

**C-375-E2 Effluent Ditch (KPDES 002)
Solid Waste Management Unit (SWMU) Assessment Report**

SWMU/AOC NUMBER: 60

REGULATORY STATUS: SWMU

LOCATION: This SWMU is located on the Northeast side of the Paducah Gaseous Diffusion Plant (PGDP) outside the controlled access area.

APPROXIMATE DIMENSION OR CAPACITY: SWMU 60 (Kentucky Pollutant Discharge Elimination System [KPDES] Outfall 002) receives drainage from an area of about 22.44 hectares (55 acres). The SWMU itself is 2760 feet in length. The internal plant ditch system to Outfall 002 drains the northeastern part of the plant and is about 293 meters (m) (3,150 feet [ft]) in length, unlined, and approximately 0.6 m to 0.9 m (2 to 3 ft) deep.

PRESENT FUNCTION: Storm drainage ditch.

PRESENT OPERATIONAL STATUS: Active.

DATES OPERATED: 1951 to Present.

BRIEF HISTORY: This ditch system was trenched when PGDP was built in 1951. Releases from the internal plant ditches to SWMU 60 are characterized by historical information about the facilities that drain into the ditches and by samples associated with them. Facilities that drain into Outfall 002 include the C-360 Toll Transfer and Sampling Building, the C-637 Buildings (i.e., C-637-1, 2A, 2B, 3, 4, 5, and 6), and the southeastern portion of C-337. The C-637 Buildings and the southeastern portion of the C-337 Building drain to Outfall 002 via the storm sewer system; therefore, they will not contaminate the internal plant ditches to Outfall 002. The C-360 Toll Transfer and Sampling Building, however, discharges to Outfall 002 via internal plant ditches. Contamination from the C-360 Building likely has been carried via surface water and sediment to Outfall 002.

The text that follows provides a brief description of the C-360 Building and the contaminants likely to be present in the ditches as a result. This information was taken from the Report for Environmental Audit Supporting Transition of the Gaseous Diffusion Plants to the United States Enrichment Corporation. Information pertaining to samples collected in the ditches is in sections that follow.

The C-360 Toll Transfer and Sampling Building occupies approximately 1654 m² (17,800 ft²). The facility houses equipment necessary to receive cylinders of uranium hexafluoride (UF₆), weigh and sample the contents, and then transfer the cylinders to the process buildings. Numerous sources of potential contamination are present at the C-360 Building, including UF₆, Freon 113, chlorine trifluoride, paint, hydraulic oil, chromated water, and asbestos-containing material. A large release of UF₆ occurred in 1988, and small releases were documented from 1989 until at least 1993. Approximately 379 liters (L) (100 gallons) of chromated water were released in January 1991 and may have exited the building through the floor drains that flow into the storm sewer system and the elevator shaft. The building has asbestos-containing material in thermal insulation on tanks and pipe insulation.

Key Actions

- There have been no previous response actions taken on Outfall 002.

SITE/PROCESS DESCRIPTION: Flow through Outfall 002 is transferred by lift station to ditch 010 and is discharged through Outfall 010. In the event that a rainfall event exceeds the capacity of the lift station pumps, Outfall 002 may emit some flow to Little Bayou Creek.

An average of these measurements during 2000 and 2001 indicates that, during overflow events, Outfall 002 averages a discharge of 5.40 million liters per day (mlpd) (1.43 million gallons per day (mgpd)).

WASTE DESCRIPTION: Storm water possibly containing chromates, radionuclides, and PCBs.

WASTE QUANTITY: Unknown.

SUMMARY OF ENVIRONMENTAL SAMPLING DATA: There are no previous sampling locations for the internal plant ditches to Outfall 002; however, there are locations where surface water samples were collected downgradient of the outfall that provide useful information. Contamination identified at these surface water sampling locations includes PCBs at 1.1 µg/L and ²³⁸U at 1.9 pCi/L. Technetium-99 also has been identified in the downgradient surface water sampling locations at Outfall 002 as high as 60 pCi/L. The only sediment sampling location at SWMU 60 had total PCBs of 300 µg/kg. Evaluation of monitoring wells located in the vicinity of these ditches will be performed during the GWOU Investigation. No risk assessments have been completed for Outfall 002.

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 107 and 175 (concrete rubble piles) are located within this SWMU.

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: *Report for Environmental Audit Supporting Transition of the Gaseous Diffusion Plants to the United States Enrichment Corporation, DOE/OR/1087&D4, June 2003*

*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*

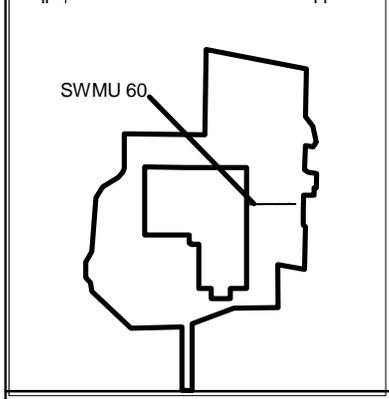
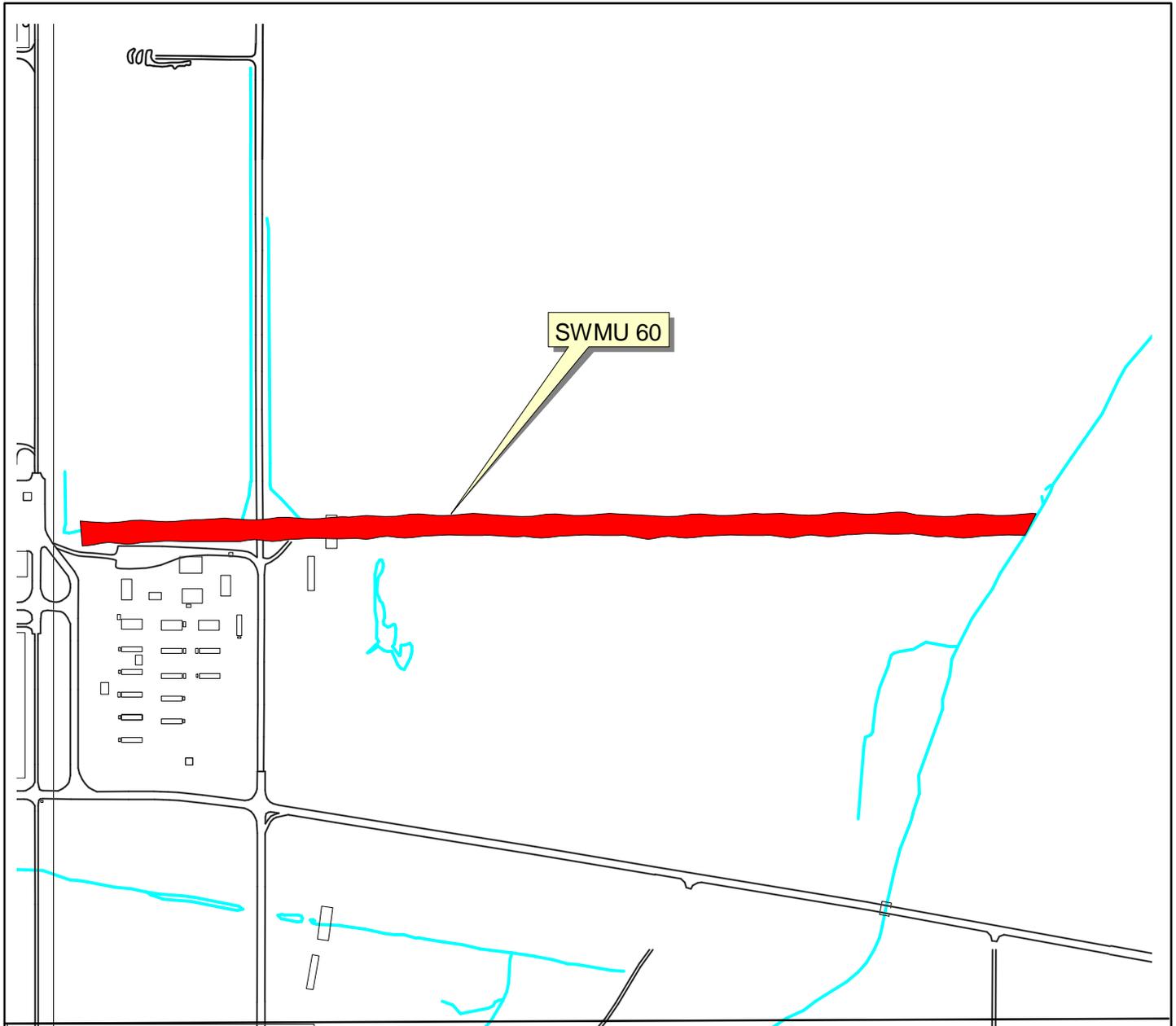
DATE OF ORIGINAL SAR: Unknown.

DATE OF SAR REVISION: 1/4/05.



June 2004

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LEGEND:

- SWMU 60 Area
- Buildings

0 300 600 900 Feet



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



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