DEPARTMENT OF ENERGY, MOUND FACILITY, HYDROLYSIS HOUSE BUILDING (HH BUILDING)
One Mound Road
Miamisburg
Montgomery County
Ohio

HABS OH-2470-H
OH-2470-H

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
MIDWEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
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HISTORIC AMERICAN BUILDINGS SURVEY

DEPARTMENT OF ENERGY, MOUND FACILITY, HYDROLYSIS HOUSE BUILDING (HH BUILDING)

HABS No. OH-2470-H

Location: Department of Energy, Mound Facility
One Mound Road
Miamisburg, Montgomery County, Ohio
UTM Coordinates: 16.730670.4390150

Present Owner: U.S. Department of Energy

Present Use: At the time of HABS documentation preparation, most of the Hydrolysis (HH) Building was in the process of being vacated. Operations pending include building and laboratory cleanup.

Significance: HH Building's historic significance is based upon its operational role in the polonium processing mission. During the polonium processing era, HH Building housed the facilities for the treatment of process effluents received from the Technical (T) Building.

Project Information: The Westerly Group, Inc. 225 E Main Street, Madison, Indiana 47250 prepared this document. Under the supervision of Camille B. Fife and Thomas W. Salmon II, ALSA of the Westerly Group, Inc., the historical narrative was compiled by Elizabeth Auxier and Melissa Buchanan, also of The Westerly Group, Inc. Photographs by Camille B. Fife and Thomas W. Salmon II, ASLA of The Westerly Group, Inc. Floyd Hertweck of CH2M Hill Mound, Inc. supplied research materials, conducted interviews and prepared the preliminary materials upon which this document is based.

PART I. HISTORICAL INFORMATION

A. Physical History:

1. **Date of Erection**: Construction of HH Building began on September 8, 1947 and ended August 9, 1948, with the first occupants moving in on August 15, 1948. Final acceptance of the facility followed on December 1, 1948, but sixteen modification/remodeling efforts continued in 1949.

2. **Architect**: Under contract with the United States Government, the Monsanto Chemical Company constructed and operated the proposed Mound Site. It provided the original architectural and engineering supervision for the entire Mound Laboratory, including HH Building. The contractual responsibilities included all design and engineering aspects of construction, procurement, and supervision of laboratory equipment installation, security against espionage and sabotage, and inspections throughout the construction process. Monsanto subcontracted the preparation of architectural drawings to Giffels and Vallet, Inc. of Detroit, Michigan.

3. **Original and Subsequent Owners**: Since the Mound conception, the U. S. Government has maintained ownership, including HH Building. Originally supervised by the Atomic Energy Commission (AEC) and operated under contract by Monsanto Chemical Company, the Mound Laboratory responsibility shifted to the Department of Energy when President Carter created it during 1977. In 1988, operative duties were transferred to the Massachusetts company EG&G Mound Applied Technologies. In 1997, Babcock & Wilcox of Ohio, Inc. (currently BWXT of Ohio) assumed responsibility and was the operator at the time this report was compiled. As of January 1, 2003, CH2M Hill Mound, Inc. gained control of the site for the clean-up process.

4. **Builder, Contractor, and Suppliers**: Maxon Construction Company of Dayton, Ohio, was the primary contractor for the original buildings at Mound Laboratory. The company provided labor, tools, machinery, and equipment not furnished by the U. S. Government.

5. **Original Plans and Construction**: A 1948 description of HH Building was derived from engineering drawings and available historic photographs. A dominant feature on the drawings for the 1948 era building and many additions was floor drains in the rooms.

   As constructed, the building was a rectangular structure 78'-8" x 49'-0". HH Building and its additions were built on piers or concrete footers that extend as much as 10'-12' through the backfill, into the bedrock. The backfill in the vicinity of HH Building may have been generated from the construction of T (Technology) building, an underground facility.

6. **Alterations and Additions**: With the exception of one major remodeling that apparently began in the late 1940s, HH Building remained much like it was when constructed. It stayed that way until the building was transformed into a "Stable Isotope" process building in the late 1950s. The 1940s alteration involved the excavation of the areas currently designated as Rooms 7, 7A, 8, and 10 (in the basement).

   At the time of this writing, site management was arranging to demolish the building containing these records, and was packaging and shipping them to an offsite repository operated by the National Archives and Records Administrations. Due to this transition, the project engineer's records were not available for research, thus some building alterations could not be addressed in this section. Generally, these changes are noted upon comparison of building drawings from one era to another. These observed changes in HH Building included:

   a. Rooms 11 and 12, located in the basement do not appear on the original drawings. These rooms were apparently excavated from the basement sometime after the original construction.

   b. At some time during the life of the building, a zinc isotope area and a sulfur isotope area were installed. Both are described as being relocated, but could not be found on the initial drawings.

   c. A number of equipment installations were noted on later drawings, but prior drawings do not indicate the installations.

The HH Building remodeling projects or room additions identified by this process are discussed below:

1949 Combustible Material Disposal Addition, 1949

In 1949, the areas currently designated as Rooms 7, 8, and 10 in the basement of the original HH Building were excavated under the first floor. This change included the addition of a larger room (today numbered Room 8 and 10) and two smaller rooms, one of which was a vestibule, opening to the outside on the first floor, via double doors. These rooms eventually housed an incinerator.

Remodel of HH Building for the Stable Isotopes Program, 1959

In 1959, the hydrolysis towers area in Room 5 was remodeled with the columns necessary for the

Stable Isotope (Thermal Diffusion) Program 1. The drawings indicate that the bulk of the changes took place in Bay 1, Room 5. [1]

Dock Addition, on the Southern Side of the Building, 1962

In 1962, the small canopy covered an 8'-0" x 12'-0" dock that exists off Rooms 6 and 24 in the basement.

HH Cryogenic Addition, 1962

This alteration resulted in the addition of the rooms today numbered 118, 119, and 120, located on the northwestern corner (first floor) of the original building.[2] The floor plan of the addition indicates that the as-constructed rooms were configured much as the same area is today. [3] Furthermore, additional equipment was typical of a cryogenic-type operation (hoods, liquefiers, etc.).[4] Not only that, a stack was added and resulted in the installation of guy wires attached to 2" diameter, 40" long pipe grouted into the hollow concrete blocks of the addition.[5]

HH Building Addition, 1965

In 1965, the areas currently designated as Room 121, on the first floor, and Room 13, in the basement, were added. (The site plan that accompanies the additional drawings illustrates the footprint of the larger [first floor] room). Available drawings in the Mound collection do not indicate equipment additions; however they do indicate reinforcement parallel to the block courses, I-beam construction and columns, and anchored walls.

The Raw Gas Trailer Handling Facility Addition, 1965

Basement Rooms 9 and 9A and Room 19 were constructed in 1965 as the Raw Gas Trailer Handling Facility. This addition included a high-risk exhaust hood, low-risk exhaust hood, air locks, shower/change areas, and low-risk areas. [6, 7] Mound Site drawings indicate 1'-0" wide

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1 Mound Engineering Drawing 350601-A-02001, Stable Isotopes-HH Bldg Column Support – Structural, Approved August 1, 1959.
2 Mound Engineering Drawing, HH Cryogenic Addition Site Plan, Drawing No. 4-4233, Approved March 26, 1962.
3 Mound Engineering Drawing, "HH Cryogenic Addition, Plan Roof, Floor, Footing", Mound Drawing 4-4155, Approved March 26, 1962.
4 Mound Engineering Drawing, "H-H Cryogenic Addition, Equipment Layout Piping and Details", Drawing 4-4232, Approved March 26, 1962.
5 Mound Engineering Drawing, "H-H Cryogenic Addition, Details-Roof & Ventilation", Drawing No. 4-4167, Approved March 26, 1962.
6 Mound Engineering Drawing 350601-A-03003, Raw Gas Trailer Handling Facility, Architectural Plans Elevations, & Sections, January 4, 1965.
7 Mound Engineering Drawing 350601-ARX-00001, Raw Gas Trailer Handling Facility Cover Sheet, January 4, 1965.

footers and walls having horizontal weld wire reinforcement on alternating courses. The addition was constructed with concrete block footers, set on a 1'-0" thick bottom footing, with a slab floor that was set on "well-compacted fill."

Addition of Rooms 21, 22, 23, 24, 125, and 126, 1968

A 1968 addition that includes today's Rooms 21, 22, 23, 24, 125, and 126, was added to the southwestern corner of HH Building. This change affected the basement, first floor, and penthouse. Room 23 was a high bay area, open from the basement to the first floor. Other uses of the basement include Room 21 as an office, Room 22 as an Isotopic Compound Conversion Room, Room 24 as a New Gas Purification Isotope Loading Room, and adjacent to a closet. Also, the penthouse room was a utility room, including equipment necessary to operate the addition, such as heating and air conditioning.[8] This addition, as constructed, is sitting on Caissons resting on the undisturbed soil layer; the walls have continuous metal reinforcing every third course of block.[9]

Basement Dock Addition, 1972

In 1972, the dock constructed on the building's southern side received yet another addition. This included a 5'-1 ½" extension to the dock, along with an extension to the canopy. [10]

Addition of Basement Room 20 Mid to Early 1970s

As determined from the comparison of HH Building drawings, basement Room 20 was apparently added sometime between 1971 and 1974. This room, with its own outside entrance and no shared entrances into HH Building, was constructed adjacent to Room 4, at the southeastern corner of the building. Furthermore, the room was not even connected to HH Building. It is constructed of corrugated metal panels, with a shed-type roof.

"Life-Safety-Type" Modifications, 1974

In 1974, HH Building, and a number of other Mound buildings, faced modifications in the form of additions of firewalls, fire doors, and other fire stop-like modifications. HH Building included the installation of fire-wall enclosures over open areas above doors, along with door and door frame replacements.

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8 Mound Engineering Drawing 350604-A-02003, Addition to Stable Isotopes Building-Roof and Penthouse Plans, March 17, 1968.
9 Mound Engineering Drawing 350604-A-02006, Addition to Stable Isotopes Building-Building Section and Details, March 17, 1968.
10 Mound Engineering Drawing 4-10133, HH Building, Enlarge Lower Dock #083, Approved April 26, 1972.

Renovation of the High-Bay Area, 1975

A 1975 alteration to the High Bay area was located in the Basement Room 23 when the "high-bay" area, as previously described, was renovated. The purpose of this renovation was to divide the one room into two rooms, resulting in a basement room and a first floor room. Based upon engineering drawings, the newly created first floor room included a paneled office area that housed a desk and computer system. [11]

Room 50 Addition, 1988

Sitting on 11' deep piers, the Room 50 addition, also known as the Zinc Isotope Production Addition, was a single room supplement to the southwestern corner of HH Building that had independent entry/exit doors, but did not share any openings with HH Building.[12, 13] Thus, it did not serve as an integral part of the building.

B. Historical Context:

The Mound Laboratory Site was the first permanent atomic energy related facility constructed after World War II. The U. S. Government's Atomic Energy Commission (AEC) planned and constructed the site with the mission to support atomic weapons research, namely through the development of the radioactive element polonium. Polonium had significance to the nation for its role as the initiator in early nuclear weapons, but work completed at Mound also investigated peacetime uses of atomic energy. As described by a 1949 report, the process employed in HH Building was the "treatment of effluents received from "T" Building." This report further notes that after some consideration, the HH Building process would consist of "the use of closed vessels and a vacuum filter."[14] Including this initial mission, based upon available information, HH Building has been home to nine major programs since it was constructed in 1948. But, to fully understand HH Building's significance, it is necessary to know history pertaining to the Mound Site. The Mound Site had its roots in the turmoil of the Second World War. Franklin Roosevelt approved the formation of the Manhattan Engineering District under the First War Powers Act in 1941, thereby involving the government directly in the exploration of nuclear-related activities.[15] Dr. Charles Allen Thomas, director of Monsanto's Central Research Department in Dayton, Ohio, accepted responsibility from the Manhattan Project to engage in work related to the chemistry and metallurgy radioactive polonium-210. This research, called the "Dayton Project,"

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11 Engineering Drawing FSD16041, HH Building Control Room Layout Renovation of High Bay Area, February 1975.
12 Mound Engineering Drawing FSD860192, Building HH New Addition Plan & Details-Zinc Isotope Production Room 50, As Built, September 20, 1988.
13 Mound Engineering Drawing FSD860193, Building HH Structural and Misc. Details-Zinc Isotope Production Room 50, As Built, September 20, 1988.
14 Monsanto Chemical Company, *Construction Completion Report, Mound Laboratory*, Volume I, MLM-273, March 1949.
[15]External Regulation of DOE, http://tis.eh.doe.gov/extreg/committee/committee/116/rpt3/rpt3-1.html

was to directly supplement the larger goal of developing an atomic bomb. Polonium provided the initiating source that generated neutrons (sub-atomic particles) to ensure initiation of the necessary chain reactions.

When the project became operable in 1943, war-induced material limitations and time constraints forced the Dayton Project to locate in various rented spaces around Dayton, Ohio. After WWII, in late 1945, the need for polonium continued to increase and it became feasible to construct a new polonium-processing plant. Although the Dayton facilities had been adequate for producing the polonium initiator on a laboratory scale and for providing the few initiators needed to win World War II, including the polonium utilized in the devastating atomic bombs dropped on Japan, the Dayton facilities were not sufficient for production under normal operations on a manufacturing scale.[16]

Site selection and construction of Mound Laboratory began in the post-War years with construction from 1947-48. The site selection for the new Dayton facility followed an AEC prescribed process for site selection of atomic energy production plants.[17] The Miamisburg, Ohio, location was selected because it fulfilled criteria for security, had readily available materials and power, and did not require personnel relocation. It also offered land formations favorable to constructing facilities below ground. Preliminary site preparation work followed in July 1946.[18] The site selected for the construction of the new Mound Laboratory was a 182-acre parcel, essentially rectangular, measuring 3,300' x 2,400'. The government purchased the land from private owners in April of 1947. It should be noted that the site is near the location of a historic Native American burial mound and the Miamisburg Mound State Park. This prehistoric Adena Indian Mound dates to sometime between 800 BC and 100 AD and is the largest mound of its type in Ohio.[19] [20]

The plans for Mound Laboratory called for a greater degree of organization, security, and specialization than had been available to the Dayton Project in its various rented spaces. The original polonium-era buildings were categorized to fulfill one of six functions. Buildings were to either serve in Administration, Production, Research, Health, Disposal, or Maintenance. The

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[16]US. Department of Energy, *History of the Production Complex: The Methods of Site Selection*, DOE/NV/10594 H1 UC-2, September 1987.

[17]U.S. Department of Energy, *History of the Production Complex: The Methods of Site Selection*, DOE/NV/10594 H1 UC-2, September 1987.

[18]U.S. Department of Energy, *History of the Production Complex: The Methods of Site Selection*, DOE/NV/10594 H1 UC-2, September 1987.

[19]Russell, Lorraine, M., *Brief History of the Miamisburg Indian Mound*, no date.

[20]Ohio Historical Society, http://www.ohiohistory.org/places/miamisburg/index.html

Technical (T) Building was the only facility in the production group. This building was constructed within the elevated land formation, below ground, as a defensive position. The research buildings included the Research Laboratory (R) Building, the Biology (B) Building, and the Electronics (E) Building. These structures had facilities for fundamental polonium research, facilities for chronic studies on animals, and the capacity for developing special radiation detection instruments, respectively. The Isolated (I) Building served the main function of the health division; it included facilities to provide routine personnel monitoring. The Change House (H Building) also served a health function: it provided laundry decontamination. The disposal group included the Sewage and Waste Disposal (SD and WD) Buildings as well as the Hydrolysis House (HH Building), which was equipped to neutralize process acid solutions. The maintenance group had five buildings including the Cafeteria, Garage, Power House, Pump House, and Maintenance Building.

During these early years of polonium exploration, Mound was involved in an AEC mandated Biology and Medicine Program. This umbrella program involved personnel and environmental monitoring for safety, as well as biologic radioactive testing to develop uses for radionuclides in medicines.[21] The program had originated as part of the Dayton Units and was housed in B and I Building after the construction of Mound Laboratory. Due to the sensitive nature of work and the need for exact radiation readings, I Building was constructed below grade and distant from other Mound Buildings.

The 1949 report to the Joint Committee on Atomic Energy says that the focus of the Biology Program changed from being primarily based in medicinal research to include civil defense and planning for future weapons tests, namely to ensure the safety of workers and the environment. In the late 1940s and the early 1950s, tests for radioactivity included worker urine and fecal analysis, analysis of air samples, surface wipes, and river water, and experiments on rats and dogs. The 1949 report to the AEC Committee notes that discoveries about radiation conclude that the greatest risk of injury would be the cumulative effects of recurring exposures over an extended period. It also acknowledged that there was still a risk of acute exposure in the event of an atomic accident, large-scale disaster, or wartime use of atomic energy. Mound intensified research on both chronic and acute radiation effects, but it is noted that no intentional doses or exposures of humans to polonium have been recorded at Mound.[22, 23] As Mound changed the direction of its atomic studies, the Health Physics (medicinal) Program became smaller and only accommodated tests on new materials on the site. Such changes in Mound programming reflected political situations of the time. At the end of WWII, the focus of the Biology program was the investigation of medicine and peacetime activities. By the early 1950s, Mound research evolved under Cold War tensions to include more weapon-based research and planning for possible catastrophic nuclear events.[24]

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21 Atomic Energy Commission, *Quarterly Progress Report to Joint Committee on Atomic Energy* - Various reports, 1947-1949
22 Holland, A. H. *Program Review of Biological Studies*, Letter to Dr. C. Hochwalt, September 8, 1948.
23 Bradley, J. E., *Quarterly Health Physics Report through September 30, 1954*, MLM 1011, September 30, 1954.
24 Atomic Energy Commission, *Quarterly Progress Report to Joint Committee on Atomic Energy* – July-September 1949, November 1949.

While HH Building did not play a major role in polonium research, it was significant because it processed toxic waste. In 1949, T Building was involved in separating polonium from a polonium-bismuth solution. Essentially, HH Building was designed to handle very hot effluent from process lines in T Building. Polonium was retrieved by passing the solution over a bed of 140-200 mesh bismuth powder. The polonium was deposited on the bismuth powder, while the filtrate from the process was sent to HH Building. The filtrate was then processed as a waste. Additional wastes from this procedure, aluminum chloride and bismuth chloride, were also sent to HH for processing. However, the need for additional space required moving the HH Building waste treatment facility to T Building in 1959. Even though the process was moved to a new location, the waste material continued to be referred to as "HH sludge."

At the beginning of the polonium program, the bismuth oxychloride sludge produced in HH Building was stored for possible recovery of the bismuth and for re-irradiation at the Hanford Works in Richland, Washington. [25, 26, 27] An electrolytic process had been developed in the late 1940s that successfully recovered bismuth, using this process. By March 1950, seven bismuth slugs were produced from recovered metal. These were sent to Hanford for neutron irradiation. In response to this success, in 1952, Mound constructed a bismuth metal recovery facility in HH Building, with the capacity to produce 17,000 pounds of bismuth annually. This facility had the capacity to process the accumulated drums of bismuth sludge.

In 1952, the volume of sludge stored at Mound was equivalent to 62,000 pounds of bismuth. The resulting amount of sludge represented approximately 200 fifty-five gallon drums. These containers were reportedly stored inside of T Building. In 1953, a large quantity of high purity bismuth was located at the Brookhaven National Laboratory. Finding the material at Brookhaven eliminated the need for the recovery facility and the recommendation was made that the HH program be dismantled.[28, 29]

The first of the protactinium programs was initiated in 1954 at Mound. The goal was to isolate and purify 1 gram of protactinium-231 from residues of previous uranium processing. The process chemistry research phase for this program took place in Room 167 of R Building. By October 1954, the procedures for separating the protactinium from the residues, sometimes referred to as raffinate, had been developed on a laboratory scale. The process used at Mound for the recovery of protactinium-231 was referred to as the sodium chloride process.
Based on the laboratory scale operation, equipment was then installed in room 145 of R Building to process raffinate residues supplied by Mallinckrodt. Batches weighing 5 kg each were run to separate milligram quantities of protactinium-231 and provide data for a small process plant.

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25 U. S. Department of Energy, Environmental Restoration Program *Operable Unit 9 Site Scoping Report: Vol. 7—Waste Management, Final Version*, February 1993.
26 Babcock & Wilcox of Ohio, Inc., *Determination of the Historical/Archeological Significance of the Mound Facility*, June 1998
27 Hertweck, F. R., *A History of the Department of Energy Mound Facility, Miamisburg, Ohio*, In Draft, March 2002
28 McEwen, M., *Metal Recovery Project Justification*, January 11, 1952.
29 Anson, H. F., et. al., *Review of Bismuth Recovery Project*, MLM-877, July 29, 1953.

The pilot plant for this program was installed in HH Building and completed in July 1955. Operations in HH Building were suspended in March of 1956 and the process was moved to SW Building. [30, 31, 32]

According to *An Introduction to Mound* 33, tritium operations at Mound began in the late 1950s, with the surveillance of weapons components containing tritium. This bulletin states that work with tritium was expanded to include research and developmental efforts related to tritium and its compounds in all three states of matter. Recovering tritium from waste began in 1959. [34, 35, 36] Tritium processing at Mound included a number of activities, including production, disassembly, analysis, and development of nuclear components containing tritium. [37, 38] Tritium was also processed at Mound to recover helium-3. Small amounts of tritium from this recovery process were vented to the atmosphere via the HH stack. (See photos OH-2470-H-1, 7, 8, 25 and 17.) After 1970, the tritium gas from this process was collected in cylinders that were transported to SW Building and fed to the effluent removal system. The use of cylinders was discontinued after the installation of a pipeline between the HH and SW Buildings to transfer tritium from the helium-3 process to an effluent removal system.[39] According to the internal document *Mound Site Radionuclides by Location*, the tritium related processes in HH Building ran from 1960 to 1990. [40, 41, 42]

The production of stable isotopes at Mound began in SW Building in the 1950s. However, by the early 1960s, production was transferred from SW Building to HH Building. [43, 44, 45] A number of

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30 Martin, Alonzo W. 1955. *Trip Report: Mallinckrodt Chemical Works, St. Louis, Missouri, August 31, 1955*, Interoffice memorandum to E. C. McCarthy, September 15, 1955.
31 Monsanto Chemical Company, *Mound Laboratory Monthly Report for February, 1955*, MLM-1036, February 28, 1955.
32 Monsanto Chemical Company. *Mound Laboratory Monthly Report for July, 1955,* July 29, 1955.
33 Monsanto Research Corporation, *An Introduction to Mound*, MLM-MU-85-69-0001, 1985.
34 U. S. Department of Energy, Environmental Restoration Program *Operable Unit 9 Site Scoping Report: Vol. 7—Waste Management, Final Version*, February 1993.
35 Babcock & Wilcox of Ohio, Inc., *Determination of the Historical/Archeological Significance of the Mound Facility*, June 1998
36 Hertweck, F. R., *A History of the Department of Energy Mound Facility, Miamisburg, Ohio*, In Draft, March 2002
37 U. S. Department of Energy, Environmental Restoration Program *Operable Unit 9 Site Scoping Report: Vol. 7—Waste Management, Final Version*, February 1993.
38 Babcock & Wilcox of Ohio, Inc., *Determination of the Historical/Archeological Significance of the Mound Facility*, June 1998
39 Monsanto Research Corporation, *Radioactive Waste Management Site Plan: 1984 Report*, December 1, 1984.
40 EG&G Mound Applied Technologies, Mound Technical Manual MD-22153, Issue 1, *Mound Site Radionuclides by Location*, June 1995.
41 BWXT of Ohio, Mound Technical Manual MD-22153, Issue 2, *Mound Site Radionuclides by Location*, June 1998.
42 BWXT of Ohio, Mound Technical Manual MD-22153, Issue 3, *Mound Site Radionuclides by Location*, March 2001.
43 U. S. Department of Energy, Environmental Restoration Program *Operable Unit 9 Site Scoping Report: Vol. 7—Waste Management, Final Version*, February 1993.
44 Babcock & Wilcox of Ohio, Inc., *Determination of the Historical/Archeological Significance of the Mound*

references establish this program as the "Thermal Diffusion Project."

According to this documentation, HH Building was remodeled in the late 1950s, and the polonium related operations were moved out of HH Building and consolidated in T Building. The thermal diffusion work was transferred to HH Building where the program operated until the mid-1990s. [46] As noted in a late 1990s HH Building cleanup plan, "In the early 1980s, chemical exchange experimentation was also conducted in the building. The sulfur, calcium, and nitrogen isotopes were separated using packed columns." [47]

According to a 1990 report that was compiled to "characterize" Mound's hazardous wastes[48], HH Building housed the following processes:

1. Isotope Separation.
2. Measurement of the physical properties of gases.
3. Liqui-Solid Chromotography

The waste streams listed in this report for HH Building included:

1. Waste Oil
2. Ethyl alcohol
3. 1,1,1, trichloroethane
4. Low-level beta waste
5. Carbon disulphide
6. Benzene
7. Ethylene glychol
8. Asbestos

As of the late 1990s, and into the 2000s, HH Building was vacated in preparation for demolition. Asbestos has been removed from the building, and a contract was put in place to have an outside

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Facility, June 1998
45 Hertweck, F. R., *A History of the Department of Energy Mound Facility, Miamisburg, Ohio*, In Draft, March 2002
46 U.S. Department of Energy, Environmental Restoration Program *Operable Unit 9 Site Scoping Report: Vol. 3—Radiological Site Survey*, Final, June 1993.
47 Cannon, Dave, *Building HH Phase I and Phase II Project Plan Draft*, 1999.
48 Fentiman, A. W., *Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes*, MLM-ML-90-48-0001. August 1990.

subcontractor demolish the building. At the time this document was prepared, HH Building was empty and in a shut down phase. Demolition is scheduled for 2004.

PART II. ARCHITECTURAL INFORMATION

A. **General Statement:** The original HH Building structure has undergone significant changes since it was constructed in 1948, as indicated by:

- Drawings showing HH Building as-built
- Available photographs from 1948 and 1949
- Engineering drawings prepared for the various additions and remodeling projects
- Current photographs and observations made in 1999

A comparison of square footage indicates that HH Building's square footage has increased from 5,250 square feet in 1948, to 15,276 square feet in 2002, or an increase of nearly 300 percent. There have been a number of room additions affecting the southern, eastern, and western sides of HH Building. Built into a hillside, the structure is accessible from roads which run along both the north and south sides of the building. The northern view still shows the original road level dock view, however, additions to the sides of the building or the construction of out buildings ancillary to HH Building have modified the northern view of the building. Because of these additions and alterations, most of the original structure has been engulfed by additions, or been modified from its original appearance.

1. **Architectural Character**: HH Building, which is vernacular in style, is typical of similar industrial buildings constructed in that era. Architecturally, HH Building is a box-like structure that is not ornate in design. Also, HH Building is typical of the architectural construction at Mound Site and, thus, is not architecturally unique to the site or the region.

   Both the interior and exterior views of HH Building have been significantly altered since 1948, preserving little of the HH Building's original appearance. Therefore, the significance of the character of the structure is in the fact that the structure was frequently remodeled or added to, in order to keep pace with mission activity changes.

   Additions to HH Building have obscured and/or in many cases altered the original exterior views of all four sides of this structure. A large number of HH Building rooms have been subjected to one or more remodeling projects that resulted in reconfigurations of those areas. These facts indicate that HH Building's role in Mound's missions has been dynamic, causing HH Building to be redesigned and reconfigured to keep pace with mission changes.

2. **Condition of Fabric**: The structure and its numerous additions were intact and reasonably well maintained at the date of compilation of this report (late-1990, into the early 2000s). Demolition is scheduled for 2004.

B. Description of Exterior:

1. **Overall Dimensions**: HH Building's overall dimensions are approximately 150' across the front (north side) and approximately 90' from front to back. The structure is not rectangular in shape; rather, it is a conglomeration of squares and rectangles globed onto what was originally a rectangle. The site plan that follows, based upon a floor plan depicting the roof areas and penthouses, best illustrates the irregular footprint of HH Building, depicting the globed-on appearance of the building.

2. **Foundations**: The foundation of the original structure and of the additions consists of reinforced poured concrete. Footers are set deep into the hillside as much as 19', in an attempt to reach undisturbed soils. As illustrated in the discussion on HH Building additions, the footers on the additions extend, in some cases, to 11' below the surface.

3. **Walls**: The exterior walls of the original building are constructed of reinforced concrete. Original interior walls were also generally constructed of concrete. Yet, due to labor strikes and the resulting lack of availability of masons, some of the partitions inside the building were constructed of wood studs and metal lath. Exterior walls of most of the additions, with the exceptions of Room additions 20 and 50, are reinforced painted concrete block. Rooms 20 and 50 are faced with corrugated metal siding. Interior walls of these additions vary, with the walls being either concrete block, concrete, or frame and paneling. Penthouse rooms atop HH Building are framed with metal members and covered by metal facing.

4. **Structural Systems, Framing**: As a general rule, based upon engineering information, the original structure was constructed of reinforced concrete. Most of the additions are constructed of reinforced concrete block. The exterior walls include structural beams used to frame and to support upper floors and the roof. The reinforced concrete walls are 12", with reinforcing bar set at 12"-O.C. The exceptions to this type of construction are rooms 20 and 50 which were built with metal framing and metal siding.

5. **Porches**: While HH building does not contain, nor does it support, traditional porches, it includes a simple, open, covered loading dock across most of the northern side. There is also a smaller covered loading dock on the southern side. Concrete walks and step combinations allow access to other doors.

6. **Chimneys**: There are no true chimneys on HH Building, yet there are a few roof features meriting the designation of "stacks" on the building. The original building,

as constructed, included a 75' brick stack that is constructed atop the southeastern corner of the building. This stack was the exhaust stack for the building, being tied to a series of filter bank rooms constructed in the room below. Originally, the stack was used to vent polonium and later converted to other uses (i.e., exhausting tritium). At some time after 1969 or 1970, this stack was painted.

The HH Building Cryogenic Addition includes a stack that was constructed at the same time. This stack, consists of guy wires attached to 2" diameter-40" long pipe that was grouted into the hollow concrete blocks of the addition.

Another stack-like feature on the southern side of HH Building is present as a tower for a carbon monoxide fractional distillation column. This feature is constructed at the rear of the building, with the tower extending about 50' up the southern side of the building, to a point that it projects above the roofline of the basement and first floors.

7. **Openings**:

   a. **Doorways and Doors**: Doorways include panel and flush steel, along with wooden doors. In addition, some doors have window-lights, while others do not. There are 16 doorways into the basement and first floor areas of HH Building, including four doorways providing access to the rooms that are not accessible from the interior of HH Building (Rooms 20, 50, and 130). Doorways on the penthouse rooms (three rooms atop HH Building) allow access to the penthouse.

8. **Roof**:

   a. **Shape, Covering**: The roof of the original HH Building and most of its additions is flat, consisting of a built-up concrete membrane. Roof sections or divisions, that define the former exterior walls and additions, project above the roofline. Some sections later received asphalt coatings.

      The roof structure of Rooms 20 and 50 are shed-type roofs constructed of metal frame and covering. The roof structure for the penthouse rooms resembles the design used for Rooms 20 and 50, except for penthouse Room 210p which has a gabled roof.

C. Description of Interior:

1. **Floor Plans**: HH Building rooms allow passage from room-to-room and/or from room-to-corridor through multiple entryways and the main hallways. The additions were constructed to achieve the same effect, with the exception of Rooms 20, 50, and 120, which are only accessible from outdoors.

2. **Stairways**: There are two interior stairways leading from the lower floor to the upper floor in HH Building. One of the stairways, an original feature, is a multiple-landing, tight U-type stair. The other interior stair in HH Building is a more simplistic, yet traditional tight U-type stair.

   In addition to the stairs that allow access from floor-to-floor, there are also utility ladders associated with the diffusion columns located inside Room 5, and an exterior stair leading to Room 126.

3. **Flooring**: The flooring in HH Building includes asphalt and or asphalt/asbestos tile and sealed concrete. Tiles are light in color. Sealed concrete is common in process related areas, though some process areas are tiled. The same holds true for administrative areas. Metal "grating" is used on floor work areas associated with the diffusion columns, to the point that there are elevated walkways associated with them.

4. **Wall and Ceiling Finish**: Ceiling finish materials are mainly of three types: exposed construction, dry wall and suspended ceilings. Generally, process related areas have exposed construction (i.e., concrete) ceilings, while laboratories and administrative areas have finished ceilings (Drywall or plaster). Wall finish generally follows the same trend with exposed construction (i.e., concrete block or concrete) used in process related areas, as well as in some laboratories and smaller process areas, and drywall/dry good wall coverings or plaster walls in administrative areas and in some smaller laboratories.

5. **Openings**:

   a. **Doorways and Doors**: As described earlier, doorways included flush and panel doors that controlled access from room-to-room and to hallways. Doors included both single and double wide units as previously mentioned. The doors can be wooden or metal and all are simple in design.

   b. **Windows**: The use of windows on HH Building, as the building appears today, is limited, with very few windows present on the building, and restricted to the northern and on the eastern sides

   c. **Hardware**: Hardware (e.g., door handles, sash window openers) are all non-ornate, and of simple functional design. Note that some of the later stable isotope sales process or program related equipment, especially the "Mound-made" equipment, is intricate, yet almost artistic in nature.

6. **Mechanical Equipment**:

   a. **Heating, Air Conditioning, Ventilation**: HH Building is serviced by central steam for heat and air conditioning is provided by the central chiller system. Ventilation is available due to numerous roof-mounted ventilators.

      Because HH is a process related building, included are appropriate ventilation systems and monitored ventilation. These features were described in an April 2000 document entitled *Hydrolysis House (HH) Building Audible Safety Analysis (ASA)*. [49, 50]

   b. **Lighting:** Lighting included fluorescent fixtures or incandescent lighting depending upon the area and its function.

   c. **Plumbing**: Plumbing is typical of an industrial structure, with potable water supply lines to restrooms, laboratories, and utility areas. HH Building also contains supply lines for air and compressed air, flammable and inert gases.

D. Site:

1. **General Setting and Orientation**: Mound Site is located on top of a flattened topographical feature that once was part of a large area of agricultural lands. The site, at the time of decommissioning, was within the corporate limits of the City of Miamisburg, Montgomery County, Ohio. HH Building was located just off the southern flank of the areas designated as the Main Hill, downhill from T Building, yet uphill from the WD building. The building was part of a gravity feed system used in a waste treatment process designed to take advantage of the topography. The Miami & Erie Canal flows just west of the Mound Site.

2. **Historic Landscape Design**: The original design of the landscape for Mound Site focused on easy access to the major buildings and on security issues. A perimeter road ringed the complex around the crest of the Main Hill and connected to the off-site access road near the northeast corner of the site perimeter. Interior paved roads and driveways provided access to the various buildings. For security reasons, the slopes of the Main Hill were relatively free of large vegetation. Furthermore, the density of buildings in such a small area precluded any extensive efforts to landscape the interior of the space at the top of the hill.

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49 BWXT of Ohio, *Technical Manual MD-10513, Issue 1, Hydrolysis House (HH) Building Audible Safety Analysis (ASA)*, March 30, 2000.
50 BWXT of Ohio, *Technical Manual MD-10513, Issue 2, Hydrolysis House (HH) Building Audible Safety Analysis (ASA)*, November 13, 2002.

PART III. SOURCES OF INFORMATION

A. Historic Information: Information regarding the chronology of HH Building was assembled from the following sources and is permanently located at Mound Site, under the auspices of the Mound Museum Association Library (MMA):

1. Monsanto Chemical Company, "Construction Completion Report, Mound Laboratory," Volume 1, MLM-273, March 1949.

2. Mound Engineering Drawing 350600-02002, "H-H Building Section and Elevations," October 1948.

B. Interviews: In addition to personal knowledge based upon site knowledge as possessed by the persons preparing this package, the following individuals were interviewed:

1. A number of current Mound employees who were formerly quartered in HH Building were consulted, or provided information pertaining to HH Building throughout the course of this investigation.

C. Bibliography:
The following referenced items are archived at the Mound facility:

1. Ager, P. *Ionium*, July 30, 1956.
2. Anson, H. F., et. al., *Review of Bismuth Recovery Project*, MLM-877, July 29, 1953.
3. Aponyi T., W. et. al., *Pilot Plant Studies of the Ferrous Sulfide Process for the Decontamination of Purex-Type Reactor Wastes (Final Report),* MLM-835, April 17, 1953.
4. Atomic Energy Commission, *Report of Committee, Liquid Process Waste Reclamation and Disposal*, August 18, 1948.
5. BWXT of Ohio, *Technical Manual MD-10513, Issue 1, Hydrolysis House (HH) Building Audible Safety Analysis (ASA),* March 30, 2000.
6. BWXT of Ohio, *Technical Manual MD-10513, Issue 2, Hydrolysis House (HH) Building Audible Safety Analysis (ASA),* November 13, 2002.
7. Babcock & Wilcox Co. of Ohio, *White Paper Re-Evaluation of the Cotter Concentrate Waste Stream (STP Waste Stream W-014, Subset 2)*, August, 1998.

8. Babcock & Wilcox of Ohio, Inc., *Determination of the Historical/Archeological Significance of the Mound Facility*, June 1998.
9. Bradley, J. E, *Health Physics Monthly Information Report*, MLM-634, October 1-31, 1951.
10. Bradley, J. E., *Health Physics Monthly Information Report,* July 1-31, 1952.
11. Bradley, J. E., *Health Physics Monthly Information Report*, MLM-634, October 1-31, 1951.
12. Bruehlman, J., *Assay of C-185 Samples for Ionium and Protactinium*, May 20, 1947.
13. Bulck, C., Vanden, *Directive for Design and Installation of Reactor Waste Disposal Research Facility*, April 28, 1952.
14. BWXT of Ohio, Mound Technical Manual MD-22153, Issue 2, *Mound Site Radionuclides by Location*, June 1998.
15. BWXT of Ohio, Mound Technical Manual MD-22153, Issue 3, *Mound Site Radionuclides by Location*, March 2001.
16. Cannon, Dave, *Building HH Phase I and Phase II Project Plan Draft*, 1999.
17. Draper, D. G., *Cotter Composition,* Interoffice memorandum, April 3, 1987.
18. EG&G Mound Applied Technologies, *Floor Plans 1989*, 1989.
19. EG&G Mound Applied Technologies, Mound Technical Manual MD-22153, Issue 1, *Mound Site Radionuclides by Location*, June 1995.
20. EG&G Mound Applied Technologies, *Mound Waste Management Plan*, December 20, 1989.
21. EG&G Mound Applied Technologies, *Post Shutdown Surveillance and Maintenance Plan, Final (Rev. 1)*, a Safe Shutdown Systems Manual--No Number, 8/15/96.
22. EG&G Mound Applied Technologies, *The Mound Site Development Plan*, MLM-ML-88-51-0001, April 1985, as revised December 1988 HH Building is a 6,614 square foot building.
23. EG&G Mound Applied Technologies, Volume 1 *Environmental Appraisal of the Mound Plant*, MLM-ML-96-43-001, March 1996.

24. EG&G Mound Applied Technologies, Volume 3 *Environmental Appraisal of the Mound Plant*, MLM-ML-96-43-001, March 1996.
25. Eichelberger, J. F., and D. Scott, *Monthly Technical Activities Report Through November 15, 1956,* November 15, 1956.
26. Eichelberger, J. F., and D. Scott, *Monthly Technical Activities Report Through January 15, 1957,* January 15, 1957.
27. Eichelberger, J. F., and D. Scott, *Monthly Technical Activities Report Through August 15, 1956,* August 15, 1956.
28. Eichelberger, J. F., and D. Scott, *Monthly Technical Activities Report Through November 15, 1956*, November 15, 1956.
29. Eichelberger, J. F., and D. Scott, *Monthly Technical Activities Report Through January 15, 1957*, January 15, 1957.
30. Eichelberger, J. F., and D. Scott., *Monthly Technical Activities Report Through August 15, 1956*, August 15, 1956.
31. Eichelberger, J. F., and D. Scott., *Monthly Technical Activities Report Through November 15, 1956*, Ohio. November 15, 1956.
32. Eichelberger, J. F., and D. Scott., *Monthly Technical Activities Report Through January 15, 1957*, January 15, 1957.
33. Eichelberger, J. F., *Mound Laboratory Monthly Progress Report for May, 1961*, May 30, 1961.
34. Eichelberger, J. F., *Mound Laboratory Monthly Progress Report for May, 1961,* MLM-1115, May 30, 1961.
35. Fariss, R. H., *Ionium Project*, December 1, 1955.
36. Fentiman, A. W., *Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes*, MLM-ML-90-48-0001. August 1990.
37. Haring, M. M., F. C. Mead, and C. A. Hochwalt, *Tentative Report on the Waste Disposal Problem,* August 19, 1948.

38. Haring, M. M., *Mound and Scioto Laboratories, A Brochure on the Atomic Energy Commission Facilities Operated by Monsanto Chemical Company*, MLM-504, October 23, 1950.
39. Haubach, W. J., *First Shipment of Ionium from Mound Laboratory* April 11, 1956.
40. Haubach, W. J., *Second Shipment of Ionium from Mound Laboratory*, May 11, 1956.
41. Haubach, W. J., *Third and Fourth Shipments of Ionium from Mound Laboratory*, May 29, 1956.
42. Haubach, W. J., *Fifth and Final Shipment of Ionium from Mound Laboratory,* June 1, 1956.
43. Hertweck, F. R., *A History of the Department of Energy Mound Facility, Miamisburg, Ohio*, In Draft, March 2002.
44. Hertz, M. R. et. al., *A Solvent Extraction Method for the Recovery of Thorium-229 From Aged Uranium-233*, MLM-2151, January 31, 1975.
45. Huddleston, F. M., et. al., *Polonium-210 Production*, Symposium on Isotopic Power Fuels June 26, 1963, July 9, 1963.
46. Jackson, L. H., *Directive for Design and Installation of Liquid Waste Evaporator, SW Building, Mound Laboratory*, Letter to AEC, July 31, 1953.
47. Johnson, R.,. *Ionium Hot Laboratory Mound Laboratory*, October 11, 1955.
48. Kirby, H. W., *Reply to Letter of March 15, 1960 from R. P. Schuman,* May 3, 1960.
49. Lamsa, Larry, *Process System List*, 1999.
50. Lowe, C. S., et. al., *Decontamination of Process Waste Solutions Containing Fission Products by Adsorption and Coprecipitation Methods*, November 13, 1951.
51. Lowe, C. S., L. L. Bentz, E. L. Murphy, E. Orban, F. Reichel, C. E. Shoemaker, and T.C. Tesdahl, *Decontamination of Liquid Wastes by Iron Sulfide, Iron Hydroxide and Calcium Phosphate Precipitations [Final Report]*, MLM-662, March 1, 1952.
52. Martin, Alonzo W., *Trip Report: Mallinckrodt Chemical Works, St. Louis, Missouri, August 31, 1955*, September 15, 1955.
53. McCarthy, E. C., *BTS From Middlesex*, January 13, 1955.
54. McEwen, M., *Metal Recovery Project Justification*, January 11, 1952.

55. McEwen, M, *Reactor Waste Disposal Quarterly Progress Through March 17, 1953*, MLM-824, March 31, 1953.
56. Monsanto Chemical Company, *Engineering Manual for Equipment and Services*, Volume II, MLM-267, November 1948.
57. Monsanto Chemical Company, *Introducing Mound Laboratory*, December 14, 1948.
58. Monsanto Chemical Company, *Construction Completion Report, Mound Laboratory*, Volume I, MLM-273, March 1949.
59. Monsanto Chemical Company, *Proposed Program for General Research and Development for the Fiscal Year of 1950, (Supplement to Report 49-3-7)*, Monsanto Chemical Company, MLM-367-1, June 30, 1949.
60. Monsanto Chemical Company, *Production Report for April 1950-Part I*, Mound Laboratory Central File Number 50-5-8, Circa May 1950.
61. Monsanto Chemical Company, *Production Report for June 1950-Part I*, Mound Laboratory Central File Number 50-7-7, Circa July 1950.
62. Monsanto Chemical Corporation. 1952-1957. Excerpts from the "G.P. Log.", Unnumbered pages. October 28, 1952, through June 8, 1953.
63. Monsanto Chemical Company, Quarterly Technical Activities Report Through October 17, 1954, MLM-1013, October 29, 1954.
64. Monsanto Chemical Company, Monthly Technical Activities Report Through June 17, 1955, June 30, 1955.
65. Monsanto Chemical Company, Monthly Technical Activities Report Through January 15, 1956, January 16, 1956.
66. Monsanto Chemical Company, Monthly Technical Activities Report Through March 15, 1956, March 16, 1956.
67. Monsanto Chemical Company, Monthly Technical Activities Report Through July 13, 1956, July 16, 1956.
68. Monsanto Chemical Company, Monthly Technical Activities Report Through August 15, 1956, August 15, 1956.

69. Monsanto Chemical Company, Monthly Technical Activities Report Through October 15, 1956, October 15, 1956.
70. Monsanto Chemical Company, Monthly Technical Activities Report Through November 15, 1956, November 15, 1956.
71. Monsanto Chemical Company, Monthly Technical Activities Report Through December 15, 1956, December 15, 1956.
72. Monsanto Chemical Company, *Mound Laboratory Liquid Waste Disposal Plant*, March 24, 1952.
73. Monsanto Chemical Company, *Mound Laboratory Monthly Report for February, 1955*, MLM-1036, February 28, 1955.
74. Monsanto Chemical Company, Mound Laboratory Monthly Report for July, 1955, July 29, 1955.
75. Monsanto Chemical Company, Mound Laboratory Monthly Report for May, 1955, MLM-1051, May 31, 1955.
76. Monsanto Chemical Company. *Mound Laboratory Monthly Report for July, 1955,* July 29, 1955.
77. Monsanto Research Corporation, *Updating of Radioactive Waste Management Site Plans*, June 27, 1972.
78. Monsanto Research Corporation, *Mound Laboratory Radioactive Waste Management Site Plan*, June 15, 1973.
79. Monsanto Research Corporation, *Mound Laboratory Radioactive Waste Management Site Plan*, June 1, 1974.
80. Monsanto Research Corporation, *FY 1975 MRC Master Plan (Part B) Supplement to Volume 3*, MLM-MU-74-72-0002, Issued December 15, 1974.
81. Monsanto Research Corporation, *Mound Laboratory Radioactive Waste Management Site Plan*, June 19, 1975.
82. Monsanto Research Corporation, *Mound Laboratory Radioactive Waste Management Site Plan*, June 1, 1976.

83. Monsanto Research Corporation, *Mound Fact Book*, MLM-ML-76-49-0002, Revised September 23, 1976.
84. Monsanto Research Corporation, *Mound Laboratory Radioactive Waste Management Site Plan*, June 1, 1977.
85. Monsanto Research Corporation, *Mound Fact Book*, MLM-ML-77-52-0001, Revised November 30, 1977.
86. Monsanto Research Corporation, *Mound Facility Radioactive Waste Management Site Plan*, August 15, 1978.
87. Monsanto Research Corporation, *Mound Waste Management Site Plan*, October 1, 1979.
88. Monsanto Research Corporation, *Mound Waste Management Site Plan*, October 1, 1980.
89. Monsanto Research Corporation, *Mound Fact Book*, MLM-ML-80-51-0001, Revised November 1980.
90. Monsanto Research Corporation, *Mound Waste Management Site Plan*, November 1, 1981.
91. Monsanto Research Corporation, *Mound Waste Management Site Plan*, December 1, 1982.
92. Monsanto Research Corporation, *Mound Waste Management Site Plan*, December 1, 1983.
93. Monsanto Research Corporation, *Mound Waste Management Site Plan: 1983 Report,* December 1, 1983.
94. Monsanto Research Corporation, *Mound Fact Book*, MLM-ML-84-46-0004, Revised June 1984.
95. Monsanto Research Corporation, *Radioactive Waste Management Site Plan: 1984 Report*, December 1, 1984.
96. Monsanto Research Corporation, *An Introduction to Mound*, MLM-MU-85-69-0001, 1985.
97. Monsanto Research Corporation, *Stable Isotopes: Separation Methods and Applications*, Mid-1980s.
98. Monsanto Research Corporation, *Waste Management Site Plan*, December 1, 1984.

99. Monsanto Research Corporation, *Waste Management Site Plan*, January 24, 1986.

100.Monsanto Research Corporation, *Mound Waste Management Site Plan*, December 31, 1987.

101. Moyer, Harvey V., *Polonium*, United States Atomic Energy Commission, Technical Information Service Extension, Oak Ridge, Tennessee, July 1956.

102. National Academy of Science, *The Radiochemistry of Protactinium*, Report No. NAS-NS 3016. No date.

103. Peppard, D., *A Process for Isolation and Purification of Kilogram Quantities of Ionium (with Attendant Recovery of Accompanying Uranium) Including Cost Estimates,* May 19, 1949.

104. Raiff, W. J., Engle, P. M., and McEwen, M., *Bismuth Recovery Process (Engineering Research Final Report)*, MLM-734, August 5, 1952.

105. Saprie, S. R., *Request for Directive – Metal Recovery Facilities – Mound Laboratory*, January 18, 1952.

106. Schauer, P. J. 1948 is *Pilot Plant Work on Solid Burnable Waste Disposal for Mound Laboratory*, MLM-232, November 1, 1948.

107. Schauer, P. J. 1948 is *Pilot Plant Work on Solid Burnable Waste Disposal for Mound Laboratory*, MLM-232, November 1, 1948.

108. Schauer, P. J., and F. N. Schell. *Incineration of Combustible Radioactive Wastes,* MLM-MU-52-63-0004, March 1, 1952.

109. Schuman, R. P., *Ionium Irradiation*, May 15, 1961.

110. Tonne, William R., et. al., *Mound Facility Physical Characterization*, MLM-3791 December 1, 1993.

111. U. S. Department of Energy, Environmental Restoration Program *Operable Unit 9 Site Scoping Report: Vol. 7—Waste Management, Final Version*, February 1993.

112. U. S. Department of Energy, *U.S. DOE Mound Plant RCRA Part B Permit Application, Vol. III, Section C, Rev. 2*, January 26, 1993.

113. U.S. Department of Energy, Environmental Restoration Program *Operable Unit 9 Site Scoping Report: Vol. 3—Radiological Site Survey*, Final, June 1993.

114. U. S. Department of Energy, *U.S. DOE Mound Plant RCRA Part B Permit Application, Vol. III, Section C, Rev. 3*, August 16, 1994.

115. U. S. Department of Energy, *U.S. DOE Mound Plant RCRA Part B Permit Application,* Revision 4, April 1996.

116. Unknown, *Memorandum of Meeting, Dayton, Ohio, June 4, 1947, Re: Waste Disposal.*

117. Walker, E. A, *Recovery of PA-231,* Letter from E. A. Walker, Deputy Area Manager, Dayton Area Office, December 17, 1954.

118. Watrous, R. M., *Radioactive and Chemical Composition of Cotter Concentrate*, May 30, 1973.

119. Yalman, R. G., *Waste Disposal Research Progress Report,* MLM-333, April 1 - May 31, 1949.

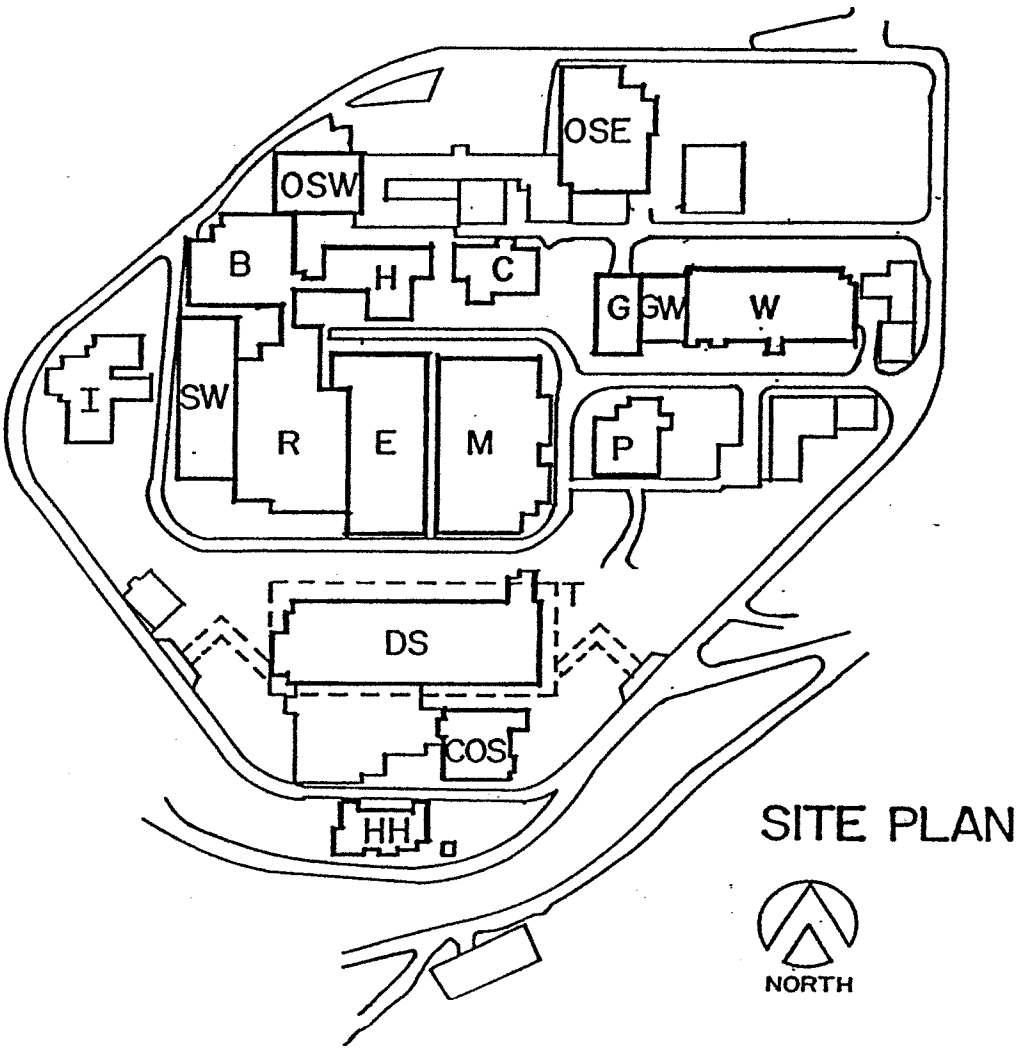
E. Likely sources not yet investigated:

Sources of information not yet investigated would be those areas where availability of information and accessing or releasing that information is a potential security risk. These limitations are the due to the type of activities at Mound, and the fact that Mound was established to support Atomic Energy Act related activities and Mound employees were, as a result, security cleared to the "secret" and "top secret" level, in order to work at Mound. Information sharing was discouraged, except on a "need to know" basis.

PART IV. PROJECT INFORMATION

The Westerly Group, Inc. of 225 E. Main Street, Madison, Indiana 47250 developed this document. Floyd R. Hertweck, Jr., the Cultural Resources Coordinator for CH2M Hill Mound, Inc., provided the bibliography and research materials. It was prepared as part of a larger project to document the 1948-era Mound site under a Memorandum of Agreement with the Advisory Council on Historic Preservation. Under this agreement, seven of the original seventeen polonium processing era buildings will be documented in the HABS format, and accompany a site information volume also documented in the HABS format. The documentation of the remaining ten structures will be completed with the Ohio Historic Preservation Office as stipulated in the Memorandum of Agreement.

Large format photographs and architectural sketches were completed under contract with The Westerly Group, Inc., 225 E. Main Street, Madison, Indiana 47250.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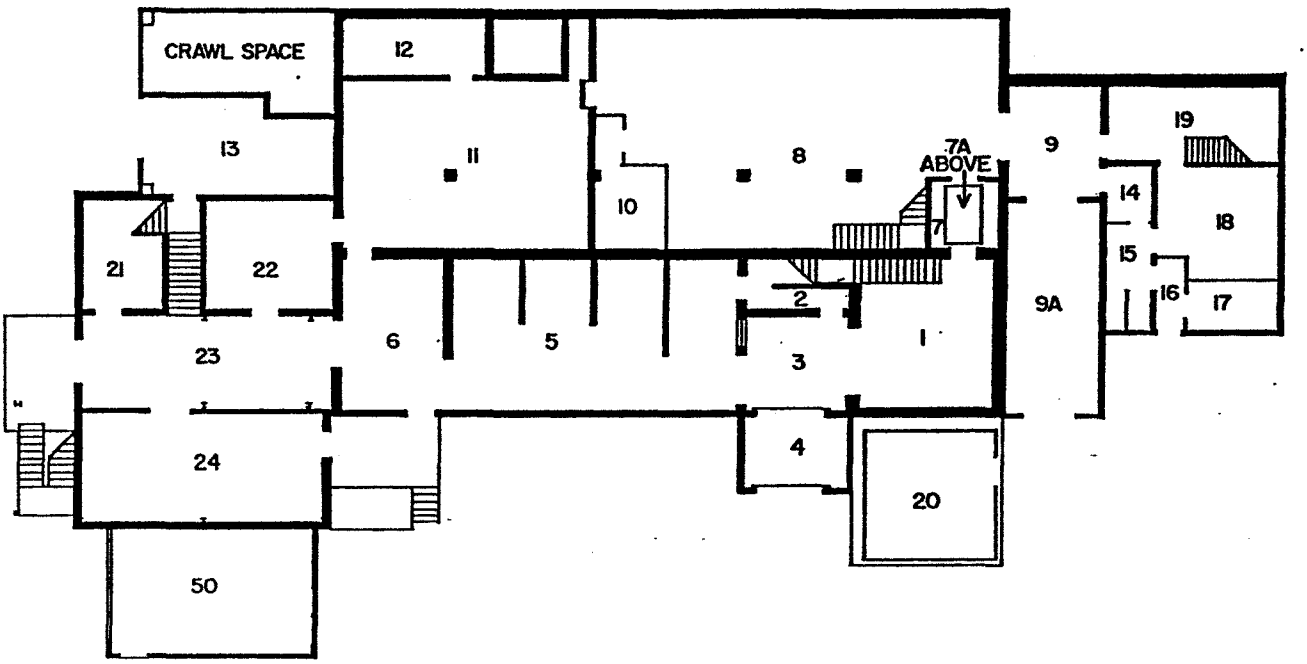
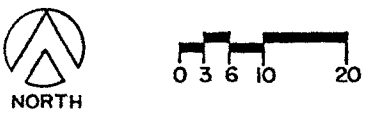
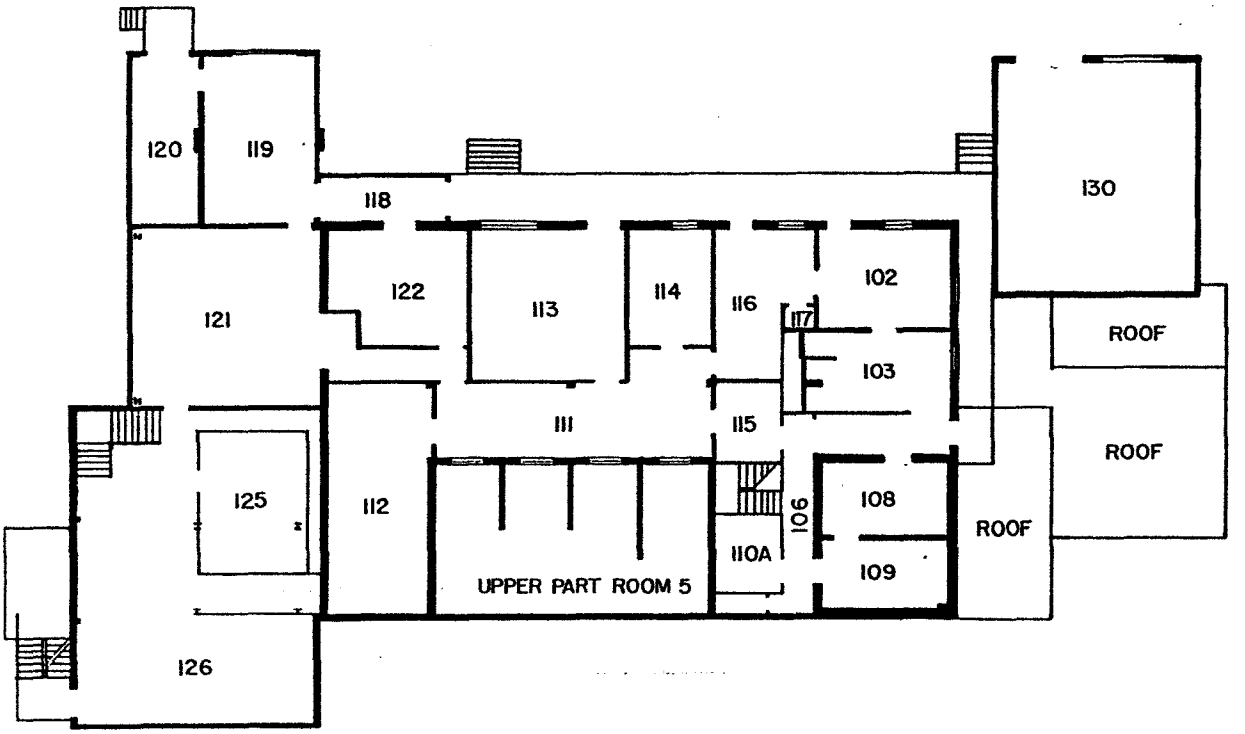


H-H BUILDING-BASEMENT





H-H BUILDING - FIRST FLOOR

U.S. Department of Energy
MOUND FACILITY
Hydrolysis House Building (HH Building)
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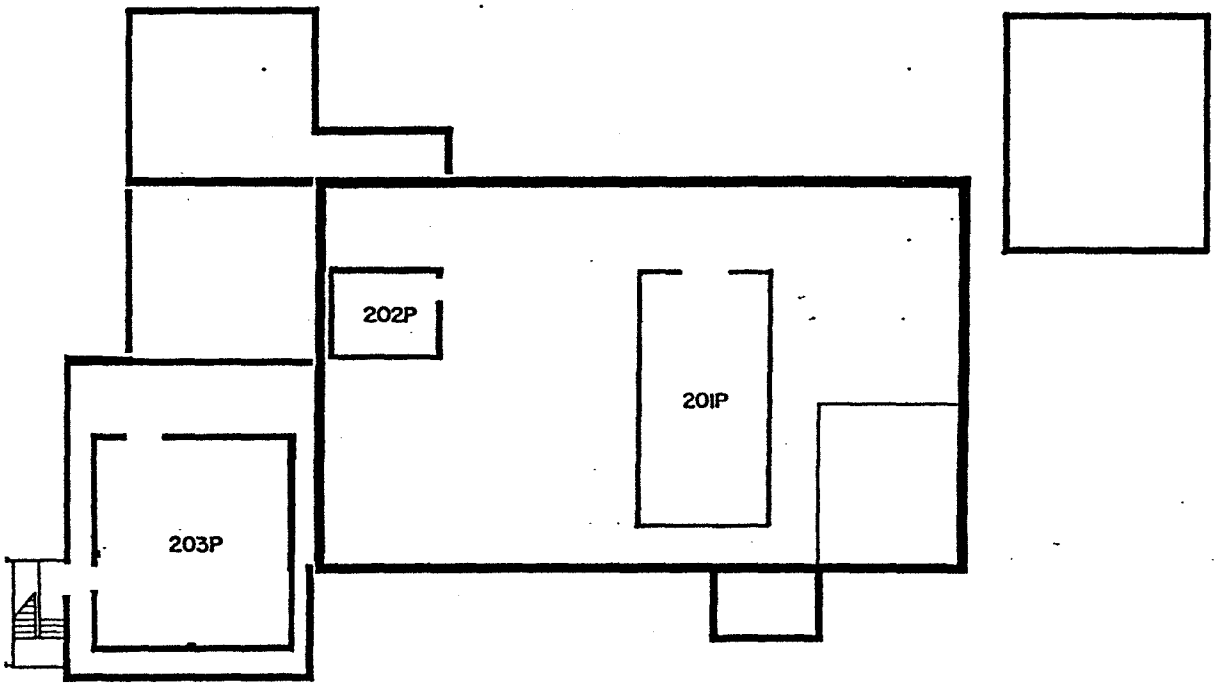

H-H BUILDING - ROOF