

NPL Site Narrative for Paducah Gaseous Diffusion Plant (USDOE)

PADUCAH GASEOUS DIFFUSION PLANT (USDOE)

Paducah, Kentucky

The Paducah Gaseous Diffusion Plant (PGDP) is a uranium enrichment facility covering approximately 1,350 acres in western McCracken County approximately 10 miles west of Paducah, Kentucky, and about 3 miles south of the Ohio River. PGDP began operating in 1952 and is owned and operated by the U.S. Department of Energy (USDOE). The facility is currently managed by Martin Marietta Energy Systems, Inc.

Approximately 740 acres of the plant are located within a fenced security area. An uninhabited buffer zone surrounds the fenced area. Beyond the USDOE-owned buffer zone is an extensive wildlife management area of 2,100 acres deeded or leased to the Commonwealth of Kentucky.

PGDP performs the first step in the uranium enrichment process, enriching uranium-235 (U-235) in a physical separation process. The separation process is based on the faster rate at which U-235 diffuses through a barrier, in comparison with the heavier uranium-238 (U-238). Subsequent to processing at PGDP, the uranium is further enriched at another USDOE gaseous diffusion plant. Extensive support facilities are required to maintain the diffusion process, including a steam plant, four major electrical switchyards, four sets of cooling towers, a building for chemical cleaning and decontamination, a water treatment plant, maintenance facilities, and laboratory facilities.

Plant operations have generated hazardous, nonhazardous, and radioactive wastes, including PCBs, trichloroethene (TCE), uranium (multiple isotopes), and technetium-99 (Tc-99). In August 1988, USDOE found Tc-99 in an offsite drinking water well north of PGDP. TCE has also been detected in nearby private wells and onsite monitoring wells. Approximately 1,400 people obtain drinking water from public and private wells within 4 miles of PGDP.

USDOE has detected PCBs in onsite surface water and downstream of the plant in Big Bayou Creek and in Little Bayou Creek. These creeks are part of the West Kentucky Wildlife Management Area located adjacent to the facility. Big Bayou Creek is currently used for fishing. In 1989, the State of Kentucky's Division of Water warned against consumption of fish caught from Little Bayou Creek.

For more information about the hazardous substances identified in this narrative summary, including general information regarding the effects of exposure to these substances on human health, please see the Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs. ATSDR ToxFAQs can be found on the Internet at [ATSDR - ToxFAQs](http://www.atsdr.cdc.gov/toxfaqs/index.asp) (<http://www.atsdr.cdc.gov/toxfaqs/index.asp>) or by telephone at 1-888-42-ATSDR or 1-888-422-8737.