

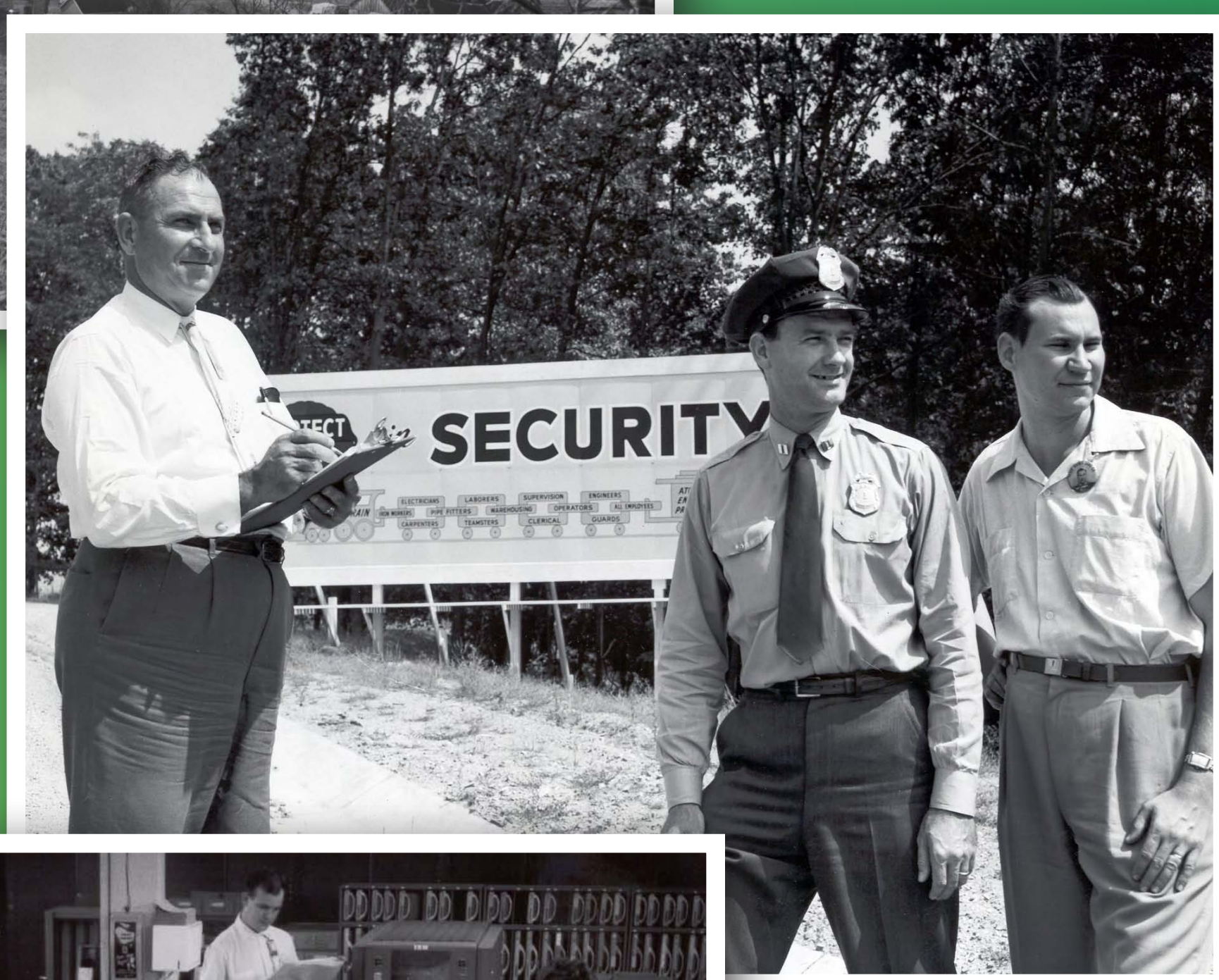


U.S. DEPARTMENT OF ENERGY

HERITAGE OF THE GASEOUS DIFFUSION PLANT

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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