

**C-747 Contaminated Burial Yard and C-748-B Burial Area
Solid Waste Management Unit (SWMU) Assessment Report**

SWMU/AOC NUMBER: 4

DATE OF ORIGINAL SAR: 8/24/1987

DATE OF SAR REVISION: 06/18/2007

REGULATORY STATUS: SWMU

LOCATION: SWMU 4 is bounded on the north by Virginia Avenue, on the east by 6th Street, on the west by 4th Street, and on the south by an active railroad spur. The SWMU, located in the western section of the Paducah Gaseous Diffusion Plant, includes the C-747 Contaminated Burial Yard and the C-748-B Burial Area.

APPROXIMATE DIMENSION OR CAPACITY: Approximately 286,700 ft² (610 ft by 470 ft).

FUNCTION: The SWMU was used for waste disposition and burial.

BRIEF HISTORY: The original SWMU Assessment Report dated August 24, 1987, for SWMU 4 included only the C-747 Contaminated Burial Yard. The C-748-B Burial Area was incorporated into various descriptions of SWMU 4 starting in the mid-1990s as a result of a geophysical survey. As a result of this addition, the area of the SWMU changed from 8,300 ft² to 286,700 ft².

The C-747 Contaminated Burial Yard consisted of two cells (50 ft by 15 ft and 50 ft by 150 ft) that were in operation from 1951 to 1958 for the disposal of radiologically contaminated and uncontaminated debris originating from the C-410 uranium hexafluoride (UF₆) feed plant. The C-748-B Burial Area is listed in a 1973 Union Carbide document on waste disposal as a proposed chemical landfill site. In 1982, the C-747 yard and C-748-B area were covered with 2 – 3 ft of soil material and capped with 6 inches of clay. In 2000, SWMU 4 was investigated as part of the Waste Area Grouping (WAG) 3 Remedial Investigation (RI) Work Plan.

SWMU 4 also may have received sludges originally designated for disposal at the C-404 Burial Grounds. The source of these sludges is unknown, but the WAG 3 RI Work Plan indicated that the sludges potentially included uranium-contaminated solid waste and technetium-99 (⁹⁹Tc)-contaminated magnesium fluoride.

During the summer of 1996, a small (3 ft across and 3 ft deep) hole that developed in the southern burial cell (C-748-B) was backfilled with soil. In the fall of 1999, employee interviews led to the designation of SWMU 4 as a classified area. Subsequently, access was restricted to SWMU 4 based on security considerations.

PRESENT OPERATIONAL STATUS: Inactive

DATES OPERATED: C-747 Contaminated Burial Yard was in operation from 1951 to 1958. No documents have been identified to provide the dates of operation for the C-748-B Burial Area; however, the area was identified as a proposed chemical landfill site in a 1973 Union Carbide document on waste disposal.

SITE/PROCESS DESCRIPTION: This SWMU is an open grass field that at one time was used for the burial and disposal of various waste materials in designated burial cells.

WASTE DESCRIPTION: Contaminated and uncontaminated waste, some of which was burned, was buried at the site. Scrapped equipment (i.e., steel, Monel) with surface contamination from the enrichment process also was buried. Sludges, which may have consisted of uranium-contaminated solid waste and ⁹⁹Tc-contaminated magnesium fluoride, also may have been placed into the burial yard.

WASTE QUANTITY: The total volume of material disposed at this site is unknown.

SUMMARY OF ENVIRONMENTAL SAMPLING DATA: Potential contaminants associated with this SWMU include radionuclides, metals, polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs).

The most recent investigation of SWMU 4 occurred during the Southwest Plume Site Investigation (SI) conducted in 2004, which evaluated the Regional Gravel Aquifer groundwater under the SWMU for VOCs and ⁹⁹Tc. SWMU 4 was investigated as part of a RI for WAG 3 in 2000. Prior to the WAG 3 investigation, SWMU 4 was investigated during the Phase II SI in 1992.

Contaminants at SWMU 4 are buried in several burial cells of varying size and at varying depths. Some of these contaminants may have leached out of the burial cells and into the underlying soils and groundwater. These contaminants include VOCs, primarily TCE and its degradation products and various radiological contaminants. PCBs are found at shallow depths, 3 ft to 6 ft below ground surface (bgs).

Due to the potential hazards (both chemical and radiological) associated with data collection within the burial cells, only limited data was collected. The few samples collected indicated the presence of radiological contaminants, PCBs, and various VOCs.

Radiological contamination is widespread in SWMU 4. Alpha activities up to 3,076.71 pCi/g and beta activities up to 3,253.97 pCi/g are present. Measured radioisotopes, including total uranium (up to 6260 pCi/g), ⁹⁹Tc (up to 269 pCi/g), and plutonium-239 (up to 4.17 pCi/g) are found in the surface and subsurface soils and in the shallow groundwater.

PCBs were detected in surface soils (ditches) and the shallow subsurface soils at SWMU 4. All of the samples with concentrations above screening levels are contained within an area from surface to 11 ft bgs.

DESCRIPTION OF RELEASE AND MEDIA AFFECTED:

GROUNDWATER:	See Below
SURFACE WATER:	None known
SOIL:	See Below
ECOLOGY:	None known

DOCUMENTATION OF NO RELEASE: There are no known releases to surface water or ecology. The WAG 3 RI Report (DOE/OR/07-1895&D2) and Southwest Plume SI Report (DOE/OR/07-2180&D2) indicate that contaminants are being released from SWMU 4 to soils and groundwater.

IMPACT ON OR BY OTHER SWMUS OR AOCS: The Southwest Plume SI Report indicates that SWMU 4 may be a source of contamination to the Southwest Groundwater Plume (SWMU 210), which is under SWMU 4. The Five-Year Review of Remedial Actions at the Paducah Gaseous Diffusion Plant Report (DOE/OR/07-2067&D2) indicates that SWMU 4 may be impacting groundwater quality, which affects groundwater monitoring for SWMUs 2 and 3. There is no indication of other SWMUs impacted by or impacting SWMU 4.

PRG COMPARISON: Maximum contaminant level exceedances for TCE and ⁹⁹Tc in groundwater are reported for SWMU 4. The Southwest Plume SI Report (DOE/OR/07-2180&D2) contains a complete list of groundwater contaminants and corresponding risk-based levels.

RFI NECESSARY: Yes. Investigations have been completed under the WAG 3 RI and under the Southwest Plume SI. Response action decisions are ongoing under the Burial Grounds Operable Unit.

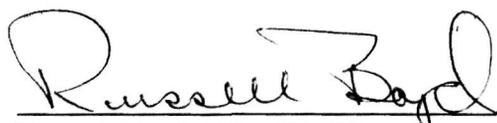
OPERABLE UNIT ASSIGNMENT: Burial Grounds Operable Unit and Groundwater Operable Unit

CERTIFICATION

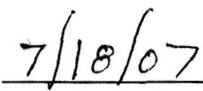
Document Identification: NEWLY REVISED SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT – SOLID WASTE MANAGEMENT UNIT 4

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

Paducah Remediation Services, LLC
Co-Operator



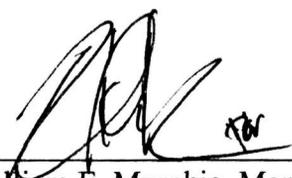
Russell Boyd, P.E., Site Manager



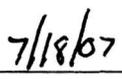
Date Signed

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U.S. Department of Energy
Owner and Operator



William E. Murphie, Manager
Portsmouth/Paducah Project Office



Date Signed



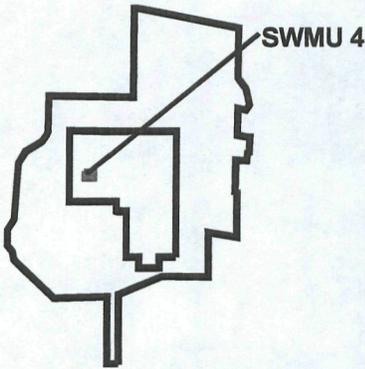
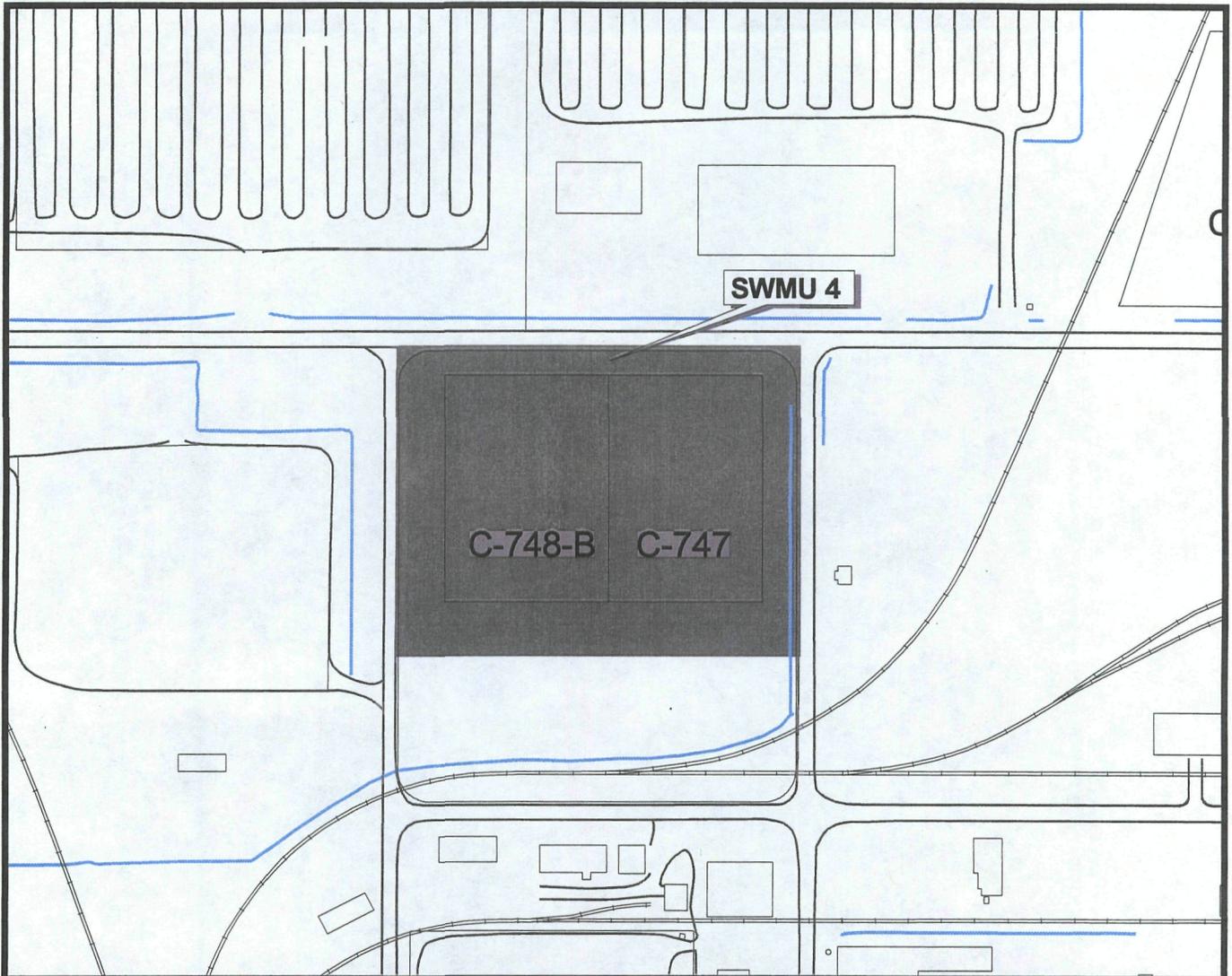
SW Corner (4th Street) facing to the NE



SE Corner (6th Street) facing to the NW

January 2006

SWMU 4

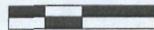


LEGEND



SWMU 4 Area

100 0 100 Feet



U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT



SWMU 4 – C-747 Contaminated Burial Yard and C-748-B Burial Area

FIGURE No. c5ac90000sk552.apr
DATE 08-08-06