

MALLINCKRODT CHEMICAL WORKS, Building No. 116
(~~Mallinckrodt Inc.~~)
Attached to Building 117 on Destrehan Street
between Hall and Wharf Street
St. Louis, Missouri

HABS No. MO-1929-I

HABS
MO
96-SALU,
134I-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Great Plains Support Office
1709 Jackson Street
Omaha, Nebraska 68102-2571

HISTORIC AMERICAN BUILDINGS SURVEY
MALLINCKRODT CHEMICAL WORKS, BUILDING 116
(~~Mallinckrodt Inc.~~)

HABS
MO
96-SALU,
134 I-

HABS No. MO-1929-I

Location: Destrehan Street, between Hall and Wharf streets, St. Louis, Missouri
USGS Granite City, Illinois-Missouri Quadrangle (7.5'), Universal
Transverse Mercator Coordinates: 744611 E; 4282932 N

Present Owner: Mallinckrodt Inc.

Present Use: DOE Storage

Significance: One of 16 buildings at Mallinckrodt Chemical Works associated with the Manhattan Engineer District/Atomic Energy Commission (MED/AEC) – sponsored program to process uranium for use in the development of atomic weapons, Building 116 was used to produce uranium metal from uranium tetrafluoride (UF₄), or green salt.

MALLINCKRODT CHEMICAL WORKS, BUILDING 116

(~~Mallinckrodt Inc.~~)

HABS No. MO-1929-I

(Page 2)

PART I. HISTORICAL INFORMATION

A. Physical History

1. **Date of erection:** Building 116 was built in 1950.
2. **Architect:** The architects for this building were Wedemeyer and Hecker of St. Louis. The engineer was Otto E. Heinicke and Company of St. Louis.
3. **Original and subsequent owners:** The U.S. Atomic Energy Commission acquired the property in June 1949 for \$42,330 from Mallinckrodt Chemical Works (MCW). It was given back to MCW, after cleanup, in 1960.
4. **Builder-contractor:** The contractor is unknown.
5. **Original Plan and construction:** Built in 1950, this two-story rectangular building (measuring 110' x 233') was used to manufacture uranium metal from green salt, and served as a warehouse and office.
6. **Alterations and additions:** A slag-handling and grinding building, 116C, on the west side of the building has been removed. Several second-floor windows on the west side have been infilled.

B. Historical Context

Building 116, labeled Plant 6E, was a modern mechanized metal plant built in 1950 adjacent to Building 117, as a replacement for the uranium metal production in Plant 4.¹ Green salt (UF₄) was shipped from Building 705 to the first floor of Building 116 for processing.

Green salt was mixed with ground magnesium in steel containers lined with either dolomite or ceramic that were heated inside electric muffle furnaces to produce uranium metal. The cooled shells were "broken out" to reveal the metal, called a derby, and the magnesium fluoride slag. The derby was cleaned and then melted in a vacuum furnace to remove the magnesium. The molten metal was poured into graphite molds to make cylindrical ingots, that were then packaged and stored.

¹ Mallinckrodt Inc., "Columbium-Tantalum Plant Characterization Plan" (St. Louis: Mallinckrodt Inc., 1993), A-3-4.

MALLINCKRODT CHEMICAL WORKS, BUILDING 116
(Mallinckrodt Inc.)
HABS No. MO-1929-I
(Page 3)

The first floor of Building 116 contained not only the processing area but also a warehouse. The second floor contained a warehouse, a graphite machining area and offices. Building 116-B, at the southwest corner of Building 116, housed the electric substation to power the processing, and Building 116-C, now removed, handled and ground the magnesium slag.²

Building 116 was much-improved over Plant 4. It was designed to increase the capacity of uranium metal production, improve its quality, and reduce processing costs. This was done by increasing the size of the derbies and ingots produced, vaporizing impurities from the melting crucible, and using recycled slag rather than dolomite in the steel containers.³

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. **Architectural character:** Building 116 is a post-World War II concrete block industrial building.
2. **Condition of fabric:** The fabric is in poor condition.

B. Description of Exterior

1. **Overall Dimensions:** Building 116 is rectangular in shape and measures 110' in width x 230' in length. It has two stories. A one-story ell measuring 25' x 40' (Building 116B) is attached to the southwest corner, with two boarded up overhead doors, one single wood louver door with four-pane transom, and two louvered windows, all on the north side. A metal canopy on a steel frame extends from the west side. Its north wall is enclosed by concrete block.
2. **Foundation:** The foundation is raised concrete.
3. **Walls:** The walls are concrete block.
4. **Structural system, framing:** Building 116 uses concrete piers and posts in the north half, steel I-beams in the south half.

² Mont G. Mason, "History and Background Relative to the Radiological Re-Monitoring of Mallinckrodt by the Energy Research and Development Administration" (St. Louis: Mallinckrodt, Inc., 1977), 8.

³ Arch Ruehle, "Development and Technology – The Story of Progress," *Uranium Division News*, June 1962: 18-19.

MALLINCKRODT CHEMICAL WORKS, BUILDING 116

(Mallinckrodt Inc.)

HABS No. MO-1929-I

(Page 4)

5. **Porches and steps:** A concrete loading dock wraps around the northwest corner, sheltered by a metal canopy. The six wooden steps at the northwest corner provide access to the loading dock.
6. **Chimneys:** There are no chimneys.
7. **Openings:**
 - a. **Doorways and doors:** Building 116 has nine exterior doors. On the north side are two wood-panel overhead doors, and a single metal door. On the east side are an overhead metal door and a metal single door with four wire-glass upper panes. The west side has one metal single door with wire-glass panes, two wood overhead doors, and one metal single door.
 - b. **Windows:** Multi-paned, fixed and transom windows in metal sash are located on the north, east, and west sides of the building.
8. **Roof:**
 - a. **Shape, covering:** The flat roof is covered with a rubber coating. A roof monitor with banks of multi-pane fixed and transom windows in metal sash on the east and west sides runs the length of the west side of the building. It is topped by four metal roof vents. Two metal roof vents are on the east side of the roof.
 - b. **Cornice, eaves:** The parapet of the building is topped with a glazed tile coping.
 - c. **Dormers, cupolas, towers:** There are no dormers, cupolas or towers.

C. Description of Interior

1. **Floor plans:** There are eight rooms. On the first floor are two offices, a small storage room, a bathroom and a large storage area at the north end, and a large two-story storage room at the south end. On the second floor at the north end are a smaller office area and a large storage area.

MALLINCKRODT CHEMICAL WORKS, BUILDING 116

(Mallinckrodt Inc.)

HABS No. MO-1929-I

(Page 5)

2. **Stairways:** Three sets of stairways are located at the north, central, and south sections of the building. The steps are diamond plate metal with pipe railing.
3. **Flooring:** The building has concrete floors.
4. **Wall and ceiling finish:** The office walls are covered with plaster and paint.
5. **Openings:** All the interior openings have metal fire doors, either single sliding doors or double hinged doors.
6. **Decorative features and trim:** There are no decorative features and trim.
7. **Hardware:** There is no hardware.
8. **Mechanical equipment:**
 - a. **Heating, air conditioning, ventilation:** The building was heated with steam from Building C in Plant 1.
 - b. **Lighting:** The lighting is hanging fluorescent fixtures.
 - c. **Plumbing:** There is one bathroom tiled with yellow tile. All the fixtures have been removed.
9. **Furnishings:** There are no furnishings.

D. **Site:**

1. **General setting and orientation:** Plant 6E, of which Building 116 is a part, is located on the eastern edge of the Mallinckrodt Inc. property. It is oriented east-west and is located on the north side of Destrehan Street.
2. **Historic landscape design:** The setting is industrial, and there is no landscaping.

PART III. SOURCES OF INFORMATION

A. **Original Architectural Drawings:** There are no original drawings for Building 116 at Mallinckrodt Inc. There are 1963 lighting plans, 1973 layouts, and 1984 elevations and floor plans.

B. **Bibliography:**

Mallinckrodt Inc. "Columbium-Tantalum Plant Characterization Plan." St. Louis: Mallinckrodt Inc., 1993.

Mason, Mont G. "History and Background Relative to the Radiological Re-monitoring of Mallinckrodt by the Energy Research and Development Administration." St. Louis: Mallinckrodt, Inc., 1977.

Ruehle, Arch. "Development and Technology—The Story of Progress." *Uranium Division News*. June 1962: 17-21.

PART IV. PROJECT INFORMATION

This HABS documentation project was undertaken as mitigative recordation required by Section 106 of the National Historic Preservation Act of 1966. The United States Department of Energy Former Sites Restoration Division plans to demolish the buildings.

The documentation was prepared by Alexandra C. Cole, architectural historian at Science Applications International Corporation (SAIC), Santa Barbara, California, in February 1997. Large-format photography was done by Bruce Harms of Louis Berger and Associates, Inc., Marion, Iowa, in August/September 1996. Measured floor plans were prepared under the supervision of Michael Poligone of Bechtel National Incorporated (BNI), Oak Ridge, Tennessee, in December 1996.

*FOR SITE PLANS SEE MO-1929 FIELD NOTES