PORTSMOUTH GASEOUS DIFFUSION PLANT, X-104 GUARD HEADQUARTERS 3930 U.S. Route 23 South Piketon vicinity Pike County Ohio HAER OH-142-J HAER OH-142-J

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD National Park Service U.S. Department of the Interior 1849 C Street NW Washington, DC 20240

HISTORIC AMERICAN ENGINEERING RECORD

PORTSMOUTH GASEOUS DIFFUSION PLANT, X-104 GUARD HEADQUARTERS

HAER No. OH-142-J

Location:	Portsmouth Gaseous Diffusion Plant (PORTS), 3930 U.S. Route 23 South, Piketon vicinity, Scioto Township, Pike County, Ohio
	The X-104 Guard Headquarters is located at Ohio State Plane South coordinates at easting 1827675.296066 ft, northing 368266.503376549 ft and at Universal Transverse Mercator Zone 17N easting 327215.0906 m, northing 4319787.372 m. The coordinate represents the approximate center of the X-104 Guard Headquarters building. This coordinate was obtained on June 9, 2019 by plotting its location in EnviroInsite 10.0.0.37. The accuracy of the coordinates is +/- 12 meters. The coordinate datum is North American Datum 1983.
Date of Construction:	1954
Designer/Builder:	Peter Kiewit Sons' Construction Company
Previous Owner:	N/A
Present Owner:	The Atomic Energy Commission) oversaw construction and operation of PORTS until 1974, when the Energy Research and Development Administration was established with responsibility for research and development duties from 1974-1977. In 1977, the U.S. Department of Energy was established, overseeing operations at PORTS.
Present Use:	Guard Headquarters
<u>Significance:</u>	Since its construction, the X-104 Guard Headquarters has served as the central operation point for protection forces assigned to PORTS. PORTS was a part of the U.S. Cold War nuclear weapons complex. PORTS' primary Cold War era mission was the production of highly enriched uranium by the gaseous diffusion process for defense/military purposes.
Project Information:	Fluor B&W Portsmouth LLC photographed the site in August 2014. Gray & Pape, Inc., Cincinnati, Ohio, served as the primary author of the historical narrative and resource descriptions drawing from numerous historical records and reports, drawings, photographs and plans. For additional contextual information, see Portsmouth Gaseous Diffusion Plant, HAER no. OH-142. This X-104 Guard Headquarters HAER was completed in 2021.

Part I. Historical Information

In support of this report, there are three appendices that are provided: Appendix A through C, which consist of survey photographs, historical photographs, and historical drawings, respectively.

Construction History of the X-104 Guard Headquarters:

Peter Kiewit Sons' Construction Company subcontracted the construction of the X-104 Guard Headquarters to the Clark Construction Company, of Owensboro, Kentucky (Appendix B, Figures 4 through 12). Construction on the X-104 Guard Headquarters began in the summer of 1953 and was largely completed by August 1954. The building was renovated in 1978 and the northwest addition was built in 1982.

Historical drawings of building plans are included in Appendix C (Figures 13 through 21).

Part II. Site Information

Description of the X-104 Guard Headquarters:

The X-104 Guard Headquarters is a vernacular, one-story, rectangular shaped building located just inside the main entrance to the limited area of the site. The building shows elements of the International Style (Appendix A, Figures 1 through 3). The building served as the central operation point for protection forces assigned to PORTS. It consists of three independent structures joined by a connecting corridor. The main structure, located in the center and eastern portion of the facility, houses the offices, supply rooms, restrooms, and locker facilities. The smaller building on the southwest corner houses the guard communication facilities. The slightly larger addition on the northwest corner contains training rooms, offices, and storage areas. Also associated with the X-104 Guard Headquarters is a steel-frame, two-bay garage, and the X-104A Indoor Firing Range, adjacent to the north.

The main structure is approximately 96' long and 76' wide (approximately 7,300 square feet), with a small, southern wing protruding approximately 14' beyond the south façade. The X-104 Guard Headquarters has a very low-pitched gabled roof with the ridge extending from north to south. The building has a concrete slab foundation and concrete block bearing walls. Window openings on the main building contain commercial-type, projected steel sash with double-strength B-grade glass and cast concrete sills. A simple wood trim fascia runs the width of the roofline. Exterior doors are wood with metal canopies above, with the exception of the metal security door to the communication building. The main double entry doors on the south façade feature large glass panes with metal door pulls. The roofline is punctuated by a variety of metal vents, exhaust fans, and air intakes. An incinerator was originally located on the north façade and was used to burn classified and business sensitive documents.

The interior of the main building originally featured a central corridor on the western half of the building with a large open locker room to the east and smaller rooms for offices and other uses on the west, as well as a smaller connecting corridor to the communications building. Interior partitions and ceilings are composed primarily of wood studs and gypsum board. Partition walls in the toilet and shower rooms consist of glazed tile walls and plastered ceilings, while the partition walls in the ammunition room are reinforced concrete. The finished flooring throughout the building is composed of the polished concrete slab, with the exception of ceramic tile in the restrooms and asphalt tile in the offices. Ceilings throughout the building are approximately 9', 5" high. The building was renovated in 1978, and the layout was altered to its present configuration.

The communications building is approximately 44' long and 33.5' wide with 9' ceilings and features reinforced concrete construction and a flat roof. The concrete walls have no window openings, and there is one exterior steel door on the west façade. The original connecting corridor is also of reinforced concrete construction and contained steel doors at either end of the corridor for security purposes. Renovations in 1978 extended the west wall to the edge of the main building, encompassing the connecting corridor. The interior features a partition wall separating the main communications room on the south from the emergency generator and restrooms on the north. The concrete slab floor features a large cable trench in the communications room that was covered with vinyl asbestos tile during the 1978 renovations.

The addition on the northern half of the west façade was built in 1982 for additional training space. The addition matches the construction materials and design of the main building with a concrete slab foundation and concrete block bearing walls.

Also associated with the X-104 Guard Headquarters is the X-104A Indoor Firing Range to the north of the main building. The building serves as a practice firing range for PORTS protective forces. The X-104A Indoor Firing Range was built in conjunction with the northwest addition to the main building in 1982. The building is approximately 129' long from east to west and 27' wide from north to south. There is a screen wall to the north of the building hiding the mechanical space. The building features a concrete slab foundation, concrete block bearing walls, no windows, and metal doors with aluminum canopies.

Part III. Sources of Information

Department of Energy. *The Role of the Portsmouth Gaseous Diffusion Plant in Cold War History*. Piketon, OH: U.S. Department of Energy, 2017.

Department of Energy. *Remedial Investigation and Feasibility Report for the Process Buildings and Complex Facilities Decontamination and Decommissioning Evaluation Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0245&D3. Piketon, OH: U.S. Department of Energy, 2014.

Department of Energy. *Engineering Evaluation/Cost Analysis for the Plant Support Buildings and Structures at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, DOE/PPPO/03-0207&D4. Piketon, OH: U.S. Department of Energy, October 2011.

Department of Energy. *National Historic Preservation Act Section 110 Survey of Architectural Properties at the Portsmouth Gaseous Diffusion Plant in Scioto and Seal Townships, Piketon, Ohio,* DOE/PPPO/03-0147&D1. Piketon, OH: U.S. Department of Energy, January 2011.

Giffels & Vallet, Inc. *Gaseous Diffusion Plant at Portsmouth, Ohio, Project History and Completion Report* (Redacted). Washington, D.C.: U.S. Atomic Energy Commission, 1957.

Appendix A: Survey Photographs



Figure 1: Location and Orientation of Exterior Photographs (A-2 through A-3)



Figure 2: East Side of the X-104 Guard Headquarters, August 2014, Facing Southwest



Figure 3: South Side of the X-104 Guard Headquarters, August 2014, Facing Northwest

Appendix B: Historical Photographs



Figure 4: Looking Northwest at X-104 Guard Headquarters, August 12, 1953



Figure 5: Looking East at X-104 Guard Headquarters, October 14, 1953



Figure 6: Looking East at X-104 Guard Headquarters, September 15, 1953



Figure 7: Looking Southeast at X-104 Guard Headquarters, November 13, 1953



Figure 8: Interior View of Locker Room at X-104 Guard Headquarters, January 18, 1954.



Figure 9: Interior View of X-104 Guard Headquarters, February 15, 1954



Figure 10: Interior View of Communications Room of X-104 Guard Headquarters, March 17, 1954



Figure 11: Interior View of X-104 Guard Headquarters, April 15, 1954



Figure 12: Looking Northeast at X-104 Guard Headquarters, August 19, 1954

Appendix C: Historical Drawings



Figure 13: X-104 Guard Headquarters Elevations

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Figure 14: X-104 Guard Headquarters Elevations

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Figure 15: X-104 Guard Headquarters Floor Plan

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Figure 16: X-104 Guard Headquarters Floor Plan

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Figure 17: X-104 Guard Headquarters Building Sections and Details

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Figure 18: X-104 Guard Headquarters Elevations and Details

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Figure 19: X-104A Firing Range Building Elevations and Details

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Figure 20: X-104 Firing Range Building Foundation and Slab Plan

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Figure 21: X-104 Firing Range Building Floor and Roof Plans