Paducah Gaseous Diffusion Plant

John D. Sheppard (sheppardjd@ornl.gov, 270-441-6804)

U.S. Department of Energy
P.O. Box 1410
Paducah, KY 42001

Abstract

The Paducah Gaseous Diffusion Plant is a uranium enrichment facility located on a 3556-acre DOE site in Western Kentucky. Construction and operation of the plant began in the early 1950s to utilize the gaseous diffusion process to enrich UF6 in the U235 isotope. Past plant operations used trichloroethene (TCE) as a common degreasing agent. Additionally, early operation of the facility included feed stocks from spent reactor fuel from DOE's plutonium production reactors. These reactor tails contained technicium-99. There are major groundwater plumes of both TCE and Tc99 that extend nearly to the Ohio River about 3 miles north of the plant. Soil and sediment contaminants include PCBs, PAHs, metals and radiological materials. DOE's EM program also manages 51,000 drums of Low Level, RCRA and TSCA wastes and over 60,000 tons of radiologically contaminated scrap metal.

Paducah has primary technology needs to address characterization and remediation of the sources to the groundwater contamination and plumes and the recycle of the hugh scrap metal inventory. Paducah has an Innovative Treatment Remediation Demonstration (ITRD) technical group reviewing technologies available to address groundwater contamination and will construct a pilot reactive wall in FY2000. Scrap metal must be removed to remediate old burial grounds beneath. Of particular interest are technologies to recycle approximately 9,700 tons of nickel with radiological contaminants.