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Portsmouth Plant History

Aerial view of the Portsmouth Gaseous Diffusion Plant

Uranium enrichment began in the early 1940s as a U.S. defense initiative to produce fissionable material for the atomic bomb. The enrichment program was eventually transferred to the Atomic Energy Commission (AEC), and the nation's first gaseous diffusion plant, K-25, at Oak Ridge, Tennessee, went on line in 1945.

In August 1952, the AEC selected a tract of land in the Ohio Valley along the Scioto River in Pike County for the site of the Portsmouth Gaseous Diffusion Plant. Site selection was based on the availability of a vast expanse of relatively flat terrain--the original tract was 4,000 acres--as well as availability of large amounts of electrical power, a dependable source of water, local labor and suitable transportation routes.

In March 1956, the plant was completed six months ahead of schedule by construction contractor Peter Kiewit Sons of Nebraska at a cost of $750 million, considerably less than the estimated $1.2 billion construction cost. Construction required 69 million man-hours, more than 68,000 drawings and as many as 22,500 construction workers at its peak in the summer of 1954. More than 1,200 acres were cleared

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September 3, 2009 Portsmouth Site Specific Advisory Board meeting.

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and more than 4.5 million cubic yards of earth were moved.

In the 1960s, the Portsmouth plant's mission changed from enriching uranium for nuclear weapons to one focused on producing fuel for commercial nuclear power plants. The Portsmouth plant and its sister facility in Paducah, Kentucky, worked in tandem to enrich uranium for use in commercial nuclear power plants. The Paducah plant enriched Uranium-235 up to 2.75% and then shipped it to Portsmouth for further enrichment to approximately 4 - 5%.

An extensive environmental cleanup program began at the Portsmouth plant in 1989 as a result of a Consent Decree signed between DOE and the state of Ohio and an Administrative Consent Order with DOE and the U.S. Environmental Protection Agency (amended in 1997 to a tri-party agreement between DOE, US EPA and Ohio EPA).

In July 1993, the United States Enrichment Corporation (USEC) assumed the uranium enrichment operations from DOE at the Portsmouth and Paducah gaseous diffusion plants in accordance with the Energy Policy Act of 1992. USEC leased and operated the plants from DOE to enrich uranium as a government corporation. Regulatory oversight of the enrichment plants officially transferred from DOE to the Nuclear Regulatory Commission in March 1997. USEC completed the privatization process in July 1998 and became USEC Inc., an investor-owned corporation.

In the early 1980s, DOE built a separate Gas Centrifuge Enrichment Plant (GCEP) at Portsmouth. Two 303,000 square foot process buildings, a centrifuge recycle and assembly building and several support facilities were constructed before the project was terminated in 1985 before going into full production. DOE now leases these facilities to USEC for reuse by the advanced centrifuge technology program for USEC Inc's commercial American Centrifuge Plant (ACP), currently planned to be fully operational in 2012.

In May 2001, USEC completed a previously announced program to consolidate enrichment operations at Paducah and terminate gaseous diffusion production operations at the Portsmouth Site.

In August 2001, DOE contracted with USEC to maintain the Portsmouth GDP in a cold standby mode that would retain a re-start capability at the facility, if necessary, within 18-24 months to prevent any potential disruptions in the international enriched uranium market. DOE terminated the cold standby program at the end of Fiscal Year 2005. Since that time, the Portsmouth gaseous diffusion plant facilities have been transitioned into cold shutdown (CSD) status. Under CSD for DOE, USEC is deactivating equipment and removing lube oils, pyranol oils, and uranium deposit holdups in the process equipment in advance of eventual decontamination & decommissioning (D&D). By having deposits chemically removed with the cascade intact, DOE is avoiding potential future health/waste hazards during surveillance and maintenance and final plant D&D.

Portsmouth Timeline of Significant Events

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Questions and Comments