C-375-W8 Effluent Ditch (KPDES 015)
Solid Waste Management Unit (SWMU) Assessment Report

SWMU/AOC NUMBER: 68

REGULATORY STATUS: SWMU

LOCATION: This SWMU lies on the west side of the Paducah Gaseous Diffusion Plant (PGDP) outside the controlled access area of the plant.

APPROXIMATE DIMENSION OR CAPACITY: Outfall 015 receives drainage from an area of approximately 19.8 ha (49 acres). The SWMU itself is approximately 1130 feet in length. The internal plant ditch system to Outfall 015 drains the west central part of the plant and is approximately 3252 meters (m) (10,665 feet [ft]) in length, unlined, and ranges from approximately 0.15 to 1.5 m (0.5 to 5 ft) deep.

PRESENT FUNCTION: Specific facilities contained in the Outfall 015 drainage area that drain via the internal plant ditches are the C-400 Cleaning Building; the C-405 Contaminated-Items Incinerator (SWMU 55); the C-616-L Pipeline and Vault Soil Contamination (SWMU 165); the C-749 Uranium Burial Ground (SWMU 2); the C-404 Low-Level Radioactive/Hazardous Waste Burial Ground (SWMU 3); the C-745-A Cylinder Storage Yard; the C-747 Burial Grounds (SWMU 4); the UF_6 Cylinder Drop Test Area (SWMU 91); the C-745-B Cylinder Storage Yard; and the C-745-C cylinder yard.

PRESENT OPERATIONAL STATUS: Active.

DATES OPERATED: 1951 to Present.

BRIEF HISTORY: This unit was trenched when PGDP was built in 1951. The reported monthly average flow for Outfall 015 is 1.06 million liters per day (mlpd) (0.281 million gallons per day [mgpd]). DOE is responsible for Outfall 015 under the KPDES Permit.

Key Actions

There have been no previous response actions and no Notices of Violation in the past 10 years for the internal plant ditches to Outfall 015.

- *Issuance of the Interim Corrective Measures Work Plan for Institutional Control of Off-Site Contamination in Surface Water in 1992.* The plan restricted casual public access to creeks, outfalls (including Outfall 015), and lagoons surrounding PGDP in 10 locations through the installation of fencing and identified the areas of contamination through the posting of warning signs.

- Subsequently, in 2000, additional warning signs that identify the ditch as a radiologically contaminated area were posted at Outfall 015.

SITE/PROCESS DESCRIPTION: Surface drainage ditch.

WASTE DESCRIPTION: Storm water containing polychlorinated biphenyls and radionuclides.

WASTE QUANTITY: Unknown.

SUMMARY OF ENVIRONMENTAL SAMPLING DATA: The Contamination in the sediments of Outfall 015 has been characterized in several previous investigations. During the Phase I Site Investigation (SI) ^{99}Tc, ^{234}U, and ^{238}U were detected in the sediment, making Outfall 015 a potential route of contaminant transport. The Phase II SI results confirmed the presence of radionuclide contamination (^{99}Tc, ^{234}U, ^{230}Th, ^{235}Pu, ^{235}U, and ^{238}U) in sediments at Outfall 015 and also identified the presence of metals (aluminum, cobalt, copper, thallium, and zinc) in sediments. Investigation of sediment contamination in the internal plant ditches feeding Outfall 015 also was included as part of the *Remedial Investigation Addendum for Waste Area Grouping 22 Burial Grounds at Paducah Gaseous Diffusion Plant* (DOE 1993b). Radionuclides, particularly uranium, were detected in the ditch leading from the C-749 Uranium Burial Ground (SWMU 2) to Outfall 015. The report further states that the unit (SWMU 2) is covered with a low-permeability cap indicating the observed contamination may be a result of historical discharges (DOE 1993b).

RELEASE SUSPECTED: The unit was used for discharging storm waters, which became contaminated from historical releases at the facility.

DESCRIPTION OF RELEASE AND MEDIA AFFECTED:

GROUNDWATER:	None known.
SURFACE WATER:	Potentially affected due to nature of unit and contaminants present.
SOIL:	Potentially affected due to nature of unit and contaminants present.
ECOLOGY:	Potentially affected due to nature of unit and contaminants present.

DOCUMENTATION OF NO RELEASE: No documented releases from this unit, contamination from upstream sources.

PRG COMPARISON: N/A.

IMPACT ON OR BY OTHER SWMUS OR AOCS: SWMUs contained in the Outfall 015 drainage area that drain via the internal plant ditches are the C-405 Contaminated Items Incinerator (SWMU 55); the C-616-L Pipeline and Vault Soil Contamination (SWMU 165); the C-749 Uranium Burial Ground (SWMU 2); the C-404 Low-Level Radioactive/Hazardous Waste Burial Ground (SWMU 3); the C-747 Burial Grounds (SWMU 4); and the UF_6 Cylinder Drop Test Area (SWMU 91).

WASTE AREA GROUPING ASSIGNMENT: N/A.

OPERABLE UNIT ASSIGNMENT: Surface Water Operable Unit (SWOU)

- This unit has been placed in the SWOU for further evaluation and/or remediation.

REFERENCES:

Results of the Site Investigation, Phase I, at the Paducah Gaseous Diffusion Plant, KY/ER-4, March 1991

Results of the Site Investigation, Phase II, at the Paducah Gaseous Diffusion Plant, KY/SUB/13B-97777C P-03/191/14, April 1992

Interim Corrective Measures Work Plan for Institutional Control of Off-Site Contamination in Surface Water; Outfalls, Creeks, and Lagoons, DOE/OR-1030, 1992

Remedial Investigation Addendum for WAG 22 Burial Grounds at Paducah Gaseous Diffusion Plant Paducah, Kentucky, DOE/OR/07-1141&D1, 1993

Sampling and Analysis Plan for Site Investigation and Risk Assessment of the Surface Water Operable Unit (On-Site) at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, DOE/OR/07-2137&D1, April 2004

DATE OF ORIGINAL SAR: Unknown.

DATE OF SAR REVISION: 7/30/04.

June 2004

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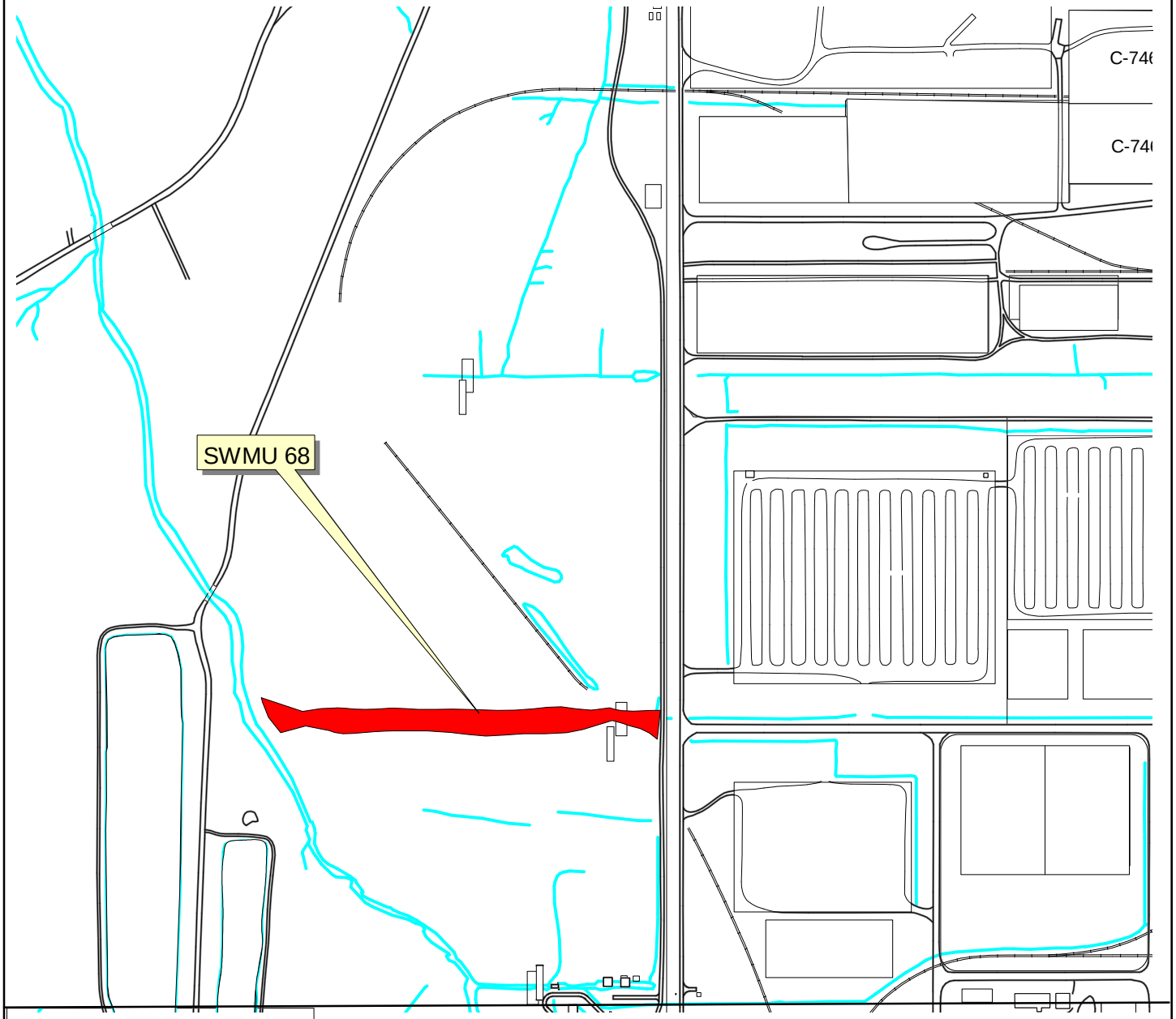
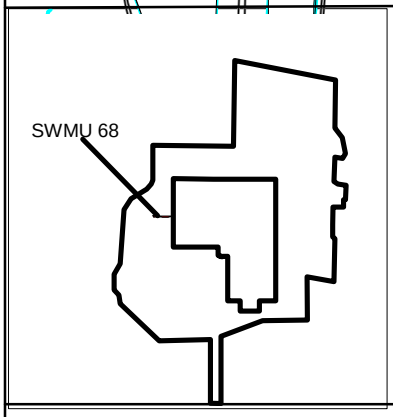
SWMU 68





LEGEND:

SWMU 68 Area
Buildings

0 200 400 600 Feet

TRUE NORTH
20°
PLANT NORTH

U.S. DEPARTMENT OF ENERGY
DOE OAK RIDGE OPERATIONS
PADUCAH GASEOUS DIFFUSION PLANT

BECHTEL JACOBS COMPANY LLC
MANAGED FOR THE US DEPARTMENT OF ENERGY UNDER
US GOVERNMENT CONTRACT DE-AC-05-03OR22980
Oak Ridge, Tennessee • Paducah, Kentucky• Portsmouth, Ohio

SWMU 68 C-375-W8 Effluent Ditch (KPDES 015)

CDM

FIGURE No. c5ac90002sk197.apr
DATE 06-04-04