

# HONORING OUR HERITAGE

## Centrifuge Uranium Enrichment

TIMELINE

1940

1950

1960

1970

1980

1990

2000

2010



In the 1960's and 1970's, the U.S. government begins testing a new technology for enriching uranium called gas centrifuge. It is thought that the technology could ultimately replace the gaseous diffusion plants in Tennessee, Kentucky and Portsmouth.

- 1977** The Gas Centrifuge Enrichment Plant (GCEP) project is announced with Portsmouth as the site of the new construction. The GCEP plant will enrich uranium for use in commercial nuclear power plants.
- 1979** Construction of the GCEP plant begins.
- 1985** The Portsmouth GCEP plant successfully demonstrates the GCEP technology for more than 1,000,000 machine hours, but DOE terminates the project when utilities stop investing in the construction of new nuclear power plants.
- 1990s** DOE uses some of the original GCEP buildings to house and manage low-level radioactive waste.
- 1999** USEC Inc. begins to investigate use of U.S. centrifuge technology.
- 2000** USEC commences development work on centrifuge design and signs a DOE-approved Cooperative Research and Development Agreement (CRADA) with UT-Battelle for cooperative work with Oak Ridge National Lab.
- 2002** USEC announces that it will site its American Centrifuge Demonstration Facility at the Portsmouth plant utilizing the original GCEP facilities already in place. USEC will use the facility to demonstrate the advancements and improvements it is making on the original centrifuge design.
- 2004** USEC announces that it will site its commercial enrichment plant at Portsmouth, called the American Centrifuge Plant (ACP).  
The U.S. Nuclear Regulatory Commission issues an operating license for USEC's American Centrifuge Demonstration Facility, to be housed in one of the GCEP process buildings at Portsmouth.
- 2006** The original 1,300 GCEP centrifuge machines are removed from one of two GCEP process buildings.
- 2007** DOE finishes removal of more than 49,000 waste containers in the original GCEP buildings to make room for the American Centrifuge Plant.  
The U.S. Nuclear Regulatory Commission issues USEC a construction and operating license for the American Centrifuge Plant.
- 2008** USEC submits an application to DOE for a \$2 billion loan guarantee to help finance the cost of construction of the American Centrifuge Plant.
- 2010** In May, Toshiba and Babcock & Wilcox agree to invest \$200 million in USEC to support the deployment of the American Centrifuge Plant. USEC updates its Loan Guarantee application with the DOE two months later.
- 2011** USEC and DOE announce discussions to work together through a Research, Development and Demonstration (RD&D) program to further reduce technical project execution and financial risks for commercializing the technology. This project includes plans to support building, installing and operating a 120-machine cascade and related support systems. Funding for this project is still pending.
- 2012** USEC achieves one million hours of machine run-time at its American Centrifuge Demonstration Facility.



1979-1985 GCEP Construction



1979-1985 GCEP Construction



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1979-1985 GCEP Construction



Original GCEP machines being put into place



2011 Aerial view looking northwest

