to 1.2 in. (1 to 3 cm) above the surface. No tank leaks have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was sampled as part of the 1989 inactive tank sampling program. Both liquid and sludge are RCRA wastes.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0006

Unit Name: Process Waste Sludge Basin (7835)

Location of Unit: The site is located in the northern part of SWSA 5 in Melton Valley. ORNL grid coordinates are N 18,450 and E 30,020.

General Dimensions and Capacities: Dimensions are 85 x 85 ft (26 x 26 m), with a depth of 8 ft (2.4 m). A PVC (polyvinyl chloride) liner covers a compacted clay bottom.

Function of the Unit: The basin was used to contain and settle sludge produced by the ORNL Process Waste Treatment Plant (3544). Supernatant was pumped back to the PWTP (3544).

Date of Operation: The basin was constructed in 1976. Taken out of service: 1981.

Waste Characteristics: Sludge constituents are primarily ferrous sulfate and ferric hydroxide, with fission products present.

Release Data: As much as 50 Ci may be contained in the 4-ft (1.2-m) layer of sediment.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0007

Unit Name: SWSA 5 (7802)

Location of Unit: Latitude 35.91401, longitude 84.31295. The site is located on a hillside east of WOC, between SWSA 4 and Melton Branch. ORNL grid coordinates are N 17,820 and E 29,560.

General Dimensions and Capacities: SWSA 5 (north and south) is a fenced area of about 80.0 acres (32.3 ha). Land used totals 50.0 acres (20.2 ha). It is estimated that 3.09 x 10(E+6) cu ft (86,520 cu m) of waste was buried.

Function of the Unit: The site is composed of two distinct geographical areas providing different solid waste storage functions. SWSA 5 (south) was used for disposing of routine buried waste; SWSA 5 (north) is used to retrievably store transuranic contaminated waste.

Date of Operation: Site commissioned: 1959. Taken out of service: 1973 (except for TRU retrievable storage).

Waste Characteristics: Retrievable wastes are TRU isotopes and U-233. Major wastes are contaminated with Sr-90, Cm-244, Pu-238, Ru-106, Cs-137, Co-60, and H-3. Total inventory is < 2.1 x 10(E+5) Ci.

Release Data: Normal problems caused by infiltration of precipitation were aggravated at SWSA 5 because of poor trench orientation. Fairly high amounts of Sr-90 and measurable amounts of Cm-244 and Pu-238 were detected in one area. Corrective actions were taken. Water from SWSA 5 drains southeast into Melton Branch, and most of the surface water runoff is monitored at Station 4 on Melton Branch. The major contaminants detected in water seepage are Sr-90 and H-3. Average concentration of H-3 was 0.2 mCi/mL.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Solid Waste Storage Area 5 (SWSA 5) (south) was surveyed to determine the level and extent of surface radiological contamination. In March 1988, gamma exposure rates above background levels were identified at 187 areas totaling ~2300 m2. Surface levels exceeded 1000 uR/h at 17 regions in 12 grid blocks. A followup survey of the areas previously identified as > 1000 uR/h (scintillation counter saturation) was conducted in October 1988. Since the initial investigation, uncontaminated soil has been added to fill in surface subsidence and to restore the area to its original contour. In most cases, the additional soil layer covered the previously identified "hot" areas. In October 1988, only one spot with surface gamma exposure rates > 1000 uR/h was found. Highly contaminated areas identified in the March survey included a well head, part of the Old Hydrofracture Facility, with gamma exposure rates reaching 60 mR/h on contact, and a steel pipe, located within a previously unreported seep, with gamma exposure rates reaching 55 mR/h on contact. In addition, concrete water diversion ditches in some areas were broken and/or filled with silt and mud, interrupting the flow of surface runoff water across the SWSA.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008A

Unit Name: Active LLLW Waste Concentrate Storage Tank W-24

Location of Unit: The site is located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (190,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008B

Unit Name: Active LLLW Waste Concentrate Storage Tank W-25

Location of Unit: The site is located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (190,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps and bleedback from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008C

Unit Name: Active LLLW Waste Concentrate Storage Tank W-26

Location of Unit: The site is located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (190,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps and bleedback from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008D

Unit Name: Active LLLW Waste Concentrate Storage Tank W-27

Location of Unit: Located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (190,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps and bleedback from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008E

Unit Name: Active LLLW Waste Concentrate Storage Tank W-28

Location of Unit: This site is located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (190,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps and bleedback from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008F

Unit Name: Active LLLW Waste Concentrate Storage Tank W-29

Location of Unit: The site is located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (190,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps and bleedback from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008G

Unit Name: Active LLLW Waste Concentrate Storage Tank W-30

Location of Unit: The site is located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (190,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps and bleedback from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0008H

Unit Name: Active LLLW Waste Concentrate Storage Tank W-31

Location of Unit: The site is located at Building 7830, near the hydrofracture facility in Melton Valley. ORNL grid coordinates are N 16,580 and E 28,030.

General Dimensions and Capacities: The tank measures 12.0 ft (3.7 m) in diameter and 60.0 ft (18.3 m) in length and has a capacity of 50,000 gal (159,000 L). It is a horizontal stainless steel tank in a stainless-steel-lined concrete vault (double containment).

Function of the Unit: The system of tanks stores the concentrated LLLW from the evaporator via tanks W-23, C-1, and C-2. The waste is stored in these tanks until it can be disposed of by a solidification process. Note that the hydrofracture process is currently not in use. The tanks will also be used to receive liquids from the vault sumps and bleedback from the hydrofracture process.

Date of Operation: Site commissioned: 1980. Current status: site is active.

Waste Characteristics: The wastes transferred to these tanks are evaporator concentrates and sludges transferred from the main waste storage tanks in Bethel Valley. Major constituents are Sr-90, Cs-137, Co-60, and TRU. Chemical composition data are reported; however, because of dilution required to allow handling in unshielded facilities, the detection limits are elevated such that most of the analyses are reported as less than the detection limits. Inventory data for radionuclides are available for the tank.

Release Data: These tanks have not been reported to have leaked or spilled wastes.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0009

Unit Name: Radioactively Contaminated Waste-Oil Storage Tank (7860A)

Location of Unit: This facility is located in Melton Valley at the New Hydrofracture Facility. See ORNL grid coordinates N 16,450 and E 28,160.

General Dimensions and Capacities: The tank is underground. The tank measures 6.5 ft. (2 m) in diameter by 12 ft (3.7 m) long.

Function of the Unit: The tank is used to store small quantities of waste oil contaminated with radionuclides as a result of use in the pumps and other equipment at the New Hydrofracture Facility.

Date of Operation: 1982 to 1985.

Waste Characteristics: The waste oil is contaminated with radionuclides. No chemical analysis has been reported.

Release Data: No releases reported.

Regulatory Authority: RCRA-Permit

Site Characterization Status: RFI

Comment: Tank was sampled as a part of the 1989 inactive tank sampling program. Liquid phase is RCRA, sludge is non-RCRA.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010A

Unit Name: Underground Storage Building (7823)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,970 and E 29,850.

General Dimensions and Capacities: Building is 48 ft (15 m) wide, 78 ft (24 m) long and 2/3 below grade.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Temporary storage of 30 or 55 gal stainless steel drums having a gamma exposure rate of < 200 mR/h.

Date of Operation: Storage initiated: 1970. Site is still in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: RCRA/Interim Status

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010B

Unit Name: Transuranic Waste Storage Area (7824)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,630 and E 29,770.

General Dimensions and Capacities: _____

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Temporary storage of 30 or 55 gal stainless steel drums having a gamma exposure rate of < 200 mR/h.

Date of Operation: Storage initiated: _____. Site is still in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: RCRA/Interim Status

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-00'0C

Unit Name: Retrievable Waste Storage Facility (7826)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,820 and E 29,710.

General Dimensions and Capacities: Building is one story, 39 ft (12 m) by 55 ft (17 m) and 13 ft (4 m) high with 85% of the structure below grade.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Storage of 30 or 55 gal drums having a gamma exposure rate of < 200 mR/h. Capacity is 1536, 55 gal drums.

Date of Operation: Storage initiated: 1976. Site is still in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: RCRA/Interim Status

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010D

Unit Name: High Level Alpha Waste Storage (7827)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,730 and E 29,710.

General Dimensions and Capacities: Building has 30 stainless steel lined auger holes. Holes are 10 ft and 15 ft deep. Hole diameter range from 8 in. to 30 in.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Waste handled has external gamma exposure rate > 200 mR/h.

Date of Operation: Storage initiated: _____. Site is still in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: CERCLA/DOE Order 5820.24

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010F

Unit Name: Peach Bottom Storage Wells (7829)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,620 and E 29,630.

General Dimensions and Capacities: Building 7829 has 10 stainless steel lined wells 12 in. in diameter and 15 ft deep.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Waste handled has external gamma exposure rate of > 200 mR/h.

Date of Operation: Storage initiated: _____. Site is still in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: CERCLA/DOE Order 5820.24

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010F

Unit Name: Retrievable Waste Storage Facility No. 2 (7834)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,770 and E 29,620.

General Dimensions and Capacities: Building is one story, 39 ft (12 m) by 55 ft (17 m) and 13 ft (4 m) high with 85% of the structure below grade.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Storage of 30 or 55 gal drums having a gamma exposure rate of < 200 mR/h. Capacity is 1920, 55 gal drums.

Date of Operation: Storage initiated: 1980. Site is still in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: RCRA/Interim Status

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010

Unit Name: Storage Facility for HRL Retrievable Waste (7855)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,560 and E 29,570.

General Dimensions and Capacities: Facility contains four storage cells which measure 12 x 10 x 60 ft. When a cell is filled the opening is sealed.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Storage of concrete casks having a gamma exposure rate of > 200 mR/h. Concrete casks have capacities of 30 and 60 ft3.

Date of Operation: Storage initiated: 1979. Site is still in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: RCRA/Interim Status

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010H

Unit Name: TRU Storage Vaults

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 19,040 and E 29,750.

General Dimensions and Capacities: There are 8 storage vaults (lined auger holes). Holes are about 20 ft deep and are capped with concrete plugs.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Final storage of stainless steel capsules with a gamma exposure rate of > 200 mR/h.

Date of Operation: Storage initiated: 1970. Site is no longer in operation.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: CERCLA/DOE Order 5820.24

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010I

Unit Name: TRU Direct Burial Trenches

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates for the 4 north trenches are N 18,895 and E 30,050; coordinates for the 23 trenches in the southern part of SWSA 5N are N 18,635 and E 29,435.

General Dimensions and Capacities: Trenches are 10 ft deep, 6 ft wide and of varying length.

Function of the Unit: DOE requires that wastes containing concentrations of transuranic nuclides (TRU) above defined limits must be retrievably stored for future off-site disposal in a geologic repository. This site is one of a number of different operations in which TRU wastes are retrievably stored consistent with their varying activity levels and other pertinent characteristics. Storage of 30 or 55 gal drums having a gamma exposure rate of < 200 mR/h. Capacity is 1536, 55 gal drums.

Date of Operation: Storage initiated: 1970. Site is no longer in operation, new burials suspended in 1979.

Waste Characteristics: DOE Order 5820.2 defines TRU wastes as those wastes contaminated with greater than 100 nCi/g (or 100 uCi/kg) of radioactive isotopes of atomic number greater than 92 that emit alpha radiation and have half-lives greater than 20 years. These wastes are considered to be sufficiently hazardous to require geologic disposal. Wastes that do not exceed these concentrations are handled on-site as low-level radioactive waste. ORNL also considers U-233 and Ra-226 to be TRU for purposes of waste management due to an evaluation that they represent an "equivalent hazard." These wastes have varying radiation levels and are segregated into contact-handled (less than 200 mrem/h) and remote-handled (greater than 200 mrem/h) wastes. Packaging, handling, and facility design is consistent with the radiation level of the particular waste.

Release Data: No releases have been reported.

Regulatory Authority: RCRA/Interim Status

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0010T

Unit Name: TRU Waste Staging Facility (7879)

Location of Unit: The unit is in a portion of SWSA 5 (northern portion). Estimated area for TRU storage is approximately 10 acres (4.0 ha). Approximate ORNL grid coordinates are N 18,970 and E 29,850.

General Dimensions and Capacities: Building is 80 x 50 x 16 ft high. Capacity is 50 metal boxes or 700, 55 gal drums.

Function of the Unit: Used as a staging-storage area for drums currently stored in Buildings 7834, 7823, and 7826. These facilities will be closed when all current drums are assayed and either sent to final disposal or to be stored as RCRA waste.

Date of Operation: 1990.

Waste Characteristics: Contact handled TRU waste having external gamma exposure rate of < 200 mR/h.

Release Data: No releases have been reported (facility not currently in use).

Regulatory Authority: RCRA/Interim Status

Site Characterization Status: NFA

Comment: All facilities in SWMU X05-0010 formerly were included on one summary sheet. Each facility now has an individual summary sheet.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0011

Unit Name: Septic Tank 7831

Location of Unit: Septic tank is located within the boundary of SWSA 5. ORNL grid coordinates are N 18,750 and E 31,140.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 500 gal (1890 L).

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from the Waste Compactor Building (7831).

Date of Operation: Installation date is not known; tank is still in service.

Waste Characteristics: Only domestic sewage from Building 7831 has been collected/stored in the tank. No hazardous or radioactive wastes have teen added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0012

Unit Name: Septic Tank 7860

Location of Unit: The septic tank is located in the southwest corner of WAG 5 and serves the New Hydrofracture Facility (7860). The ORNL grid coordinates are N 16,537 and E 28,250.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 500 gal (1890 L).

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from the New Hydrofracture Facility (7860).

Date of Operation: Septic tank was installed in 1978 and is still in use (9 years).

Waste Characteristics: Only domestic sewage from Building 7831 has been collected/stored in the tank. No hazardous or radioactive wastes have been added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0013

Unit Name: Septic Tank 7853

Location of Unit: The septic tank is located in the southwest corner of SWSA 5 and serves the Old Hydrofracture Facility (Bldg. 7853). The ORNL grid coordinates are N 17,130 and E 28,710.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 750 gal (2840 L).

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from Building 7853.

Date of Operation: Septic tank was installed in 1968 and is currently not in service.

Waste Characteristics: Only domestic sewage from Building 7853 has been collected/stored in the tank. NO hazardous or radioactive wastes have added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-001

Unit Name: Old Landfill (NE edge of SWSA 5)

Location of Unit: Northeast edge of Solid Waste Storage Area 5 (SWSA-5). Approximate ORNL grid coordinates are N 18,170 and E 30,150.

General Dimensions and Capacities: Unknown.

Function of the Unit: Apparently used as a dump site for noncontaminated rubbish from ORNL operations.

Date of Operation: Unknown.

Waste Characteristics: General rubbish, debris, metal containers and other noncontaminated items.

Release Data: Unknown.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: September 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0015

Unit Name: Active LLLW Slotting Tank T-13

Location of Unit: Tank T-13 is located at the New Hydrofracture Facility (7860). Approximate ORNL grid coordinates are N 16,500 and E 28,180.

General Dimensions and Capacities: Tank T-13 is a 304 L stainless steel tank, with a 4000 gallon capacity. It is housed in a stainless steel-lined vault at the New Hydrofracture Facilities in Building 7860.

Function of the Unit: Tank T-13 collects inleakage into hot cells at NHF. The contents of this tank are piped into the Evaporator of the LLLW system.

Date of Operation: 1982-1985. Facility has been placed on standby status.

Waste Characteristics: Mixture of sand and water. No hazardous waste constituents or radionuclides should be present. No analyses of waste are available.

Release Data: No releases have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not reported on original ORNL tank inventory.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 5.0

WAG Name: Solid Waste Storage Area (SWSA) 5

Unit ID Number: X05-0016

Unit Name: Inactive LLLW Tank T-14

Location of Unit: Tank T-14 is located at the New Hydrofracture Facility (7860). Approximate ORNL grid coordinates are N 16,500 and E 28,180.

General Dimensions and Capacities: Tank T-14 is an unlined concrete tank and has a 48,500 gallon capacity.

Function of the Unit: Tank T-14 is designed to collect drainage from the well cell. The tank currently contains some sludge. The tank drains the overflow from the well cell.

Date of Operation: 1982-1985. Facility has been placed on standby status.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Date: No releases from the tank have been reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not reported on original ORNL tank inventory.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 6.0

WAG Name: Solid Waste Storage Area (SWSA) 6

Unit ID Number: X06-0001

Unit Name: SWSA 6 (7822)

Location of Unit: Latitude 34.90360, longitude 84.32562. The site is located just northwest of White Oak Lake near White Oak Dam and State Highway 95. See ORNL grid coordinates N 16,670 and E 24,100.

General Dimensions and Capacities: Total fenced area is 68.0 acres (27.5 ha), but only about 14.5 acres (5.9 ha) is usable because of rough terrain. The site contains about 776,600 cubic ft (22,000 cubic m) of solid low-level radioactive waste.

Function of the Unit: This site is a waste burial ground; its purpose is to contain solid low-level radioactive waste.

Date of Operation: Site commissioned: 1969. Site is still in operation.

Waste Characteristics: Hazardous chemicals: lead, toluene, xylene (found in trenches in 1982). Main radionuclides: Co-60, H-3, Sr-90, Cs-137, Eu-152, Eu-154, Eu-155, and U-235 make up 80% of the current inventory of total Ci; a significant amount of U-235 has been emplaced in SWSA 6. Total activity is 251,000 Ci. Highest totals (in Ci) are as follows: Co-60 (32,200), Cs-137 (5110), Eu-152 (50,900), Eu-154 (72,600), Eu-155 (31,300), H-3 (7110), Sr-90 (2970), Th-232 (<2.5), U-233 (227), U-235 (5.6), U-238 (205). These totals are for the period from 1977 to 1984.

Release Data: Groundwater samples collected from 1971 to 1983 show that H-3 is present in some of the down-gradient wells. Only two wells contained significant Sr-90 concentrations above background. Migration of wastes occurs as trenches become filled with water and as runoff increases.

Regulatory Authority: RCRA/CERCLA; RCRA-Permit

Site Characterization Status: RFI/RI

Comment: An interim cover was placed over the RCRA-regulated units in 1989. A closure plan was approved by the Tennessee Department of Health and Environment in September 1988. The closure plan required closure of the site by September 1993.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 6.0

WAG Name: Solid Waste Storage Area (SWSA) 6

Unit ID Number: X06-0002

Unit Name: Emergency Waste Basin (7821)

Location of Unit: The Emergency Waste Basin is located north of SWSA 6. ORNL grid coordinates are N 18,000 and E 25,110.

General Dimensions and Capacities: The area of the Basin is about 2 acres (0.8 ha). Its volume is reported as 1.5 x 10(E+7) gal (5.6 x 10(E+7) L).

Function of the Unit: The basin was constructed as an LLLW or process waste holding basin for use when ORNL might be unable to release wastes to White Oak Creek. The basin has never been used.

Date of Operation: Basin construction: 1961-1962. No waste has been added to the basin.

Waste Characteristics: No wastes have been added. Water in the basin is the result of runoff from the surrounding areas.

Release Data: No releases have been detected in the stream leaving the basin.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Surface contamination has been found in the basin. It is being included in the WAG 6 RFI/RI.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 6.0

WAG Name: Solid Waste Storage Area (SWSA) 6

Unit ID Number: X06-000

Unit Name: Explosives Detonation Trench (7822A)

Location of Unit: This trench is located in the northern part of SWSA 6.

General Dimensions and Capacities: This trench was 15 ft (4.6 m) long, 5 ft (1.5 m) wide, and 4 ft (1.2 m) deep.

Function of the Unit: The site was used to detonate explosives and shock-sensitive chemicals requiring disposal. Waste was laid in the bottom of the trench and detonated with a small plastic explosive charge.

Date of Operation: The trench has been filled in and is no longer in operation. Last used in 1987.

Waste Characteristics: Items detonated at the trench included chemicals such as picric acid, phosphorus, nitromethane, hydrogen peroxide, and ammonium nitrate, as well as others.

Release Data: Chemicals and explosives were destroyed in the resulting explosion. No trend monitoring was performed. As far as can be determined, no releases occurred.

Regulatory Authority: RCRA/CERCLA; RCRA-Permit

Site Characterization Status: RFI/RI

Comment: The WAG 6 RFI/RI includes this trench. This trench has been backfilled.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0001

Unit Name: Decontamination Facility (7819)

Location of Unit: The ORNL Decontamination Facility (7819) is located north of Lagoon Road near the entrance to SWSA 4. See ORNL coordinates N 19,330 and E 27,040.

General Dimensions and Capacities: The building is divided into two sections, a Contaminated Zone (C zone) containing two open pits for acid baths and a clean area. Additional decontamination activities were conducted in the back of the building.

Function of the Unit: The facility was used to decontaminate such items as isotope carriers from laboratories and hot cells by means of acid baths and sand blasting.

Date of Operation: Site commissioned: early 1960s. Taken out of service: late 1970s.

Waste Characteristics: The contamination consists of the building, equipment, and the land area within a 50-ft (15-m) radius of the building. In a building radiological characterization survey, the radiation exposure rate (beta and gamma) ranged from a maximum of 3.5 R/h (equipment and shelves) in the C zone to < 10 mR/h at floor level in the clean area. Wet towel smears indicated the transferable radioactivities (beta and gamma) at the same locations to be much less (2-27 mR/h, acid bath zone equipment and shelves, and 1-5 mR/h clean area floor level). The uncovered sand used in blast cleaning is located about 40 ft (12 m) from the building and has a maximum exposure rate of 2 mR/h.

Release Data: There are no reported releases, although contamination is present outside the building. Liquid wastes were discharged to Pit 1.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: An outdoor radiological and hazardous waste scoping survey of the decontamination facility, Building 7819, site was conducted August 18-22, 1986. The results show significantly elevated gamma exposure rate measurements due to emanation of radiation from the interior of Building 7819, contamination around the perimeter of concrete and stainless steel pads that supported past decontamination activities, and the presence of contaminated equipment on these pads. Results of biased soil samples indicate Cs-137 and Sr-90 as the dominant contaminants. The maximum Cs-137 concentration was 2300 pCi/g, and the average was 270 pCi/g; the maximum Sr-90 concentration was 2400 pCi/g, and the average was 300 pCi/g. Four RCRA hazardous waste characteristics (extraction procedure toxicity, ignitability, corrosivity, and reactivity) were not exhibited by seven biased soil samples taken at the survey site.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0002

Unit Name: Homogeneous Reactor Experiment (HRE) Fuel Wells (7809)

Location of Unit: The site is located just south of Trench 5 (latitude 35.90950, longitude 84.32054). ORNL coordinates are as follows:

	(Northing)	(Easting)
S1	17,293.40	26,728.25
S2	17,289.05	26,716.61
S3	17,285.78	26,704.82
S4	17,284.34	26,693.26
S5	17,287.20	26,681.22
S6	17,291.50	26,669.70
S7	17,295.24	26,658.46

General Dimensions and Capacities: At the site are seven auger holes (S1-S7) 1 ft in diameter by 17 ft (5 m) deep. The holes are about 10 ft (3 m) apart. The auger holes received about 135 gal (510 L) of liquid waste.

Function of the Unit: The site was designed to hold residual fuel solution from the Homogeneous Reactor. The fuel was stored in the Homogeneous Reactor Chemical Plant decay tanks.

Date of Operation: Site commissioned: 1964.

Waste Characteristics: The fuel wells received 135 gal (510 L) of 4 molar sulfuric acid solution containing about 10 lb (4.5 kg) of uranium and about 20 Ci of fission products, Sr-90, and Ru-106. After disposal of the wastes, each well was filled to ground level with soil and marked with a brass plaque bearing well coordinates, liters of waste disposed, and grams of uranium contained in the solution. Uranium content of the wells is S1, 319 g; S2, 528 g; S3, 704 g; S5, 717 g; S6, 730 g; and S7, 260 g.

Release Data: No information reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: [illegible]

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0003

Unit Name: Hydrofracture Experimental Site 1, Soil Contamination (HF-S1A)

Location of Unit: Hydrofracture Site 1 is located at ORNL grid coordinates N 18,920 and E 25,890. The injection well is located south of Lagoon Road in an area called the Four Acre Site. (See also SWMU X10-0001.)

General Dimensions and Capacities: The area contaminated is not documented, nor is the amount of grout spilled documented. The volume of injection was 27,000 gal (102,200 L) of water, cement, and diatomaceous earth. Depth of injection was 300 ft (91 m).

Function of the Unit: The spill occurred when the injected grout sheet intercepted a nearby open core hole and overflowed from the core hole. Grout was being injected to investigate the feasibility of using hydrofracturing as a means of LLLW disposal.

Date of Operation: The injection was performed October 1959.

Waste Characteristics: The injection was performed using water, cement, and diatomaceous earth. Grout was tagged with 35 Ci of Cs-137 and 8.7 Ci of Ce-144 prior to injection. No LLLW was used. The grout should not contain hazardous constituents other than radioactivity.

Release Data: No information is available on the amount of radioactivity contained in the spilled grout or on the extent of the contamination.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological survey of the area was conducted in 1988. One large contaminated area encompassing 613 ft2 (~57 m2) was found to have levels of gamma radiation ranging from 0.1 to 20 mR/h at the ground surface. The NaI probe of the portable gamma scintillation survey meter was lowered into excavated holes to define the depth of contamination. (The excavated soil was subsequently placed back into the respective holes.) Most of the radioactivity was found at soil depths of 0 to 6 in. (0 to 15 cm). This large area is the result of outflow and subsequent spillage of contaminated grout and water onto the ground surface from a monitor well located 199 ft (60 m) north of the injection well in 1959. The injection wellhead showed highly elevated gamma readings of up to 75 mR/h on contact. Approximately 100 small, spotty areas with elevated surface gamma exposure rates ranging from 25 uR/h to 1 mR/h were found within an approximate 300-ft radius of the injection wellhead. Most of these small areas were identified west and southwest of the injection well and generally encompassed areas of less than 10.7 ft2 (1 m2) each. A few small areas totaling 64 ft2 (~6 m2) were identified near the northern boundary of Lagoon Road. Surface gamma exposure rates as high as 5 mR/h were measured in these areas. Gamma spectrometry inspection of surface (0 to 15 cm) soil samples collected from several hot spots show Cs-137 as the major gamma-emitting radionuclide, as expected. No transferable alpha or beta-gamma contamination was evident at the site.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0004A

Unit Name: LLLW Lines and Leak Sites -- Gauging Station Northwest of Building 7852

Location of Unit: The leak occurred in the LLLW transfer line NW of Building 7852 and approximately 200 ft (61 m) west of WOC. Site is also known as leak site 2. The leak occurred at a mechanical, neoprene-gasketed joint. Leak coordinates are N 17,680 and E 28,000.

General Dimensions and Capacities: This SWMU is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known. This leak is located on the transfer line approximately 200 ft (61 m) west of White Oak Creek. The site drops 15 ft (4.6 m) over a distance of 100 ft (30 m). The waste had seeped from a pipe coupling and had reached ground surface, where it had spread laterally over a small area.

Function of the Unit: The LLLW Line transports evaporator-concentrated low-level radioactive liquid wastes to waste disposal facilities in Melton Valley.

Date of Operation: The first leak at the site occurred July 9, 1970.

Waste Characteristics: Wastes handled in the transfer system were routinely generated laboratory LLLW. Major radionuclides were Sr-90, Cs-137 Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: The contamination was removed so that there was no significant release of radiation into the creek. The main section of pipe was repaired, pressure tested, and returned to service. During a 1973 survey, contaminated sediment was observed all the way to the creek. Soil samples ranged from 2 Ci/g to a concentration of 3.7 Ci/g. Three groundwater monitoring wells were installed to determine the effect of the leak on groundwater levels. After concluding that the leak was contributing to groundwater contamination, over 3000 cu ft (84 cu m) of contaminated soil was removed and disposed of. Later, groundwater monitoring showed decreased levels of radionuclide concentrations. A second survey of the area showed elevated readings at this site, suggesting that either additional leakage had occurred or that there had been inadequate removal of the contaminated soil. At 3 ft above the ground surface, beta-gamma activity ranged from 240 mR/h to 800 mR/h along the line. In 1983, a subsurface bentonite clay cap and a surface asphaltic concrete cap were installed at the site. The covered area was fenced with barbed wire and the remaining disturbed area seeded with grass.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In 1987, the total area of contamination at this site was ~13.9 m2 (~150 ft2). Surface measurements indicated primarily gamma activity along a narrow ditchline ~12.2 m (~40 ft) in length, leading from the leak site to a contaminated drainage area of the Trench 7 seep (eastern slope of Trendy 7). Surface gamma exposure rates of up to ~1 mR/h were measured.

Date Prepared: April 1987

Update: September 1990

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0004B

Unit Name: LLLW Lines and Leak Sites -- Pit 6 Southeast (Leak Site 1)

Location of Unit: This leak occurred in the LLLW transfer line southeast of Trench 6. The leak is at ORNL grid coordinates N 18,363 and E 27,976.

General Dimensions and Capacities: SWMU X07-0004B is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The leak was in the cast-iron LLLW transfer line between ORNL and the Old Hydrofracture Facility, approximately 150 ft (45 m) south of Trench 6. The line was used to transfer waste for disposal by hydrofracture.

Date of Operation: The leak was reported in July 1973 (leak apparently occurred at earlier date). The site was entombed in 1983.

Waste Characteristics: Wastes handled in the transfer system were evaporator-concentrated laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams.

Release Data: Prior to entombment, beta-gamma dose rates measured at 3 ft above ground surface ranged from 240 mR/h to 1R/h. Soil sample analysis revealed significant mixed fission product contamination with concentrations ranging from 0.01 to approximately 50 Ci/g of beta-gamma activity, and gross alpha activities up to 1 mCi/g. Beta-gamma activity was primarily Cs-137 and Sr-90. The primary alpha emitter was Cm-244, with minor concentrations of Am-241, Pu-238, and Pu-239. A multilayer cover was placed over the site, and the area was fenced.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In 1987, surface measurements showed low levels of gamma activity over an area of ~200 ft2 (~18.6 m2) that extends along the southwest base of the asphalted site. This contamination area was grassy and is mostly covered with cut trees, vegetative debris, and fill dirt.

Date Prepared: April 1987

Update: September 1990

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0004C

Unit Name: LLLW Lines and Leaks Sites -- End of Trench 7 Access Road (Leak Site 2)

Location of Unit: The leak occurred in a plastic pipe north of Trench 7 (WAG 7).

General Dimensions and Capacities: SWMU X07-0004C is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled was approximately 3000 gal (11,356 L).

Function of the Unit: The transfer line was designed to transport LLLW from Bethel Valley Storage tanks to the Old Hydrofracture Facility.

Date of Operation: The spill was reported April 1966.

Waste Characteristics: The waste was evaporator concentrated LLLW.

Release Data: Near the end of the waste transfer to the trenches, a section of plastic pipeline ruptured, and approximately 3000 gal (11,356 L) of waste spilled in an area just north of Trench 7. The total activity was estimated at 100 Ci, consisting mainly of Cs and Ce and about 10 Ci of Sr. The contamination was covered with approximately 5 ft (1.5 m) of soil, and the area was contoured to prevent leaching by surface water. None of the contamination was permitted to reach the creek.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Results of 1987 radiological survey in areas near Trench 7 and including the SWMU X07-0004C leak site, show extensive contamination (primarily beta-radiation contamination) in soil, ground-cover, and trees. An elongated, contiguous region of residual contamination was identified along the north/northwest sides of the Trench 7 Access Road, and northeast/west sides of Trench 7. Measurements indicate that ~200 ft of the access road is contaminated at the road surface. The total area of surface contamination at the leak site is estimated to be 0.75 acres. It is believed that SWMU X07-0004C is the primary contributing source of identified surface contamination. At the contaminated region west of the access road, surface beta-gamma measurements averaged 3.5 mrad/h, whereas 1 mrad/h readings were recorded at 1 m from the ground surface. Beta-gamma activity levels of up to 70 mrad/h were measured on contact with an American elm tree located near the leak site. Analytical results of three surface soil samples collected from the access road and adjacent contaminated region, demonstrate elevated gross beta and Sr-90 concentrations. Highest concentrations (12,000 pCi/g of gross beta and 5400 pCi/g of Sr-90) were determined from a soil sample taken in the contaminated soil region.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0004D

Unit Name: Leak in Transfer Line from Decontamination Facility (7819) to Pit 1 (7805)

Location of Unit: The leak site is located 60 ft (18.3 m) south of Lagoon Road and 35 ft (10.7 m) west of the access road to the pits and Trenches Area. The ORNL grid coordinates are N 19,020 and E 26,940.

General Dimensions and Capacities: The total area of contamination is reported to encompass about 925 ft2 (86 m2)

Function of the Unit: A 6-in. (15-cm) drain line served to transfer decontamination waste solutions from the Decontamination Facility (Bldg. 7819, SWMU X07-0001) to LLLW Pit 1 (Bldg. 7805, SWMU X07-0005).

Date of Operation: The date of the leak is not known; however, the facility was operated from the early 1960s through the early 1970s.

Waste Characteristics: A preliminary environmental survey for Bldg. 7819 found Cs-137 to be the dominant radionuclide in soils surrounding the facility. It is believed that the wastes from Bldg. 7819 would consist of corrosive wastes (i.e., acids) and radionuclides associated with the equipment being decontaminated.

Release Data: The dominant detectable radionuclide was Cs-137. There may have been some corrosive wastes and additional radionuclides that were associated with the decontamination procedures.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In February 1987, a radiological and hazardous waste scoping survey was conducted of a leak site at a transfer line between Building 7819 and Pit 1. Three regions of contamination were found at the survey site. One of these area (Region A, ~86 m2) is the result of residual contamination at the point of the line leak. Beta-gamma activity levels on the ground surface in Regions A, B, and C ranged to ~20, ~4, and ~4 mrad/h, respectively. Region B (~72 m2) is most likely the result of contaminant migration from Pit 1, whereas Region C (~10 m2) is believed to be associated with residual contamination from the line leak. Results of biased soil samples indicate Cs-137 as the dominant detectable radionuclide, with a maximum of 43,000 pCi/g and an average of 3100 pCi/g. Four RCRA hazardous waste characteristics [extraction procedure (EP) toxicity, ignitability, corrosivity, and reactivity] were not exhibited from eight soil samples taken at the survey site.

Date Prepared: August 1987

Update: September 1990

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0004E

Unit Name: LLLW Line Leak Site -- Leak in Line Between Pit 3 (7807) and Trench 6 (7810)

Location of Unit: The leak site is located at a valve pit at the connection between the pipeline to Waste Pit 3 and the line to Waste Trench 6. ORNL coordinates are N 18,750 and E 26,975.

General Dimensions and Capacities: Estimated as approximately 10 cu yd.

Function of the Unit: The valve box was used to divert waste from the Main Plant Area (WAG 1) to either Waste Pit 3 or Waste Trench 6.

Date of Operation: Reported to occur in 1961.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: The site was supposedly remediated in 1974 with the removal of the valve box and some associated pipe. A 1982 radiological walkover survey indicated radiation levels up to 4 mR/h. It is not known if further remediation was performed.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: September 1990

Update: September 1990

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0004F

Unit Name: LLLW Line Leak Site -- Leak at Valve Pit North of Trench 7 (7818)

Location of Unit: Located directly north of Waste Trench 7. Approximate ORNL grid coordinates are N 17,750 and E 27,750.

General Dimensions and Capacities: Unknown, site includes valve pit with 2 valves and piping.

Function of the Unit: Transfer LLLW from the Main Plant Area (WAG 1) to Waste Trench 7 and the Old Hydrofracture Facility (SWMU X05-0003).

Date of Operation: Line in use from 1963-1964 to 1983.

Waste Characteristics: Wastes handled in the collection system were routinely generated Laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources. (See waste description entry for SWMU X01-0005A for additional details.)

Release Data: A survey in 1987 indicated that a small area on the northwest side of the trench measured approximately 83 mrad/h.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Results of a 1987 radiological survey in area near Trench 7 and including the X07-0004F valve pit, show extensive contamination in soil, ground-cover, and trees. An elongated, contiguous region of residual contamination was identified along the north/northwest sides of the Trench 7 Access Road, and northeast/west sides of Trench 7. Surface measurements taken at the valve pit indicate primarily gamma activity on the ground surface. Measurements of backfill soil indicate elevated levels of beta radiation. Surface beta-gamma measurements at a small area on the northwest side of the pit showed readings ranging to 83 mrad/h. In addition, a large green ash tree found near the west side of the pit measured 10 mrad/h on contact with the trunk and attached leaves.

Date Prepared: September 1990

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0005

Unit Name: Pit 1 (7805)

Location of Unit: Pit 1 is located just west of SWSA 4 in Melton Valley. ORNL grid coordinates are N 18,830 and E 26,850.

General Dimensions and Capacities: The pit is 100 ft (30 m) long by 20 ft (6 m) wide. Pit 1 is estimated to have held >123,000 gal (465,600 L) of liquid waste.

Function of the Unit: The purpose of the pit was to hold concentrated liquid waste.

Date of Operation: The pit received 122,985 gal (465,550 L) of concentrated liquid waste between July and October 1951. It received additional discharges from the decontamination facility (Building 7819) between 1962 and 1964.

Waste Characteristics: The first waste the pit received was very alkaline (pH 12.5) and contained Cs-137, Ru-106, U, and Pu. The estimated radionuclide activities for Cs-137 and Ru-106 are 233 Ci and 156 Ci, respectively. In addition, it is estimated that 432 lb (196 kg) of U and 0.59 lb (266 mg) of Pu was discharged into the pit. The nature of the waste that was discharged into the pit between 1962 and 1964 is unknown; the total activity was probably small.

Release Data: Discharges to the pit were temporarily discontinued on October 5, 1951 when a leak was discovered. The leak contained primarily Ru-106. Discharges from the Decontamination Facility, Building 7819, to the pit in 1962 may have continued until 1981.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Gamma exposure rates taken outdoors at Pit 1 and the surrounding area were generally elevated above background with a maximum measurement of 10 mR/h at the ground surface. Significant beta activity (most likely Sr-90) was detected on contact with many of the trees in the surveyed area. The beta activity levels observed on the leaves and trunks of the hardwood trees in the contaminated areas around Pit 1 are believed to result from uptake of residual soil radionuclides from the documented seepage around the pit.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0006/

Unit Name: Pit 2 (7806)

Location of Unit: ORNL grid coordinates are N 17,670 and E 26,010. Pit 2 is located just southwest of Pit 1.

General Dimensions and Capacities: Pit 2 was 200 ft (61 m) long and 100 ft (30 m) wide. Pits 2, 3, and 4 have received an estimated 21,000,000 gal (79,500,000 L) of liquid waste.

Function of the Unit: The pit was built to dispose of liquid waste (LLLW).

Date of Operation: Site commissioned: 1952. Taken out of service: 1962. Site backfilled and covered with asphalt in 1963.

Waste Characteristics: Between 1952 and 1954, the pit received 1,294,443 gal (4,900,000 L) of concentrated liquid waste containing 16,600 Ci of beta activity. After 1955, Pit 2 received overflow through pipes from Pit 3. For this reason, it is not possible to determine the amounts of radioactivity it received after 1955. In 1957, sludge from the older process waste treatment plant was also disposed of in the pit. The amount of radioactivity the pit received from the sludge was relatively small. Between 1959 and 1961 pits 2, 3, and 4 received large discharges of Ru-106, but because of the interconnecting overflow pipes between the pits it is impossible to determine the amount of activity Pit 2 received. It is estimated that pits 2, 3, and 4 together are contaminated with Cs-137, Ru-106, Sr-90, and trivalent rare earths (TRE) having activities of 184,000 Ci; 230,000 Ci; 42,000 Ci; and 70,000 Ci, respectively.

Release Data: The pit seeped Ru-106 during period of operation. Essentially all of the Ru-106 has now decayed. Stream surveys conducted in drainages in the area indicate past contamination by Sr-90 and Co-60.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at Pits 2, 3, 4, and environs from January through May of 1989 by the Oak Ridge National Laboratory. Numerous spots with elevated gamma exposure rates were identified in the grassy areas around the pits and in the woods. In comparison, the asphalt caps covering the pits generally showed lower gamma radiation levels. Also, soil, water, and some vegetation and animal life in the area were contaminated. Primary soil contaminants were beta activity and Cs-137; however, strontium was measured in vegetation, so it is most likely present in the soil as well. Water from a wet-weather stream contained beta activity and Cs-137; water from a surface seep contained alpha and beta activity and Co-60. Vegetation samples contained beta activity and Cs-137 or strontium.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: [illegible]

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0006B

Unit Name: Pit 3 (7807)

Location of Unit: ORNL grid coordinates are N 17,840 and E 26,290. Pit 3 is located just northeast of Pit 2.

General Dimensions and Capacities: Pit 3 was 230 ft (70 m) long and 100 ft (30 m) wide. Pits 2, 3, and 4 have received an estimated 21,000,000 gal (79,500,000 L) of liquid waste.

Function of the Unit: The pit was built to dispose of liquid waste (LLLW).

Date of Operation: Site commissioned: 1955. Site stopped operating: 1961. Site backfilled and covered with asphalt: 1963.

Waste Characteristics: Because of the interconnecting overflow pipes between Pits 2, 3, and 4, it is impossible to determine the amount of activity Pit 3 received. Pits 2 and 3 together probably contain most of the Sr-90 and Cs-137 discharged to all the pits. It is estimated that Pits 2, 3, and 4 together are contaminated with Cs-137, Ru-106, Sr-90, and TRE having activities of 184,000 Ci; 230,000 Ci; 42,000 Ci; and 70,000 Ci, respectively.

Release Data: The pit seeped Ru-106 during period of operation. Essentially all of the Ru-106 has now decayed. Stream surveys conducted in drainages in the area indicate past contamination by Sr-90 and Co-60.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at Pits 2, 3, 4, and environs from January through May of 1989 by the Oak Ridge National Laboratory. Numerous spots with elevated gamma exposure rates were identified in the grassy areas around the pits and in the woods. In comparison, the asphalt caps covering the pits generally showed lower gamma radiation levels. Also, soil, water, and some vegetation and animal life in the area were contaminated. Primary soil contaminants were beta activity and Cs-137; however, strontium was measured in vegetation, so it is most likely present in the soil as well. Water from a wet-weather stream contained beta activity and Cs-137; water from a surface seep contained alpha and beta activity and Co-60. Vegetation samples contained beta activity and Cs-137 or strontium.

Date Prepared: April 1987

Update: September 1990

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0006C

Unit Name: Pit 4 (7808)

Location of Unit: ORNL grid coordinates are N 17,280 and E 25,970. Pit 4 is located just downhill and south from Pit 2.

General Dimensions and Capacities: Pit 4 was 230 ft (70 m) long and 100 ft (30 m) wide. Pits 2, 3, and 4 have received an estimated 21,000,000 gal (79,500,000 L) of liquid waste.

Function of the Unit: The pit was built to dispose of liquid waste (LLLW).

Date of Operation: Pit 4 began to receive overflow from Pit 2: 1956. Taken out of service: 1976. Backfilled: 1976. Paved with asphalt: 1980.

Waste Characteristics: Because of the interconnecting overflow pipes between the pits it is impossible to determine the amount of activity Pit 2 received. It is estimated that pits 2, 3, and 4 together are contaminated with Cs-137, Ru-106, Sr-90, and TRE having activities of 184,000 Ci; 230,000 Ci; 42,000 Ci; and 70,000 Ci, respectively.

Release Data: The pit has leakage problems. In 1959 and 1961, interceptor trenches were dug and the liquid was pumped back to the pit.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at Pits 2, 3, 4, and environs from January through May of 1989 by the Oak Ridge National Laboratory. Numerous spots with elevated gamma exposure rates were identified in the grassy areas around the pits and in the woods. In comparison, the asphalt caps covering the pits generally showed lower gamma radiation levels. Also, soil, water, and some vegetation and animal life in the area were contaminated. Primary soil contaminants were beta activity and Cs-137; however, strontium was measured in vegetation, so it is most likely present in the soil as well. Water from a wet-weather stream contained beta activity and Cs-137; water from a surface seep contained alpha and beta activity and Co-60. Vegetation samples contained beta activity and Cs-137 or strontium.

Date Prepared: April 1987

Update: September 1990

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0007

Unit Name: Trench 5 (7809)

Location of Unit: ORNL grid coordinates are N 17,470 and E 26,760. Trench 5 is located on a ridgetop perpendicular to strike just east of pits 2, 3, and 4.

General Dimensions and Capacities: Trench 5 is 300 ft (90 m) long by 3 ft wide. It has received an estimated 9,500,000 gal (36,000,000 L) of waste.

Function of the Unit: The site was built to dispose of liquid waste (LLLW).

Date of Operation: The trench was constructed in 1960 and used until 1966. It was paved with an asphalt cover in 1970.

Waste Characteristics: Trench 5 has received Cs-137, Ru-106, Sr-89 and Sr-90 and Co-60, with radionuclide activities of 205,600 Ci, 96,750 Ci, and 3045 Ci respectively. Between 1960 and 1966, the trench received about 3962 gal (15,000 L) per day of liquid waste.

Release Data: No visual leakage has been observed from this trench.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Preliminary results of a 1990 radiological survey at Trench 5 indicate several surface "hot" spots circumjacent to the trench and on the trench cap. Corrugated venting pipe rising vertically from the trench show gamma exposure rates ranging from 4 mR/h to near 20 mR/h. The primary contaminant has been tentatively identified as Cs-137. A valve at the end of a buried pipe across the gravel access road show high levels of gamma radiation. The exposure rate is 80 mR/h on contact with the valve and ~10 mR/h at 10 ft. Contaminated metal pipe on the east and west sides of the trench have been identified.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0008

Unit Name: Trench 6 (7810)

Location of Unit: ORNL grid coordinates are N 18,680 and E 27,980. Trench 6 is located on a ridgetop just south of SWSA 4.

General Dimensions and Capacities: Trench 6 is U shaped and is 500 ft (154 m) long by 10 ft (3 m) wide. It has received an estimated 180,000 gal (681,000 L) of liquid waste.

Function of the Unit: The site was built to dispose of liquid waste (LLLW).

Date of Operation: Trench 6 was constructed in 1961. Because of severe leakage problems, it was used for only about 1 month. It was paved with an asphalt cover in 1981.

Waste Characteristics: Trench 6 has received Cs-137, Ru-106, Sr-90, and Co-60, with radionuclide activities of 665 Ci, 501 Ci, 145 Ci, and 24 Ci, respectively.

Release Data: The trench had severe Sr-90 and Cs-137 leakage problems when it was first put into service. For this reason, it was only used about 1 month.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: In 1989, ~40 to 50 contaminated trees were found along a line extending from the south end of Trench 6 southwestward into a large contaminated area that extended 20 ft south of the LLLW Leak Site (X07-0004B), westward ~250 ft, and beyond the survey boundary. The contamination spread to a width of 100 ft at the widest point. Surface gamma exposure rates ranged from 30 to 560 uR/h over most of this area. Residual beta contamination in the tree trunks measured 17 mrad/h at breast height, and decaying leaves on the ground measured 1.7 mrad/h. Results of radiological analyses showed that the dried leaves contained 6500 pCi/g gross beta activity, 3.2 pCi/g Co-60, and 1.1 pCi/g Cs-137. Fresh leaves from another tree contained 8100 pCi/g gross beta activity and 26 pCi/g Co-60. Surface gamma exposure rates on the asphalt covering Trench 6 ranged from 8 to 17 uR/h with one spot measuring 50 uR/h and several vertically protruding pipes (vents) measuring 130 uR/h on contact.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0009

Unit Name: Trench 7 (7818)

Location of Unit: ORNL grid coordinates are N 17,440 and E 27,600. Trench 7 is located east of Trench 5.

General Dimensions and Capacities: Trench 7 is 200 ft (60 m) long by 12 ft (3.6 m) wide. It has received an estimated 9,500,000 gal (36,000,000 L) of liquid waste.

Function of the Unit: The site was built to dispose of liquid waste (LLLW).

Date of Operation: Trench 7 was built in 1962. It was used until 1966 and paved with asphalt in 1970.

Waste Characteristics: Trench 7 has received Cs-137, Ru-106, Sr-90, and Co-60, with radionuclide activities of 231,000 Ci, 3400 Ci, 48,000 Ci, and 1500 Ci, respectively.

Release Data: Trench 7 has received more extensive study recently than the other pits and trenches. Little Sr-90 and Cs-137 has been found in groundwater in the vicinity of Trench 7. The lack of Sr-90 mobility is attributed to alkaline treatment of the trench, and the lack of Cs-137 mobility is attributed to irreversible sorption to illite. However, the treatments to retain Sr-90 may have increased the mobility of U-233, H-3, Co-60, and Tc-99. High concentrations of Tc-99 were found in groundwater and leaves of trees whose roots are apparently very efficient at extracting Tc-99 from the soil and groundwater. Pu-238, Pu-239, and Pu-240 have also been found in soil near Trench 7. The progressive enrichment of Pu-238 and Pu-240 relative to Pu-239 with distance from the trench suggests that much of the Pu contamination in the surrounding soils has resulted from the migration of Cm-242 and Cm-244 and their subsequent decay to Pu-238 and Pu-240, respectively, rather than from the migration of plutonium.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Results of a 1987 radiological survey at Trench 7 and surrounding area show extensive contamination (primarily beta-radiation contamination) in soil, ground-cover, and trees. An elongated, contiguous region of residual contamination was identified along the north/northwest sides of the Trench 7 Access Road, and northeast/West sides of Trench 7. It is believed that X07-0009 is the primary source of surface contamination at these identified areas near Trench 7. In general, beta-gamma levels on contact with ground surface and selected tree trunks at the western slope of Trench 7 ranged from typical background to 1 mrad/h. At the north end of Trench 7, beta-gamma measurements were taken on contact with several species of trees known to have deep root systems. Dose-rate measurements generally ranged from 8 to 14 mrad/h. Radiological measurements on contact with the north end of the asphalt trench cap indicate low levels of gamma radiation. A small group of decaying leaves on the surface of the asphalt cap were found to have significant beta activity, which is believed to be the result of uptake of residual soil radionuclides (most likely Sr-90) by trees in the contaminated area.

Date Prepared: April 1987

Update: September 1990

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0010A

Unit Name: Shielded Transfer Tank (ST1)

Location of Unit: See ORNL grid coordinates N 19,330 and E 27,040. These tanks consist of four Model II tanks designed as RD-C-43, RD-C-44, RD-C-47, RD-C-48, and one Model III tank referred to as the Gun Barrel Tank. Tanks RD-C-43, RD-C-47, RD-C-48, RD-C-44, and the Model III tank are located in a fenced storage yard on the west side of the Decontamination Facility.

General Dimensions and Capacities: The Model II tanks consist of a 500-gal (1900-L) 0.4-in.-thick (1.0-cm-thick) stainless steel liner surrounded with 3.5 in. (9 cm) of lead shielding encased in a 0.75-in. (2-cm) steel outer shell. The vessels contain approximately 395 gal (1500 L) of Decalso inorganic ion exchange medium. Tank RD-C-44 is reported to be empty. The Model III tank consists of a 198-gal (750-L) stainless steel liner encased in 9 in. (23 cm) of steel. The vessel contains approximately 148 gal (560 L) of AW-500 inorganic ion-exchange medium.

Function of the Unit: These tanks were used to ship Cs-137-loaded ion exchange resins to ORNL from Richland, Washington.

Date of Operation: The tanks were used during the 1960s.

Waste Characteristics: The tanks are contaminated with Cs-137. Results from a beta-gamma probe for tanks RD-C-43, RD-C-44, RD-C-47, RD-C-48, and the Gun Barrel Tank gave readings of 2-3 mrad/h, 3-5 mrad/h, 2-3 mrad/h, spots of 10-20 mrad/h, and 2 mrad/h, respectively. Tank RD-C-44 had one spot that gave a reading of 20 mrad/h. Estimated inventory is Cs-137 (2000 Ci).

Release Data: There is no direct evidence of any leakage.

Regulatory Authority: CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0010F

Unit Name: Shielded Transfer Tank (ST2)

Comment: Current information for this tank is provided on summary sheet for SWMU X07-0010A.

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0010C

Unit Name: Shielded Transfer Tank (ST3)

Comment: **Current information for this tank is provided on summary sheet for SWMU X07-0010A.**

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0010L

Unit Name: Shielded Transfer Tank (ST4)

Comment: **Current information for this tank is provided on summary sheet for SWMU X07-0010A.**

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0010E

Unit Name: Shielded Transfer Tank (ST5)

Comment: Current information for this tank is provided on summary sheet for SWMU X07-0010A.

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0011

Unit Name: Septic Tank 7819

Location of Unit: The septic tank is located north of SWSA 4 at the intersection of Lagoon Road and the road leading to the LLLW pits and Trenches. The ORNL grid coordinates are N 19,320 and E 26,980.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 540 gal (2040 L).

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from Building 7819 (Decontamination Facility).

Date of Operation: Installation date is not known; tank is not in service.

Waste Characteristics: Only domestic sewage from Building 7819 has been collected/stored in the tank. No hazardous or radioactive wastes have been added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: August 1987

Update: September 1990

WAG ID Number: 7.0

WAG Name: LLLW Pits and Trenches Area

Unit ID Number: X07-0012

Unit Name: Equipment Storage Area (7841)

Location of Unit: Storage area is on west side of road leading to waste pits 1 to 4. ORNL grid coordinates are N 18,500 and E 26,670.

General Dimensions and Capacities: Area is fenced; approximately 0.75 acres.

Function of the Unit: Used as an aboveground storage area for surplus tanks and other equipment.

Date of Operation: Area fenced in 1979; still in use.

Waste Characteristics: Soil may be contaminated with fission products.

Release Data: No releases reported.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No New information since summary wheet was prepared.

Date Prepared: April 1990

Update: September 1990

WAG ID Number: 3.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0001A

Unit Name: HFIR/TRU Waste Collection Basin -- (7905)

Location of Unit: The unit is located south of the High Flux Isotope Reactor (HFIR) at the Melton Valley ORNL facilities complex. ORNL grid coordinates are N 16,740 and E 32,620.

General Dimensions and Capacities: The site was an unlined waste collection basin. Capacity: 240,000 gal (900,000 L). Dimensions: 86 x 116 ft (26 x 35 m) at the top of the berm and 40 x 70 ft (12 x 21 m) at the bottom of the pond. Maximum depth is 7.0 ft (2.1 m). Elevation at the top of the pond is 804 ft (245 m) MSL.

Function of the Unit: This basin was called the Cold Pond and was formerly used as an intermediate storage and collection basin for liquid wastes from the HFIR facility. The basin also served as an emergency storage basin for the radiologically contaminated blowdown water from the cooling tower in Building 7902. The waste streams collected consist of floor drain, laboratory drains, steam condensates, process vessel cooling water, and precipitation falling directly on the basin.

Date of Operation: Site commissioned: 1965. Site is still in use as an emergency storage basin.

Waste Characteristics: Wastes streams consisted of floor drains, laboratory drains, stream condensates, and process vessel cooling water containing nitric acid, sodium hydroxide, and sulfuric acid. Co-60 is the major radionuclide present. Recent sludge analysis indicates that none of the data for metals, pesticides, or herbicides exceeded the maximum concentrations of contaminants for the characteristics of EP toxicity. Among the non-EP-TOX limited volatile organics, only a few were identified as present above the analytical detection limits. There is about 12 in. (30 cm) of sludge in the pond.

Release Data: Effluent from the pond was released to Melton Branch or pumped to the Equalization Basin (3524) in Bethel Valley for treatment. Because the pond was not lined, some leakage probably occurred. For example, four quarters of groundwater monitoring have shown significantly higher levels of Mn, Na, sulfate, nitrate, gross alpha, and gross beta in groundwater downgradient as compared to groundwater upgradient of the basin. No accidental releases from the pond were reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at HFIR/TRU Waste Collection Basin 7905, 7906, 7907, and 7908 from May to July of 1989 and February to March of 1990. Surface gamma exposure rates over the site generally ranged from 24 to 48 uR/h. Most elevated gamma levels were attributed to radiation emanating from Basin 7905 and 7906, with measurements reaching 180 uR/h near the Contamination Area fence. Nine scattered spots of surface contamination ranging from 6 to 960 uR/h were identified inside the HFIR/TRU fence. Soil sample analyses indicated that the primary soil contaminant was Co-60.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 30

WAG Name: Melton Valley Area

Unit ID Number: X08-0001B

Unit Name: HFIR/TRU Waste Collection Basin -- (7906)

Location of Unit: The unit is located south of the High Flux Isotope Reactor (HFIR) at the Melton Valley, ORNL facilities complex. ORNL grid coordinates are N 16,700 and E 32,490.

General Dimensions and Capacities: This site was an unlined waste collection basin. Capacity: 500,000 gal (1,890,000 L). Dimensions: 167 x 116 ft (51 x 35 m) at top and 121 x 70 ft (37 x 21 m) at bottom. Average sediment depth is about 8 in. (20 cm).

Function of the Unit: In addition to receiving liquid wastes from HFIR, Basin 7906 could also receive diverted waste streams from TURF and the Transuranium Processing Plant (TRU). This basin was called the Hot Pond because it received wastes that were thought to contain radionuclides.

Date of Operation: Site commissioned: 1965. Site is still in use as an emergency storage basin only.

Waste Characteristics: Contaminants from the TRU and TURF facilities (if released) were primarily plutonium and daughter nuclides with alpha-emitting particles and atomic weights greater than 93. The major radionuclide from the HFIR was Co-60. Nonradioactive wastes included sodium and potassium hydroxide and acids. Recent sludge analysis indicates that none of the data for metals, pesticides, or herbicides exceeded the maximum concentrations of contaminants for the characteristics of EP toxicity.

Release Data: Basins 7905, 7906, 7907, and 7908 are reported to contain less than 10 Ci of radioactivity. Effluent from the basin was released to Melton Branch or pumped to the Equalization Basin (3524) for treatment. No accidental releases from the pond were reported. Four quarters of groundwater monitoring have indicated significantly higher levels of Mn, Na, nitrate, sulfate, and gross beta activity in a groundwater well downgradient as compared to upgradient of the basin.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at HFIR/TRU Waste Collection Basins 7905, 7906, 7907, and 7908 from May to July of 1989 and February to March of 1990. Surface gamma exposure rates over the site generally ranged from 24 to 48 uR/h. Most elevated gamma levels were attributed to radiation emanating from Basin 7905 and 7906, with measurements at 1 m reaching 180 uR/h near the Contamination Area fence. Nine scattered spots of surface contamination ranging from 60 to 960 uR/h were identified inside the HFIR/TRU fence. Soil sample analyses indicated that the primary soil contaminant was Co-60.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 30

WAG Name: Melton Valley Area

Unit ID Number: X08-0001C

Unit Name: HFIR/TRU Waste Collection Basin -- (7907)

Location of Unit: The site is located south of Building 7900 (HFIR) in Melton Valley. ORNL grid coordinates are N 16,680 and E 32,380.

General Dimensions and Capacities: This site was an unlined waste collection basin. Capacity: 50,000 gal (180,000 L). Dimensions: 60 x 80 ft (18 x 24 m) at the top of the berm; depth is about 11 ft (3.4 m). Average depth of sediments is 2.4 in. (6.0 cm).

Function of the Unit: The basin was designed to receive process waste streams from the TRU. During operation, Basin 7907 was filled and emptied alternately with Basin 7908. Waste streams were derived from floor drains, laboratory drains, steam condensates, and process vessel cooling waters. The basin was also called the Number 3 Pond or the TRU A Pond.

Date of Operation: Site commissioned: 1965. Site is still in use as an emergency storage basin only.

Waste Characteristics: The major radionuclide in the process waste was Cm-244. Recent sludge analyses indicate that none of the data for metals or pesticides and herbicides exceeded the maximum concentration of contaminants for characteristics of EP Toxicity.

Release Data: If radioactive contamination was detected, the wastes were formerly pumped to Basin 3524 in the ORNL Bethel Valley complex. Noncontaminated water was discharged to Melton Branch. No accidental releases from the pond were reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at HFIR/TRU Waste Collection Basins 7905, 7906, 7907, and 7908 from May to July of 1989 and February to March of 1990. Surface gamma exposure rates over the site generally ranged from 24 to 48 uR/h. Most elevated gamma levels were attributed to radiation emanating from Basin 7905 and 7906, with measurements at 1 m reaching 180 uR/h near the Contamination Area fence. Nine scattered spots of surface contamination ranging from 60 to 960 uR/h were identified inside the HFIR/TRU fence. Soil sample analyses indicated that the primary soil contaminant was Co-60.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 3.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0001D

Unit Name: HFIR/TRU Waste Collection Basin -- (7908)

Location of Unit: The site is located south of Building 7900 (HFIR) in Melton Valley. ORNL grid coordinates are N 16,660 and E 32,310.

General Dimensions and Capacities: The site was an unlined waste collection basin. Capacity: 50,000 gal (180,000 L). Dimensions: 60 x 80 ft (12 x 24 m) at the top of the berm; depth is about 11 ft (3.4 m). Average depth of sediments is 2.4 in. (6.0 cm).

Function of the Unit: The basin was designed to receive process waste streams from the TRU. During operation, Basin 7908 was filled and emptied alternately with Basin 7907. Waste streams were derived from floor drains, laboratory drains, steam condensates, and process vessel cooling waters. This basin was also called the TRU B pond.

Date of Operation: Site commissioned: 1965. Site is still in use as an emergency storage basin only.

Waste Characteristics: The major radionuclide in the process waste was Cm-244. Recent sludge analyses indicate that none of the data for metals or pesticides and herbicides exceeded the maximum concentration of contaminants for characteristics of EP Toxicity, and only a few of the organics exceeded detection limits.

Release Data: If radioactive contamination was detected, the wastes were pumped to Basin 3524 in the ORNL Bethel Valley complex. Noncontaminated water was discharged to Melton Branch. No accidental releases from the pond were reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: A surface radiological investigation was conducted at HFIR/TRU Waste Collection Basins 7905, 7906, 7907, and 7908 from May to July of 1989 and February to March of 1990. Surface gamma exposure rates over the site generally ranged from 24 to 48 uR/h. Most elevated gamma levels were attributed to radiation emanating from Basin 7905 and 7906, with measurements of 1 m reaching 180 uR/h near the Contamination Area fence. Nine scattered spots of surface contamination ranging from 60 to 960 uR/h were identified inside the HFIR/TRU fence. Soil sample analyses indicated that the primary soil contaminant was Co-60.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 3.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0002

Unit Name: Hydrofracture Experimental Site 2 (HF-S2A)

Location of Unit: The injection well for Hydrofracture Experimental Site 2 is located at ORNL grid coordinates N 16,817 and E 31,260.

General Dimensions and Capacities: Two injections were performed. The first was at a depth of 934 ft (285 m) and used 91,567 gal (346,618 L) of grout tagged with 25 Ci Cs-137, and the second at 695 ft (212 m) used 132,700 gal (502,324 L) of grout and 25 Ci of Cs-137.

Function of the Unit: This site was the second test facility for testing the use of hydrofracturing as a method of LLLW disposal. It was set up so that a deeper injection well could be used in an area of known geology.

Date of Operation: Two injections were performed on September 3 and 10, 1960.

Waste Characteristics: Both of these tests were also conducted with a grout made of water and grout additives. A total of 50 Ci of Cs-137 was injected. No hazardous chemicals other than the radioactivity were added.

Release Data: No records can be found indicating any spills or leakage at this site. The injection well is currently covered by a road.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 30

WAG Name: Melton Valley Area

Unit ID Number: X08-0003A

Unit Name: LLLW Lines and Leak Sites -- Lagoon Road and Melton Valley Drive

Location of Unit: This site was due to a break in the transfer line at the Lagoon Road and Melton Valley Drive intersection, where the transfer line crosses White Oak Creek near the bridge to the 7500 Area.

General Dimensions and Capacities: SWMU X08-0003A is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The Melton Valley transfer line was installed to allow wastes generated in buildings 7500 (HRE, now NSPP) and 7503 (MSRE) to be pumped to the main plant storage tanks and the evaporator prior to disposal.

Date of Operation: LLLW transfer system commissioned: June 1954. Site leak date: April-June 1960.

Waste Characteristics: Wastes handled in the collection system were routinely generated laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams.

Release Data: The break was due to damage by heavy equipment. The leak did not result in a serious hazard but could have seriously contaminated the creek if it had occurred at a time when waste transfer was being made. An inspection of the line at the creek, while repairs were in progress, indicated that there may have been other leaks in the line.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0003B

Unit Name: LLLW Lines and Leak Sites -- Melton Valley Drive and SWSA 5 Access Road

Location of Unit: This site was located in the transfer line near the Melton Valley Drive and SWSA 5 Access Road intersection. One of the two leaks this site labels was between the Melton Valley pumping station and the South Tank Farm at the entrance to SWSA 5. Both failures occurred at mechanical, neoprene-gasketed pipe joints.

General Dimensions and Capacities: SWMU X08-0003B is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The main plant area LLLW collection system was installed in the 1940s to transfer wastes from various sources to the collection and storage tanks. The original system was constructed of cast-iron pipe; more recent additions and modifications are of stainless steel. Many of the reported leak/spill sites are located near the collection and storage tanks serving the LLLW lines; others are along the lines themselves; and still others are not leaks at all but are spills, e.g., from pumping accidents.

Date of Operation: LLLW transfer system commissioned: June 1954. Site leak date: July 9 and 31, 1970.

Waste Characteristics: Wastes handled in the collection system were routinely generated laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams.

Release Data: The contamination in both locations was removed so that there was no significant release of activity into the creek. The main section of pipe was repaired, pressure tested, and returned to service.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG Name: Melton Valley Area

Unit ID Number: X08-0003C

Unit Name: LLLW Lines and Leak Sites -- 7500 Area

Location of Unit: This site is located in the area north of the Nuclear Safety Pilot Plant (NSPP), Building 7500. The spill occurred when a coupling failed in the waste transfer line.

General Dimensions and Capacities: SWMU X08-0003C is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled was reported to be 2100 gal (7950 L).

Function of the Unit: The Melton Valley waste transfer line was used to transport LLLW from Melton Valley reactor facilities to the main ORNL plant area for storage and treatment prior to disposal.

Date of Operation: Site leak date: July 1969.

Waste Characteristics: Wastes handled in the collection system were routinely generated laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams. The contamination was Cm-244 and a mixture of fission products.

Release Data: A 2100 gal (7950 L) spill occurred when a coupling in the waste transfer line failed. The contamination was cleaned up in about two weeks. The amount of radioactivity released into the Clinch River from the spill was not significant. In another spill that occurred, the purge water from the hot storage pool in Building 7500 was discharged to the ground and flowed along natural drainage east of Building 7500.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 6.0

WAG Name: Melton Valley Area

Unit ID Number: X08-000*D

Unit Name: LLLW Lines and Leak Sites -- West of Melton Valley Pumping Station

Location of Unit: This site is located west of the Melton Valley Pumping Station.

General Dimensions and Capacities: The transfer line is a 2-in. (5-cm) stainless steel line.

Function of the Unit: This line was used to transfer liquid waste from Melton Valley to the Tank Farm.

Date of Operation: Site leak date: January 15, 1971.

Waste Characteristics: Wastes handled in the collection system were routinely generated laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams.

Release Data: A 100-sq-ft (9-sq-m) area was contaminated while liquid waste was being transferred from Melton Valley to the Tank Farm. The area was subsequently excavated. There was no spread of contamination outside the immediate area and no contamination of personnel. Exposures were not beyond normal working limits.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG Name: Melton Valley Area

Unit ID Number: X08-0003E

Unit Name: LLLW Lines and Leak Sites – Building 7920 and Melton Valley Pumping Station Area

Location of Unit: This site is on the transfer line between the Melton Valley Pumping Station and the Transuranium Processing Plant, Building 7920.

General Dimensions and Capacities: SWMU X08-0003E is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The transfer line is used to transport waste from the Transuranium Processing Plant (Building 7920) to the Melton Valley Pumping Station and then to the main ORNL plant area.

Date of Operation: Site leak date: July 1980.

Waste Characteristics: LLLW resulting from hot cell operations in Building 7920 (Transuranium Pilot Plant) related to recovery of certain transuranic elements for R&D operations. LLLW should contain some plutonium, uranium, and transuranic isotopes plus the usual nuclides found in ORNL LLLW.

Release Data: The leak occurred at a mechanical, neoprene-gasketed pipe joint in the transfer line. The contamination was removed so that there was no significant release of activity into the creek. The line from the Transuranium Processing Plant could not pass the pressure test after the repairs were made and was removed from service. It was replaced, on an emergency basis, with a new line.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG Name: Melton Valley Area

Unit ID Number: X08-0003F

Unit Name: LLLW Lines and Leak Sites -- 7920 Ditch Line

Location of Unit: This site is in the LLLW line from the Transuranium Processing Plant (Building 7920) along the HFIR access road.

General Dimensions and Capacities: SWMU X08-0003F is a leak/spill site. No dimensions are available, and the amount of waste leaked or spilled is not known.

Function of the Unit: The transfer line transports waste from Building 7920 to the Melton Valley Pumping Station.

Date of Operation: Date leak reported: January 31, 1972.

Waste Characteristics: LLLW resulting from hot cell operations in Building 7920 (Transuranium Pilot Plant) related to recovery of certain transuranic elements for R&D operations. LLLW should contain some plutonium, uranium, and transuranic isotopes plus the usual nuclides found in ORNL LLLW.

Release Data: The liquid from this leak crossed under the road through the culverts and flowed along the natural drainage parallel to Melton Branch Circle in a southerly direction.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0003C

Unit Name: LLLW Lines and Leak Sites -- The Melton Valley Transfer Line

Location of Unit: The old pipeline ran parallel to Melton Valley Drive to the Melton Valley Pumping Station and then extended south to the TRU and HFIR facilities.

General Dimensions and Capacities: The original transfer line was a flanged and gasketed carbon steel pipeline. A new line replaces the earlier cast-iron line and is a 2-in.-diam (5-cm-diam) stainless steel line with a cathodic protection system.

Function of the Unit: The new line connects the Melton Valley Pumping Station and the evaporator service tanks.

Date of Operation: LLLW transfer system commissioned: June 1954. Date line replaced: 1973.

Waste Characteristics: Wastes handled in the collection system were routinely generated laboratory LLLW. Major radionuclides were Sr-90, Cs-137, Ru-106, Co-60, and various rare earths. Some plutonium, uranium, and TRU isotopes were also present in the waste streams from certain sources.

Release Data: Leaks have been reported in the old transfer line; no reported leaks in the new line.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0004

Unit Name: Hazardous Waste Storage Facility (7507)

Location of Unit: This facility is located adjacent to the MSRE site. ORNL grid coordinates are N 18,640 and E 32,640.

General Dimensions and Capacities: The building area is about 1467 sq ft (136 sq m) and is constructed of metal siding. Storage is restricted to not more than 200 drums/containers. Normal loading is 130 drums/containers.

Function of the Unit: The site is used to store hazardous waste material. It is currently registered with the state of Tennessee and EPA as an interim-status hazardous waste storage facility.

Date of Operation: Initiation of storage: 1981. Operation will terminate when Building 7652 is operable.

Waste Characteristics: Hazardous wastes are stored within the building pending shipment to an EPA-permitted commercial facility for treatment/disposal. Wastes include laboratory chemical wastes; ignitable, corrosive, and/or EP toxic wastes; or PCB liquids and solids.

Release Data: No releases have been reported.

Regulatory Authority: RCRA-Permit

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet. Currently is storing PCB contaminated soil and water derived from a tank spill.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0005

Unit Name: Active LLLW Collection and Storage Tank WC-20

Location of Unit: The ORNL coordinates for the unit are N 19,000 and E 32,600. This tank is locate in Melton Valley.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank set in stainless-steel-lined concrete vault (double containment). It is 10 ft (3 m) in diameter, 19.0 ft (5.9 m in length and is 7.5 ft (2.3 m) below the surface of the ground. It has a volume of 10,000 gal (37,85 L) and a normal operating volume of 7000 gal (26,497 L).

Function of the Unit: The tank receives waste from Buildings 7920 and 7930. It discharges to Buildin 7567.

Date of Operation: Date installed: 1976. Tank is still in service.

Waste Characteristics: No analysis of the waste has been reported. Major radionuclides of concern i LLLW are considered to be Sr-90, Cs-137, Co-60, and TRU. Various short-half-life radionuclides an some uranium or plutonium isotopes may also be contained in the waste. Initial chemical analysis c LLLW indicates that radionuclides are of greater concern than hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informatic on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG Name: Melton Valley Area

Unit ID Number: X08-0006

Unit Name: Active LLLW Collection/Storage Tank HFIR

Location of Unit: The ORNL coordinates for the tank are N 16,990 and E 32,300. This is located southeast of Building 7510 in Melton Valley.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank.The tank is 8.0 ft (2.4 m) in diameter and 35.0 ft (10.7 m) long. The depth from the ground surface to the top of the tank is 19.0 ft (5.8 m). The unit has a volume of 13,000 gal (49,210 L) and a normal operating volume of 9100 gal (34,450 L).

Function of the Unit: The tank collects low-level waste from Building 7900. It discharges to tanks T1 and T2 through a 3-in.-diam (7.6-mm-diam) cast-iron mechanical joint line.

Date of Operation: Date installed: 1976. Tank is still in service.

Waste Characteristics: No analysis of the waste has been reported. Major radionuclides of concern in LLLW are considered to be Sr-90, Cs-137, Co-60, and TRU. Various short-half-life radionuclides and some uranium or plutonium isotopes may also be contained in the waste. Initial chemical analysis of LLLW indicates that radionuclides are of greater concern than hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0007A

Unit Name: Active LLLW Collection/Storage Tank T1

Location of Unit: The ORNL coordinates for the tank are N 18,780 and E 32,415. It is located west of Building 7567 in Melton Valley.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank. The tank is 10 ft (3 m) in diameter and 27.5 ft (8.4 m) long. The depth from the ground surface to the top of the tank is 6.6 ft (2.0 m). The unit has a volume of 15,000 gal (56,781 L) and a normal operating volume of 10,500 (39,746 L).

Function of the Unit: The tank collects LLLW from buildings 7500, 7502, 7503, and the HFIR tank. It discharges to Building 7567.

Date of Operation: Date installed: 1976. Tank is still in service.

Waste Characteristics: No analysis of the waste has been reported. Major radionuclides of concern in LLLW are considered to be Sr-90, Cs-137, Co-60, and TRU. Various short-half-life radionuclides and some uranium or plutonium isotopes may also be contained in the waste. Initial chemical analysis of LLLW indicates that radionuclides are of greater concern than hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0007d

Unit Name: Active LLLW Collection/Storage Tank T2

Location of Unit: The ORNL coordinates for the tank are N 18,780 and E 32,430. It is located west of Building 7567 in Melton Valley.

General Dimensions and Capacities: The unit is a horizontal stainless steel tank. The tank is 10 ft (3 m) in diameter and 27.5 ft (8.4 m) long. The depth from the ground surface to the top of the tank is 6.6 ft (2.0 m). The unit has a volume of 15,000 gal (56,781 L) and a normal operating volume of 10,500 gal (39,746 L).

Function of the Unit: The tank collects LLLW waste from buildings 7500, 7502, 7503, and the HFIR tank. It discharges to Building 7567.

Date of Operation: Tank installed: 1976. Tank is still in service.

Waste Characteristics: No analysis of the waste has been reported. Major radionuclides of concern in LLLW are considered to be Sr-90, Cs-137, Co-60, and TRU. Various short-half-life radionuclides and some uranium or plutonium isotopes may also be contained in the waste. Initial chemical analysis of LLLW indicates that radionuclides are of greater concern than hazardous waste constituents.

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0008

Unit Name: Mixed Waste Storage Pad (7507W)

Location of Unit: The Mixed Waste Storage Pad is located due west of Building 7507 (see SWMU X08-0004). ORNL grid coordinates are N 18,600 and E 32,600.

General Dimensions and Capacities: The pad measures approximately 40 x 40 ft (12 x 12 m). It is concrete with dikes and a sump.

Function of the Unit: Mixed radioactive and hazardous chemical wastes are stored on the pad until a resolution is reached relative to the final disposal of this material or until a facility becomes available. This material will be transferred to the new permitted mixed waste storage facility when it is completed.

Date of Operation: Storage initiated: unknown. Site is still in operation.

Waste Characteristics: All waste is placed in drums.

Release Data: No releases reported.

Regulatory Authority: RCRA-Permit

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0009

Unit Name: Sewage Treatment Plant (7904)

Location of Unit: ORNL grid coordinates are N 16,860 and E 32,580. The plant services the High Flux Isotope Reactor (HFIR) facilities.

General Dimensions and Capacities: The treatment plant had a rated capacity of 7500 gal/d (28,390 L/d). Main tank capacity is 13,200 gal (49,970 L).

Function of the Unit: This site treats domestic sewage generated in the HFIR complex. Weak sewage caused continuous operational problems. In 1977, the treatment plant was converted into a sewage holding tank from which the sewage is collected in a tank truck and transferred to the ORNL sewage treatment plant.

Date of Operation: The site was installed in 1962. It is still in service (used as collecting tank since 1977).

Waste Characteristics: Waste handled is domestic sewage; no hazardous or radioactive wastes have been added to the system.

Release Data: No reported leaks or releases.

Regulatory Authority: RCRA/CERCLA; NPDES

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-001C

Unit Name: Silver Recovery Process (7934)

Location of Unit: ORNL grid coordinates are N 17,790 and E 32,540. Site is in Melton Valley, just west of the Thorium-Uranium Recycle Facility (TURF) and about 0.75 mile (1.2 km) southeast of ORNL.

General Dimensions and Capacities: Building 7934 is a one-story, corrugated metal, garage-type structure. It is 50 ft (15 m) long by 50 ft wide, with a jointed concrete floor, two garage-type doors, and two walk-in doors. The building contains a pH adjustment tank, two 200-gal (760-L) reaction tanks, and related equipment.

Function of the Unit: The purpose is to separate silver constituents from photographic fixer and developer waste solutions by a chemical precipitation process.

Date of Operation: The site is expected to open in April 1987.

Waste Characteristics: No radionuclides are present. Chemicals involved are sodium hydroxide, sodium hydrosulfite, sulfuric acid, and photographic waste solution. The acids and bases are kept 25 ft (8 m) apart, and the silver-bearing waste is stored in 55-gal steel drums.

Release Data: The major air emissions from this site are ammonia, sulfur, and formaldehyde. Samples collected by the Industrial Hygiene Department indicate that emissions in this area are well below the threshold limit value.

Regulatory Authority: RCRA; NPDES

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet. Photographic waste is stored in this facility until it is shipped off-site to a commercial silver recovery facility.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0011

Unit Name: Septic Tank (7503)

Location of Unit: The septic tank is located adjacent to the Molten Salt Reactor Facility (Building 7503). The ORNL grid coordinates are N 18,670 and E 32,490.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 1500 gal (5680 L).

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from Building 7503.

Date of Operation: Septic tank was installed in 1951 and is still in use (36 years).

Waste Characteristics: Only domestic sewage from Building 7503 has been collected/stored in the tank. No hazardous or radioactive wastes have been added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0012

Unit Name: Waste Oil Storage Area 7900

Location of Unit: This unit is located east of Building 7900.

General Dimensions and Capacities: 60-gal fiberglass vessel with 95-gal fiberglass secondary containment vessel.

Function of the Unit: Waste oil storage prior to pickup.

Date of Operation: Currently operational. Date that waste oil storage began is unknown.

Waste Characteristics: Waste oil.

Release Data: No reported releases.

Regulatory Authority: Clean Water Act

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: October 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0012B

Unit Name: PCB Waste Container Storage Area 7930

Location of Unit: This unit is located at Building 7930.

General Dimensions and Capacities: The area receives about 25 gal of wastes per year.

Function of the Unit: Storage of wastes prior to pickup.

Date of Operation: Currently operational. Date that waste storage began is unknown.

Waste Characteristics: Light fixtures, ballasts, and PCB-contaminated oil.

Release Data: No reported releases. Potential for release is low because most wastes are contained within plastic bags inside steel drums. In addition, drums are examined routinely for leaks and are disposed of soon after filling.

Regulatory Authority: CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: October 1987

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0013

Unit Name: Contractor Spoils Area -- Melton Valley, W-SW of 7900

Location of Unit: In Melton Valley, west of the 7900 area (HFIR/TRU/TURF). Approximate ORNL grid coordinates are N 17,450 and E 31,600.

General Dimensions and Capacities: Unknown, however the suspect area is about 6 acres.

Function of the Unit: This site is believed to have been used as a dump site for the disposal of general construction debris. It was used during construction operations at the 7900 Area, the HFIR/TRU facilities.

Date of Operation: Unknown. HFIR construction was initiated in 1962. Site is currently inactive.

Waste Characteristics: Types of material observed at the site include scrap wood, scrap metal, empty paint cans, empty drums and 5-gallon cans, asphalt. In addition to the general construction debris, a small piece of sheet lead was found. The presence of any additional hazardous material is undetermined.

Release Data: No releases have been reported.

Regulatory Authority: RCRA

Site Characterization Status: RFI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: February 1988

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0014

Unit Name: HFIR Cooling Tower Surface Impoundment

Location of Unit: Adjacent to the south corner of Building 7902 (HFIR Cooling Tower). ORNL grid coordinates are N 16,736 and E 32,724.

General Dimensions and Capacities: Unknown.

Function of the Unit: Used to contain cooling tower blowdown during experiments related to chromate removal.

Date of Operation: Unknown, but currently inactive.

Waste Characteristics: Typical cooling tower blowdown which contained Co-60 and chromium.

Release Data: Waste, after treatment probably released to HFIR ponds or to Melton Branch.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0015

Unit Name: Aircraft Reactor Experiment Surface Impoundment

Location of Unit: Approximately 1/4 mile southeast of Building 7503. Located between and under Building 9730 and 9720. Approximate ORNL grid coordinates are N 17,611 and E 32,578.

General Dimensions and Capacities: 100,000 gal capacity. Approximate dimensions are 115 ft by 160 ft.

Function of the Unit: Was to be used to handle water used to flood the reactor pits after operation. Following operation of the reactor the liquid fuel could be drained from the reactor, leaving about 15 percent of the fuel in the reactor and piping. Apparently water flooding was not used in the ARE. ARE was located in Building 7503, the current site of the inactive MSRE.

Date of Operation: Constructed 1952. No record exists that pond was ever used.

Waste Characteristics: No reported information.

Release Data: According to records, the pond was constructed, but never used.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0016

Unit Name: MSRE Storage Well

Location of Unit: Approximately 100 ft south of the MSRE Charcoal Adsorber Pit. Approximate ORNL grid coordinates are N 18,443 and E 32,678.

General Dimensions and Capacities: Vertical pipe that protrudes several inches above the ground. Depth is not known.

Function of the Unit: Used to store radioactively contaminated maintenance tools.

Date of Operation: Unknown.

Waste Characteristics: Sample of water in the well was reported to contain 2.2 X 10(E-5) uCi/ml of Cs-137.

Release Date: No releases have been reported.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0017

Unit Name: Abandoned Sanitary Waste Pipeline and Septic Tank North of 7917

Location of Unit: North of Building 7910, and west of Building 7917 (currently under construction). Approximate ORNL grid coordinates are N_____ and E_____.

General Dimensions and Capacities: 1000 gal (estimated) concrete septic tank and associated 70-ft long, 3 in. diameter carbon steel pipeline. Tank contains approximately 500 gal of sludge.

Function of the Unit: Septic tank was used to collect and dispose of raw domestic sewage from Building 7910.

Date of Operation: Unknown; however the 7900 complex was operational in 1965.

Waste Characteristics: Only domestic sewage has been collected/stored in the tank. No hazardous or radioactive wastes should have been added to the system.

Release Data: Preliminary samples indicate that there is no radioactive contamination, but some organic hazardous constituents are present in the residual waste.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: FI

Comment: New SWMU reported in December 1989.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0018A

Unit Name: Active LLLW Collection Tank F-111

Location of Unit: Tank F-111 is a tank located in a waste pit inside Building 7920. Approximate ORNL grid coordinates are N 17,430 and E 32,650.

General Dimensions and Capacities: Tank is stainless steel with a capacity of 125 gallons. The waste pit has a hastalloy liner on the bottom and extending 6 ft. up the pit walls. The balance of the pit is sealed with 5 coats of 30 mil epoxy resin.

Function of the Unit: Collected and stored LLLW from Building 7920.

Date of Operation: 1966 - present.

Waste Characteristics: Unknown; probably fission products from reprocessing reactor fuels.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0018P

Unit Name: Active LLLW Holding Tank F-126

Location of Unit: Tank F-126 is a tank located in the same building as Tank F-111 (SWMU X08-0018A). Waste pit is located at inside of Building 7920. Approximate ORNL grid coordinates are N 17,430 and E 32,650.

General Dimensions and Capacities: Tank is stainless steel with a capacity of 1200 gallons.

Function of the Unit: Collected and stored LLLW from Building 7920.

Date of Operation: 1966 - present.

Waste Characteristics: Unknown; probably fission products from reprocessing reactor fuels.

Release Date: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0019A

Unit Name: Active LLLW Collection Tank B-2-T

Location of Unit: Tank B-2-T is located in an underground concrete pit (7952) at the southwest corner of the Thorium-Uranium Recycle Facility (TURF), Building 7930. Approximate ORNL grid coordinates are N 17,700 and E 32,610.

General Dimensions and Capacities: Tank is constructed of 304 L stainless steel. Capacity is 1870 gal. Pit is lined with 30 mil epoxy resin.

Function of the Unit: Collects LLLW from cells and laboratories in Building 7930.

Date of Operation: 1966 - present.

Waste Characteristics: LLLW probably contaminated with uranium, thorium, and transuranic isotopes. No analyses have been reported.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0019B

Unit Name: Active LLLW Collection Tank B-3-T

Location of Unit: Tank B-3-T is located in an underground concrete pit (7952) at the southwest corner of the Thorium-Uranium Recycle Facility (TURF), Building 7930. Approximate ORNL grid coordinates are N 17,700 and E 32,610.

General Dimensions and Capacities: Tank is constructed of 304 L stainless steel. Capacity is 1870 gal. Pit is lined with 30 mil epoxy resin.

Function of the Unit: Collects LLLW from cells and laboratories in Building 7930.

Date of Operation: 1966 - present.

Waste Characteristics: LLLW probably contaminated with uranium, thorium, and transuranic isotopes. No analyses have been reported.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0019C

Unit Name: Active LLLW Collection Tank C-6-T

Location of Unit: Tank C-6-T is located in an underground concrete pit (?952) at the southwest corner of the Thorium-Uranium Recycle Facility (TURF), Building 7930. Approximate ORNL grid coordinates are N 17,700 and E 32,610.

General Dimensions and Capacities: Tank is constructed of stainless steel. Capacity is 700 gal (2600 L). Concrete pit is lined with 30 mil epoxy resin.

Function of the Unit: Collects LLLW from cells and laboratories in Building 7930.

Date of Operation: 1966 - present.

Waste Characteristics: LLLW probably contaminated with uranium, thorium, and transuranic isotopes. No analyses have been reported.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: September 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-0020

Unit Name: Inactive LLLW Collection Tank 7503A

Location of Unit: Tank 7503A is located within the Molten Salt Reactor Building (7503), within the liquid waste cell. Approximate ORNL grid coordinates of Building 7503 are N 18,670 and E 32,725.

General Dimensions and Capacities: Vertical cylindrical stainless steel tank 11-ft diameter by 16-ft high. Capacity is 11,000 gal.

Function of the Unit: Collect LLLW from MSRE reactor operations.

Date of Operation: 1965 - 1969.

Waste Characteristics: Not reported. Probably contained Sr-90, Cs-137, Co-60 and uranium isotopes. Waste was discharged to the Melton Valley LLLW system and pumped to the Main Plant Area.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Tank was not included in original RFA listing because it was considered a generator owned tank and not a part of the low-level waste system. A redefinition of the ORNL LLLW system now includes these tanks which were inside buildings or are located immediately adjacent to the buildings in which R&D activities occurred.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-A001A

Unit Name: MSRE Filter House 7503

Location of Unit: The inlet air Filter House is located west of the reactor building. ORNL grid coordinates are N 18,710 and E 32,640.

General Dimensions and Capacities: Building is steel structure 12-ft by 20-ft.

Function of the Unit: Contains filters and steam heating coils for the reactor bay inlet air.

Date of Operation: 1965 - 1969.

Waste Characteristics: Unknown.

Release Data: No releases reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: F1

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-A001[R]

Unit Name: MSRE Cooling Tower 7513

Location of Unit: Cooling Tower is located southwest of the MSRE Reactor Building (7503). ORNL grid coordinates are N 18,560 and E 32,605.

General Dimensions and Capacities: The cooling tower was sized to discharge about 3.6 million BTU/h.

Function of the Unit: The cooling tower discharged heat generated in Building 7503. Reactor heat was not handled by this cooling tower.

Date of Operation: 1965 - 1969.

Waste Characteristics: No hazardous chemical or radioactive wastes should have been generated by the cooling tower.

Release Data: No releases have been reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-A001C

Unit Name: MSRE Diesel Generator House 7555

Location of Unit: The MSRE Diesel Generator House (7555) is located west of the main reactor building (7503). ORNL grid coordinates are N 18,680 and E 32,600.

General Dimensions and Capacities: Building is a 30-ft by 72-ft corrugated asbestos structure.

Function of the Unit: Supply emergency power in case of electrical system failure. The diesel house contains two 1200 rpm engines with 300 kw generators and a third engine configured for 300 kw. House also contains air compressors, air and helium tanks, and batteries for the diesels.

Date of Operation: 1965 - 1969.

Waste Characteristics: Unknown.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-A001D

Unit Name: MSRE Reactor Building 7503

Location of Unit: The site is located on Melton Valley Drive, about 0.6 mile (1.0 km) south of the main ORNL complex. See ORNL grid coordinates N 18,670 and E 32,725.

General Dimensions and Capacities: The facility includes an 8-MW (thermal) reactor, auxiliary cells containing a LLLW pumping station, and a LLLW collection tank, an absorber pit, a filter house (Building 7511) (X08-A001A), and a stack (X08-A001E).

Function of the Unit: The reactor was constructed to demonstrate the molten-salt breeder concept for commercial power generation.

Date of Operation: Site commissioned: 1965. Taken out of service: 1969.

Waste Characteristics: Wastes from the site are radioactive fuel salts and flush salts. Radioactive wastes are Sr-90, Cs-137, Y-90, and Ba-137. Co-60 has also been detected.

Release Data: Total radioactivity measures 35,800 Ci (estimated). No site contamination concerns outside of Building 7503 other than the filter pit area have been identified. Potential chemical toxicity of the fuel and flush salts is recognized and will be considered during final decommissioning.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-A001E

Unit Name: MSRE Stack 7512

Location of Unit: Located southeast of Building 7503. ORNL grid coordinates are N 18,490 and E 32,730.

General Dimensions and Capacities: Stack is steel, 3-ft in diameter and 100-ft tall. Two 21,000 cfm blowers are located near the base of the stack.

Function of the Unit: Handle filtered exhaust from the reactor and other cells.

Date of Operation: 1965 - present.

Waste Characteristics: Unknown.

Release Data: Unknown.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-A001F

Unit Name: MSRE Filter Pit 7511

Location of Unit: Filter house is located south of MSRE (Building 7503). ORNL grid coordinates are N 18,520 and E 32,730.

General Dimensions and Capacities: Filter house is a 26.5-ft by 18.75 ft pit with 1-ft thick concrete walls and with a caulked 18-in. thick concrete roof plugs.

Function of the Unit: Filter chemical bed and reactor contaminant exhaust prior to release up stack.

Date of Operation: 1965 - present.

Waste Characteristics: No analyses are available.

Release Data: No reported releases from the filter house.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 8.0

WAG Name: Melton Valley Area

Unit ID Number: X08-A001G

Unit Name: ARE Contaminated Tool Storage

Location of Unit: Reported to be located west of the MSRE building. No records exist to document the location in any detail.

General Dimensions and Capacities: Not known.

Function of the Unit: Apparently used for storage of contaminated items from the Aircraft Reactor Experiment (ARE).

Date of Operation: 1954 - 1957.

Waste Characteristics: Not known.

Release Data: A walkover radiation survey indicates only background radiation level at the site.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-0001

Unit Name: Homogeneous Reactor Experiment (HRE) Pond (7556)

Location of Unit: The Homogeneous Reactor Experiment (HRE) Pond is located in Melton Valley, 0.5 mile (800 m) southeast of the ORNL complex. It is situated south of Building 7500, above Melton Branch. ORNL grid coordinates are N 18,590 and E 31,480.

General Dimensions and Capacities: Capacity: 300,000 gal (1,136,000 L). Rectangular shape: 76 x 79 ft (23 x 24 m), and average depth is 12.8 ft (3.9 m). In 1970, the pond was filled, graded, and sprayed with weed killer before a top layer of crushed stone and asphalt was applied.

Function of the Unit: The pond was supposed to receive contaminated condensate from the reactor evaporator. Later, shield water was also added to the pond.

Date of Operation: Site commissioned: 1955 (began operation in 1958). Taken out of service: 1961.

Waste Characteristics: Contamination is mainly from Cs-137 and Sr-90, with trace amounts of Pu-238, Pu-239, Am-241, and Cm-244.

Release Data: The maximum direct beta-gamma exposure near the pond was 2.2 mrad/h. Eight areas exceeded 0.1 mrad/h. Soil samples showed activity between 0.06 pCi/g and 6.0 pCi/g. Subsurface soil samples showed Cs-137, Co-60, and Sr-90. Alpha-emitting contaminants were Pu-238, Pu-239, Am-241, and Cm-244. All samples contained Sr-90 activity. Radioactivity inside the perimeter of the filled-in pond was not determined, but it was estimated that from 50 to 100 Ci of radioactivity is present in the pond. A more recent study estimated a total inventory in the impoundment fill and sediment of: Sr-90 (75 Ci), Cs-137 (16 Ci), U-234 (3.2 mCi), U-235 (0.5 mCi), U-238 (2.2 mCi), Pu-239 (0.3 mCi), and Co-60 (1.6 mCi). Groundwater monitoring data collected through mid 1985 indicate both beta (primarily H-3 and Sr-90) and alpha contamination. Levels of Ba, Cr, and Pb exceeded drinking water MCLs in some sampling records.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-0002A

Unit Name: LLLW Collection and Storage Tank 7560

Location of Unit: The 1000-gal (3780-L) tank (7560) is located just south of the Waste Evaporator (7502). ORNL grid coordinates are approximately N 18,716 and E 31,455.

General Dimensions and Capacities: Only capacity is available. Tank is 1000 gal (3800 L), and is constructed of stainless steel.

Function of the Unit: This tank held condensed clean vapor from the evaporator cell; this liquid was stored for sampling. Depending on its radioactivity, the condensate was either sent to the retention pond or to the 12,000-gal tank for recycling.

Date of Operation: Small tank from 1957-1961 (empty since 1961).

Waste Characteristics: No analysis of the waste has been reported. Major radionuclides of concern in LLLW are considered to be Sr-90, Cs-137, Co-60, and TRU. Various short-half-life radionuclides and some uranium or plutonium isotopes may also be contained in the waste. Initial chemical analysis of LLLW indicates that radionuclides are of greater concern than hazardous waste constituents.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Results of a 1987 soil sampling survey near the 7560 and 7662 tanks show Cs-137 as the dominant gamma-emitting radionuclide. Highest concentrations of Cs-137 reached 590 pCi/g. Results of the EPTC test for eight RCRA metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury), four insecticides (Lindane, Endrin, Toxaphene, and Methoxychlor), and two herbicides [2,4-D and 2,4,5-TP (Silvex)] in 13 soil samples indicate that all contaminants were below their respective regulatory levels. In addition, soil samples did not exhibit RCRA hazardous waste characteristics for ignitability, corrosivity, or reactivity.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-0002B

Unit Name: LLLW Collection and Storage Tanks 7562

Location of Unit: The 12,000-gal (45,425-L) tank (7562) is located just north of the Waste Holding Pond (7556). ORNL grid coordinates are approximately N 18,661 and E 31,460.

General Dimensions and Capacities: Only capacity is available.

Function of the Unit: The 12,000-gal (45,425-L) tank was designed to hold high-level waste. Tank functioned as feed to the evaporator.

Date of Operation: Large tank: 1957-1986 (tank no longer in use).

Waste Characteristics: No analysis of the waste has been reported. Major radionuclides of concern in LLLW are considered to be Sr-90, Cs-137, Co-60, and TRU. Various short-half-life radionuclides and some uranium or plutonium isotopes may also be contained in the waste. Initial chemical analysis of LLLW indicates that radionuclides are of greater concern than hazardous waste constituents.

Release Data: There is some indication that spillage occurred during transfer of LLLW from the large tank. Soil sampling indicates contamination by Sr-90 and Cs-137.

Regulatory Authority: RCRA/CERCLA; Permit-by-Rule

Site Characterization Status: RFI/RI

Comment: Surface soil samples (0-15 and 15-30 cm depths), collected near the 12,000 gal (45,425 L) tank in May 1987, contained 2.9 to 590 pCi/g (dry weight) of Cs-137. No strontium analyses was performed.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-0003

Unit Name: Septic Tank 7501

Location of Unit: The tank is located east of Building 7500 (NSPP). ORNL grid coordinates are N 18,810 and E 31,510.

General Dimensions and Capacities: Capacity of the tank is 1400 gal (5300 L). The tank is concrete.

Function of the Unit: The tank was designed to treat domestic sewage from Building 7501 (NSPP).

Date of Operation: 1950 to present.

Waste Characteristics: The tank contains domestic sewage; no hazardous or radioactive waste was added to the system.

Release Data: No reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-0004

Unit Name: Trash Area East of HRE Parking Lot

Location of Unit: North of Melton Valley Drive across from Building 7500 (formerly HRE and HRT, now the Nuclear Safety Pilot Plant). Approximate ORNL grid coordinates are N 19,000 and E 31,680.

General Dimensions and Capacities: Unknown.

Function of the Unit: The site formerly contained an old farm house that was used by HRE-1 and HRE-2 for storage. During the early to middle 1960's, all stored material, some contaminated with radioactivity, was removed for disposal. The farm house was demolished and most of the debris was removed. The site was leveled and converted into a parking lot. Later the parking lot was expanded and it appears that the visible debris (wood, concrete, plastic) at the east end of the area may have been placed at this site at the time of expansion. Current use of the site includes a parking lot and a storage area for construction materials.

Date of Operation: Unknown.

Waste Characteristics: Construction debris, perhaps some waste contaminated with radionuclides.

Release Data: No reported releases.

Regulatory Authority: RCRA

Site Characterization Status: RFI

Comment: No new information.

Date Prepared: September 1987

Update: September 1990

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-0005

Unit Name: Waste Evaporator 7502

Location of Unit: The evaporator is located in Building 7502 on Melton Valley Road, 0.6 mile (1.0 km) southeast of the main ORNL complex. ORNL grid coordinates are N 18,730 and E 31,450.

General Dimensions and Capacities: The site contains the reactor (Building 7500), the waste evaporator (Building 7502), a hot storage and decontamination pad, and a filled-in waste holding pond.

Function of Unit: The facility was intended for three phases of experimentation. Due to accelerated corrosion during the first experiment, the second and third experiments were never begun.

Date of Operation: Site constructed: 1951. Site commissioned: 1958. Taken out of service: 1961.

Waste Characteristics: Wastes from the site are Cs-137, Sr-90, and Co-60.

Release Data: The evaporator cell, chemical processing cell C, and the storage pool also provide a small probability for significant exposure. An estimated 30-40 kg of highly radioactive insoluble corrosion and fission products remain in the process piping. There are no published reports of releases, however the presence of contamination in the evaporator building indicates that some releases may have occurred.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Formerly was considered as a part of surplus facility X09-A001A.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-0006

Unit Name: Waste Evaporator Loading Pit

Location of Unit: Located outside and adjacent to the east wall of the Waste Evaporator (7502). ORNL grid coordinates are N 18,740 and E 31,460.

General Dimensions and Capacities: Pit is 6-ft by 6-ft by 10.5-ft deep.

Function of the Unit: Used to load carriers with LLLW from the Waste Evaporator.

Date of Operation: 1951-1954, 1958-1961.

Waste Characteristics: Pit is contaminated. Major radionuclides are probably Sr-90, Cs-137, and Co-60.

Release Data: No reported releases.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-A001A

Unit Name: HRE Cooling Tower 7554

Location of Unit: Cooling tower is located southwest of Building 7500. ORNL grid coordinates are N 18,700 and E 31,210.

General Dimensions and Capacities: Unknown.

Function of the Unit: Used to reject heat from the air conditioning system for Building 7500.

Date of Operation: 1958 - 1961.

Waste Characteristics: Unknown.

Release Data: No releases reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-A001B

Unit Name: HRE Reactor Building 7500

Location of Unit: Located in Melton Valley just south of Melton Valley drive. ORNL grid coordinates are N 18,740 and E 31,370.

General Dimensions and Capacities: Main reactor building is 90-ft by 105-ft with a height of 26-ft and 42-ft in the high bay area.

Function of the Unit: Contained the Homogeneous Reactor Test (HRT) which included a fluid-fuel reactor, chemical processing equipment, and related reactor components.

Date of Operation: 1958 - 1961.

Waste Characteristics: Unknown. Probably Sr-90, Cs-137, Co-60, and uranium isotopes. Main concern appears to be contamination of cell walls and components of reactor system which are still in Building 7500.

Release Data: No information.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: Earlier in 1951-1954 the Homogeneous Reactor Experiment was conducted in a portion of Building 7500.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-A001C

Unit Name: HRE Absorber Pit 7557

Location of Unit: The pit is located about 100 ft east of Building 7500. Approximate ORNL grid coordinates are N 18,768 and E 31,523.

General Dimensions and Capacities: The pit is 12-ft by 24-ft by 3-ft deep and is buried under 10-ft of soil. A 1-ft thick concrete slab covers the pit.

Function of the Unit: Housed the charcoal absorber beds through which radioactive off-gas from the reactor cells was passed for treatment.

Date of Operation: 1958 - 1961.

Waste Characteristics: Radionuclides absorbed on charcoal.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-A001D

Unit Name: Absorber Valve Pit 7559

Location of Unit: Pit is located on the north side of the HRT absorber pit. Approximate ORNL grid coordinates are N 18,820 and E 31,500.

General Dimensions and Capacities: Pit is underground and constructed of reinforced concrete. Dimensions are 9 ft by 6 ft.

Function of the Unit: Used to contain valves controlling flow of off-gas to absorber pit.

Date of Operation: 1958 - 1961.

Waste Characteristics: Not known.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-A001E

Unit Name: HRE Contaminated Soil Decontamination Shed 7561

Location of Unit: Located south of Building 7500. ORNL grid coordinates are N 18,660 and E 31,380.

General Dimensions and Capacities: Pad is 12-ft by 60-ft. The east half of the pad contains a stainless steel floor equipped with drains to 12,000 gal waste tank. West half was used for storage of contaminated equipment and tools.

Function of the Unit: Used for decontamination and storage of equipment and tools used in HRT operations.

Date of Operation: 1954 - present.

Waste Characteristics: Liquid waste from decontamination of tools and equipment. Probably contains Sr-90, Co-137, Co-60 and uranium isotopes.

Release Data: The decontamination and storage-pad (Building 7561) was surveyed and no transferable radiation was found. Most of the elevated, beta-gamma direct readings, presumably including the 16 mrad/hr hot spot, were due to nearby equipment, but readings of up to 6.4 mrad/hr in one area were said to occur outside the curbed area, indicating possible leaching of contamination into the ground.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 9.0

WAG Name: Homogeneous Reactor Experiment (HRE) Area

Unit ID Number: X09-A001F

Unit Name: Waste Valve Pit 7561

Location of Unit: Pit is located near the southeast corner of the Waste Evaporator Building (7502). Approximate ORNL grid coordinates are N 18,700 and E 31,436.

General Dimensions and Capacities: Pit is underground and is constructed of reinforced concrete. Approximate dimensions are 6 ft by 9 ft.

Function of the Unit: Used to contain valves controlling flow to waste evaporator and waste tanks.

Date of Operation: 1958 - 1961.

Waste Characteristics: Not known. Probably LLLW contained Sr-90, Cs-137, and Co-60 as main constituents.

Release Data: No reported releases.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 10.0

WAG Name: Hydrofracture Injection Wells and Grout Sheets

Unit ID Number: X10-0001

Unit Name: Hydrofracture Experimental Site 1 (HF-S1)

Location of Unit: The site used for the first experimental injection was south of Lagoon Road in an area called the Four Acre Site. This location is within the boundary of WAG 7. ORNL grid coordinates for the injection well are N 18,920 and E 25,890.

General Dimensions and Capacities: The injection well was cased with 3.5-in. (9-cm) casing to a depth of 300 ft (91 m). The injection was performed at a depth of 290 ft (88 m). A total of 27,000 gal (102,200 L) of grout was injected.

Function of the Unit: This site was the first experimental injection of grout as a testing program for observing the fracture pattern created in the shale and to identify potential operating problems.

Date of Operation: Injection occurred October 16, 1959.

Waste Characteristics: Waste injected was water tagged with 35 Ci of Cs-137 and 8.7 Ci of Ce-141. Grout consisted of diatomaceous earth and cement. No LLLW was used. No hazardous waste constituents should have been present in the grout.

Release Data: During the final stages of the injection, grout was observed flowing from an open core hole about 200 ft (61 m) north of the injection well (see SWMU X07-0003).

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 10.0

WAG Name: Hydrofracture Injection Wells and Grout Sheets

Unit ID Number: X10-^^02

Unit Name: Hydrofracture Experimental Site 2 (HF-S2)

Location of Unit: The site is in Melton Valley, about 0.5 mile (800 m) south of the 7500 (experimental reactor) Area. The injection well was cased with 4.5-in. (11-cm) casing to a depth of 1050 ft (320 m). ORNL grid coordinates for the injection well are N 16,817 and E 31,260.

General Dimensions and Capacities: Two separate injections were performed. Grout volumes injected were 91,600 and 132,700 gal (346,745 and 502,325 L), respectively. Injection depths were 934 ft (284 m) and 695 ft (212 m).

Function of the Unit: The second hydrofracture experiment was designed to duplicate in scale an actual disposal operation. However, radioactive tracers were used instead of actual waste.

Date of Operation: The injection occurred September 1960.

Waste Characteristics: Water tagged with Cs-137 (50 Ci for the two injections), cement, and bentonite were used in formulating the grout. No nonradioactive hazardous constituents should be contained in the grout.

Release Date: No releases or spills have been reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 10.0

WAG Name: Hydrofracture Injection Wells and Grout Sheets

Unit ID Number: X10-0003

Unit Name: Old Hydrofracture Facility (7852)

Location of Unit: The Old Hydrofracture Facility (OHF) is located 1.0 mile (1.8 km) southwest of the main ORNL complex, west of SWSA 5. ORNL grid coordinates are N 17,155 and E 28,617.

General Dimensions and Capacities: The existing facility consists of a contaminated building (7852), some dry solids storage bins, and miscellaneous equipment.

Function of the Unit: The facility served as a pilot plant to demonstrate the feasibility of permanent disposal of liquid radioactive waste in impermeable shale formations by hydrofracture methods.

Date of Operation: Site commissioned: 1963. Taken out of service: 1980.

Waste Characteristics: Waste used in the experiments was evaporator concentrated LLLW transferred from the Bethel Valley waste storage tanks. During the period the facility was operated, 7 experimental injections and 22 operational injections were conducted. Grout injected totaled 2.3 x 10 (E+6) gal (8.7 x 10 (E+6) L) and contained 40,000 Ci of Sr-90, 609,000 Ci of Cs-137, 233 Ci of Cm-244, 5.8 Ci of TRU, and other unidentified radionuclides.

Release Data: There were no reported surface releases of grout, with the exception of an incident in which it was necessary to divert grout to the OHF waste pit until it could be retrieved and pumped down the well (see SWMU X05-0002).

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 10.0

WAG Name: Hydrofracture Injection Wells and Grout Sheets

Unit ID Number: X10-0004

Unit Name: New Hydrofracture Facility (7860)

Location of Unit: The new hydrofracture facility is located 900 ft (300 m) southwest of OHF (SWMU X10-0003), on the south side of Melton Branch. The injection well is located at ORNL grid coordinates N 16,502 and E 28,178.

General Dimensions and Capacities: The injection well casing is 5.5 in. diameter; the well is 1069 ft (326 m) deep. Injections occurred at depths between 990 ft (300 m) and 1069 ft. In December 1982 the injection well failed and was placed back in operation in 1983.

Function of the Unit: The facility was constructed to replace the OHF and serve as the operational LLLW waste disposal system for ORNL.

Date of Operation: Test injection: 1974. Site commissioned: 1982. Site removed from service: 1985.

Waste Characteristics: Waste used in the injections was concentrated LLLW and sludge removed from the gunite tanks in the South Tank Farm (SWMU X01-0026A-F). During the period of operation, 1 experimental injection (water plus tracer) and 13 operational injections were conducted. A total of 2.9 x 10(E+6) gal (1.1 x 10(E+7) L) of grout was injected. The grout contained 644,000 Ci of Sr-90, 83,800 Ci of Cs-137, 7500 Ci of Cm-244, 2100 Ci of TRU, and 13,300 Ci of other nuclides.

Release Data: No releases were reported during operations. In 1984, three deep monitoring (DM) wells were dug, and contaminated water was found in two of the wells. Depths at which the contamination was observed are approximately the depths at which some of the NHF grout sheets occur. The NHF is now inactive, and closure of the facility is being planned.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 11.0

WAG Name: White Wing Scrap Yard

Unit ID Number: X11-0001

Unit Name: White Wing Scrap Yard (XD0751)

Location of Unit: This site is located at the west end of East Fork Ridge between State Highway 95 (White Wing Road) and the Oak Ridge Turnpike. ORGDP grid coordinates are N 35,000-35,800 and E 27,500-29,259.

General Dimensions and Capacities: The area covers about 20 acres (8 ha).

Function of the Unit: The site was used to store contaminated materials (equipment, tanks, and trucks) from the three Oak Ridge plants. Waste was stored aboveground. Much of the stored materials and contaminated soils was removed in 1966-1971; however, some scrap metal, concrete, and other waste remains at the site.

Date of Operation: Site commissioned: early 1950s. Taken out of service: 1964.

Waste Characteristics: About 0.05 lb (25 g) of Pu-239 was estimated to be on or in the material from ORNL that was stored at the site. No records are available on wastes from the other Oak Ridge plants.

Release Data: In 1971, a radiation survey detected 0.8 to 6.0 mR/h gamma exposure rate and 0.5 to 4.0 mR/h exposure rate for Cs-137. An aerial survey in 1974 indicated the presence of Cs-137 (estimated at 25 to 100 mCi), Th-234, and U-235.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: RFI/RI

Comment: Groundwater samples were taken from selected piezometer wells in WAG 11. Most of the values obtained from the downgradient wells are not significantly above those observed in the upgradient well; however, the concentration of chromium in the upgradient well is above the National Interim Primary Drinking Water Standard. Analysis of groundwater samples for volatile and semivolatile organics established the presence of three volatile contaminants, methylene chloride, trichloroethylene, and acetone at concentrations of 6 ppb, 184 ppb, and 23 ppb respectively. Only methylene chloride was detected in more than one sample. Concentrations of all the semivolatile organics were below detection limits. The concentration of trichloroethylene is significantly above the recently determined allowable limit of 5 ppb in drinking water. Previous radiological surveys detected surface radiation levels up to 5 mrad/h; however, the source of these "hot spots" remains undetermined. Based on the results from previous scoping studies it appears that WAG 11 is not a significant source of releases of hazardous constituents. There remain, however, uncertainties concerning the source of elevated levels of Cr, Cd, some organic contaminants, and surface radiation "hot spots." Further investigations are needed to resolve these concerns. Two additional findings of significant in a 1989-90 survey of the area are: (1) the presence of buried 55-gal metal drums and (2) elevated concentrations of PCBs (~10 ppm total PCBs) in three soil samples collected from a region of dead vegetation.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 12.0

WAG Name: Closed Contractors' Landfill

Unit ID Number: X12-0001

Unit Name: Closed Contractors' Landfill (7658)

Location of Unit: The site is located in Melton Valley south of the 7000 Area and east of Melton Valley Access Road. ORNL grid coordinates are N 18,650 and E 37,500.

General Dimensions and Capacities: The area of the site is 3 acres (1.2 ha). No records are available on the amount of debris buried.

Function of the Unit: The site was used to bury general construction debris generated by construction contractors working at ORNL. Material to be buried was not contaminated with radioactive materials.

Date of Operation: Site commissioned: 1960's. Taken out of service: 1975.

Waste Characteristics: The volume and nature of waste buried is unknown. No waste specific records were kept on the landfill operation.

Release Data: The area is inactive, and no radioactive contamination has been reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: FI

Comment: Results from previous scoping surveys were inconclusive concerning the possible release of organic contaminants. Accordingly, additional samples were collected at two sites adjacent to the landfill and analyzed for semivolatile organic constituents. As was the case in previous surveys, the only semivolatile organics detected were the phthalates, a fairly common component found in sediments. Since a number of piezometer wells have been installed in and around WAG 12, groundwater samples were taken for metals analysis. Relatively high concentrations of Al, Ba, Fe, Mg, and Mn were found in one of the downgradient wells (915), while elevated levels of Cr were seen in another (913). Volatile organics detected included methylene chloride and 1,2-dichloroethane at concentrations of 7 ppb and 5 ppb respectively. The only semivolatile organic detected was di-n-butylphthalate at a level of 10 ppb. Based on the previous results and of additional surveys, including analysis of groundwater (reported here), it does not appear that WAG 12 is a source of continuing release. A surface radiological walkover survey at the Closed Contractors' Landfill in 1989 showed no evidence of detectable surface radioactivity above typical ORR background values.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 13.0

WAG Name: Environmental Research Areas

Unit ID Number: X13-0001

Unit Name: Cesium-137 Contaminated Field (0800)

Location of Unit: These areas are located about 330 ft (100 m) north of the Clinch River at Clinch River Mile 20.5 (CRK 32.8). Grid coordinates are N 17,480 and E 20,370.

General Dimensions and Capacities: The 0800 Area is a 50-acre (20-ha) fescue-dominated field. Contained within the field is a 5-acre (2-ha) fenced area with four smaller enclosures contaminated with Cs-137.

Function of the Unit: The area was set aside to study simulated fallout of Cs-137, which would occur in the event of a nuclear war.

Date of Operation: Site commissioned: 1966. The site is not in use.

Waste Characteristics: The contaminant consisted of Cs-137 fused at high temperature to silica particles. Each of the four enclosures received about 2.2 Ci of radioactivity, for a total of 8.8 Ci. After 20 years (since contamination), about 5.5 Ci of activity should remain.

Release Data: No releases reported.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: Radiation walk-over study has been completed for this site. A surface radiological investigation was conducted at the 0800 Environmental Research Area between June 1987 and March 1988. Outside the fenced area, radiation levels were measured at 23 points on the Clinch River and 9 points along the riverbank. Gamma exposure rates on the river and on Jones Island rarely exceeded background. Along the shoreline, the closest point to the Cs-137-contaminated field approached three times background levels, a value well below the guideline. Thus, this site poses no hazard to the public. Inside the fenced area, the average gamma exposure rate at 1 m above the ground surface was approximately 3 to 4 mR/h. Maximum exposures exceeded 27 mR/h at one of the contaminated enclosures.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 13.0

WAG Name: Environmental Research Areas

Unit ID Number: X13-0002

Unit Name: Cesium-137 Erosion/Runoff Study Area (0807)

Location of Unit: The site is located on a bearing of E83 degrees S, about 1.2 miles (2.0 km) from the junction of Bethel Valley Road and State Highway 95. The site is due north of the confluence of White Oak Creek and the Clinch River [0.2 mile (0.3 km)]. Grid coordinates N 16,690 and E 21,530.

General Dimensions and Capacities: Total land area contaminated was < 215 sq ft (< 20 sq m).

Function of the Unit: The objective was to use the field contamination to study runoff, erosion, and infiltration of Cs-137 on a silt-loam soil.

Date of Operation: Site was contaminated on October 20, 1964. Site is still being studied.

Waste Characteristics: Cs-137 was applied to the soil in a liquid spray.

Release Data: The amount of isotope applied was 15 mCi total. After 21.6 years of decay, 9.15 mCi should remain, providing no losses from the system occurred.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 14.0

WAG Name: Tower Shielding Facility (TSF)

Unit ID Number: X14-0001

Unit Name: TSF Scrap Yard (7702)

Location of Unit: Grid coordinates are N 10,800 and E 28,930. The facility is located about 2.5 miles (4.0 km) south of the ORNL main complex.

General Dimensions and Capacities: The scrap yard is about 250 ft (76 m) south and west of the main TSF site. It covers an area of about 1 acre (0.4 ha).

Function of the Unit: The site contains scrap shields, tanks, pumps, and miscellaneous materials used in past experimental programs.

Date of Operation: Site commissioned: 1954. Site is still in operation.

Waste Characteristics: The scrap at the site contains internal contamination (neutron activation products) (mainly Co-60); however, surveys show no external contamination.

Release Data: No releases of radioactivity have been reported.

Regulatory Authority: CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 14.0

WAG Name: Tower Shielding Facility (TSF)

Unit ID Number: X14-0002

Unit Name: TSF Septic Tank (7750)

Location of Unit: The TSF septic tank is located at ORNL grid coordinates N 11,110 and E 29,295.

General Dimensions and Capacities: Capacity of the tank is 900 gal (3400 L). The tank is concrete.

Function of the Unit: The tank treats domestic sewage from the operating facilities.

Date of Operation: 1953 to present.

Waste Characteristics: The tank contains domestic sewage; no hazardous or radioactive wastes were added to the system.

Release Data: No reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-000

Unit Name: Cyclotron Z-Oil (9201-2)

Location of Unit: The Cyclotron Z-oil is stored at the Y-12 Plant in Building 9201-2 and in an outdoor storage tank and piping.

General Dimensions and Capacities: The 86-inch Cyclotron occupies one-third of Building 9201-2. See 15A.7

Function of the Unit: The Code AE transformer oil is designed to cool magnetic coils during operation.

Date of Operation: Site commissioned: 1950. Taken out of service: 1983.

Waste Characteristics: The original inventory of 15,000 gal (56,800 L) of Code AE transformer oil has been drained. Residual amounts of oil contain < 50 ppm PCBs (polychlorinated biphenyls).

Release Data: No releases have occurred.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-0002A

Unit Name: Transformers (9201-2)

Location of Unit: The PCB storage sites are located over Maynardville limestone, a cavernous formation within the Y-12 complex, in or adjacent to buildings 9201-2, 9204-1, and 9204-3. Larger transformers were stored at the SY 200 Scrap Yard.

General Dimensions and Capacities: At the 9201-2 Cyclotron cubicles, there were 143 PCB transformers and 360 capacitors with an estimated PCB concentration of more than 500 ppm (~3000 gal [11,355 L] of oil).

Function of the Unit: The sites (15.2a-d) housed a variety of surplus ORNL equipment that was either contaminated with PCBs or that contained PCB contaminated oils. All surplus PCB-contaminated transformers and capacitors have been disposed of in accordance with TSCA guidelines.

Date of Operation: Site is now inactive. Transformers have been removed.

Waste Characteristics: (See above.)

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No new information.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-0002B

Unit Name: Transformers (9204-1)

Location of Unit: The PCB storage sites are located over Maynardville limestone, a cavernous formation within the Y-12 complex, in or adjacent to buildings 9201-2, 9204-1, and 9204-3. Larger transformers were stored at the SY 200 Scrap Yard.

General Dimensions and Capacities: East of 9204-1 there were 13 PCB-contaminated transformers with estimated PCB concentrations of 50 to 500 ppm.

Function of the Unit: The sites (15.2a-d) housed a variety of surplus ORNL equipment that was either contaminated with PCBs or that contained PCB contaminated oils. All surplus PCB-contaminated transformers and capacitors have been disposed of in accordance with TSCA guidelines.

Date of Operation: Site is now inactive. Transformers have been removed.

Waste Characteristics: (See above.)

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No new information.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A002

Unit Name: Contaminated Attic Area -- (9204-1)

Location of Unit: The contaminated area is located on the second level of Building 9204-1 at the Y-12 Plant. The contamination is confined to paint used to fix earlier contamination of the ceiling area. The contamination is confined to the original ceiling and beams (which are still partially covered with the paint) and the top of the false ceiling (which contains flakes of the paint).

General Dimensions and Capacities: The total attic area marked as a contamination zone is about 59 x 79 ft (18 x 24 m).

Function of Unit: No specific function.

Date of Operation: No information.

Waste Characteristics: The specific isotopes contaminating this area are unknown.

Release Data: Transferable alpha levels in the area ranged between 10 and 275 dpm/100 sq cm, with an average level of 20 dpm/100 sq cm. The maximum beta-gamma level was 50 cpm (<1 mR/h).

Regulatory Authority: CERCLA/SF

Site Characterization Status: NFA

Comment: A 1990 survey has shown that the widespread transferable contamination in the attic area is largely U-235 and U-238. Alpha measurements in the attic reached 290,000 dpm/100 cm2, with horizontal surfaces commonly ~27,000 dpm/100 cm2 and vertical surfaces ~2000 dpm/100 cm2. Most of the contamination is contained in loose dust and debris, including a gravel-like roofing material. The latter also contained Cs-137 as high as 650 pCi/g.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A003

Unit Name: Contaminated East End Basement -- (9204-1)

Location of Unit: The site has two adjacent areas (separated by a 3.2-ft [1-m] concrete walkway) that are located in the basement crawl space of the east end of Building 9204-1 at the Y-12 Plant.

General Dimensions and Capacities: Both areas are dirt floors that are approximately 25 x 25 ft (7.5 x 7.5 m).

Function of Unit: No specific function.

Date of Operation: No information.

Waste Characteristics: The source of contamination at this site is unknown. One possible explanation for the contamination is a pump leaking a uranium solution through the floor above the dirt.

Release Data: Contamination was with low-level alpha emitters (alpha radiation levels of up to 2000 dpm/100 sq cm). No beta-gamma radiation was detected. Although the depth of soil contamination has not been verified, the present estimate is that removal of 6 to 8 in. (15 to 20 cm) of soil would be necessary to remove the contamination. A background beta-gamma level of 300 cpm (<1 mR/h) from process pipes located approximately 5 ft (1.5 m) above the dirt floor areas was reported. The maximum contact level is 2000 cpm (<1 mR/h). Surface water and groundwater contamination are the primary environmental concerns for this area.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: Where the soil surface showed a beta-gamma dose rate of 0.48 mrad/h, soil samples contained Ra-226 and Th-232 concentrations as high as 1200 pCi/g each. Surveying in 1990 has revealed some elevated areas outside regions designated by "Radiation Hazard-Keep Out" signs. A room on the NE side of the basement had a small floor area with a beta-gamma dose rate of 0.6 mrad/h and alpha activity measuring 800 dpm/100 cm2. A water sample from the stream flowing through the basement contained 113 pCi/L gross beta.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-0003

Unit Name: Cyclotron Pit 9201-2

Location of Unit: The cyclotron is housed in Building 9201-2 at the Y-12 Plant.

General Dimensions and Capacities: Not known.

Function of the Unit: Used to house magnet coils for the cyclotron. In order to cool the ma approximately 15,000 gal of Code AE transformer oil containing PCBs were once used.

Date of Operation: 1950s to 1983.

Waste Characteristics: Oil containing PCBs.

Release Data: No releases have been reported; however the pit shows signs of past spillage of

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: FI

Comment: No new information.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A001

Unit Name: Decontamination Facility -- (9419-1)

Location of Unit: This facility is located in the southeast portion of the Y-12 complex in Buil 9419-1.

General Dimensions and Capacities: The facility is housed in a 6 x 9 m (20 x 30 ft) building. facility also includes an outdoor concrete-walled pit 4.2 x 4.3 m (14.0 x 14.0 ft) that is used by Y The drain line from 9419-1 has been plugged.

Function of Unit: The facility was primarily a steam-cleaning facility.

Date of Operation: Site commissioned: Mid 1960s. Taken out of service: Early 1970s.

Waste Characteristics: The primary contaminant is Th.

Release Data: No releases reported.

Regulatory Authority: CERCLA/SF

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-0002C

Unit Name: Transformers (9204-3)

Location of Unit: The PCB storage sites are located over Maynardville limestone, a cave formation within the Y-12 complex, in or adjacent to buildings 9201-2, 9204-1, and 9204-3. I transformers were stored at the SY 200 Scrap Yard.

General Dimensions and Capacities: In the basement of 9204-3 there were 22 PCB-contam transformers with estimated PCB concentrations of 50 to 500 ppm.

Function of the Unit: The sites (15.2a-d) housed a variety of surplus ORNL equipment that was contaminated with PCBs or that contained PCB contaminated oils. All surplus PCB-contam transformers and capacitors have been disposed of in accordance with TSCA guidelines.

Date of Operation: Site is now inactive. Transformers have been removed.

Waste Characteristics: (See above.)

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No new information.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-0002D

Unit Name: Transformers (SY 200)

Location of Unit: The PCB storage sites are located over Maynardville limestone, a formation within the Y-12 complex, in or adjacent to buildings 9201-2, 9204-1, and 9204 transformers were stored at the SY 200 Scrap Yard.

General Dimensions and Capacities: At the SY 200 Yard there were five 2200 gal transformers and 60 cooling racks with estimated PCB concentrations of less than 2 to 29

Function of the Unit: The sites (X15-0002A-D) housed a variety of surplus ORNL equipmen either contaminated with PCBs or that contained PCB contaminated oils. Al PCB-contaminated transformers and capacitors have been disposed of in accordance w guidelines.

Date of Operation: Site is now inactive. Transformers have been removed.

Waste Characteristics: (See above.)

Release Data: Records indicate that PCB-contaminated oils have leaked from a transforn SY 200 Yard.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No new information.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A0^4

Unit Name: Storage Tank -- (9201-3)

Location of Unit: The storage tank is located in a mezzanine room in Building 9201-3 at Plant.

General Dimensions and Capacities: This glass-lined steel tank has a capacity of 3000 gal (1

Function of Unit: The tank was used to hold cutting oil for a machine shop.

Date of Operation: Site commissioned: 1958. Taken out of service: 1969.

Waste Characteristics: The tank is slightly alpha contaminated (4000 dpm/100 sq cm) but is f a coating of paint on the exterior.

Release Data: The tank is located in a room designated as a contaminated area because o low-level alpha contamination at the room's entrance.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of info on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A005

Unit Name: Radioisotope Processing Facility Beta Cubicle -- (9204-3)

Location of Unit: The site is located in Building 9204-3 at the Y-12 Plant. It is found on th of the second floor of the building.

General Dimensions and Capacities: The facility consists of the remnants of a power sup controls enclosed in a steel structure about 16 x 4 x 12 ft (5 x 1.2 x 3.6 m).

Function of Unit: The cubicle was used in the 1940s in support of activities in Building 920

Date of Operation: Site commissioned: Not known. Taken out of service: Early 1950s.

Waste Characteristics: Measurements show no transferable contamination (20 dpm/100 sq c and 200 dpm/100 sq cm beta-gamma) to be present. PCBs were detected but have been rem

Release Data: No radioactivity was found during probing of the equipment. The cubicle is p brown tagged, indicating no radioactivity on the surfaces but that all surfaces cannot be in because of their configuration.

Regulatory Authority: CERCLA/SF

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of infor on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A006

Unit Name: Radioisotope Processing Facility (Curium Glovebox) -- (9204-3)

Location of Unit: The glovebox is located in an enclosed area on the second floor of Buildin

General Dimensions and Capacities: Measurements are 3 x 5 ft (1 x 1.5 m).

Function of Unit: The glovebox was used to support curium operations in the 9204-3 area.

Date of Operation: Site commissioned: late 1960s. Taken out of service: mid 1970s.

Waste Characteristics: The interior of the glovebox is reported to be very contaminated be curium processing operations.

Release Data: Detected radiation levels are >500,000 dpm/100 sq cm alpha (internal). Extern are < 2 mR/h, and transferable contamination levels are < 5000 dpm/100 sq cm alpha.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of info on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A007

Unit Name: 86-Inch Cyclotron -- (9201-2)

Location of Unit: The Cyclotron Facility was constructed in Building 9201-2 at the Y-12 Pla

General Dimensions and Capacities: Specific data are not available, but the facility occupies on of Building 9201-2 at the Y-12 Plant.

Function of Unit: The cyclotron was dedicated to the production of radionuclides used in m diagnosis, as trace elements in coal liquefaction and gasification studies, and for treatment of co diseases.

Date of Operation: Site commissioned: 1950. Taken out of service: 1983.

Waste Characteristics: Wastes are comprised of Bi-207, Co-57, Ga-67, Zn-65, Cd-109, Ag-11 Y-39.

Release Data: The external surfaces of the cyclotron emit a maximum radiation level of 70 mR/ transferable contaminations of < 300 dpm/100 sq cm of beta-gamma and < 20 dpm/100 sq cm It is estimated that 10 Ci of activity are in the vacuum pumps and oil. Another 100 Ci may be pr from residual quantities of radionuclides from reactions of the cyclotron beam with the targets. shielded stainless steel shipping casks and storage bins contain abandoned targets with a radi level of < 40 mR/h, and 10 to 30 mCi of Bi-207 may be stored in the cyclotron pit. Magnet co coils contain approximately 7000 gal (26,500 L) of transformer oils that contain less than 50 PCBs.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A008

Unit Name: Plutonium Process Condensate Tank -- (9204-3)

Location of Unit: The tank was located south of Building 9720-8 at the Y-12 Plant.

General Dimensions and Capacities: The steel tank has a volume of 500 gal (1892 L).

Function of Unit: The tank was used in the 1950s and 1960s to transport plutonium pro condensate from Building 9204-3 to ORNL for disposal.

Date of Operation: Site commissioned: 1950s. Taken out of service: 1960s.

Waste Characteristics: The primary waste is Pu.

Release Data: It has been determined that the interior is contaminated with radiation level 500,000 dpm/100 sq cm alpha. The exterior has been protected with an application of paint seal The transferable contamination of the exterior tank is less than 30 dpm/100 sq cm alpha and less t 200 dpm/100 sq cm beta-gamma. Radiation exposure at the exterior surface is less than 1 mR/h.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: Tank was removed and stored on-site at SWSA 5 in 1989.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A009

Unit Name: Plutonium Processing Facility -- (9204-3)

Location of Unit: The Plutonium Processing Facility is located in Building 9204-3 in Room

General Dimensions and Capacities: Room 116 consists of an L-shaped glovebox designed to aspects of the plutonium processing operations by enclosing a portion of the room.

Function of Unit: The function of the facility is to process plutonium.

Date of Operation: Site commissioned: early 1950s. Taken out of service: early 1960s.

Waste Characteristics: Wastes are primarily Pu-240 and Pu-242.

Release Data: Both the equipment and box components are highly contaminated with det radiation levels greater than 500,000 dpm/100 sq cm alpha. No transferable contaminatic detected on external surfaces, except at the bottom of the enclosure where the radiation level than 2 mR/h.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of infor on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A010

Unit Name: Coolant Salt Technology Facility -- (9201-3)

Location of Unit: This facility is located near the MSRE Fuel Handling Facility on the seco of Building 9201-3 of the Y-12 complex.

General Dimensions and Capacities: This facility consists of a flow loop system.

Function of Unit: This facility was used to inject tritium into a boron trifluoride flow in su the MSRE.

Date of Operation: 1972 to 1973.

Waste Characteristics: No information.

Release Data: The only residual radioactivity is located in the piping and valves locatec external surfaces of the facility. Radiation levels ranging up to 40,000 dpm/100 sq cm a present, with transferable levels of approximately 1000 dpm/100 sq cm alpha and 3500 dpm/1 beta-gamma.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of inf on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 15.0

WAG Name: ORNL Facilities at Y-12

Unit ID Number: X15-A011

Unit Name: MSRE Fuel Handling Facility -- (9201-3)

Location of Unit: This facility is located in Room 235 of Building 9201-3 at the Y-12 P

General Dimensions and Capacities: The Molten Salt Corrosion Loop is a cell about (1
3 levels high (5 x 5 m).

Function of Unit: The Molten Salt Corrosion Loop was used to evaluate the corrosive
coolant and fuel salts during the development of molten salt reactor technology.

Date of Operation: Site commissioned: Information not available. Taken out of service:

Waste Characteristics: Primary radiological wastes are U-235 and Th-228.

Release Data: The cell is generally contaminated throughout, including the floors, sink,
ductwork. Radiation surveys completed on August 7, 1985 indicated probe readings r
5000-50,000 dpm/100 sq cm alpha and transferable levels of 1236 dpm/100 sq cm alpl
dpm/100 sq cm beta-gamma.

Regulatory Authority: CERCLA/SF

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of
on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 16.0

WAG Name: Health Physics Research Reactor (HPRR) Area

Unit ID Number: X16-0001

Unit Name: Cesium-137 "Forest" Research Area 7759

Location of Unit: The site containing the contaminated trees is located on the azimuth bearir degrees S, a distance of 1.8 mile (2.9 km) from the intersection of Bethel Valley Road anc Valley Access Road. ORNL grid coordinates are N 13,000 and E 34,500.

General Dimensions and Capacities: The site is a 20 x 25 m plot (66 x 82 ft). Thirty yello trees ranging up to approximately 100 ft (30 m) tall were used in this study. A total of 46 Cs-137 was introduced into the transpiration stream of the trees.

Function of the Unit: Trees were inoculated with cesium to determine the movement of this and as an analog to the essential element potassium.

Date of Operation: Site commissioned: May 20-23, 1962. Site still remains today.

Waste Characteristics: Cs-137 is the primary waste. Nearly 24 years have passed (approxim half-life) since the isotope was injected into the trees. Correcting only for radiologica approximately 270 mCi would remain today. This amount has been further decreased distribution of leaves, movement through soil, and runoff.

Release Data: No releases reported.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of info on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 16.0

WAG Name: Health Physics Research Reactor Area

Unit ID Number: X16-0002

Unit Name: Process Waste Basin 7711

Location of Unit: ORNL grid coordinates are N 12,260 and E 35,830. Site is located west reactor building at the DOSAR facility (HPRR).

General Dimensions and Capacities: The basin is approximately 10 x 20 m (34 x 64 ft) at the the berm with sides sloping 4 m (12 ft) inward to a 2-m- (6-ft-) deep bottom that is 2 x 12 n 40 ft). the basin is lined with a deteriorating Hydromat asphalt liner. When filled to a depth (3.75 ft), the basin holds approximately 95,000 L (25,000 gal).

Function of the Unit: The retention basin was installed to collect groundwater seepage into the r storage vaults.

Date of Operation: The facility was never used for its intended purpose.

Waste Characteristics: No waste has been added. The only water in the basin results from precipi and checks by fire department personnel who make sure the drain system is free of obstructi flushing water through the drain port.

Release Data: No waste has ever been diverted to the basin. The major use of the basin is to out fire protection systems.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: Results of a 1989 radiological walkover survey show surface gamma exposure rates ra from 6 to 14 uR/h. These values represent typical background levels for uncontaminated a Directly measured alpha activity levels at three locations ranged from 9 to 54 dpm/100 cm2; whe beta-gamma dose rates at the same locations ranged from 0.013 to 0.016 mrad/h. These value within the range of typical background levels.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 16.0

WAG Name: Health Physics Research Reactor (HPRR) Area

Unit ID Number: X16-0003

Unit Name: Buried Scrap Metal Area

Location of Unit: The site is located south of Building 7710 at the point where the road to th (Bldg. 7709) turns west. The ORNL grid coordinates are N 11,150 and E 36,250.

General Dimensions and Capacities: The size of the burial trench is undetermined. It is estim the total area is approximately 40 ft by 50 ft (12.2 m by 15.2 m).

Function of the Unit: The area was used as a waste pile prior to burial in place.

Date of Operation: Material was stored on the surface from the early 1960s to the early 198 some of the material was removed to other areas and the remainder was buried in place.

Waste Characteristics: The known materials buried included a container (4 ft by 3 ft [1.2 m by of polyethylene beads and a collection of Japanese building construction materials. Thes uncontaminated materials which originated from the Nevada Test Site. Three sealed radiation s cesium and cobalt, were stored in the area but were removed to SWSA 6 in 1983.

Release Data: There have been no reported releases.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inform on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 16.0

WAG Name: Health Physics Research Reactor (HPRR) Area

Unit ID Number: X16-0004

Unit Name: Septic Tank 7709

Location of Unit: The septic tank is located west of the DOSAR Reactor Building (7709) HPRR Area. The ORNL grid coordinates are N 12,310 and E 35,840.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 500 gal (1

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from B 7709.

Date of Operation: Septic tank was installed in 1961 and is still in us (25 years).

Waste Characteristics: Only domestic sewage from Building 7709 has been collected/stored in th No hazardous or radioactive wastes have been added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of infor on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 16.0

WAG Name: Health Physics Research Reactor (HPRR) Area

Unit ID Number: X16-0005

Unit Name: Septic Tank 7710

Location of Unit: The septic tank is located at the DOSAR Facility Control Building (7710) i HPRR Area. The ORNL grid coordinates are N 12,320 and E 36,450.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 1200 gal (454

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage fro DOSAR Facility.

Date of Operation: Septic tank was installed in 1962 and is still in use (25 years).

Waste Characteristics: Only domestic sewage from Building 7710 has been collected/stored in the No hazardous or radioactive wastes have been added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0001

Unit Name: Septic Tank 7000

Location of Unit: The tank is located south of Building 7000. ORNL grid coordinates are and E 36,230.

General Dimensions and Capacities: Capacity of the tank is 39,000 gal (147,630 L). Tl concrete.

Function of the Unit: The unit handles domestic sewage from the 7000 Area. It was formerl a septic tank but is now used as a collection vessel for the pumping station. Waste is pump Bethel Valley system for treatment.

Date of Operation: 1959 to present.

Waste Characteristics: Waste consists of domestic sewage; no hazardous or radioactive wa been added to the system.

Release Data: No reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of info on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0002A

Unit Name: Waste Oil Storage Tank 7002W

Location of Unit: The tank is located on the west side of Building 7002. ORNL grid coordinates N 21,840 and E 36,800.

General Dimensions and Capacities: The tank is 5 ft 4 in. (1.7 m) diameter by 15 ft (4.6 m) l horizontal, steel, and located above ground. Tank capacity is 2500 gal (9463 L).

Function of the Unit: The tank is used to store waste oil.

Date of Operation: The tank was installed in 1984. It is still in service.

Waste Characteristics: The tank contains waste oil. No records exist of hazardous material radionuclides being present. The oil has not been analyzed.

Release Data: No releases reported.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0002B

Unit Name: Waste Oil Storage Tank 7009E

Location of Unit: This tank is located in the 7000 Area, east of the main plant area of ORNL. grid coordinates are N 21,580 and E 37,560.

General Dimensions and Capacities: The tank is buried. Capacity of the tank is 5000 gal (18,

Function of the Unit: The tank is used to store waste oil drained from various pieces of equi

Date of Operation: Installation date: 1975. Site is still in use.

Waste Characteristics: The waste oil has not been analyzed. No hazardous materials or radion should be present.

Release Data: No releases reported.

Regulatory Authority: UST

Site Characterization Status: RFI

Comment: No significant information has been reported that would require revision of inforr on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0002C

Unit Name: Waste Oil Storage Tank 7075

Location of Unit: This tank is located in the 7000 Area, which is east of the main ORN ORNL grid coordinates are N 21,100 and E 36,680.

General Dimensions and Capacities: The tank is below ground. Capacity is 4200 gal (15,90(

Function of the Unit: The tank stores tritium-contaminated waste oil.

Date of Operation: Installation date: 1982. Site is still in use. The tank is reported to be fu

Waste Characteristics: This tank is contaminated with very low levels of radioactive waste oils. are available relative to the presence of hazardous constituents in the waste oil.

Release Data: No releases have been reported.

Regulatory Authority: UST

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of infor on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0002D

Unit Name: Waste Oil Storage Tank 7021W

Location of Unit: The tank is located on the west side of Building 7021. ORNL grid coord: N 21,800 and E 37,300.

General Dimensions and Capacities: The tank is 4 ft (1.2 m) diameter, 8 ft (2.4 m) long, h steel, and located above ground. Tank capacity is 480 gal (1817 L).

Function of the Unit: The tank stores waste oil.

Date of Operation: The tank was installed in 1983. It is still in service.

Waste Characteristics: The tank contains waste oil. No records exist of hazardous mat radionuclides being present. The oil has not been analyzed.

Release Data: No releases reported.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of info on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0003

Unit Name: Waste Oil Storage Tank Mobile Truck 7030E

Location of Unit: This vehicle-mounted oil storage tank is located in the 7000 Area east of ORNL plant. It is located at ORNL grid coordinates N 21,540 and E 37,140.

General Dimensions and Capacities: Capacity of the tank is approximately 1100 gal (4164 L). ' is mounted on a vehicle.

Function of the Unit: The tank is used to collect and store waste fuel oil.

Date of Operation: 1975 to present

Waste Characteristics: The tank contains waste fuel oil only. It is reported to contain P(mention of radionuclides is reported.

Release Data: No releases reported.

Regulatory Authority: Clean Water Act/CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of infor on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0004A

Unit Name: Photographic Reproduction Waste Storage Tank 7075A

Location of Unit: The tank is located in the 7000 Area east of the main ORNL plant. ORN coordinates are N 21,100 and E 36,700. There are two tanks at this site (See SWMU X17-0(

General Dimensions and Capacities: This tank is constructed of fiberglass and has a capacity (gal (11,356 L). The tank is located on a concrete pad. Concrete dikes surround the pad.

Function of the Unit: The tank stores photographic activators and developer waste. Periodically is transferred to the silver-recovery unit in Melton Valley (SWMU X08-0010).

Date of Operation: Installation date: unknown. Tank is still in service.

Waste Characteristics: Chemical composition is not known. The waste is probably hazardous silver content.

Release Data: No leaks or spills have been reported.

Regulatory Authority: RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inforn on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0004

Unit Name: Photographic Reproduction Waste Storage Tank 7075B

Location of Unit: The tank is located in the 7000 Area east of the main ORNL plant. OR coordinates are N 21,100 and E 36,700. There are two tanks at this site (See SWMU X17-0

General Dimensions and Capacities: The tank is constructed of fiberglass and has a capacity gal (7570 L). The tank is located on a concrete pad. Concrete dikes surround the pad.

Function of the Unit: The tank stores photographic activators and developer waste. Periodicall is transferred to the silver-recovery unit in Melton Valley (SWMU X08-0010).

Date of Operation: Installation date: unknown. Tank is still in service.

Waste Characteristics: Chemical composition is not known. The waste is probably hazardous silver content.

Release Data: No leaks or spills have been reported.

Regulatory Authority: RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inform on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 17.0

WAG Name: ORNL Services Area

Unit ID Number: X17-0005

Unit Name: Abandoned, Underground Waste Oil Storage Tank 7002A

Location of Unit: The tank was located near the southwest corner of the ORNL Garage, 7002. Approximate ORNL grid coordinates are N 21,700 and E 36,780.

General Dimensions and Capacities: The obround steel tank is approximately 27 inches wid tall and 5 feet long. Its capacity is estimated at 275 gallons.

Function of the Unit: The tank was used to store waste oil from the ORNL Garage. The t believed to store only waste oil; however, records have not been located.

Date of Operation: Existing records suggest the tank was installed around 1948 and tha abandoned in place in 1977.

Waste Characteristics: Recent analyses indicate the presence of 1,1,1-trichloroethane (a c degreaser) and polychlorinated biphenyls. No radionuclides should be present.

Release Data: The tank was uncovered during October in an attempt to determine whethe been permanently closed. It was then discovered that the tank contained an oily/sludge water n However, visual observations of the tank suggested that the level of material fluctuated which, suggested that the tank was not tight and that the contents could have been a source of con release to the environment. During an attempt to remove the UST, all material (estimated gallons) in the tank was released through existing corrosion holes on the sides of the tank i pit. Cleanup of the site has been completed. Notifications of a release of PCB-contaminated m were made to DOE/ORO, DOE/HG, EPA Region IV, and the National Response Center. T was wrapped in plastic and moved to a secured, diked location.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: This tank had been listed on ORNL's Underground Storage Tank (UST) Notifi Forms as a tank regulated under Subtitle I of the Resource Conservation and Recovery Act.

Date Prepared: December 1989

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0001A

Unit Name: EGCR Pond 7600A

Location of Unit: ORNL grid coordinates are N 18,640 and E 43,580.

General Dimensions and Capacities: This pond is 50 ft (15 m) by 65 ft (20 m), with a depth of (4.6 m).

Function of the Unit: This area was originally installed as part of the Experimental Gas C Reactor Program. The reactor was never completed or operated. The basin is now used to c storm water runoff.

Date of Operation: Basin constructed: 1960. Site is still in use.

Waste Characteristics: No data are available on waste composition.

Release Data: No leaks or releases have been reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: Recent soil and water sampling has indicated that this SWMU would not be a sour continuing release of radionuclides or hazardous wastes.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0001B

Unit Name: EGCR Pond 7600B

Location of Unit: ORNL grid coordinates are N 18,020 and E 42,660.

General Dimensions and Capacities: The basin is 50 ft (15 m) by 65 ft (20 m), with a depth of (4.6 m).

Function of the Unit: This area was originally installed as part of the Experimental Gas Co Reactor Program. The reactor was never completed or operated. The basin is now used to co storm water runoff.

Date of Operation: Basin constructed: 1960. Site is still in use.

Waste Characteristics: No data are available on waste composition.

Release Data: No leaks or releases have been reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: Recent soil and water sampling has indicated that this SWMU would not be a sourc continuing release of radionuclides or hazardous wastes.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0002

Unit Name: Paint Solvents Storage 7615

Location of Unit: This site is located at the north end of the 7615 storage building. OR coordinates are N 18,320 and E 43,600.

General Dimensions and Capacities: This unit is an underground steel tank. Dimensions a diameter (7.6 m) and 7 ft (2 m) high. Capacity is 280 gal (1060 L).

Function of the Unit: The contents of this tank (and its function) are unknown. Reports indic the tank may have stored paint solvents.

Date of Operation: Installation date: 1962. The tank is inactive.

Waste Characteristics: No information exists on the nature and amount of waste stored in th

Release Data: No releases reported.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: NFA

Comment: Sampling indicates that tank should require no further action. Tank has been re from service.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0003

Unit Name: Septic Tank 7616

Location of Unit: This tank is located at ORNL grid coordinates N 18,000 and E 42,600

General Dimensions and Capacities: Capacity is 16,900 gal (64,000 L). The tank is made of co

Function of the Unit: The tank was originally installed in 1959 as an Imhoff tank for handling s from the EGCR. It was converted to a septic tank in 1974 for use by the Consolidatec Reprocessing Division of ORNL.

Date of Operation: As Imhoff tank: 1959-1974. As septic tank: 1974--present.

Waste Characteristics: The tank contains domestic sewage; no hazardous or radioactive waste been added to the system.

Release Data: There are no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inform on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0004A

Unit Name: Waste Acid Storage Tank 7602a

Location of Unit: This tank is located in the EGCR area east of the main ORNL plant area. Ol grid coordinates are N 18,640 and E 43,580.

General Dimensions and Capacities: Tank capacity is 13,000 gal (49,210 L). The storage tai located below ground.

Function of the Unit: The tank is used for slightly acidic process waste storage from the EGCR

Date of Operation: Installation date: unknown. Tank is still in service.

Waste Characteristics: The waste in the tank is process waste.

Release Data: No releases reported.

Regulatory Authority: RCRA/Clean Water Act

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0004B

Unit Name: Waste Acid Storage Tank 7602b

Location of Unit: The two tank trucks (see also X18-0004c) are located in the EGCR area east of the main ORNL plant area. ORNL grid coordinates are N 18,560 and E 43,140.

General Dimensions and Capacities: The capacity of each tank is 1000 gal (3785 L).

Function of the Unit: The tanks contain waste acid. The tanks are used to haul process waste from the EGCR area to the PWTP at the main plant area.

Date of Operation: Installation date: unknown. The tanks are still in service.

Waste Characteristics: The waste in the tanks is process waste.

Release Data: No releases reported.

Regulatory Authority: RCRA/Clean Water Act

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of information on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0004C

Unit Name: Waste Acid Storage Tank 7602c

Location of Unit: The two tank trucks (see also X18-0004b) are located in the EGCR area e the main ORNL plant area. ORNL grid coordinates are N 18,560 and E 43,140.

General Dimensions and Capacities: The capacity of each tank is 1000 gal (3785 L).

Function of the Unit: The tanks contain waste acid. The tanks are used to haul process waste the EGCR area to the PWTP at the main plant area.

Date of Operation: Installation date: unknown. The tanks are still in service.

Waste Characteristics: The waste in the tanks is process waste.

Release Data: No releases reported.

Regulatory Authority: RCRA/Clean Water Act

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inform on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0004D

Unit Name: Waste Acid Storage Tank 7601

Location of Unit: The tank is located in the EGCR area east of the main ORNL plant are grid coordinates are N 18,560 and E 43,100.

General Dimensions and Capacities: The tank has a capacity of 2500 gal (9464 L). It is locat ground.

Function of the Unit: The tank was installed to store process waste but was never used.

Date of Operation: Installed: unknown.

Waste Characteristics: The tank contains process waste.

Release Data: No releases reported.

Regulatory Authority: No Applicable Regulation

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of info on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-0005

Unit Name: Waste Retention Basin 7613

Location of Unit: ORNL grid coordinates are N 18,600 and E 43,050.

General Dimensions and Capacities: The basin measures about 30 ft (9 m) by 40 ft (12 m). A con divider divides the basin.

Function of the Unit: No function is known (the basin may have been installed as a waste reter basin for EGCR but was never used for its intended purpose). It is currently used as an emerg water supply for fire protection.

Date of Operation: Installed: 1960. Basin is still in service.

Waste Characteristics: All EGCR process wastes are disposed of by tank truck transfer to the Ol main plant area.

Release Data: No releases are reported.

Regulatory Authority: No Applicable Regulation

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 18.0

WAG Name: Consolidated Fuel Reprocessing Area

Unit ID Number: X18-000[illegible]

Unit Name: PCB Waste Container Storage Area 7606

Location of Unit: Outside and east of Building 7606.

General Dimensions and Capacities: The unit consists of a covered area roughly 4 ft by 20 ft, h
a fluorescent tube crusher and one 55-gal drum.

Function of the Unit: To store discarded fluorescent tubes prior to pickup. Tubes are stored in
bags held in drums.

Date of Operation: In use since 1982.

Waste Characteristics: Crushed fluorescent tubes.

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inforn
on the summary sheet.

Date Prepared: October 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-0001

Unit Name: Hazardous Waste Storage Facility 7652

Location of Unit: ORNL grid coordinates are N 15,750 and E 36,880.

General Dimensions and Capacities: The Storage Facility measures 61.7 by 39 ft (18.3 by 12 m) divided into separate areas designed to hold specific wastes. A total of 15,125 gal (57,254 L) of can be stored at the facility.

Function of the Unit: The site stores bulk (< 5 gal) hazardous wastes that have already identified. Wastes are accumulated in drums. Diking separates the different types of waste.

Date of Operation: Construction at the site has been completed (1987).

Waste Characteristics: Wastes to be stored are acids, bases, organic acids, poisons, and flamn wastes.

Release Data: The site has not received wastes.

Regulatory Authority: RCRA-Permit

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-0002

Unit Name: Chemical Waste Storage Area 7653

Location of Unit: ORNL grid coordinates are N 15,770 and E 36,950.

General Dimensions and Capacities: The facility consists of a prefabricated steel building ha floor area of 3060 sq ft (284 sq m). The capacity of the facility is 3300 gal (12,500 L).

Function of the Unit: The site is a staging area for appropriately packaging small quantit laboratory chemicals and some process chemical wastes into drums for storage. Wastes w separated by RCRA classes.

Date of Operation: The site is currently in operation.

Waste Characteristics: The wastes are laboratory chemical wastes and small amounts of process w that contain hazardous constituents. Mixed wastes (hazardous and radioactive) are not handle

Release Data: No releases are reported.

Regulatory Authority: RCRA/Interim status

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inform on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-0003

Unit Name: Long-Term Hazardous Waste Storage Facility 7654

Location of Unit: ORNL grid coordinates are N 15,810 and E 36,890.

General Dimensions and Capacities: This proposed facility will have a total of 1178 sq ft (165 s of storage space.

Function of the Unit: The site stores 55- and 30-gal drums of mixed (hazardous and radioa wastes.

Date of Operation: The site is operational.

Waste Characteristics: Wastes will normally be placed in containers (55-gal drums) when rece Most of the wastes received will be discarded laboratory chemicals. Wastes will include scintillation fluid and scintillation vials.

Release Date: The facility is operational.

Regulatory Authority: RCRA/Interim status

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inform on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-0004

Unit Name: Mixed Waste Storage Facility 7651

Location of Unit: This unit is located southeast of the main ORNL plant area in Melton V
ORNL grid coordinates are N 15,720 and E 37,000.

General Dimensions and Capacities: The facility is a covered, diked concrete pad. Approx
dimensions are 20 ft (6 m) by 30 ft (9 m).

Function of the Unit: The site was used to store mixed hazardous wastes. Originally, it serv
sample storage for ORNL's Chemical Technology Division. It now stores clean oil.

Date of Operation: The site was closed near the end of 1985 because of construction work ne

Waste Characteristics: Waste type is defined only as mixed hazardous waste. Mixed is used to inc
that wastes can contain radioactive materials and chemically hazardous wastes.

Release Data: No hazardous wastes have been released from this facility

Regulatory Authority: RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa
on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-000.

Unit Name: Leaking Gas Cylinder Area 7659A

Location of Unit: The facility is located southeast of ORNL in a remote section of Melton
ORNL grid coordinates are N 17,850 and E 39,750.

General Dimensions and Capacities: The area is fenced and measures about 75 by 150 ft (23 by

Function of the Unit: Each year a number of gas cylinders have problems with shut-off
resulting in leaks. Cylinders are transported to this area where they are chained to the fence a
to vent. Once empty, the gas cylinders are handled as deemed appropriate.

Date of Operation: Facility constructed: about 1983. Site is still in operation.

Waste Characteristics: Wastes consist of various nonradioactive gases routinely used in (
operations.

Release Data: No liquid wastes are involved. Gases are dissipated into the atmosphere. No re
of hazardous materials are reported.

Regulatory Authority: No Applicable Regulation

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of inform
on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-0006

Unit Name: Reactive Chemicals Disposal Area 7659B

Location of Unit: ORNL grid coordinates are N 17,950 and E 39,830. The site is located southeast of the ORNL main plant area in a remote area.

General Dimensions and Capacities: The Reactive Bottle Smasher is a box 18 in. (46 cm) deep, (76 cm) wide, and 48 in. (122 cm) long. It is located in a fenced area measuring 75 by 150 ft (46 m).

Function of the Unit: This facility, also known as the Reactive Chemicals Bottle Smasher, is u crush glass and metal containers and release their contents to the atmosphere. It is a 0.5-in. plat box with a hinged lid. Containers to be smashed are placed in the box, and the lid is released re from approximately 75 ft (23 m) away. The lid swings into the box, smashing the glass and containers.

Date of Operation: Site installed: 1983. Site is no longer in serviceas of 1988.

Waste Characteristics: Contents of containers are highly volatile liquids (e.g., hydrazine, e alcohol-ether mixtures, etc.).

Release Data: No releases have been reported. Crushed glass and metal containers are dispos in the Contractors' Landfill. No monitoring of the site is conducted.

Regulatory Authority: RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-0007

Unit Name: Soil Injection of Radioactive Gas 7659C

Location of Unit: The site is located in the same general area as SWMUs X19-0005 and X19 (the Leaking Gas Cylinder and Reactive Chemical Disposal Areas, respectively). ORNL coordinates are N 17,850 and E 39,750.

General Dimensions and Capacities: The area is fenced and measures about 75 by 150 ft (23 by 4

Function of the Unit: The original description of this unit was based on verbal information a incorrect. More detailed investigation indicates that this site (known as the "Sandia Site") was to perform heater tests in the shale to obtain thermal information for use in the high-level repository program. No radioactivity or chemical wastes were involved at the site. No records to suggest any gas injections at this site.

Date of Operation: The site was constructed and operated during the period 1976-1977.

Waste Characteristics: No wastes (radioactive or hazardous chemical) were involved in the studi this site.

Release Data: No releases have occurred. Equipment has been removed from the site. Site is curr used for SWMUs X19-0005 and X19-0006.

Regulatory Authority: No Applicable Regulation

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of informa on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

WAG ID Number: 19.0

WAG Name: Hazardous Waste Treatment and Storage Facilities

Unit ID Number: X19-0008

Unit Name: Chemical Detonation Facility 7667

Location of Unit: The facility is located about 200 ft (61 m) northwest of the Hazardo Management Area (located on Health Physics Research Reactor Access Road approximatel [0.8 km] south of Melton Valley Drive). The ORNL grid coordinates are N 16,550 and E

General Dimensions and Capacities: The site consists of two explosive material storage mag detonation trench, and a control site. The storage magazines are separated by a dirt berm located on concrete pads. The entire structure is surrounded by a security fence. The de trench is 10 ft long, 5 ft wide, and 4 ft deep (3.0 m x 1.5 m x 1.2 m) and is surrounded by a fence.

Function of the Unit: The function of the facility is to provide a safe, effective, and environ acceptable method for the disposal of explosive and shock-sensitive chemicals.

Date of Operation: This facility has not been used as of August, 1987. This SWMU will rep detonation trench in SWSA 6 that had been used for a number of years (SWMU X06-0003

Waste Characteristics: Examples of chemicals that are detonated include picric acid, phos hydrogen peroxide, ammonium nitrate, and other shock-sensitive chemicals.

Release Data: Chemicals, explosives, and in most instances, their containers are vapor pulverized in the explosion. Any fragments that remain after the explosion are removed; he releases will occur.

Regulatory Authority: RCRA/CAA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of infor on the summary sheet.

Date Prepared: August 1987

Update: September 1990

WAG ID Number: 20.0

WAG Name: Oak Ridge Land Farm

Unit ID Number: X20-0001

Unit Name: Municipal Sewage Sludge Application Site (XF1226)

Location of Unit: The site is located north of Bethel Valley Road about 5 miles east of the n ORNL plant area.

General Dimensions and Capacities: Approximately 65 acres (26 ha) has been used to date.

Function of the Unit: The unit functions as a land disposal operation for digested sewage sludge fr the city of Oak Ridge's sewage treatment plant.

Date of Operation: Sludge disposal began in 1983. Sludge disposal was moved to another site in 19

Waste Characteristics: The waste is digested sewage sludge. Due to water discharged into the C Ridge sewer system by certain industries, radionuclides have been detected in the sewage slud Inventory of radionuclides at this site is 0.074 Ci from Co-60, 0.013 Ci from Sr-90, 0.044 Ci fr Cs-137, 0.010 Ci from Pu-239, 180.0 kg (397 lb) of Cd, 110.0 kg (242.5 lb) of Ni, and 4600.0 kg (10,1 lb) of Pb. Volume of sludge applied was about 6.0 x 10(E+6) gal (2.3 x 10(E+7) L).

Release Data: Limited sampling of soil and surface water on the site does not indicate that there a potential public health problems due to exposure to the radionuclides. Groundwater sampling at t site has been initiated.

Regulatory Authority: RCRA/CERCLA; Clean Water Act

Site Characterization Status: NFA

Comment: Analytical results indicate that unit X20-0001 does not contain RCRA contaminants concentrations that would be classified as hazardous wastes.

Date Prepared: April 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0001

Unit Name: Abandoned Burn Pit

Location of Unit: This site is located north of Bethel Valley Road across from the 7000 area (' 17, ORNL Services Area) on Chestnut Ridge Road. The Sanitary Waste Compactor (Bldg. 09: currently located on the site. ORNL grid coordinates are N 23,100 and E 37,950.

General Dimensions and Capacities: No records of the exact dimensions of this facility exist.

Function of the Unit: During the early operation of the Laboratory, this site was used for burni combustible trash. The pit in which the burning took place has been backfilled. The Sanitary W Compactor is currently located at this site.

Date of Operation: Believed to have begun operation at or near the time of closure of SWSA 4 a 1959. Operations ceased in 1969 when the compactor was installed at the site.

Waste Characteristics: Wood, refuse, and combustible construction debris were burned in the pit records exist as to the exact nature of the material burned. It has been reported, however, that c least two occasions laundry materials contaminated with very-low-level radioactivity were burne the pit. Materials stored on the surface in this area may have been buried in the area immedi north of the compactor.

Release Data: There is no historical information on releases of hazardous or radioactive mater Results from sampling surveys reported in Sect. 3.7 of this Addendum suggest elevated levels of Cu, Pb, and Zn. Cesium-137 activity was observed at 5-15 times background.

Regulatory Authority: RCRA/CERCLA

Site Characterization Status: FI

Comment: No significant information has been reported that would require revision of informat on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0002

Unit Name: Septic Tank 0907

Location of Unit: The septi. tank is located east of Building 0907, which is north of Bethel Road about 2-3 miles from the Main Plant Area.

General Dimensions and Capacities: Tank is a concrete structure with a capacity of 550 gal (2

Function of the Unit: Septic tank is used to collect and dispose of raw domestic sewage from B 0907.

Date of Operation: Septic tank was installed in 1958 and is still in use (29 years).

Waste Characteristics: Only domestic sewage from Building 0907 has been collected/stored in th NO hazardous or radioactive wastes have been added to the system.

Release Data: There have been no reported leaks or releases.

Regulatory Authority: Clean Water Act; RCRA

Site Characterization Status: NFA

Comment: No significant information has been reported that would require revision of infor on the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0003

Unit Name: Cs-137, Co-60 Contaminated Forest Area

Location of Unit: Site ER-11 contained two radioisotope treatment plots on Chestnut Ridge. C plot was located 0.8 mile (1.35 km) on an azimuth of S 84 W from Building 2001 at ORNL, and other 1.55 miles (2.51 km) on an azimuth of N 49 E. A third plot (location undefined) served a control.

General Dimensions and Capacities: The treatment plots were 4.85 acres (1.96 ha) each. A total about 9.7 acres (4 ha) was involved in the study.

Function of Unit: The objective of the study was to utilize the radioisotopes to determine annual a seasonal consumption rates of white pine seeds by small forest mammals. Animals in the study pl were live-trapped, isotopic body burdens determined in the laboratory, and the animals returned the forest at the point of trapping.

Date of Operation: Each of the two study areas received applications of contaminated seeds (tagg with Cs-137 and Co-60) between July 31, 1969 and September 3, 1970.

Waste Characteristics: The total amount of isotope in the applied seeds was approximately 5.8 m of Cs-137 (half-life 30 years) and 49.7 mCi of Co-60 (half-life 5.2 years) for each plot.

Release Data: As a result of the long-term study, the radioactive materials were constantly bei removed from the site by feeding, but a fraction was being returned through body-eliminatio processes. Correcting for radiological decay, approximately 4 mCi of Cs-137 and 5.5 mCi of Co- would be the maximum amount of activity that would remain at the site if none were removed. The quantities would be further diluted by feed (food) placement by the resident animals, in excreme of animals meandering from the site, and scavenging by animals passing through the area. Fie radiological surveys indicate that there may be some "hot spots" (1-2 mR/h) present in the plots.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: Was formerly considered to be ER-11 (Environmental Research Site 11). Now classifie as a SWMU.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0004

Unit Name: Cs-137 Contaminated Forest Floor

Location of Unit: Site ER-24 is located near (160 ft [50 m]) the lower slope forest of Coppe a distance of 1.8 miles (2.92 km) on an azimuth of E 66 S from the intersection of Bethel Vall and Melton Valley Access Road.

General Dimensions and Capacities: A 16.5- by 16.5-ft (5- by 5-m) plot was contaminated with Estimated contaminated area is 270 ft2 (25 m2).

Function of Unit: The purpose of the study was to determine the transfer of the cesium from t to successive soil depths following rain-leaching and decay of the litter.

Date of Operation: The forest floor was contaminated by spraying with Cs-137 in April 196

Waste Characteristics: The exact amount of Cs-137 (half-life 30 years) applied is not known; b it is thought to have been in the order of 1 mCi or less.

Release Data: Since the initial contamination occurred, about 23 years have lapsed. If the radioactivity was about 1 mCi, then about 0.6 mCi would remain, subject to dilution by leachi decay of the litter.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: Was formerly considered to be ER-24 (Environmental Research Site 24). Now cla as a SWMU.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0005

Unit Name: Cs-137 Contaminated Forest Understory

Location of Unit: Site ER-25 is located about 33 ft (10 m) west of the cesium forest study ea (SWMU X016-0001 in the RI-A). The site is 1.8 miles (2.92 km) on an azimuth of E 66 S fr intersection of Bethel Valley Road and the Melton Valley Access Road near the lower slope of Copper Ridge.

General Dimensions and Capacities: A 110-ft2 (10-m2) plot was contaminated with Cs-137.

Function of Unit: The study was designed to determine the movement of radiocesium to litter a from the understory canopy.

Date of Operation: The area was sprayed with Cs-137 on June 27, 1966.

Waste Characteristics: Plants, soil, and litter were contaminated with 360 mCi of Cs-137 (half-years).

Release Data: Twenty years have passed (0.67 half-life) since the radionuclide was applie maximum residual radioactivity today would be about 220 mCi. Because of annual leaf-fall an dispersal, decomposition of the litter, runoff, and infiltration, it is unlikely that detectable remain.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: Was formerly considered to be ER-25 (Environmental Research Site 25). Now cla as a SWMU.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0006

Unit Name: Cs-137 Contaminated Meadow

Location of Unit: Site ER-26 is thought to be an area of detectable radioactive contamin adjacent (65 ft [20 m] north) t the Cs-137 runoff plot (SWMU X13-0002 in the RFA). The position is not known.

General Dimensions and Capacities: An 8- by 8-ft (2.4- by 2.4-m) plot was contaminated with Cs- Total area contaminated was 64 ft2 (10 m2).

Function of Unit: This area served as a pilot study for the runoff soil-erosion study (SWMU X13- in the RFA).

Date of Operation: The exact date of isotope application is not known but is thought to be in J 1964.

Waste Characteristics: 5 mCi of Cs-137 (half-life 30 years) was applied in the form of a spra clipped (short meadow) and unclipped (long meadow grass cover within the plot.

Release Data: If the June 1964 date is correct, nearly 23 years (approximately 0.73 half-life) h elapsed since the field was contaminated. If the only loss of radioactivity were through radiolog decay, approximately 3 mCi would remain. Much less would actually be present due to losses fr rainout, plant fragmentation, and wind dispersal.

Regulatory Authority: CERCLA

Site Characterization Status: FI

Comment: Was formerly considered to be ER-26 (Environmental Research Site 26). Now classifi as a SWMU.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0007

Unit Name: Tritium Target Fabrication Facility (7025)

Location of Unit: This facility is located east of WAG 17 (ORNL Services Area). Approxim ORNL grid coordinates are N 21,370 and E 38,285.

General Dimensions and Capacities: Floor area of building is 55 m2. The tritium equipment target fabrication is housed in a 26 by 5 ft stainless steel hood.

Function of Unit: The building is designed primarily for the purpose of producing tritium-contain accelerator targets as well as loading tritium by absorption into other types of metal specimens. T accelerator targets are used by other laboratories to produce neutrons for experimental purpose

Date of Operation: 1968 - present. Operations involving tritium were placed in standby in fall of 19 tritium inventory to be removed in summer of 1990.

Waste Characteristics: Major constituent is tritium.

Release Data: Tritium off-gas is exhausted by a 0.94 m3/s fan through a 4 m stainless steel stack

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: Tritium concentrations in 5 soil samples collected in the vicinity of Building 7025 in 19 ranged from 5.9 to 30 pCi/g.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: 7599-0008

Unit Name: Tritium LLLW Tank

Location of Unit: Tank is buried on the east side of 7025. Approximate ORNL grid coordinates are N 21,370 and E 38,310.

General Dimensions and Capacities: 400 gal, stainless steel. steel.

Function of Unit: Storage of LLLW from a stainless steel sink inside the end of the hood in the Tritium Target Building (7025).

Date of Operation: 1968 - present.

Waste Characteristics: Major constituent is tritium. Tank has been reported to have been emptied only once in the 16 years of operation.

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: New site.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0009

Unit Name: Thorium Handling Facility (7019)

Location of Unit: Building is locate-1 west of WAG 17 (ORNL Services Area). Approximate ORNL grid coordinates are N 21,320 and E 38,845.

General Dimensions and Capacities: Building has a floor area of about 960 ft2.

Function of Unit: Used to store normal uranium, depleted uranium, Li-6, Th-232 and other source materials.

Date of Operation: Early 1960s to 1984.

Waste Characteristics: Normal and depleted uranium, Li-6, Th-232 and other source materials.

Release Data: No releases outside the building have been reported. One drum leaked within the building, but spill site was cleaned up.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: In 1989, an outdoor surface gamma survey identified on spot (<1 m2) of contamination (400 uR/h) on the ground at a metal fence post ~35 ft east of Building 7019. A soil sample from this spot contained 950 pCi/g of Th-232.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit ID Number: X99-0010

Unit Name: Thorium Storage Wells

Location of Unit: Storage wells are located east of 7019 (Thorium Handling Facility). Approx. ORNL grid coordinates are N 21,320 and E 38,920.

General Dimensions and Capacities: Wells are 3 ft in diameter and 10 ft deep. There are 10 w Wells are covered with metal lids.

Function of Unit: Initially used to store zirconium sponge which is explosive if it gets w overheated. Later the wells were used to store thorium. Wells are empty at this time.

Date of Operation: Mid 1960s to mid 1970s.

Waste Characteristics: Zirconium and thorium.

Release Data: No reported releases.

Regulatory Authority: CERCLA

Site Characterization Status: RI

Comment: A 1989 survey showed the wells to be free of significant alpha contamination. One contained transferable beta-gamma activity of 1200 dpm/100 cm2.

Date Prepared: April 1990

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0001

Unit Name: Ca-45 Tagged Trees

Location of Unit: Site XER-0001 is located on Walker Branch watershed (Chestnut Ridge), a dista of 2 miles (3.2 km) on a azimuth of N 24 E from the intersection of Bethel Valley Road and Mel Valley Access Road.

General Dimensions and Capacities: The contaminated area was probably less than 1.2 acres (0.5 h

Function of Unit: Several red maple trees were inoculated with Ca-45, which was allowed to move the transpiration stream throughout the tree. Objective was to produce Ca-45 containing leaves use in experiments at XER-0002.

Date of Operation: The isotope was injected into the trees on June 7, 1969. Leaves were removed a processed prior to December 20, 1969 (see XER-0002).

Waste Characteristics: The maples were injected with 1.25 Ci of Ca-45 (half-life 165 d) in solutio

Release Data: Following several days posttagging, all foliage from the trees was removed, processe and prepared for use at Site XER-0002. Due to the short half-life, all of the remaining Ca-45 at XE 0001 will have decayed to nondetectable levels.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of informatio the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0002

Unit Name: Ca-45 Tagged Soil and Vegetation

Location of Unit: Site XER-0002 is located in an oak/hickory forest on the Walker Branch wate (Chestnut Ridge, distance of 2.2 miles (3.6 km) on an azimuth of N 31 E from the intersecti Bethel Valley Road and Melton Valley Access Road.

General Dimensions and Capacities: Approximately 160 ft2 (15 m2) of land surface was incluc the experimental plot.

Function of Unit: The site was contaminated with Ca-45 labeled foliage to determine the mov of the isotope into soil and soil-water solution. The method of contamination was to introduce leaves containing Ca-45 from XER-0001) to the soil at XER-0002. A quantity of contaminated were placed in mesh bags and were dispersed at the site.

Date of Operation: The radioactivity (Ca-45) was introduced on December 20, 1969. The durat the study was 72 weeks.

Waste Characteristics: It is reported that 136 mCi of Ca-45 (half-life 165 d) was contained leaves.

Release Data: At the termination of the experiment, all leaves contained in the mesh bag removed and disposed. Because of the half-life of Ca-45 is only 165 d, no detectable radioactivit the experiment is present at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of inforn the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0003

Unit Name: Na-22 Contaminated Soil

Location of Unit: Site XER-0003 is in the vicinity of the 0800 area. It is located off Jones Island Patrol Road near the Clinch River, distance of 1.1 miles (1.6 km) on an azimuth of S 10 W from the intersection of Bethel Valley Road and State Highway 95.

General Dimensions and Capacities: Area of the site was 1.2 acres (0.5 ha).

Function of Unit: Activities at this site span several years and involved Ca-47, K-42, and Na-22. It is believed that isotopes were applied to vegetation in the laboratory and the contaminated vegetation fed to grasshoppers and crickets housed in cages in the field.

Date of Operation: The exact dates of isotope contamination are unknown; however, activities occurred during 1968-1969 at XER-0003.

Waste Characteristics: Foliage was contaminated with an unknown quantity of Ca-47, K-42, and Na-22. Sodium was the most significant isotope because of its longer half-life (2.62 years).

Release Data: Although the exact amounts of radionuclides involved are unknown, almost 10 half-lives have lapsed since the tracer was introduced. No records exist to indicate that contaminated animal residues were removed; however, the insects and foliage were removed from the site. It is doubtful that detectable radionuclides remain at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0004

Unit Name: Cs-137 Bagged Leaves Study

Location of Unit: Site XER-0004 is located south of Melton Valley Drive, a distance of 0.8 mi km) on an azimuth of E 83 S from the intersection of Bethel Valley Road and Melton Valley Road.

General Dimensions and Capacities: Information on the size of the contaminated area is unk

Function of Unit: XER-0004 was utilized as a bagged leaves study area to determine differen isotope solubility from leaves under natural conditions. Leaves were contaminated with Cs-13 Co-60 in mesh bags within a pine oak forest. The bagged leaves were periodically removed for a during a one-year period.

Date of Operation: The initial date of contamination occurred at an unknown time during earl and the site was utilized for about one year.

Waste Characteristics: Foliage and soil were contaminated with approximately 2 mCi equally d between Cs-137 and Co-60. It has also been reported that some bags containing leaves contami with Ru2-106 and Sr-90 were placed at the site. The quantity of radionuclides involved is not k

Release Data: More than 25 years have elapsed (0.8 half-life for the Cs-137 and 4.8 half-lives f Co-60) since the mesh bags were first placed in the field. If all of the bags and foliage conten remained at the site approximately 0.55 mCi and 36 uCi would remain for the Cs-137 and C respectively. Since all experimental materials were removed at the completion of the stud detectable contamination remains at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of inform the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0005

Unit Name: Hg-197 Tagged Stream

Location of Unit: Site XER-0005 is located 2.2 miles (3.6 km) on an azimuth of N 41 E f intersection of Bethel Valley Road and Melton Valley Access Road. The site is downstream fr Walker Branch watershed weirs.

General Dimensions and Capacities: The study area involves a 330-ft (100-m) section of str Walker Branch.

Function of Unit: A section of Walker Branch was tagged with radioactive mercuric [197Hg(No3)2] to determine The fate of that mercury compound in a natural stream ecosyste sample matrix consisted of water, fish, watercress, periphyton, and sediments.

Date of Operation: The radioactivity was introduced into Walker Branch on October 5, 1971

Waste Characteristics: 4.48 mCi of mercuric nitrate (Hg-197; half-life 65 h) was applied to the s

Release Data: At a streamflow rate of 347.8 L/min, 75% of the mercury isotope was retained first 330 ft (100 m) of the stream. Because of the isotope's short half-life, no detectable I remains at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of infor the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0006

Unit Name: Cs-134 Tagged Tree

Location of Unit: Site XER-0006 is located 2.2 miles (4.5 km) on an azimuth of N 55 E fro intersection of Bethel Valley Road and Melton Valley Access Road.

General Dimensions and Capacities: Approximately 1100 ft2 (100 m2) of area containing a red tree was involved.

Function of Unit: This study was designed to determine the uptake and transfer of Cs-134 th metamorphosis of the bagworm moth. A red cedar tree was inoculated with Cs-134 and the i were contained in cages suspended by wires near the canopy of the host tree.

Date of Operation: The red cedar tree was inoculated with Cs-134 on August 15, 1964.

Waste Characteristics: 5.69 mCi of Cs-134 (half-life 2.05 years) was injected into the tree.

Release Data: Approximately 11 half-lives have lapsed since the tree was contaminated, pote leaving a maximum of 3.4 uCi of radioactivity. However, this quantity has been further dilu natural processes, weathering, leaf transport, and soil leaching.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of inforn the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0007

Unit Name: Ca-45 Tagged Fo st

Location of Unit: Site XER-0007 is located 0.45 mile (0.7 km) on an azimuth of W 25 S fro intersection of Bethel Valley Road and State Highway 95 in Roane County.

General Dimensions and Capacities: The extent of the contamination is unknown but is assum be less than 2.47 acres (1 ha).

Function of Unit: The purpose of the study was to document the accumulation of calcium by va plant organs and to determine the rate of calcium cycling in the tree-soil system. Twelve dog trees were inoculated with amounts of isotope ranging from 0.67 to 2.51 mCi per tree.

Date of Operation: The dogwood trees were inoculated with the Ca-45 (half-life 165 d) on M 1966.

Waste Characteristics: The total amount of isotope used in this study was approximately 30 Sampling of wood, foliage, and plant organs (i.e., flowers, etc.) was conducted.

Release Data: Because of experimental materials were removed at the termination of the study more than 40 half-lives have lapsed since the site was contaminated, no detectable Ca-45 shou present.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of informa the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0008

Unit Name: Cs-137, Fe-59 Contaminated Animal Pens (McNew Hollow)

Location of Unit: Site XER-0008 is located 2.1 miles (3.4 km) on an azimuth of N 18 W from the intersection of Bethel Valley Road and State Highway 95 in an area called McNew Hollow.

General Dimensions and Capacities: Four pens (each 33 ft by 33 ft [10 m by 10 m]) were utilized. The extent of contamination is about 4300 ft3 (400 m2).

Function of Unit: This field study was conducted to determine the elimination of Cs-137 and Fe-59 by wild small rodents. Periodically, the animals were live-trapped and taken to the laboratory for radiological analysis.

Date of Operation: Cotton rats, contaminated using a dual isotope technique, were released into the pens in January 1969.

Waste Characteristics: The cotton rats were contaminated by injection with Cs-137 (half-life 30 years) and Fe-59 (half-life 45.6 d). A total of 32 uCi of Cs-137 and 12.8 uCi of Fe-59 was utilized.

Release Date: All animals in the pens were removed at the end of the experiment. Correcting for radiological decay, approximately 21 uCi of Cs-137 would remain at the site if all of the isotope remained there. Iron-59 would have decayed to nondetectable levels. No detectable radioactivity remains at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0009

Unit Name: Hg-203 Tagged Stream

Location of Unit: Site XER-0009 is a portion of White Oak Creek located in Bethel Valley 0.5 (0.8 km) on an azimuth of N 12 E from the junction of Bethel Valley Road and Melton Valley A Road.

General Dimensions and Capacities: The contaminated area encompasses 330 ft (100 m) of stu length.

Function of Unit: The site was utilized to clarify the fate of methylmercury (CH3203Hg Cl) natural stream ecosystem.

Date of Operation: The methylmercury was introduced into the stream on September 1, 1971.

Waste Characteristics: Water, fish, plants, and sediments were contaminated with 1.65 methylmercury containing Hg-203 (half-life 46.9 d).

Release Data: At a streamflow of 325.6 L/min, 81% of the radioisotope was retained in the first ft (100 m) below the point of release. No detectable radionuclides are present at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of informa the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0010

Unit Name: H-3 Contaminated Trees

Location of Unit: Site XER-0010 is located 1.6 miles (2.6 km) on an azimuth of W 8 S from the intersection of the East Ridge Patrol Road and the Oak Ridge Turnpike on Blackoak Ridge adjacent to the East Ridge Patrol Road.

General Dimensions and Capacities: The area involved in the study was about 0.6 acre (0.25 ha). The area included two yellow poplar trees, one hickory tree, and a 43-ft2(4-m2) soil plot.

Function of Unit: This ridgetop site was utilized in a pilot study to investigate the feasibility of using tritiated water to measure rates of transpiration of deciduous tree species (yellow poplar and hickory) under field conditions.

Date of Operation: The tritium was introduced into the trees on May 16, 1971.

Waste Characteristics: Approximately 180 mCi of tritiated water (half-life 12.26 years) was injected into the trees.

Release Data: Correcting for radiological decay, approximately 77 uCi of tritium would be the maximum amount present at the site; however, following completion of the study all materials were removed from the site. Because tritium is mobile, it is doubtful that any residual tritium could be detected at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0012

Unit Name: Cs-134 Contam nated Oak Trees

Location of Unit: Site XER-0012 consists of four subsites, each selected to represent a different s type. Two of the sites (Landsburg and Fullerton) are on the north slope of Chestnut Ridge azimuths of N 29 E and W 32 N at distances of 2.7 miles (4.4 km) and 1 mile (1.6 km) respectiv from the intersection of Bethel Valley Road and Melton Valley Access Road. The other two si (Monongahela and Sequoia) are in Melton Valley on azimuths of E 30 S and E 36 S at distances 1.3 miles (2.1 km) and 1.4 miles (2.2 km) respectively from the intersection of Bethel Valley Ro and Melton Valley Access Road.

General Dimensions and Capacities: Each of the four sites covers an area of less than 550 ft2 (50 m

Function of Unit: The study was conducted on 12 white oak trees at 4 sites of contrasting soil typ and moisture conditions. Throughout the growing season leaves were collected and analyzed f radionuclide distribution.

Date of Operation: The trees were injected with Cs-134 in April of 1960. Two trees we double-tagged by injection with K-42.

Waste Characteristics: All trees in the study were injected with 2 mCi of Cs-134 (half-life 2.05 year and two trees in each plot were also injected with 2 mCi of K-42 (half-life 12.4 h). Total activity us was 24 mCi of Cs-134 and 4 Ci of K-42.

Release Data: If all of the original cesium inoculum remained in any single tree, less than 0.3 uCi activity would remain. Because the trees were harvested at the end of the study, it was estimated th only 25% of the inoculum would remain. This would result in less than 0.1 uCi remaining at any tr site. Radioactive decay has eliminated the K-42 (half-life 12.4 h).

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of informatio the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0013

Unit Name: Zn-65 Tagged Red Oak Seedlings

Location of Unit: Site XER-0013 is located 1.6 miles (2.5 km) on an azimuth of S 46 W from u intersection of State Highway 95 and the New Zion Patrol Road. The site is about 660 ft (200 r north of Clinch River Mile 19.25.

General Dimensions and Capacities: Approximately 1100 ft2 (100 m2) of land was involved in th study.

Function of Unit: Gamma-irradiated red oak seedlings were contaminated with Zn-65 to investiga the effects of ionizing radiation on zinc uptake. A total of 26 containers of seedlings were used.

Date of Operation: The 12-week study period was initiated in June 1975.

Waste Characteristics: A total of 1.3 mCi of Zn-65 (half-life 245 d) was introduced into the 2 seedling containers.

Release Data: Planted seedlings and all experimental materials were removed from the site when th study was completed. If the materials had been allowed to remain, less than 1 pCi (total) of Zn-6 would exist at this site and would not be detectable.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of informatio the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0014

Unit Name: Cs-134 Contamin ted Pine and Oak Seedlings

Location of Unit: Site XER-0014 is located in the 0800 area a distance of 1.1 miles (1.7 km) on an azimuth of S 18 W from the intersection of State Highway 95 and the New Zirn Patrol Road.

General Dimensions and Capacities: The total contaminated area is reported to be less than 1100 ft2 (100 m2).

Function of Unit: A number of short-term experiments conducted in the 0800 area were designed to determine initial interception and retention of fallout particles by various plant tam.

Date of Operation: In June 1968 white pine and red oak seedlings were contaminated with Cs-134 particles and sampling was carried out over a 33-d period.

Waste Characteristics: A total of 261 uCi of Cs-134 particles (half-life 2.05 years) was applied to 30 seedlings (8.7 uCi/container).

Release Date: By the end of the study all experimental materials had been removed for sampling and analysis. There is a possibility that some contamination of the soil and grass at the site may have occurred due to dislodged particles. Considering that nine half-lives have lapsed, less than 1 uCi (total) would still be present if all of the radioactive material had been left in the field.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0015

Unit Name: Rb-86 Contaminated Plants

Location of Unit: Site XER-0015 is located at the site of the pine-oak contamination study (XER-0014) in the 0800 area. The site is a distance of 1.1 miles (1.7 km) on an azimuth of S 18 W from the intersection of State Highway 95 and the New Zion Patrol Road.

General Dimensions and Capacities: Two plots (33 ft by 33 ft [10 m by 10 m]) were utilized in this study.

Function of Unit: This was another fallout-related study. Agricultural species were sprayed with particles contaminated with Rb-86 to determine fractional interception and retention times of particles in two size classes.

Date of Operation: The particles were applied to the plots in June 1969. The study was completed after seven weeks.

Waste Characteristics: A total of 12.48 mCi of Rb-86 (half-life 18.66 d) was applied to one plot, and the other plot received 19.8 mCi.

Release Data: Approximately 230 half-lives lapsed, and no detectable Rb-86 activity remains at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0016

Unit Name: Cs-134 Contaminated Soybean and Sorghum

Location of Unit: Site XER-0016 is located in the 0800 area 1.1 miles (1.7 km) on an azimuth of S 18 W from the intersection of State Highway 95 and the New Zion Patrol Road.

General Dimensions and Capacities: The contaminated area utilized was about 2150 ft2 (200 m2).

Function of Unit: This study was a continuation of research in plants and fallout effects. Twenty-five plants each of soybeans and sorghum were contaminated with Cs-134. Particle sizes used in this study were less than 10 u in diameter.

Date of Operation: The site was contaminated in July 1970. The study lasted seven weeks.

Waste Characteristics: A total of 682 uCi of Cs-134 (half-life 2.05 years) was used in this study. Each week three plants of each species were removed for radiological determinations.

Release Data: The removal of the plants reduced the amount of radioactivity at the site each week. At the end of the experiment all remaining experimental materials were removed. Considering that about eight half-lives have now lapsed, only 3.0 uCi (total) would remain if all of the experimental materials had been left at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0017

Unit Name: Cs-134 Contaminated Grasses

Location of Unit: Site XER-0017 is located in the 0800 area 1.1 miles (1.7 km) on an azimuth of S 18 W from the intersection of State Highway 95 and the New Zion Patrol Road.

General Dimensions and Capacities: Four 8- by 33-ft (2.5- by 10-m) plots totaling 1080 ft2 (100 m2) were used in this study.

Function of Unit: The study was designed to investigate the interception and retention of Cs-134 contaminated particles on forage and turf grasses. Each of the four study plots contained different grass species.

Date of Operation: Each of the four plots was contaminated in June 1970. The duration of the study was seven weeks.

Waste Characteristics: Each plot received particles contaminated with 307 uCi of Cs-134 (half-life 2.05 years); a total of 1.23 mCi of Cs-134 was utilized.

Release Data: The removal of plant materials combined with radioactive decay of the isotope reduced the amount of radioactivity of the site after each sampling period. Considering that nearly eight half-lives have lapsed since contamination, approximately 5.0 uCi (total) of Cs-134 would remain if all of the experimental materials had remained at the site. Since all materials were removed, the remaining radioactivity should be negligible.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0018

Unit Name: Cs-134 Contaminated Lichens and Mosses

Location of Unit: Site XER-0018 is located in the 0800 area 1.1 miles (1.7 km) on an azimuth of S 18 W from the intersection of State Highway 95 and the New Zion Patrol Road.

General Dimensions and Capacities: One of the 33- by 33-ft (10- by 10-m) plots used in previous fallout studies was used.

Function of Unit: This was the final fallout study and examined lower plants' (lichens and mosses) effects due to fallout particulates. Cesium-134 was used as the contaminant.

Date of Operation: In June 1971, the Cs-134 contaminated particles were applied to individual moss and lichen tussocks (21 for each species).

Waste Characteristics: Each contaminated point (155 in.2[1000 cm2]) received 3.5 uCi of Cs-134 (half-life 2.05 years); a total of 147 uCi was used in the study.

Release Data: All contaminated moss and lichen tussocks were removed for radiological examination during the study. All experimental materials were also removed from the study area; however, if all of the radioactivity had been left at the site, less than 1 uCi (total) of Cs-134 would remain following radioactive decay.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0019

Unit Name: Tc-95m Contaminated Soil and Plants

Location of Unit: Site XER-0019 is located in the 0800 area about 330 ft (100 m) north of the western end of the fenced enclosure (SWMU) 13.1 in the RFA) north of the Clinch River at mile 20.5 (km 33.2) on an azimuth south, 1.3 miles (2.1 km) from the intersection of Bethel Valley Road and State Highway 95.

General Dimensions and Capacities: Approximately 3200 ft2 (300 m2) of land area was used in this study. Twenty-two separate 10.8-ft2 (1-m2) plots were used during the study.

Function of Unit: Used to evaluate the interception and retention of fission products by grasses and soils. The method of radioisotope application differed from previous retention studies in that the nuclide was applied by liquid spray.

Date of Operation: Three separate applications of Tc-95m occurred: 15 plots during September 1978, 4 plots during April 1979, and 3 plots during July 1979.

Waste Characteristics: The Tc-95m (half-life 61 d) was sprayed on the grass. In the first application, 200 uCi was applied to each of the 15 plots (3 mCi); in the second application 10 uCi was applied to each of the three plots (30 uCi). Total Tc-95m applied was 3.07 mCi.

Release Data: Because of the short half-life and the amount of time that has lapsed since application (8 years or more), radioactive decay has reduced the concentration to levels that are not detectable at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

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CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0020

Unit Name: Tc-95m Uptake S tdies

Location of Unit: Site XER-0020 is located in the same general area as XER-0019.

General Dimensions and Capacities: Three 10.8-ft2 (1-m2) plots were contaminated. Estimated area utilized is 108 ft2 (10 m2).

Function of Unit: The uptake of the technetium by emerging plants in the field was compared with uptake in a companion greenhouse study in which soil columns were contaminated and emerging plants analyzed.

Date of Operation: The field portion of the study was performed in late February 1981.

Waste Characteristics: Each plot was contaminated with 112 uCi of Tc-95m (half-life 61 d) solution (total 336 uCi).

Release Data: Approximately 31 half-lives have lapsed since initial field contamination. Considering the original microcurie quantities and the radiological decay, the presence of the isotope at the site is below detection.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0021

Unit Name: Tc-95m and I-131 Contaminated Pasture

Location of Unit: Site XER-0021 is located in the same general area as SWMU 13.1 in the RFA. The areas contaminated with Tc-95m and I-131 were isolated from the original Cs-137 contaminated pens used in SWMU 13.1.

General Dimensions and Capacities: The contaminated pasture area encompasses 43,000 ft2 (4000 m2).

Function of Unit: The purpose of the study was to assess the transfer of the radioisotopes Tc-95m and I-131 from forage grass to milk in goats.

Date of Operation: In May, July, and September of 1983 I-131 was sprayed on the site. In September Tc-95m was also sprayed on the site.

Waste Characteristics: The total amount of I-131 (half-life 8.05 d) applied was 60 mCi, and the Tc-95m (half-life 61 d) was 10 mCi.

Release Data: Radioactivity of both isotopes is not detectable because of radiological decay, the technicium having gone through approximately 16 half-lives and the iodine 126 half-lives.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0022

Unit Name: Cr-51 Contaminated Grass Plots

Location of Unit: Site XER-0022 is located in the 0800 area approximately 0.2 mile (0.3 km) on a azimuth of N 6 E of the northeast corner of the 0800 area enclosure.

General Dimensions and Capacities: Twenty-five 10.8-ft2 (1 m2) plots were exposed.

Function of Unit: The purpose of the study was to investigate the interception and retention o simulated cooling tower drift on vegetation (pine, yellow poplar, and fescue grass foliage).

Date of Operation: Chromium-51 was applied to the grass plots in July 1976. Duration of the stud was nine weeks.

Waste Characteristics: The plots were contaminated with an aerosol spray containing Cr-51 (half-lif 27.8 d). The 25 exposed plots received a total of 125 uCi of Cr-51.

Release Data: Because Cr-51 has a short half-life and over 3600 days have passed since the plots wer contaminated, no detectable radioactivity remains at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of informatio the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0023

Unit Name: Tc-99 and Np-237 Contaminated Soil Lysimeters

Location of Unit: Site XER-0023 is located 0.3 mile (0.5 km) on an azimuth of E 75 S from the intersection of Melton Valley Drive and Lagoon Road. The site is commonly referred to as the plutonium floodplain, which is southeast of SWSA 4.

General Dimensions and Capacities: The contaminated area was about 43.2 ft2 (4 m2).

Function of Unit: Eight lysimeter cylinders 11 in. (28 cm) in diameter were contaminated with Np-237 and four additional cylinders were contaminated with Tc-99. The cylinders were covered on the bottom with mesh such that downward migration of the radionuclide could occur. The cylinders were lowered into a hole such that the soil level in the cylinders was the same as that of the surrounding soil. Agricultural species were cultured in the lysimeters, harvested, and analyzed for concentration ratio calculations.

Date of Operation: The study was performed in June 1984.

Waste Characteristics: A total of 64 uCi of Np-237 (half-life 2.14 X 106) and 32 uCi of Tc-99 (half-life 2.12 X 105) was added to the 12 lysimeter cylinders.

Release Data: At the termination of the study, all of the cylinders were removed from the soil and encased in plastic; they are presently in storage awaiting disposal. No radioactivity remains at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0027

Unit Name: Cs-134 Contaminated Persimmon Tree

Location of Unit: Site XER-0027 is located 0.3 mile (0.4 km) on an azimuth of E 73 S from the intersection of the Oak Ridge Turnpike and Blair Road.

General Dimensions and Capacities: The contaminated area is estimated to be 65 ft2 (6 m2).

Function of Unit: The study was designed to determine the transfer of the Cs-134 radionuclide from a contaminated canopy to the understory by rainout.

Date of Operation: In June 1970, a single persimmon tree was inoculated with Cs-134. Duration of the study was approximately ten weeks.

Waste Characteristics: The tree was inoculated with approximately 2 mCi of Cs-134 (half-life 2.05 years).

Release Data: Nearly 18 years (or 9 half-lives) have passed since the radionuclide was introduced at the site. The maximum possible contaminant remaining would be approximately 8 uCi, providing there were no losses from the site by rain (runoff or leaching), wind, or animal consumption.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0028

Unit Name: Co-60 and Mn-54 Animal Study

Location of Unit: Site XER-0028 is located 0.52 mile (0.8 km) on a azimuth of S 40 W from the intersection of the Oak Ridge Turnpike and the North Perimeter Patrol Road (ORGDP).

General Dimensions and Capacities: The site was a 2.5-acre (1-ha) field.

Function of Unit: The purpose of the experiment was to determine the effects of the near-lethal irradiation and natural environmental factors on the retention and excretion of the two nuclides used (Co-60 and Mn-54) in members of a field population.

Date of Operation: In July 1970, 34 pine voles were gamma-irradiated; of these, 17 were injected with Co-60 and the other 17 were injected with Mn-54 and released to the field.

Waste Characteristics: The animals were injected with a total of 17 uCi of Co-60 (half-life 5.2 years) and 17 uCi of Mn-54 (half-life 0.82 years).

Release Data: Considering that over three half-lives have lapsed in the decay of the Co-60 contaminant, approximately 2.6 uCi of this isotope would remain today provided that all 17 animals remained within the 2.5-acre field. In the case of the Mn-54, radiological decay would have reduced the remaining amount to less than 16 pCi. The amounts of radioactivity present at the site are expected to be much less than these values and thus would be undetectable.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0029

Unit Name: C-14 Maintenance-Respiration Study

Location of Unit: Site XER-0029 is located 1.7 miles (2.75 km) on an azimuth of N 22 E from the intersection of Bear Creek Road and Gum Branch Road. Site is on the north side of Pine Ridge.

General Dimensions and Capacities: The area involved in the study was 2150 ft2 (200 m2).

Function of Unit: Thirty-six trees were contaminated with C-14 to study the movement of carbon during respiration. The isotope was introduced as carbon dioxide.

Date of Operation: Twenty trees were contaminated with the C-14 in June 1983, and another 16 trees in June 1984.

Waste Characteristics: The first group of 20 trees were contaminated by foliar tagging with a total of approximately 1 mCi of C-14, and the second group with 2 mCi. The half-life of C-14 is 5479 years.

Release Data: Research data demonstrated that exposed foliage absorbed r2% of the contaminant (C-14) gas. It was also noted that most of the radiocarbon was released within the first week of sampling foliage. Experimental protocol identified C-14 labeled branches with tags. All tagged branches were removed upon completion of the study. Due to low levels of exposure, no detectable radiation would be present at the site today. Radiocarbon has a long half-life, but because of the weak beta energy (0.156 MeV) it does not constitute an exposure hazard. As the plant material decomposed, a portion of the radiocarbon was dispersed into the atmosphere as carbon dioxide.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0030

Unit Name: C-14 Sucrose Inoculation of Oak and Pine Trees

Location of Unit: Site XER-0030 is located near the Cs-134 contaminated forest (SWMU 16.1 in the RFA). It is 1.8 miles (2.9 km) on an azimuth of E 66 S from the intersection of Bethel Valley Road and Melton Valley Access Road.

General Dimensions and Capacities: The area of contamination is reported to be 1100 ft2 (100 m2).

Function of Unit: Two studies were conducted. Both were designed to determine the spatial and temporal pattern of carbohydrate movement and respiratory use by the root systems of trees.

Date of Operation: In October 1972, three trees were inoculated with C-14 sucrose, and in October 1976 a single white oak tree was inoculated with C-14 sucrose.

Waste Characteristics: Each of the three trees received 1.65 mCi of C-14 (half-life 5479 years), and the fourth tree received 5 mCi (total of 9.95 mCi).

Release Data: Study protocol required tagging of labeled branches and all tagged branches were subsequently removed upon study completion. Radiocarbon has a long half-life, but because of the weak beta energy (0.156 MeV) it does not constitute an exposure hazard. As the plant material decomposed, a portion of the radiocarbon was dispersed into the atmosphere as carbon dioxide.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0031

Unit Name: C-14 Allocation in White Oak Trees

Location of Unit: Site XER-0031 is located a distance of 1.9 miles (3.1 km) on an azimuth of N 25 E from the intersection of Bethel Valley Road and Melton Valley Access Road.

General Dimensions and Capacities: The area of contamination is reported to be 2150 ft2 (200 m2).

Function of Unit: Two studies were conducted in this area. The purpose of the first was to determine seasonal changes in photosynthate translocation and allocation by following the rates of movement of the C-14 from labeled foliage, and the second was to follow the rate and efficiency of the utilization of food reserves.

Date of Operation: The studies were conducted between 1972 and 1977.

Waste Characteristics: In the first study, two trees were contaminated by foliar tagging using C-14. Each of the two trees received 50 uCi. In the second study, two trees received inoculations of 5 uCi of C-14 sucrose. The half-life of C-14 is 5479 years.

Release Data: Upon completion of the study, tagged trees were removed. One large oak remained; however, all tagged branches were removed from the oak tree. Radiocarbon has a long half-life, but because of the weak beta energy (0.156 MeV) it does not constitute an exposure hazard. As the plant material decomposed, a portion of the radiocarbon was dispersed into the atmosphere as carbon dioxide.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0032

Unit Name: C-14 Allocation in White Pine Trees

Location of Unit: Site XER-0032 is located a distance of 1.8 miles (2.9 km) on an azimuth of N 55 E from the intersection of Bethel Valley Road and the Melton Valley Access Road. It is identified by a pine stand south of Bethel Valley Road near the Walker Branch Embayment of Melton Hill Lake.

General Dimensions and Capacities: The area of contamination if reported to be 1.25 acres (0.5 ha).

Function of Unit: The purpose of the study was to determine the rate and cause of declining vigor of oxidant-stressed trees by following the rate of photosynthetically fixed C-14.

Date of Operation: Between June and November 1979, nine white pine trees were labeled by foliar tagging with C-14.

Waste Characteristics: A total of 360 uCi of C-14 (half-life 5479 years) was introduced to foliage at four times during the growing season.

Release Data: Study protocol required tagging of labeled branches. At the end of the study all tagged branches were cut. Any residual C-14 was diluted in the biomass and, therefore, could not be detected. (At a later date, a number of these trees were removed with the construction of a power line.) Radiocarbon has a long half-life, but because of the weak beta energy (0.156 MeV) it does not constitute an exposure hazard. As the plant material decomposed, a portion of the radiocarbon was dispersed into the atmosphere as carbon dioxide.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0033

Unit Name: C-14 Efflux in Yellow Poplar Stand

Location of Unit: Site XER-0033 is located a distance of 1.8 miles (2.9 km) on an azimuth of E 76 S from the intersection of Bethel Valley Road and Melton Valley Access Road. Site is on the north slope of Copper Ridge.

General Dimensions and Capacities: The area of contamination is reported to be 2150 ft2 (200 m2).

Function of Unit: The purpose of the study was to measure carbon dioxide efflux of the roots through the soil. Following introduction of the C-14 to three trees, the trees were girdled to inhibit upward translocation.

Date of Operation: The three yellow poplar trees were contaminated in July 1976.

Waste Characteristics: A total of 3 mCi was inoculated into the trees as C-14 sucrose (half-life 5479 years).

Release Data: Stems were girdled to inhibit upward translocation of the radiocarbon. At the end of the study, roots, trees, and/or labeled branches were removed. Radiocarbon has a long half-life, but because of the weak beta energy (0.156 MeV) it does not constitute an exposure hazard. As the plant material decomposed, a portion of the radiocarbon was dispersed into the atmosphere as carbon dioxide.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990

CONTAMINATED SITE SUMMARY SHEET

Unit Number: XER-0034

Unit Name: C-14 Allocation in Woody Biomass Plantation Species

Location of Unit: Site XER-0034 is located at the ORNL site in the Woody Biomass Plantation south of Building 1503.

General Dimensions and Capacities: The area of contamination is reported to be 1.25 acres (0.5 ha).

Function of Unit: The purpose of the study was to determine photosynthate allocation. Several species of trees in the Woody Biomass Plantation were included in the study.

Date of Operation: The C-14 was introduced as a gas to foliage contained in exposure cuvettes.

Waste Characteristics: A total of 1 mCi of C-14 carbon dioxide was used in the study.

Release Data: Study protocol required tagging of labeled branches and all tagged branches were subsequently removed upon study completion. Radiocarbon has a long half-life, but because of the weak beta energy (0.156 MeV) it does not constitute an exposure hazard. Following this study, all plant material was removed and disposed. No contamination should remain at the site.

Regulatory Authority: _____

Site Characterization Status: _____

Comment: No significant information has been reported that would require revision of information the summary sheet.

Date Prepared: August 1987

Update: September 1990