

## **C-745 Kellogg Building Site Solid Waste Assessment Report**

**SWMU/AOC NUMBER:** 99

**REGULATORY STATUS:** SWMU

**LOCATION:** This SWMU is located along the eastern edge of the Paducah Gaseous Diffusion Plant, just south of Building C-360, immediately north of Tennessee Avenue, and west of Patrol Road 3. A former septic tank, leach field and clay piping is thought to be located to the south east of this area.

**APPROXIMATE DIMENSION OR CAPACITY:** 2.7 acres

**PRESENT FUNCTION:** Current functions performed at the previous site of the C-745 Kellogg Building Sites are different than the original function of the buildings. The buildings have been demolished, but the remaining concrete pads are used to store UF<sub>6</sub> cylinders and classified waste. There is also a gravel-covered parking area functioning as a contractor staging area.

**PRESENT OPERATIONAL STATUS:** No operations are ongoing at the site; however, a portion of the site east of Patrol Road 3 houses a recently upgraded security post (Post 48), and a gravel-covered parking area which functions as a contractor staging area. The concrete pads left over from the original buildings are now used to store UF<sub>6</sub> cylinders and classified waste at the C-745-E Cylinder Storage Yard the C-746-D Classified Scrap Yard.

**DATES OPERATED:** The buildings were constructed in 1951 and demolished in 1955.

**BRIEF HISTORY:** This SWMU was the site of the former C-745 Kellogg Buildings and consisted of temporary support facilities used during construction of the PGDP cascade facilities. This SWMU originally consisted of two buildings built in 1951 of steel and sheet metal constructed on concrete slabs. The buildings were used for pipe fabrication and pipe cleaning activities. Trichloroethene (TCE) was commonly used as a degreaser and was possibly used during the pipe cleaning operations. A gravel access road ran between the buildings. The buildings were demolished in 1955, leaving only the concrete pads. The pads are now used to store UF<sub>6</sub> cylinders at the C-745-E Cylinder Storage Yard and classified waste at the C-746-D Classified Scrap Yard. This area is used to store converter cells that have been modified for the storage of classified waste. C-746-D is identified as SWMU 16 based on its current usage.

The area also contained a former septic tank and leach field used by the Kellogg Buildings, and was thought to be located immediately outside the east guard house of the plant (now the recently upgraded security post (Post 48)). The tank and associated leach field were connected to the Kellogg Buildings by a vitreous clay drain line approximately 350 – 400 feet southeast of the building site in the gravel parking lot east of Patrol Road 3. The tank and the leaching field are believed to have been designed to receive sanitary waste from the buildings' operations; however, the actual configuration of the drainage system is unknown. No records exist as to what was done with the residual contents of the tank after the buildings were demolished or whether any closure or removal actions were taken. The lateral lines for the leaching field were found intact when they were encountered during construction activities in late 1994. A portion of the site east of Patrol Road 3 houses a recently upgraded security post (Post 48), and a gravel-covered parking area which functions as a contractor staging area.

### **Key Actions**

- Initially sampled under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Phase II Site Investigation (SI).
- Soil boring samples obtained as part of the Northeast Plume Investigation, which was composed of the Groundwater Phase IV Investigation in 1995.
- Sampled as part of the WAG 28 Remedial Investigation in 1999. Completed fieldwork for WAG 28 in 2000.

**SITE/PROCESS DESCRIPTION:** Location of Kellogg buildings and area were used during original plant construction in the early 1950s for pipe fabrication, which included pipe cleaning activities. The facilities and associated structures were torn down following end of construction.

**WASTE DESCRIPTION:** Concrete pads from original buildings, which are currently used to store cylinders and classified waste. No known disposal of hazardous constituents; however, degreasing operations using TCE possibly occurred on this site.

**WASTE QUANTITY:** Unknown

**SUMMARY OF ENVIRONMENTAL SAMPLING DATA:** SWMU 99 was investigated during the CERCLA Phase II SI. Deep soil borings and composite soil samples were collected and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), target analyte list (TAL) metals, and selected radionuclides. TCE was not detected in any of the soil samples analyzed. Groundwater samples were collected and analyzed for VOCs, SVOC, TAL metals, and selected radionuclides. VOCs (primarily TCE), metals, and radionuclides were reported in the groundwater samples collected.

The WAG 28 Remedial Investigation/Feasibility Study (RI/FS) conducted in 1999 focused on potential metals contamination in soils of SWMU 99 based on previous studies and the process knowledge of the activities conducted in this area at the Kellogg Buildings. These studies noted the sporadic presence of some metals in soil at slightly above background levels. These metals include Antimony, Barium, Beryllium, Cadmium, Chromium, Iron, Lead, Manganese, and Vanadium. TCE was not detected in soil samples from previous investigations, but was included to further evaluate whether SWMU 99 is a source of TCE detected in groundwater samples. For groundwater, the primary contaminants are TCE, Technetium-99, aluminum, barium, iron, and manganese.

The data from WAG 28 RI/FS was assessed for risk. The results are documented in *Remedial Investigation Report for Waste Area Grouping 28 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (DOE/OR/07-1846&D2). Significant results of the baseline human health risk assessment (BHHRA) and baseline ecological risk assessment (BERA) were:

- Scenarios for which human health risk exceeds de minimis levels (i.e., a cumulative human health excess lifetime cancer risk of 1E-6 or a cumulative hazard index of 1): future industrial worker exposure to Regional Gravel Aquifer (RGA) groundwater and McNairy groundwater; future on-site resident exposure to soil, RGA groundwater and McNairy groundwater; off-site resident exposure to groundwater; future excavation worker exposure to soil; current industrial worker exposure to soil; future industrial worker exposure to soil, RGA groundwater, McNairy groundwater; future on-site residential exposure to soil, RGA groundwater, and McNairy groundwater; future recreational user exposure to soil; and future excavation worker exposure to soil.
- Although chromium and zinc exceed benchmarks for plants and soil invertebrates and barium exceeds benchmarks for plants, potential risks to plant and soil invertebrate communities from future exposure to surface soil at this site appear low.

- Estimated doses from exposure to radionuclides in soil are below recommended dose rate limits for wildlife, but dose rates for plants and soil invertebrates are higher than the recommended dose rate limit of 1 rad/day. Technetium-99 is the radionuclide of concern based on its occurrence in a single sample.

**RELEASE SUSPECTED:** No releases from SWMU 99 have been documented; however, contaminants may have been released to the environment through normal cleaning operations (spills, leaks or unregulated disposal) at the Kellogg Buildings. Other potential release mechanisms are the septic tank and leaching field.

**DESCRIPTION OF RELEASE AND MEDIA AFFECTED:**

<b>GROUNDWATER:</b>	None known
<b>SURFACE WATER:</b>	None known
<b>SOIL:</b>	None known
<b>ECOLOGY:</b>	None known

**DOCUMENTATION OF NO RELEASE:** No documented releases.

**PRG COMPARISON:** N/A

**IMPACT ON OR BY OTHER SWMUS OR AOCs:** SWMU 16 is adjacent

**WASTE AREA GROUPING ASSIGNMENT:** 28

**OPERABLE UNIT ASSIGNMENT:** GWOU/SSOU

- This unit has been placed in the Groundwater Operable Unit for further evaluation and/or remediation as a potential contributor to groundwater contamination.
- This unit has been placed in the Surface Soils Operable Unit for further evaluation and/or remediation as a potential contributor to surface soils contamination.

**REFERENCES:**

- 1988 -Administrative Consent Order
- 1991 - Results of the Site Investigation, Phase I (KY/ER 4)
- 1992 - Results of the Site Investigation, Phase II (KY/SUB/13B-97777CP-03/1991/1)
- 1992 – Groundwater Phase III Investigation
- 1995 - Northeast Plume Preliminary Characterization Summary Report (DOE/OR/07-1339&D2)
- 1998 - Work Plan for Waste Area Grouping 28 Remedial Investigation/Feasibility Study and Waste Area Grouping 8 Preliminary Assessment/Site Investigation at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/OR/07-1592&D2)
- 2000 - Remedial Investigation Report for Waste Area Grouping 28 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/OR/07-1846&D1)

**DATE OF ORIGINAL SAR:** Unknown; however, written prior to 1992

**DATE OF SAR REVISION:** 9/15/03



September 2003

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SWMU 99**