

OUR SITE. OUR FUTURE.

PLANT HERITAGE

History of the Diffusion Plant

- Since 1952, the Gaseous Diffusion Plant has played an integral role in the national and energy security of the United States of America.
- The Portsmouth Gaseous Diffusion Plant, or the A-Plant as it is commonly referred, was constructed by the United States Atomic Energy Commission to provide enriched uranium for the nation's nuclear defense system and later for use in commercial nuclear power reactors.
- The Piketon plant was one of three facilities (others in Oak Ridge, TN and Paducah, KY) to enrich uranium by gaseous diffusion technology.
- The plant enriched uranium from 1954 until 2001. Production of highly enriched uranium for the weapons program stopped in 1964. Highly enriched uranium production for nuclear submarine reactors was suspended in 1991. Production of all low enriched uranium was terminated in 2001.



The Gaseous Diffusion Process

- Uranium, as found in nature, is a radioactive but stable element. Uranium must be modified, or enriched, from its natural form to create the properties needed to create a nuclear reaction.
- When Uranium is mixed with Fluorine it creates a gas called Uranium hexafluoride (UF_6). The gaseous diffusion process uses pressure to separate the lighter Uranium-235 isotope (enriched stream) from the heavier Uranium-238 isotope. The process uses vacuum pressure to enrich natural uranium to the levels necessary to support a nuclear reaction.



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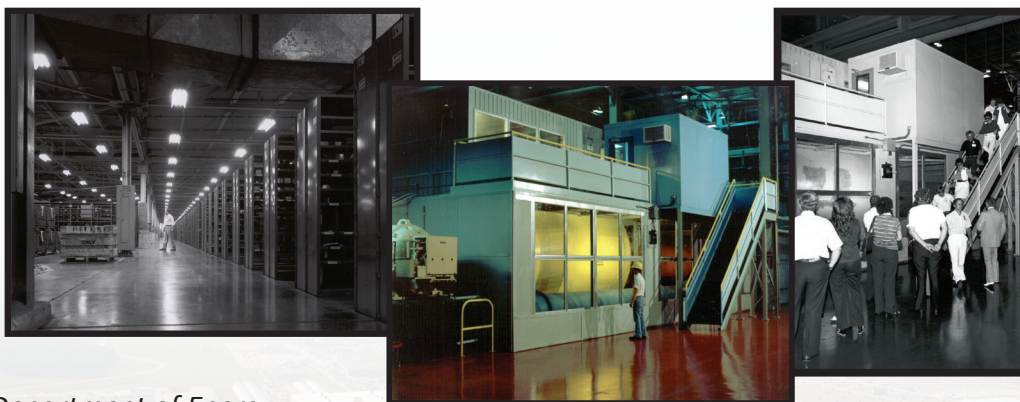
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Interesting Facts About the Gaseous Diffusion Plant

- On August 12, 1952, the United States Atomic Energy Commission announced the selection of a site in Pike County, Ohio for its new uranium enrichment plant.
- More than 600 miles of piping and 1,000 miles of copper tubing were installed in the plant. At peak construction effort, 1,200 welders were employed.
- Because of the highly corrosive nature of uranium gases, all steel piping had to be lined with pure nickel.
- In 1956, the plant used as much as 330,000 volts of electricity - equal to the all-time voltage record in the United States. The electrical switchyards required the largest oil circuit breakers ever used in this country.
- In December 1955, the plant employed 2,650 people, 2,350 of which were men and 300 were women.

DOE is considering a number of ways to preserve the legacy of the Portsmouth Gaseous Diffusion Plant

- History Context Report
- Photo Documentation
- Virtual Museum
- Oral History Project
- Graphic Information System
- Preserving select equipment and items from original plant operations



*U.S. Department of Energy
Portsmouth Gaseous Diffusion Plant
Public Meeting, Sept. 13, 2011
Waverly High School, Waverly, Ohio*

