
Department of Energy
Portsmouth Gaseous Diffusion Plant

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Fluor-BWXT Portsmouth
PORTS End State Vision

CURRENT STATE

END STATE VISION
Background

- The Portsmouth Gaseous Diffusion Plant was constructed from 1952-1956.

- Construction required 69 million man-hours, more than 68,000 drawings and as many as 22,500 construction workers.

- The GDP was last of three constructed to enrich uranium for the nation’s nuclear weapons program and later for commercial nuclear reactors.
Nuclear Fuel Cycle

This diagram shows how nuclear power’s basic element – uranium – makes its way from the ground into a nuclear power plant where it produces about 15% of the world’s electricity and about 20% of the electricity used by consumers in the United States.

The enrichment process that was performed at the Portsmouth Gaseous Diffusion Plant until 2001 was the third step of the nuclear fuel cycle.
PORTS operates much like a city. It includes:
- Medical Center
- Libraries
- Police and Fire Protection
- Emergency Response Personnel
- Electricity Supply
- Water Treatment Facility
- Sewage Treatment Facility
Site Interfaces

- The site is a DOE-owned, contractor-operated facility.
- Goodyear Atomic Corp. was the first contractor (1952-1986).
- Today, the site has four prime contractors.
  - Fluor-BWXT Portsmouth
  - Restoration Services, Inc.
  - Wastren-EnergX Mission Support
  - B&W Conversion Services
- Centrus leases the former on-site facilities from DOE for the American Centrifuge Project.

- FBP was awarded the Portsmouth D&D contract in August 2010 and began D&D activities in March 2011.
- RSI is the ETS contractor that assists DOE with strategic planning, oversight, regulatory support and technical support.
- WEMS is the FSS contractor responsible for infrastructure maintenance, training, security and other services.
- BWCS operates the DUF₆ plant, which takes depleted uranium hexafluoride and converts it for reuse or disposal.
- Centrus Energy continues its American Centrifuge Project efforts through a lease agreement with DOE for on-site facilities.
Site Map

American Centrifuge Plant

DUF6 Conversion Plant

Gaseous Diffusion Plant
Process Buildings

Three process buildings have the floor space of about 200 football fields.

Building X-326
~½ mile long
30-acre roof
2,600,000 ft² of floor space

Building X-330
~½ mile long
33-acre roof
2,800,000 ft² of floor space

Building X-333
~¼ mile long
33-acre roof
2,824,640 ft² of floor space

Three process buildings have the floor space of about 200 football fields.
Uranium Enrichment Stage

- Enriched Stream
- Depleted Stream
Process Buildings
Shipping
D&D Waste Volume

- The waste from D&D (~2.2 million CY) would fill the Convo about 16 times
Building Demolition

X-100 COMPLEX
Objective:
Design and construct a multiple-cell, 5-million cubic yard On-Site Waste Disposal Facility (OSWDF) to provide a cost-effective, reliable, and compliant waste disposal method for the final disposition of impacted material (waste) generated from PORTS D&D and other site non-D&D cleanup activities.
On-Site Waste Disposal Facility

- ~100 Acres Footprint With 10 Cells And 2 Contingent Cells
- 220 Acres Construction Support Area
- On Competent Bedrock
- Over 100 Feet Above The Upper Most Aquifer
- Over 5 Million Cubic Yards Of Capacity
- Accept LLW, MLLW, TSCA, and Classified Wastes
- Gravity Drain With A Dedicated On-Site Leachate Treatment Plant
Uranium Barter
### Key Regulatory Milestones

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<td><strong>RCRA Soil Decision</strong></td>
<td><strong>Implement Ongoing Corrective Measures</strong></td>
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<td><em>(already in place from previous decisions)</em></td>
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