



**Former Scioto Laboratory Complex
Marion, Ohio**

**Final
Preliminary Assessment**

Prepared for

U.S. Army Corps of Engineers

Louisville District

Louisville, Kentucky

**Total Environmental Restoration Contract
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October 2004

**FORMER SCIOTO LABORATORY COMPLEX
MARION, OHIO**

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PRELIMINARY ASSESSMENT**

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ACRONYM LIST

AEC	Atomic Energy Commission
ASR	Archives Search Report
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cpm	counts per minute
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DOE	Department of Energy
ft	feet
FUDS	Formerly Used Defense Sites
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	fiscal year
gpm	gallons per minute
GSA	General Services Administration
HSA	Historical Site Assessment
HTRW	hazardous, toxic, and radioactive waste
INPR	Inventory Project Report
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MCL	Maximum Contaminant Level
MED	Marion Engineer Depot
MOU	Memorandum of Understanding
MSL	mean sea level
MWH	MWH Americas, Inc.
NCP	National Contingency Plan
NRC	Nuclear Regulatory Commission
OAWC	Ohio American Water Company
OE	Ordnance and Explosives
OEW	ordnance and explosives waste
Ohio EPA	Ohio Environmental Protection Agency
ODNR	Ohio Department of Natural Resources
ORO	Oak Ridge Operations
PA	Preliminary Assessment
pCi/L	picocuries per liter
PR	Process Research
SAIC	Science Applications International Corporation
SLC	Scioto Laboratory Complex
SI	Site Investigation
SOP	Scioto Ordnance Plant
SOP-AE	Mound Area
SOP-S	Inert Storage Buildings (Warehouse Area)
SOP-T	Shop Area
SOP-U	Scioto Lab Complex
SVOCs	semi-volatile organic compounds

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ACRONYM LIST

TAL	Target Analyte List
uR/hr	micro R per hour
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOCs	volatile organic compounds
WD	Waste Disposal

EXECUTIVE SUMMARY

The United States Army Corps of Engineers (USACE) has completed a Preliminary Assessment (PA) of the former Scioto Laboratory Complex (SLC) in Marion, Ohio. This PA was conducted under USACE's authority to implement the Formerly Utilized Sites Remedial Action Program (FUSRAP), and followed guidelines outlined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP). The PA is a limited-scope investigation, whose purpose is to establish whether there is an unpermitted release, or threat of release, of a FUSRAP-related hazardous substance that may present a danger to public health or the environment. The PA included a historical records review, a review of previous investigations and regulatory actions, and reconnaissance of the site.

The SLC facility includes three former Scioto Ordnance Plant areas. The "S" area (inert material storage); the "T" area (shops); and, a portion of the "U" area (Atomic Energy Commission) (Figures 1 and 2). Area "U" consists of two buildings, the Process Research (PR) Building and the Waste Disposal (WD) Building (Figure 3), and the surrounding property, which are the focus of this report. The PR Building is a 196,000 square foot (ft) steel and concrete frame building, which was originally constructed to produce polonium initiators. The WD Building is a 100-ft by 40-ft steel frame structure, which was originally constructed for the purpose of treating liquid wastes contaminated with radioactivity. As discussed in the report, extensive review of historical documents suggests that neither building was ever ultimately used for its intended purpose. Both buildings are currently in poor condition. A private owner is currently using the PR Building for storage and the WD Building is vacant.

In 1948, the Atomic Energy Commission (AEC) acquired an undeveloped portion of the former Scioto Ordnance Plant (SOP), which produced fuzes, boosters, ammunition, and bombs for the United States (U.S.) Department of Defense (DOD) during World War II. On this property, the AEC constructed the Scioto Laboratory Complex, as a backup to the Mound Laboratory in Miamisburg, Ohio, which produced polonium initiators for the early atomic weapons program. The SLC was intended as a backup facility that would become active should Mound Laboratory operations become interrupted or damaged from an act of war or sabotage. Construction of the SLC was completed in July 1949, and it was placed in cold standby status in October 1949. In 1953, the AEC determined the SLC was no longer needed, and closed the complex. It was declared surplus, and in 1970 the General Services Administration sold the SLC to a private owner for use as a warehouse.

The findings of this PA indicate no evidence of a release, or the threat of a release, of a FUSRAP-related hazardous substance at the SLC site. Historical documents from several government sources identify the SLC as "never operational". In addition, none of the normal documentation that would have been generated had the SLC become active (e.g.,

personnel and equipment transfer records, health and safety monitoring records, and waste disposal paperwork) was found during the records search. Interior dismantling of the SLC was conducted on a declassified basis due to the lack of concern regarding radiological impacts at the site. Finally, results of a previous Limited Site Investigation did not identify the presence of radiological levels above background. Based on the evidence collected, no further action is recommended at the SLC site.

1.0 INTRODUCTION

The United States Army Corps of Engineers (USACE) has conducted a Preliminary Assessment (PA) for the former Scioto Laboratory Complex (SLC) in Marion, Ohio (Figures 1 and 2).

This PA was conducted following guidelines outlined in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Contingency Plan (NCP). The scope of the assessment included a review of existing documents pertaining to the site and a site visit conducted on August 21, 2002 by MWH Americas, Inc. (MWH), Ohio EPA, and the Ohio Department of Health (ODH).

Following World War II, there were concerns about the ability of the Manhattan Project, and later, the Atomic Energy Commission (AEC), to continue to provide requisite component parts for the developing nuclear arsenal. As a result, the AEC began commissioning replacement or duplicate facilities for its production operations. In the case of the Mound Laboratory in Miamisburg, Ohio, the AEC commissioned a duplicate facility at a Federal reservation, the Scioto Ordnance Plant (SOP), in the general vicinity of the Mound Laboratory. This duplicate facility, located in Marion County near the town of Marion, Ohio, was known as the SLC. The SLC was constructed as a backup, or replacement, facility that would become active should Mound Laboratory operations become interrupted or damaged from an act of war or sabotage. Like the Mound Laboratory, the SLC was intended to be used in the processing of polonium used in initiators in nuclear weapons.

The facility on the former SOP was officially named the Scioto Laboratory or "Unit VI", but is also referred to as "Monsanto Unit VI", "Dayton Unit VI", and the "Process Research" (PR) Building. Construction of the facility was completed in 1949. In 1953 the AEC determined that the site was no longer needed, and it was closed down. As discussed in this report, historical documents suggest that polonium was neither processed nor stored at the facility during its short period of operation by the AEC.

In 1974 the United States (U.S.) Department of Energy (DOE) created the Formerly Utilized Sites Remedial Action Program (FUSRAP) to address sites used during the early atomic energy program that had residual contamination exceeding current regulatory limits. The United States Congress transferred the responsibility for the administration and execution of cleanup at eligible FUSRAP sites to the USACE under the Energy and Water Development Appropriations Act, 1998 (Title I, Public Law 105-62, 111 Stat. 1320, 1326). In the Energy and Water Development Appropriations Act, 2000 (Title VI, Public Law 106-60, 113 Stat. 483, 502), Congress indicated that any response action taken under the FUSRAP by the Secretary of the Army, acting through the Chief of Engineers, shall be subject to CERCLA and the NCP.

In March 1999 USACE and DOE agreed to a Memorandum of Understanding (MOU) for the purpose of outlining the administration and execution of responsibilities of each party for the FUSRAP. Pursuant to that MOU, when a new site is considered for inclusion in the FUSRAP, DOE is responsible for conducting historical research to determine whether the site was used for activities that supported the Nation's early atomic energy program. If DOE concludes that the site was used for such a purpose, the agency will provide USACE with that determination. USACE is then responsible for preparing a PA in accordance with CERCLA and the NCP to determine whether a response action is necessary.

The State of Ohio contacted the DOE regarding concerns about radioactivity at the SLC. As a result, an October 19, 1999, letter from the DOE to the USACE indicated: (1) that DOE's review of available documentation appeared to confirm that the facility never operated, (2) that the site was used for activities which supported the Nation's early atomic energy program, and, (3) the site would be eligible for inclusion in the FUSRAP if USACE determined that a CERCLA response action is required to address FUSRAP-related contamination. This PA is being conducted in response to the concerns of the State of Ohio and the October 19, 1999, DOE letter.

1.1 REPORT PURPOSE AND OBJECTIVES

The purpose of conducting a PA at a FUSRAP site is to establish whether there is an unpermitted release, or threat of release, as those terms are defined in Section 101(22) of CERCLA, of a U.S. AEC-related hazardous substance that may present a danger to the public health or environment. If the findings of the PA suggest that there is a release, or threat of a release, other than that which is federally permitted or addressed by a legally enforceable license, permit, regulation, or order issued pursuant to the Atomic Energy Act of 1954, or other Federal statute, and the release may present an imminent and substantial danger to the public health or the environment, CERCLA authorizes a response action. If such circumstances are found to be true, the PA will recommend appropriate action to address the release or threat of release. If no such release or threat of release is found, the PA will recommend no further action.

This PA is a limited-scope investigation of readily available information, designed to identify areas of interest that may require further investigation. The purpose of the PA was to review available information to determine whether further action by the USACE is necessary, under the FUSRAP, to protect human health and the environment. The objective of this PA is to determine whether there is any evidence that radiological contamination exists as a result of Manhattan Engineer District/AEC activities at the SLC site. Neither the collection of environmental samples nor the completion of radiological surveys is included in the scope of this PA. This report complies with CERCLA PA/Site Investigation (SI) guidance and also incorporates Historical Site Assessment (HSA) requirements as described in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance (MARSSIM, 2000).

1.2 METHODOLOGY

This PA has been conducted in a manner consistent with guidance contained in *Guidance for Performing Preliminary Assessments Under CERCLA* [United States Environmental Protection Agency (USEPA), 1991]. A Hazard Ranking Scoring evaluation has not been conducted as part of this PA.

Information relating to the SLC was pursued in order to gain an accurate historical picture of activities conducted at the SLC. The focus of this PA has been on the time period during which the site was developed and utilized by the AEC (from the late 1940s to about 1954). Furthermore, the PR and Waste Disposal (WD) buildings and immediate surrounding areas were identified as the focus of this PA. Generally, PA methodology includes the following:

- A records review (historical documents and correspondence, drawings, photographs, etc.)
- A review of previous investigations/regulatory actions
- Interviews with persons familiar or knowledgeable about the site
- Site reconnaissance

The specific methodology utilized for each of these tasks in completing this PA is outlined below.

A review of records from a variety of sources was conducted during report preparation. Documents relating to the SLC site were requested from the following sources:

- DOE, (multiple locations including Oak Ridge, Tennessee; Miamisburg, Ohio; and Germantown, Maryland)
- National Archives and Records Administration (via the DOE)
- Nuclear Regulatory Commission (NRC)
- Ohio EPA
- USACE
- Monsanto Chemical Company (U.S. Department of Defense (DOD) contractor operating the SLC during the AEC era)
- Bechtel (Contractor for the DOE)

A significant volume of information (including reports, correspondence, manuals, photographs, drawings, maps, and meeting minutes) was obtained and reviewed. A summary of contacts is provided in Table 1, and a complete summary of documents reviewed is included in Appendix A. Electronic copies of these documents are included on the CD-ROM that accompanies this report.

Previous investigations conducted at the former SOP and specifically the SLC were also reviewed to obtain information on regulatory actions, and the use, handling, or disposal of hazardous, toxic, and radioactive waste (HTRW) at the facility.

A thorough review of interviews conducted during previous investigations was completed. Information obtained from these interviews has been incorporated into this PA, as appropriate. Additional interviews were considered for inclusion in the preparation of this PA. However, based on the information already available via other avenues and the length of time that has passed since the Manhattan Engineer District/AEC era, additional interviews were not pursued.

MWH, Ohio EPA, and the ODH conducted site reconnaissance on August 21, 2002. Due to the significant length of time between the most recent operations at the site (site abandoned in 1953) and the site visit, limited information was obtained during the reconnaissance.

1.3 REPORT STRUCTURE

The PA Report is organized as follows:

- Section 2.0 describes the former SOP with special emphasis placed on the SLC site, its location, and setting.
- Section 3.0 provides a site history of the SLC site, including an operational history, current usage information, and waste characteristics.
- Section 4.0 documents the physical conditions at the site and potential soil exposure and air pathways.
- Section 5.0 describes potential groundwater pathways.
- Section 6.0 describes potential surface water pathways.
- Section 7.0 presents a combined pathway evaluation.
- Section 8.0 summarizes the PA and presents conclusions.
- Section 9.0 cites references.

2.0 SITE DESCRIPTION

2.1 SITE LOCATION

The SLC is located within the boundaries of the former SOP in Marion, Ohio (Figure 1). The SLC is located in the central portion of Marion County approximately three miles northeast of the City of Marion. The facility is located along Likens Road between U.S. Route 23 and Pole Lane Road at 40° 37' 50" N and 83° 05' 25" W and is contained in the Monnett Quadrangle of the United States Geological Survey (USGS) 7.5-minute series topographic maps.

While the area controlled by the AEC at the SLC site historically comprised approximately 1285 acres, the portion of the SLC addressed herein occupies a much smaller area. The SLC facility includes three former SOP areas: the "S" area (inert material storage); the "T" area (shops); and a portion of the "U" area (Atomic Energy Commission). In later documents and recent MWH reports these areas are referred to as Inert Storage Buildings (Warehouse Area) (SOP-S), Shop Area (SOP-T), and Scioto Lab Complex (SOP-U). These three areas comprise approximately 100 acres. Area "U" (AEC) (Figure 2), and specifically the PR Building and WD Building and immediately surrounding area, are the focus of this report. Future references herein to "the site" or "SLC" pertain only to the PR Building, WD Building, and immediately surrounding areas outlined as the "U" area.

2.2 SITE DESCRIPTION

The "U" (AEC) area consists of the former Scioto Laboratory facility and comprises approximately 25 acres. The former Scioto Laboratory Building was also historically known as the Monsanto Building, the PR Building, and "Unit VI". Figure 2 shows the location of each building within the "U" area. Based on observations made during the site reconnaissance, the PR and WD buildings are in poor condition. The area immediately surrounding the buildings was noted to be landscaped and grass covered. No water bodies were observed on-site, although a drainage ditch is located along the northern boundary of the property and runs east to west. The following subsections present a description of the on-site structures.

Water used by the City of Marion for its municipal system is obtained from the Ohio American Water Company (OAWC). Water for this system is obtained from the Little Scioto and Scioto rivers and from 16 production wells located on OAWC property. These wells, located approximately 1.5 miles west of Marion, are used primarily to supplement the water supply during dry periods when diversions from the river are reduced. Connection to the municipal system is optional. As a result, some residents may use private domestic wells for their primary source of drinking water, even though municipal water service is available. It is also possible that some residents in the area may use bottled water due to the ongoing environmental investigation and/or poor

groundwater quality attributable to the water-bearing formations (i.e. high iron, sulfides, and hardness).

2.2.1 PR Building

Construction of the PR Building was authorized on June 21, 1948 and completed on July 1, 1949. The PR Building was accepted for operation on August 15, 1949. The 1998 Archives Search Report (ASR) describes the PR Building as a steel and concrete frame building with a poured concrete foundation (USACE, 1998). A basement extends beneath approximately 30% of the first floor area. The floors are concrete. The first floor and approximately half of the second floor are air-conditioned. A 100-foot (ft) high brick stack is present adjacent to the southeast corner of the building. According to the ASR (USACE, 1998), the stack was used to dissipate air from air conditioning exhaust fans. A forced draft cooling tower for condenser cooling water is present northeast of the PR building (Figure 2). The PR Building is serviced by city water and sewer. The building has an automatic fire sprinkler system.

An Engineering Manual for the SLC describes the construction and purpose of several elements of the PR Building (Monsanto, 1949). Specifically, the building is described as a 196,520 square ft building constructed with a steel and concrete frame on a poured concrete foundation. Interior walls are masonry block finished with hard surface plaster with the exception of several shielded rooms, which are surfaced with fiber tile on the walls and acoustic tiles on the ceiling. The building was constructed as a backup facility for the production of polonium initiators used in nuclear weapons. Due to the nature of proposed operations, the air in certain rooms had the potential of becoming contaminated with radioactive material; therefore, areas of the building were designated as either clean or contaminated for construction purposes. Areas with the potential for contaminated air were ventilated separately.

Document review suggests that neither the PR nor the WD building (described below) was never ultimately used for its intended purpose. A floor plan of the PR building, as depicted in the Engineering Manual, is included in Appendix B. However, the available copy is difficult to read.

2.2.2 WD Building

Construction of the WD Building was authorized on June 21, 1948 and completed on July 1, 1949. The WD Building was accepted for operation on August 15, 1949. The 1998 ASR describes the WD Building as a 100-ft by 40-ft steel frame structure with insulated metal panel exterior wall siding, a concrete foundation, and concrete floors. Interior walls are masonry block (USACE, 1998). The WD Building is serviced by city water and sewer and equipped with a fire alarm service.

An Engineering Manual for the SLC describes the construction and purpose of several elements of the WD Building (Monsanto, 1949). Specifically, the building is described

as a rectangular two-story steel frame building with insulated metal panel exterior siding, a concrete foundation and floors, and a composition roof laid on a metal roof deck. Interior walls are partition and masonry block finished with hard surface plaster. Cylindrical upright influent and effluent steel plate, aboveground holding tanks were present on the concrete foundation outside the east and west walls of the building. A two-ft diameter steel stack, 100 ft in height was present outside the south wall of the building.

The building was constructed and equipped for the purpose of treating liquid wastes contaminated with radioactivity. The source of this effluent would have been the PR Building. The process equipment was designed to reduce the radioactivity in the effluent to acceptable release limits of that time. The building is described as housing the process equipment for waste treatment, office space, process laboratories, a storage room, a change room, and toilet facilities. Due to the nature of proposed operations in the building, the AEC designated areas as high risk, low risk, or clean.

No floor plan of the WD building was present in the Engineering Manual. A recent aerial photograph of the "U" area, showing both the PR and WD buildings, is included as Figure 3.

2.3 PHYSICAL SETTING

The SLC property is relatively flat with an average surface elevation of approximately 980 ft above mean sea level (MSL). Based on a review of the USGS topographic map, the land surface slopes gradually to the west-southwest. Surface water features include a pond located to the northwest of the SLC property, an associated drainage ditch that parallels railroad tracks located along the northern facility boundary, and a drainage ditch that originates along the south side of Likens Road adjacent to the central portion of the facility (Figure 2).

Marion County lies within the Scioto Lobe of the Indiana-Ohio Till Plain. The surface features include nearly level plains and basins, gently sloping hills, and a few moderately steep valley sides. The topographic features are generally uniform. Local topography is generally flat, with elevations ranging from 986 to 994 ft MSL.

2.3.1 Surface Water Hydrology

Storm water runoff in the SLC area is dissipated by a system of open ditches, catch basins, and underground pipes. All storm water from the SLC area empties into the main drainage ditch, which flows westwardly along the north side of areas "T" and "S." This main drainage ditch empties into the Salmon Run between the Pennsylvania Railroad and State Route 4 at a point approximately 8000 ft northwest of the SLC Area. Salmon Run in turn discharges into the Little Scioto River. The Little Scioto River flows southwestward and converges with the Scioto River five miles southwest of Marion, Ohio.

2.3.2 Geology

The geology of the former SOP includes bedrock formations, glacial deposits, and soil units of glacial and lacustrine origin. The following sections describe these units in more detail.

Marion County was covered by a series of continental glaciers during the Pleistocene Epoch of the Cenozoic Era, with the most recent glacial advance occurring 14,000 to 18,000 years ago. The clayey till deposits found at the ground surface at the former SOP are known as the Late Wisconsin–Late Woodfordian Hiram Lake Till. They are characterized as flat to gently undulating ground moraine deposits. Ohio Department of Natural Resources (ODNR) records indicate that glacial drift thickness in the area of the former SOP ranges from 10 to 90 ft (ODNR, 1985).

The bedrock in contact with the Pleistocene glacial till deposits ranges from Silurian aged limestone and dolomites in the western portion of the county to Devonian aged limestone and shale in the eastern portion of the county. Regionally, the bedrock dips approximately 19 ft per mile toward the southeast. According to ODNR records, most of the former SOP is located on top of the Delaware and Columbus limestones. A reconnaissance bedrock geologic map is included as Figure 4.

The oldest bedrock unit is the Columbus Limestone, which consists of brown dolomite (lower 1/3 of the formation) and gray fossiliferous limestone (upper 2/3 of the formation). Thicknesses range from 0–105 ft. Overlying the Columbus Limestone is the Delaware Limestone, which consists of gray to brown argillaceous, cherty, and carbonaceous limestone. Thicknesses range from 0–45 ft. The Olentangy Shale lies above of the Delaware Limestone. It consists of a greenish gray to medium gray clayey shale with limestone nodules (lower 1/3) and thin beds of brownish gray shale (upper 2/3). Thicknesses range from 20 to 55 ft. Local thickness is reportedly approximately 28 ft. Overlying the Olentangy Shale is the Ohio Shale, which consists of brownish black to greenish gray carbonaceous shale with carbonate/siderite concentrations in the lowermost 50 ft. Thicknesses range from 250 to 500 ft.

According to the United States Department of Agriculture (USDA) Soil Survey of Marion County, soils originally developed in the area are part of three different soil associations: the Blount-Pewamo, Pewamo-Elliot, and Milford-Centerburg units (USDA, 1989).

The Blount soil unit is described as a silt loam and consists of somewhat poorly drained soils on slight rises (end and ground moraines). The surface layer is typically dark grayish brown, friable silt loam approximately 11 inches thick. Subsoil is approximately 21 inches thick. The upper part is brown and grayish brown, mottled, firm silty clay, and the lower part is yellowish brown and brown, mottled firm silty clay and silty clay loam. Underlying material down to a depth of approximately 60 inches is yellowish brown, mottled, calcareous, firm clay loam glacial till.

The Pewamo soil unit is described as a silty clay loam and consists of very poorly drained soil on broad flats, in depressions, and long drainageways on ground and end moraines. The surface layer is typically very dark, firm silty clay loam approximately 11 inches thick. The subsoil is approximately 42 inches thick. It is mottled and firm. The upper part is gray and grayish brown silty clay and silty clay loam, and the lower part is dark yellowish brown, mottled, calcareous, very firm clay loam glacial till.

The Elliot soil unit is described as a silty clay loam and consists of somewhat poorly drained soil on slight rises and ground moraines. The surface layer is very dark grayish brown, firm silty clay loam approximately 12 inches thick. The subsoil is approximately 25 inches thick. The upper part is dark yellowish brown, mottled, firm silty clay loam and silty clay. Underlying material down to a depth of approximately 60 inches is yellowish brown, mottled, calcareous, firm clay loam glacial till.

The Milford soil unit is described as a silty clay loam and consists of very poorly drained soil on broad flats, in shallow depressions, and along drainageways on lake plains. The surface layer is typically very dark gray, firm silty clay loam approximately 13 inches thick. The subsoil is dark gray and gray, mottled, firm silty clay loam approximately 34 inches thick. Underlying material down to a depth of approximately 60 inches is gray, mottled, firm silty clay loam of lacustrine origin.

The Centerburg soil unit is described as a silt loam and consists of moderately well drained soil in hummocky areas on ground and end moraines. The surface layer is typically brown friable silt loam approximately 9 inches thick. The subsoil is yellowish brown, dark yellowish brown, and brown mottled, firm clay loam approximately 28 inches thick. Underlying material down to a depth of approximately 60 inches is brown, mottled, calcareous, firm loam and glacial till.

2.3.3 Hydrogeology

Bedrock aquifers underlying the SLC area contain readily available groundwater resources in the Delaware and Columbus limestones, due to inter-crystalline and vuggy porosity. Yields for wells developed in these limestones exceed 100 gallons per minute (gpm). Local water well logs indicate that typical well depths vary greatly from 57 to 255 ft below ground surface (bgs).

In bedrock aquifers groundwater flows generally toward the southwest, with localized divergent flow directions resulting from surface water inflow/outflow and well pumpage. Groundwater within the overlying glacial till, where it occurs in discreet or continuous seams of coarse-grained materials within the otherwise clayey till, is anticipated to flow in a generally southwest direction, although very little direct evidence is available to ascertain flow directions in the vicinity of the SLC.

3.0 SITE HISTORY

As mentioned in Section 1.0, the focus and purpose of this PA are to collect and review existing information describing the site history of AEC-related activities at the SLC site. Several informational and investigative studies have historically been conducted regarding the SLC. This PA has been conducted to assemble available information from government and other sources regarding the history of operations at the SLC and thereby to assess the impact of these activities on the environmental condition of the site.

3.1 INFORMATION SOURCES

Site history details described herein have been generated based on readily available, existing information including correspondence, reports, and operational documents from government agencies regarding activities at the SLC during the time it was developed and operated by the AEC. In addition, reports documenting the findings of investigative studies at the SLC have been reviewed for information relating to the environmental status and/or operational history of the site, and several internet websites were reviewed for information relating to the SLC site.

Table 1 provides a summary of the agencies, personnel, and internet websites that were contacted to provide information regarding the SLC site. Appendix A provides a summary of the documents reviewed for this report. The findings from each source are presented in Section 3.2 as a history of operations at the site. A summary of the findings from historic investigations is also provided in Section 3.3.

3.2 OPERATIONAL HISTORY

In general, the following history is presented in chronological order. The history summary is subdivided into categories according to the following eras: Pre-AEC, Scoping and Construction, The "Operating" Years, Other Considerations, and Divestiture to Private Ownership.

Pre-AEC

The SLC site occupies a portion of the larger former SOP property. Prior to the former SOP operations, the property consisted mostly of farmland. In March of 1942, property owners were notified by the U.S. Government of the need for their land. The former SOP operated as an ammunition production facility from 1942 to 1945. The former SOP produced fuzes, boosters, ammunition, and bombs for the U.S. DOD during World War II. After World War II, when production at former SOP ceased in August 1945, the government distributed some of the former SOP property back to the public. The AEC took over approximately 1,285 acres of the former SOP facility in April 1949. A portion of this area was later developed into the SLC. The SLC area near the future site of the PR and WD buildings was not developed prior to 1948.

Scoping and Construction

After significant scoping efforts, in June 1948 the SLC site was selected for the construction of a backup plant for the Mound Plant in Miamisburg, Ohio, which produced polonium initiators. Construction was completed July 1, 1949, and the plant was accepted for operation on August 15, 1949.

An October 23, 1950 brochure describes operations at the SLC, "...Scioto Laboratory was designed and built to furnish a replacement for Mound Laboratory production facilities if needed, or, supplemental production capacity for polonium and special items. No provision was made for research or development" (AEC, 1950a, p. 67).

The following AEC document summarizes the scoping and construction efforts at the SLC (AEC, 1953a):

"...by Commission approval... The General Manager was authorized to provide alternate initiator production facilities, and a portion of the Scioto Ordnance Works at Marion, Ohio, was subsequently selected as the site. Conversion of the Ordnance Works' facilities, and construction of the process and waste disposal units were authorized by the Manager, ORO, on June 21, 1948; construction was completed July 1, 1949; and the plant was accepted for operation on August 15, 1949. Since October 1, 1949, the plant has been maintained in standby by the Monsanto Chemical Company".

The "Operating" Years

Beginning on October 1, 1949, the laboratory was maintained in cold standby status by the Monsanto Chemical Company. This status was maintained until the facility was abandoned in 1953.

An October 23, 1950 brochure describes operations at the SLC, "...By Commission directive it is, at present, in a state known as "Cold Standby," i.e., in a functioning state but, to date, uncontaminated with radioactivity. Accordingly, the staff consists almost entirely of security and maintenance personnel" (AEC, 1950a, p.67).

The cold standby status is further defined in the AEC document *Outline for Cold Stand-by Operation of Scioto Laboratory* dated November 23, 1949 (AEC, 1949b):

"Cold stand-by operation is defined as limited operation and maintenance of this facility. Limited operation does not include any processing of radioactive materials" (page 11).

"The chemical equipment itself will not be used in this cold stand-by operation because this would necessitate the institution of extensive health measures and the presence of a technical staff" (page 11).

"In the event of extended operations at Scioto Laboratory, it will be necessary to utilize the personnel monitoring facilities at Mound Laboratory until the "I" Building can be constructed" (page 39).

These excerpts not only indicate that cold standby operation did not involve the processing of any radioactive materials, but also suggest that the introduction of such materials would require the construction of a building (the "I" Building) to conduct personnel health monitoring. A health monitoring building was never constructed at the SLC.

It should be noted that the activation of the SLC from a cold standby status to a "hot", or fully active, status would require significant logistical challenges. These include the transfer of inventory, technical personnel, and equipment, as well as the institution of personnel health monitoring, waste disposal procedures, and training. No indication of these activities was identified in the document review for this PA. Documents including monthly reports for the Mound Laboratory indicate that the number of personnel at the SLC remained at approximately 55 to 62 persons between the months of October 1949 and November 1952. Most individuals are indicated as security or maintenance type personnel. Furthermore, monthly operating expenses during this same period remained at levels indicative of a similar level of operations during the entire time span.

In an AEC document entitled *Scioto Laboratory*, dated October 16, 1953, the following statement is made regarding the activation of the SLC: "In the event of an interruption of production at Mound, either by an industrial accident, sabotage, or aerial bombardment (short of a direct atomic bomb hit), it is probable that restoration of Mound could be accomplished more expeditiously than activation of Scioto" (AEC, 1953b, p. 4).

In an AEC document entitled *Extended Operations at Scioto Laboratory* dated May 1, 1950, the lack of materials on-site is discussed: "...because of the lack of authorization, few if any, operational supplies are now in Scioto Laboratory warehouses (AEC, 1950b). A good supply of materials necessary for maintenance of mechanical equipment has been transferredto the Scioto Laboratory warehouses.....The lack of our raw material merits special consideration."

One historic concern regarding the documentation at the SLC was the AEC budget projections for several years between 1950 and 1954. These fiscal year (FY) budget projections for SLC operations have included values of the same magnitude as those for the operating Mound facility; therefore, it could be interpreted that the SLC may have been conducting similar operations. However, upon further review of the budget documents, these projections are identified as conservative future projections for the scenario under which the SLC is activated. In an AEC report dated June 22, 1953, this conservative assumption is discussed, "...since the completion of Mound laboratory in 1948, operating experiences and process improvements have continually increased the plant capacity for concentration of polonium and production of initiators.During

fiscal years 1950, 1951, and 1952, it was assumed each year that Scioto would be activated in the ensuing year.” (AEC, 1953a, p. 2). Another memorandum from the AEC dated April 19, 1949, clarifies that Fiscal Year 1951 budget estimates (identifying that Scioto is to be put in "hot" standby at the beginning of 1951) are describing "...safe budget preparations and not a change in operating plans for the Scioto facility” (AEC, 1949a).

Other Considerations

As the Manhattan Project continued to explore development of a nuclear arsenal, the SLC was identified as a potential site for several facilities. Scioto was considered as a location for a polonium-208 initiator plant, and as a location for an actinium initiator plant. However, none of these plans was ever realized due to a variety of circumstances. During FY 1953, the polonium-208 plans were abandoned, and plans for construction of an actinium plant were deferred.

Divestiture to Private Ownership

In 1953 the AEC determined that it no longer needed the Scioto Laboratory, operations ceased, and it was closed down.

In a March 9, 1954 AEC Report Entitled *Unclassified Disposal of Scioto Laboratory*, the purpose for the disposal of the SLC is provided: “The Division of Production, as a consequence of the curtailment of polonium production, is planning to dispose of the Scioto Laboratory. This facility at Marion, Ohio, was originally built as a standby facility for the Mound Laboratory and has never been placed in active production” (page 3). This report not only states that the SLC was never placed in active production, but also provides a recommendation to dispose of the laboratory on an unclassified basis. The report indicates that it is evident that the facility has never been in active production “...from the newness of the equipment, the lack of any indication of normal wear and tear and in some cases the fact that protective coatings for storage are still intact” (page 4).

The SLC site was given to the General Services Administration (GSA) for divestiture in 1954. The interior of the PR Building, including laboratory and other equipment, was removed from the building during this time. Letters and memorandums from 1954 indicate that laboratory supplies from the SLC site were being redistributed to other Federal facilities or sold. Available information does not indicate any specified use for the SLC between 1954 and 1970. The GSA produced a brochure highlighting the site features for potential buyers (circa 1955) and subsequent memorandums document potential site buyers. No documentation identified a change in ownership or any lease agreements for this time period. Therefore, it is believed that the building was vacant and unused, awaiting sale between 1954 and 1970. In 1970, the SLC was purchased by Gary Warner (current property owner) for use as a warehouse.

Copies of selected relevant pages from the aforementioned quoted documents are included in Appendix C. All supporting documents are present in their entirety in Appendix A included in the CD-ROM.

3.2.1 Previous Investigations

This section provides a summary of previous investigations conducted at the SLC site.

3.2.1.1 1992 Inventory Project Report of the Former SOP and 1998 ASR Information

In 1992 an Inventory Project Report (INPR) of the former SOP was conducted under the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS) by the USACE, Huntington District. The INPR recommended a HTRW and an Ordnance and Explosives (OE) project. The scope of HTRW work was limited to a records search and site inspection (site walk-through) to evaluate potential radioactive hazards at the former Scioto Ordnance Plant. The product of the HTRW project was the 1998 ASR (USACE, 1998). In the 1998 ASR, the PR Building is characterized as having no confirmed or potential contamination, while the WD Building is characterized as having potential radioactive materials and radiochemicals. The characterization of the WD Building as having potential radioactive materials in the 1998 ASR is based on the proposed use of the building. The PR Building is not identified as a site of potential contamination due to the results of the limited site investigation for radiological contamination conducted in 1995 (see Section 3.2.1.3). The WD Building was not included in the 1995 limited site investigation.

Interview information provided in the 1998 ASR is included in Section 3.2.2 of this PA.

3.2.1.2 1994 ASR Information

In 1994, at the request of the USACE Engineering and Support Center, Huntsville, Alabama, the USACE Rock Island District OE Engineering Section, Rock Island, Illinois, conducted an Ordnance and Explosives ASR investigation of the former SOP. The October 1994 ASR was the product of this effort.

The goal of the 1994 ASR was to assess whether ordnance and explosives were present at the site. The scope included compiling a site history focusing on on-site ordnance issues, decontamination of site lands, interviewing property owners or personnel that had knowledge of site activities during or after the operational period, inspection of property for indications of any remaining ordnance and explosives presence, and reporting of conclusions and recommendations. The ASR concluded that there were ten areas that had the potential for a remaining OE presence. The SLC area was designated as outside of the explosives operations area, and therefore, the presence of ordnance and explosives waste (OEW) contamination is not suspected.

Interview information provided in the 1994 ASR is included in Section 3.2.2 of this PA.

3.2.1.3 1995 Limited Site Investigation for Radiological Contamination

Two buildings associated with the SLC facility were included in a limited site investigation for radiological contamination conducted by Science Applications International Corporation (SAIC) for the USACE - Nashville District in 1995 (SAIC, 1995). The limited site inspection for radiological constituents was requested as a part of the FUDS program and addressed conditions in the PR Building and Likens Chapel (located east of the laboratory at the corner of Likens and Pole Lane roads). The WD Building was not included in this effort.

The objective of the inspection was to determine whether gross evidence of radiological contamination was present within and around the PR Building and the basement of the Likens Chapel. The investigation of the PR Building was conducted in two phases. The first phase was an initial walk-through to gain familiarity with the site and included an alpha, beta, and gamma survey of suspect locations. The second phase consisted of a systematic survey to characterize levels and identify exact locations of any radiation present. Three water samples were collected from the basement of the PR Building. Results from the radiological survey and analytical water samples indicated that radiation levels were well below accepted action levels. Specifically, the radiological contamination survey results identified no readings above 100 counts per minute for alpha nor for beta/gamma. The water sample analytical results included: gross alpha data, which were all below 3.1 picocuries per liter (pCi/L) (the USEPA Maximum Contaminant Level (MCL) for gross alpha in drinking water is 15 pCi/L); isotopic uranium levels, which were all less than 1 pCi/L; and gamma activity scans, which did not indicate any readings above the minimum detectable level, with one exception. One sample indicated a potassium-40 activity of 158 +/- 106 pCi/L; however, potassium-40 is a naturally occurring isotope and the observed level is not unusual. From these results, it was concluded that gross radiological contamination was not present and therefore, no further action was recommended.

3.2.1.4 Test Pit Investigation at the Mound Area (SOP-AE) – October 2002

The current property owner of the SOP-AE area, Mr. Charles Luyster, conducted test-pitting activities in the fall of 2002 for the purpose of supporting a request by a financial institution. The Ohio EPA was on-site to oversee and document site activities (Snyder, 2002). Two test pits were excavated on October 16, 2002 at SOP-AE (Mound Area) located between the former Scioto Laboratory (PR Building) and the former Inert Storage Buildings (Figure 3). There were no visible signs of any contaminants or debris in either of the test pits, both of which were excavated to an approximate depth of eight feet below ground surface. A single sample was collected from each test pit near the surface and were analyzed for volatile organic compounds (VOCs), select semi-volatile organic compounds (SVOCs), and Target Analyte List (TAL) metals. The test pits were immediately backfilled following sampling activities. Based on the analytical results, the

Ohio EPA concluded that "...the open area does not appear to be adversely impacted from past use of the property" (Snyder, 2002). The area surrounding each test pit at a level of 3 ft above the ground was screened for radiation using a Ludlum Model 19 micro R meter. There was no noticeable increase in radiation levels above background [8 micro R per hour (uR/hr)]. Readings in the test pits at 2 ft below ground surface were approximately 14 uR/hr, the increase being attributable to the geometry and proximity of the test pit walls. Both samples from the test pits were screened for radiation using a Ludlum Model 14C meter with a model 44-9 pancake probe. Again, there was no noticeable increase in radiation levels above background [40 counts per minute (cpm)].

3.2.2 Interviews and Other Anecdotal Information

The 1994 ASR included a 19 August 1994 interview with Mr. Gary Warner, owner of Warner Warehousing, located in the old Inert Storage Area of Scioto Ordnance Plant. Mr. Warner operated out of the PR Building. Mr. Warner indicated that he currently owns and has owned the building since 1970. Mr. Warner indicated that the construction of the building included one back storage room lined with copper, another lined with lead, and walls which were hung from the beams so they would easily blow-out. Mr. Warner also indicated that the smoke stack was not designed for a boiler but for ventilation. According to Mr. Warner, since 1970, no investigations to assess the presence of contamination had been conducted. Furthermore, Mr. Warner was not aware of any OEW contamination, nor had he heard of anyone finding any type of OEW.

The 1994 ASR also included a 19 August 1994 interview with Mr. Robert Case, owner of approximately 480 acres of land utilized by the AEC. The 480-acre parcel does not include the SLC property and is located to the southwest of the SLC, across Likens Road. Mr. Case indicated that he had never found anything of an explosive nature and had never heard of anyone who had found any OEW.

According to various newspaper reports, in 1999, Mr. Ralph Hill Jr. recounted a day nearly 50 years ago when "...three government men carrying Geiger counters and wearing what looked like space suits walked into his family's home" (Plain Dealer, 1999). Mr. Hill indicated that his father, who worked as a heavy equipment operator for the nearby Marion Engineer Depot (MED), told his family of helping to clean up a "spill". Soon after, the men with Geiger counters made an unscheduled visit to Hill's home, taking away everything that caused the radiation-detection devices to click loudly. No explanation was ever provided by the government. Mr. Hill also indicated that his father described the Scioto Laboratory site as "...where they made heavy water." Based on the available information, it is unclear where the reported heavy water spill occurred. No information was obtained during the preparation of this PA that indicated that a spill had occurred at the SLC or that heavy water was produced at the SLC. Interviews conducted or reviewed as part of this PA verify that heavy water was neither produced nor handled at the SLC.

In a letter dated September 23, 1999, Mr. Herbert Meyer, former Supervisor of Personnel Monitoring for the parent Monsanto-AEC operation at the Mound Laboratory during the early 1950s, documented his experience at the SLC (Meyer, 1999). Specifically, Mr. Meyer recalls a visit to the Marion facility in the early 1950s "...to verify that the facilities, process equipment, and procedures were in place should the AEC need to bring radioactive material into this plant and carry out "hot" operations". Mr. Meyer indicates that the inspection team did not carry personal radiation monitoring meters and does not recall the need arising for the use of such devices. Furthermore, Mr. Meyer indicates that:

"... radioactive bismuth "slugs" to initiate the polonium recovery process were never handled at the Marion Facility. The storage or processing of radioactive material for the stated purpose never occurred at this facility."

3.2.3 FUSRAP History

The SLC site is included on the "Considered Sites Database" under the FUSRAP program. The site is identified as "Dayton Project (Unit 6) – Scioto Laboratory -- OH.45A". The site is also identified as "Scioto Laboratory", "Scioto Ordnance Plant", "Dayton Unit VI", and "EPA Potential Release Site (PRS-325)". The site was evaluated around 1987 due to its history as a backup production facility for polonium initiators. No radioactive materials are identified as handled at the SLC, and the site status is identified as pending under the guidance of the USACE.

It should be noted that the former MED is identified as a considered site (Number OH.45). This identification is due to a large number (several thousand) metasopes (night vision equipment that contained radium) which were stored at the MED in 1946 and 1947. A radiation survey was conducted at the Depot in 1947 (AEC, April 1947). The metasopes were reportedly stored in buildings T 308 and T 509 at the former MED. At a later date (the 1950s), metasopes were also stored in building T 517 at the former Marion Engineer Depot. Since that time, several activities have been conducted to identify potential radiation exposure in relation to building T 517. These activities include two decontamination attempts in 1958 and 1961 by the Army, a radiological characterization study in 1998 by the ODH, and a residual risk assessment in 1999 by the USACE for the Department of Defense. The risk assessment indicated there would be no radiation exposure to either a worker or a renovator from the historic storage of metasopes in building T 517.

AEC and other available communications regarding the metasopes do not mention storage at the SLC.

3.3 CURRENT USAGE

As mentioned in Section 3.2.2, the SLC site is currently owned by Mr. Gary Warner. In August 2002, representatives from MWH, the ODH, and the Ohio EPA conducted a site

visit to observe and document current conditions at the site and to identify any evidence of HRTW impacts from historic site activities. The walk-through was limited to visual inspection and included the interior and exterior of the PR and WD Buildings. No samples were collected during the site visit; however, two instruments were on-site and used by the ODH and Ohio EPA, including a Ludlum Model 14C GC meter with a model 44-9 pancake probe and a Ludlum Model 19uR meter. The Ohio EPA representative indicated that no readings above background levels were detected. Observations of the interior of both buildings were limited by a flooded PR Building basement and the lack of electricity with resulting darkness in portions of the buildings. As indicated in the site photographs (Appendix D), the buildings were noted to be in poor condition.

The PR Building is currently being used by a private company for warehousing and storage. At the time of the August 2002 site visit, the PR Building was secured; however, due to the age of the building and damage to the roof, evidence of damage was noted from exposure to the elements. The building was primarily vacant; however, some materials and equipment were noted to be scattered throughout the building. No evidence of radiological impacts from historic operations was identified during the site visit.

The WD Building is currently vacant and unsecured. During the August 2002 site visit, the roof of the WD Building was noted to be damaged, allowing for damage to the interior of the building. No evidence of radiological impacts from historic operations was identified during the site visit.

3.4 WASTE CHARACTERISTICS

The SLC is a DOE-predecessor facility. Contaminants of concern from AEC activities might include industrial chemicals (metals, beryllium, solvents, fuel oil, acids, bases, etc.) and radioactive substances (e.g., polonium-210 and trace radioactivity in polonium sources). However, it should be noted that the presence of materials or wastes which may have adversely affected the SLC property has not been confirmed based on the review of site documentation.

3.5 SUMMARY OF SITE HISTORY

Prior to 1942, the SLC was farmland. In March of 1942, property owners were notified by the United States Government of the need for their land. This land became known as the former SOP, which included the SLC area, and was used for the production of fuzes, boosters, ammunition, and bombs for the U.S. DOD during World War II. In 1948, after significant scoping efforts, the AEC took over a portion of the former SOP for development of a backup facility for the Mound Plant in Miamisburg, Ohio. Construction of the SLC was completed in July 1949. On August 15, 1949, the SLC was accepted for operation. Beginning on October 1, 1949, the SLC was maintained in cold standby status. In 1953, the AEC determined that the SLC was no longer needed and it was closed. Historic records indicate that activities at the SLC during the operating years

included construction, preparation, and maintenance to ensure the availability of the SLC in case activation was necessary (i.e. if Mound was destroyed). Records do not indicate that SLC was activated or that radionuclides were ever present. The SLC site was given to the GSA for divestiture in 1954, and the SLC was purchased by Gary Warner (current property owner) in 1970 for use as a warehouse.

4.0 SOIL EXPOSURE AND PATHWAYS

4.1 PHYSICAL CONDITIONS

The SLC property is relatively flat and has an average surface elevation of approximately 980 ft above MSL. Based on a review of the USGS topographic map, the land surface slopes gradually to the west-southwest. Based on observations during the site reconnaissance, the PR and WD Buildings were noted to be in poor condition. The area immediately surrounding the buildings was noted to be landscaped and grass covered. No fencing or other physical barriers were present surrounding the property; however, the PR building is secured and a security company is employed to ensure its security. The WD building is not secure. No water bodies were observed on-site.

4.2 SOIL AND AIR PATHWAYS AND GAMMA RADIATION

Investigation at the site has been limited to a radiological survey and limited sampling of the PR Building. Findings from the 1995 radiological survey do not indicate the presence of radiation at levels exceeding the appropriate standards. Specifically, the radiological contamination survey results identified no readings above 100 counts per minute for alpha nor for beta/gamma. The water sample analytical results included: gross alpha data, which were all below 3.1 pCi/L (the USEPA MCL for gross alpha in drinking water is 15 pCi/L); isotopic uranium levels, which were all less than 1 pCi/L; and gamma activity scans, which did not indicate any readings above the minimum detectable level, with one exception. One sample indicated a potassium-40 activity of 158 +/- 106 pCi/L; however, potassium-40 is a naturally occurring isotope, and the observed level is not unusual. From these results, it was concluded that gross radiological contamination was not present and therefore, no further action was recommended. A radiation survey of the WD Building has not been conducted; however, based on the lack of evidence that radiological materials were ever stored or used at the SLC site and the absence of radiation identified during the PR Building survey, the presence of radiological contamination is not expected. Furthermore, no evidence of the storage of materials which may have adversely impacted the environment has been found. Therefore, the soil and air pathways are not complete for HTRW.

4.3 SOIL EXPOSURE, AIR PATHWAY, AND GAMMA RADIATION

CONCLUSIONS

A complete pathway for soil or air exposure and gamma radiation has not been identified. Therefore, no further action is recommended.

5.0 GROUNDWATER PATHWAY

5.1 HYDROGEOLOGIC SETTING

Bedrock aquifer underlying the SLC area contain readily available groundwater resources from the Delaware and Columbus limestones. Yields for wells developed in these limestones exceed 100 gpm. Local water well logs indicate that typical well depths vary greatly from 57 to 255 ft bgs. In bedrock aquifers groundwater flows generally toward the southwest, with localized divergent flow directions resulting from surface water inflow/outflow and well pumpage. Groundwater within the overlying glacial till, where it occurs in discreet or continuous seams of coarse-grained materials within the otherwise clayey till, is anticipated to flow in a generally southwest direction, although very little direct evidence is available for flow direction in the vicinity of the former SOP.

5.2 GROUNDWATER PATHWAY

In order for a complete groundwater pathway to be present, evidence or the likely presence of contamination which would come into contact with groundwater must be identified. Based on the findings of this PA, no such contamination has been identified. Investigation at the site has been limited to a radiological survey and limited sampling of the water from PR Building basement. Findings from the 1995 radiological survey do not indicate the presence of radiation at levels exceeding the appropriate standards. Specifically, the radiological contamination survey results identified no readings above 100 counts per minute for alpha nor for beta/gamma. The water sample analytical results included: gross alpha data, which were all below 3.1 pCi/L (the USEPA MCL for gross alpha in drinking water is 15 pCi/L); isotopic uranium levels, which were all less than 1 pCi/L; and gamma activity scans, which did not indicate any readings above the minimum detectable level, with one exception. One sample indicated a potassium-40 activity of 158 +/- 106 pCi/L; however, potassium-40 is a naturally occurring isotope, and the observed level is not unusual. From these results, it was concluded that gross radiological contamination was not present and therefore, no further action was recommended. A radiation survey of the WD Building has not been conducted; however, based on the lack of evidence that radiological materials were ever stored or used at the SLC site and the absence of radiation identified during the PR Building survey, the presence of radiological contamination is not expected. Furthermore, no evidence of the storage of materials which may have adversely impacted the environment has been found. Therefore, the groundwater pathways are not complete for HTRW.

5.3 GROUNDWATER PATHWAY CONCLUSIONS

A complete pathway for groundwater exposure has not been identified. Therefore, no further action is recommended.

6.0 SURFACE WATER PATHWAY

6.1 HYDROLOGIC SETTING

Storm water runoff in the SLC area is dissipated by a system of open ditches, catch basins, and underground pipes. All storm water from the SLC area empties into the main drainage ditch, which flows westwardly along the north side of areas "S" and "T." This main drainage ditch empties into the Salmon Run between the Pennsylvania Railroad and State Route 4 at a point approximately 8000 ft northwest of the SLC Area. Salmon Run in turn empties into the Little Scioto River. The Little Scioto River flows southwestward and converges with the Scioto River five miles southwest of Marion, Ohio.

6.2 SURFACE WATER PATHWAYS

The presence of wastes or contamination that may come into contact with surface water prior to discharge from the site has not been identified. Therefore, the surface water pathway is not complete.

6.3 SURFACE WATER PATHWAY CONCLUSION

A complete pathway for surface water exposure has not been identified, therefore no further action is recommended.

7.0 COMBINED PATHWAY CONCLUSION

A complete pathway was not identified for soil, air, groundwater, or surface water. Therefore, the combined pathway has not been evaluated.

8.0 SUMMARY AND CONCLUSIONS

Prior to 1942, the SLC was farmland. In March of 1942, property owners were notified by the U.S. Government of the need for their land. This land became known as the SOP, which included the SLC area, and was used for the production of fuzes, boosters, ammunition, and bombs for the United States Department of Defense during World War II. In 1948, after significant scoping efforts, the AEC took over a portion of the former SOP for development of a backup facility for the Mound Plant in Miamisburg, Ohio. Construction of the SLC was completed in July 1949. On August 15, 1949, the SLC was accepted for operation. Beginning on October 1, 1949, the SLC was maintained in cold standby status. In 1953, the AEC determined that the SLC was no longer needed, and it was abandoned. Historic records indicate that activities at the SLC during the operating years included construction, preparation, and maintenance to ensure the availability of the SLC in case activation was necessary (e.g. if Mound was destroyed). Records do not indicate that SLC was activated or that radionuclides were ever present. The SLC site was given to GSA for divestiture in 1954, and the SLC was purchased by Gary Warner (current property owner) in 1970 for use as a warehouse.

Based on a review of the AEC-era documents, as well as previous investigations, interviews, and other anecdotal information regarding the SLC site, the following conclusions can be made:

- AEC-era documents from various government sources identify the SLC as “never operational”.
- There are no AEC-era documents or other information that suggests the SLC was ever activated (e.g. no documents indicating that the facility was activated or upgraded from cold standby status, no records of transfer of significant numbers of people or equipment to the SLC, no operational summaries, etc.). This absence of information is evidence that the work done at the site was of limited duration and complexity.
- The SLC was maintained in cold standby status during its operating years, and no handling of materials having special health and safety requirements, such as radioactive materials, was indicated.
- The dismantling of the interior of the SLC in the mid-1950s was conducted on a declassified basis due to the lack of concern regarding radiological impacts at the site.
- Mr. Herbert Meyer, former Supervisor of Personnel Monitoring for Monsanto, indicated that no monitoring devices were considered necessary for his tour of the SLC in the early 1950s.

- Results of the 1995 Limited Site Investigation for Radiological Contamination did not identify the presence of radiological levels above background.

The purpose of conducting this PA was to establish whether there is an unpermitted release, or threat of release, of an AEC-related hazardous substance that may present a danger to the public health or environment. Based on the conduct of this PA, USACE concludes that there is no evidence of such a release or the threat of a release at the SLC site, and no further action under the FUSRAP is recommended at the SLC site.

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TABLES

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Summary of Contacts

Agency	Description of Contact	Contact Name/Address
Nuclear Regulatory Commission (NRC)	<ul style="list-style-type: none"> • The NRC website, www.nrc.gov, was searched for information with limited success. • Contacted Public Document Room Staff [(800) 397-4209] on October 30, 2002. NRC contact suggested requesting a Freedom of Information Act (FOIA) file review. • A FOIA request was made on November 4, 2002. A response to the FOIA request was received on December 2, 2002 (FOIA/PA #2003-0048) indicating that no information is available via the NRC. A similar FOIA request was submitted by an unknown party in May 2000. 	Ms. Mary Jean Pool Ms. Carol Ann Reed FOIA and Privacy Act Officer Washington DC 20555-0001 (301) 415-7097
Department of Energy (DOE)	<ul style="list-style-type: none"> • Oak Ridge, Tennessee: A FOIA request was made in October 2002, declassification of the documents was completed in early November 2002 and approximately 6-8 inches of documents were received in mid-November 2002. 	Ms. Amy Rothrock, rothrockal@oro.doe.gov U.S. DOE - FOIA Officer P.O. Box 2001 Oak Ridge, TN 37831 Phone: (865)-576-1215 Fax: (865)-576-1556 Mr. Richard Holt HoltRD@oro.doe.gov (865) 576-9347
Department of Energy (DOE)	<ul style="list-style-type: none"> • Miamisburg, Ohio - Information was readily available based on FOIA previously conducted. (FOIA Request #OH 03-002). Approximately 8-10 inches of documents received in late October 2002. 	Ms. Marian Wilcox marian.wilcox@ohio.doe.gov US DOE - Ohio Field Office PO Box 3020 Miamisburg, OH 45353 Phone: (937)-865-4468 Fax: (937)-865-4496 Ms. Jane Greenwalt DOE Public Affairs Office jane.greenwalt@ohio.doe.gov
Department of Energy (DOE)	<ul style="list-style-type: none"> • Contacted Dick Neff, DOE Consultant, in October 2002. Mr. Neff provided a letter from Mr. Herbert Meyer, former Monsanto employee during the late 1940s and early 1950s, regarding the SLC site. 	Mr. Richard Neff DOE Consultant richard.neff@ohio.doe.gov (937) 865-3616

**Table 1 (Continued)
Summary of Contacts**

Agency	Description of Contact	Contact Name/Address
DOE - Formerly Utilized Sites Remedial Action Program (FUSRAP)	<ul style="list-style-type: none"> • Germantown Maryland – Based on a review of the website, several documents were referenced that MWH had not received from other sources. An email request for those specific documents was made in mid-November. A CD containing several files and approximately 400 pages of information was received on December 2, 2002. • Our contact from DOE-Germantown (Mr. Don Mackenzie) contacted MWH on December 4, 2002 indicating that he had a stack of additional information relating to the Scioto Laboratory and asked if we would like that information. Mr. Mackenzie provided a bibliography of those documents and sent the documents that MWH did not already have in December 2002. 	Mr. Don Mackenzie, EM-31 US DOE 19901 Germantown Rd Germantown, MD 20874-1290 (301) 903-7426
Monsanto	<ul style="list-style-type: none"> • Several telephone calls to obtain information were placed in September and October 2002. No information has been sent or promised. 	Ms. Molly Shaffer Environmental Legal Counsel (319) 694-3883 Mr. Rob Humphries (415) 768-1230
Bechtel (FUSRAP Contractor)	<ul style="list-style-type: none"> • Several telephone calls to obtain information were placed in October 2002. No responses have been received. 	Ms. Cindy Ford (865) 220-2269 Mr. Rob Humphries (415) 768-1230
Ohio Environmental Protection Agency (Ohio EPA)	<ul style="list-style-type: none"> • Mr. Steve Snyder sent MWH all documents he had relating to the site. Many relate to Mound. Steve indicated no interviews were conducted by Ohio EPA and referenced the Archives Search Reports for interview information. Mr. Snyder sent approximately 12-16 inches of documents relating to the SLC site. Documents were received in October 2002. 	Mr. Steve Snyder Ohio EPA – DERR NWDO 347 North Dunbridge Rd Bowling Green, OH 43402
National Archives and Records Administration (NARA)	NARA is a repository for documents only. NARA was contacted by DOE regarding documents pertaining to the site. A direct request from MWH was not necessary.	Not Applicable.

**Table 1 (Continued)
Summary of Contacts**

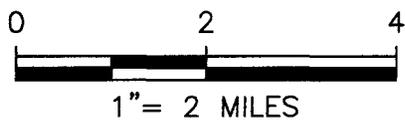
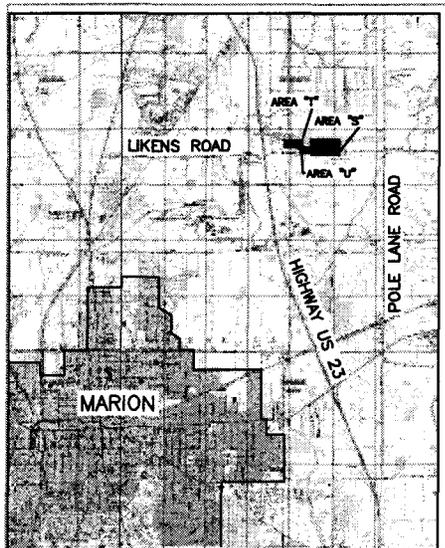
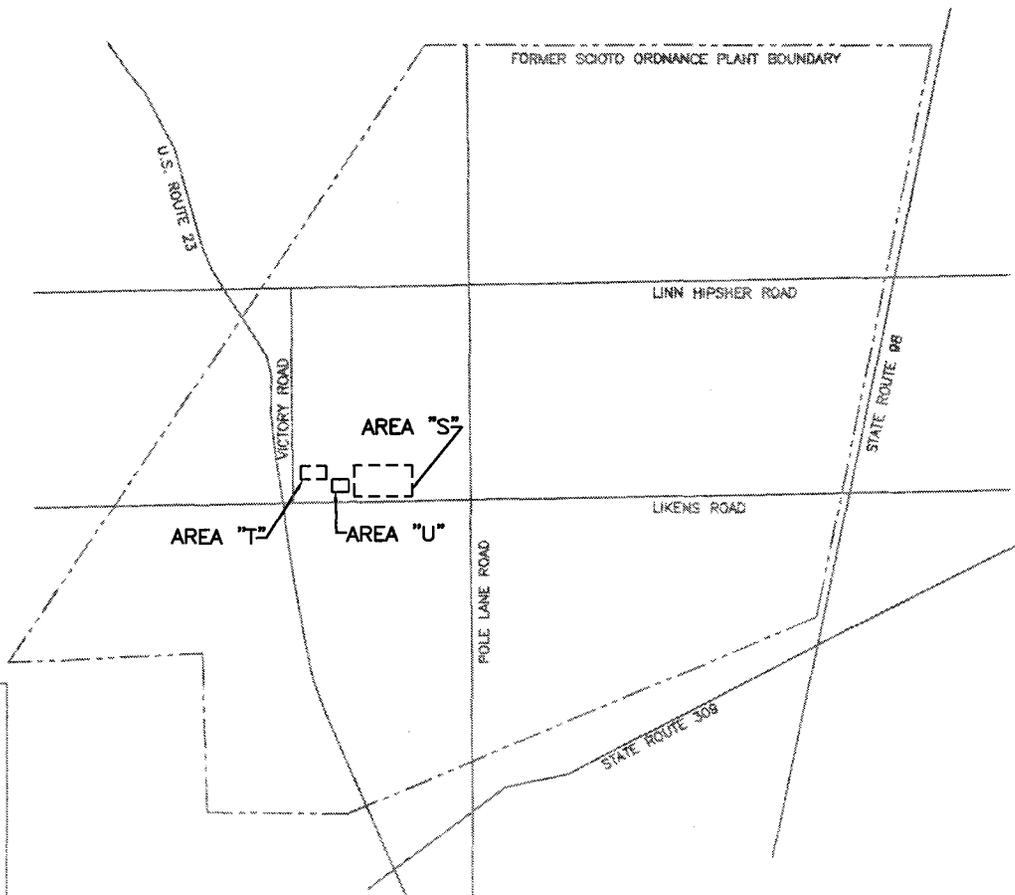
Agency	Description of Contact	Contact Name/Address
USACE	<ul style="list-style-type: none"> Mr. Kevin Jasper sent documents relating to the site. Approximately 4-6 inches of documents received in October 2002. 	Mr. Kevin Jasper USACE Louisville District CELRL-ED-G-ER 600 Dr. M.L. King Jr. Place Louisville, KY 40202-2265 (502) 315-6830

Websites:

www.em.doe.gov	DOE Office of Environmental Management
www.osti.gov	Office of Science and Technical Information
www.osti.gov/opennet	DOE OpenNet Database
www.csd.apps.doe.em.gov	DOE FUSRAP Considered Sites Database
www.nrc.gov	Nuclear Regulatory Commission and Electronic Reading Room
www.archives.gov	National Archives and Records Administration
www.marion.doe.gov	DOE Ohio Field Office Summary Website for Marion, Ohio, Scioto Laboratory
www.epa.state.oh.us	Ohio EPA

Note: When enabled, word searches for “Scioto” and “Marion” were conducted to assess the presence of documents or files representative of the SLC site.

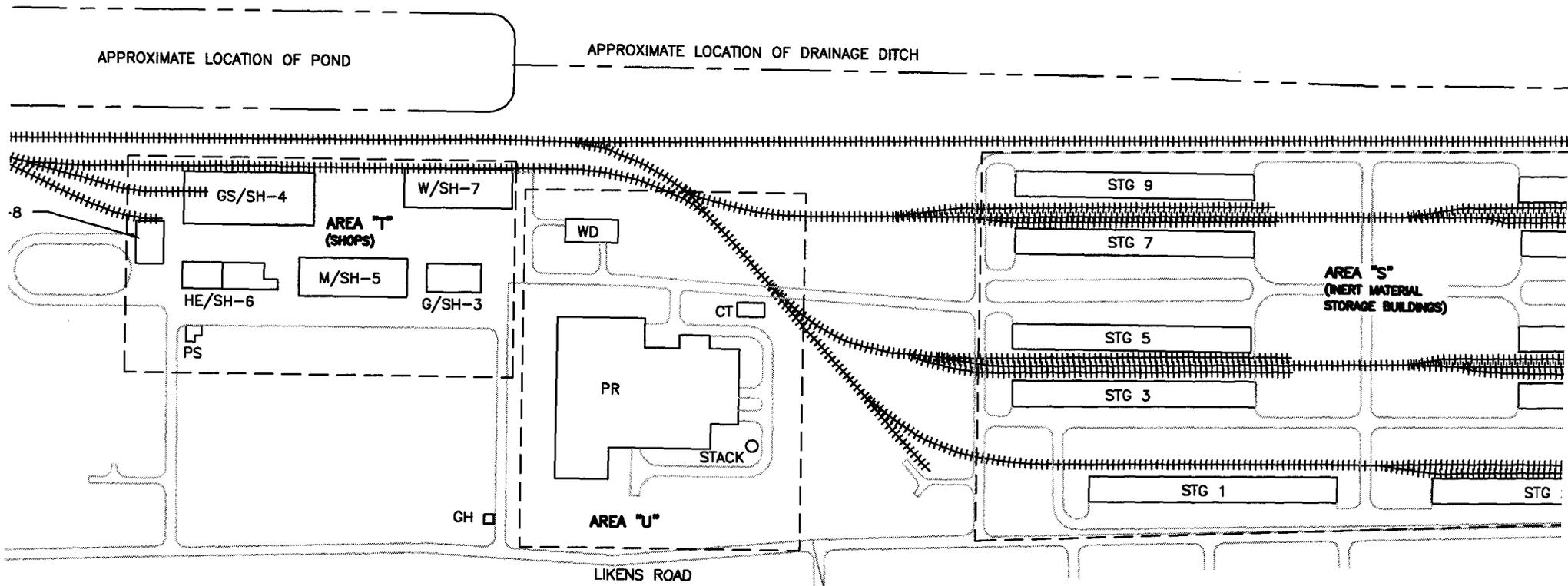
FIGURES



NOTES:
MAP NOT TO SCALE

PRELIMINARY ASSESSMENT
FORMER SCIOTO LABORATORY COMPLEX
MARION, OH
SITE LOCATION

FIGURE 1



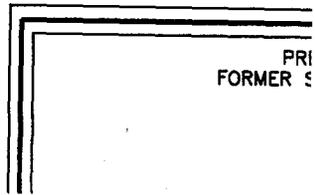
LEGEND:

+++++ RAILROAD TRACKS

--- APPROXIMATE EXTENTS OF AREAS S, T, AND U (SEE S, T, AND U)

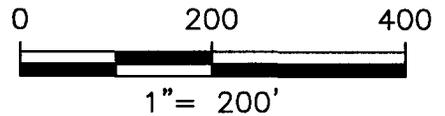
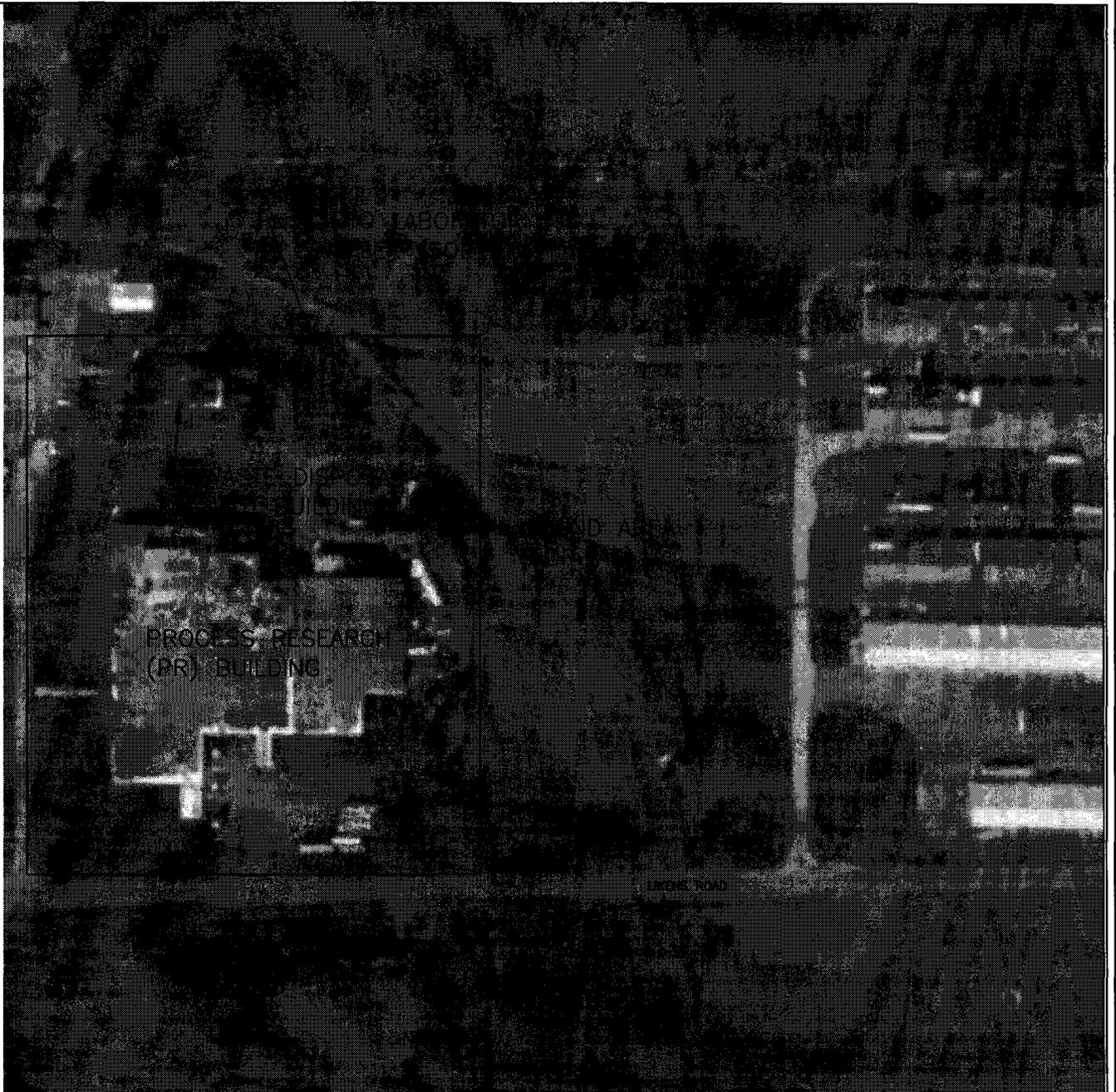


0 300 600



1/9/02

Approved By & Date: str 08/24/04
Revised By & Date: str 3/22/02
Drawn By & Date: str 3/21



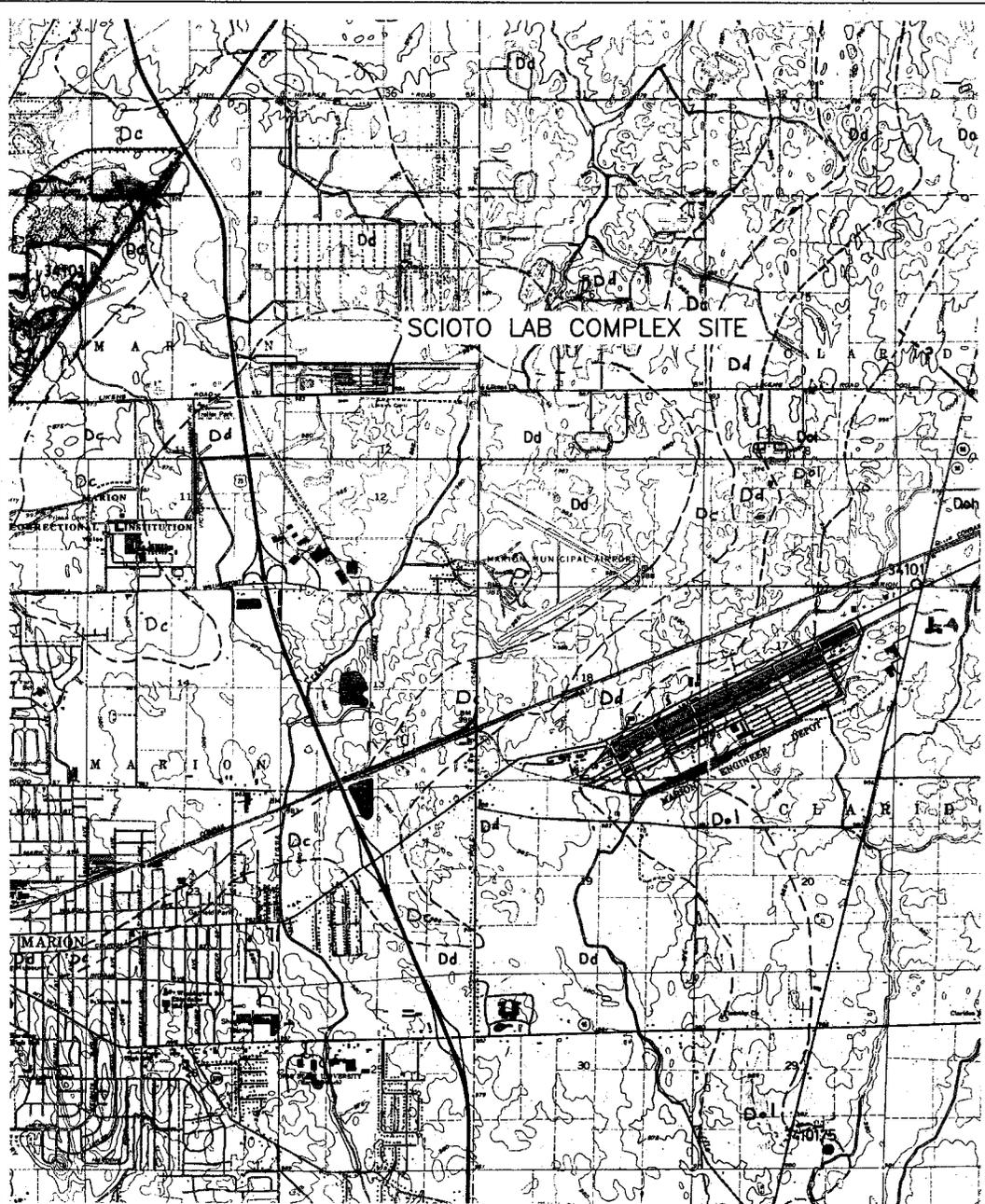
BASEMAP SOURCE:
USGS 1994 SATELLITE IMAGES
OBTAINED FROM THE MICROSOFT
TERRASERVER DATABASE.

PRELIMINARY ASSESSMENT
FORMER SCIOTO LABORATORY COMPLEX
MARION, OHIO

PR AND WD BUILDINGS (SOP-U)
AND MOUND AREA (SOP-AE)

FIGURE 3

Drawn By & Date: str 8/7/04 Approved By & Date: str 8/11/04 Revised By & Date: str 8/24/04 Approved By & Date: str 8/27/04



EXPLANATION

DEVONIAN

- Doh Ohio Shale
- Del Olenitangy Shale
- Dd Delaware Limestone
- Dc Columbus Limestone

34336° ○ Geophysically logged water-well.

3410110° ● Geophysically logged oil & gas well.

341012763° X OGS Open file description

34101° * Field location description
* Number above symbol indicates COGEMAP ID. number.

Contact

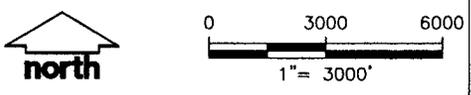
Solid where approximately located; dashed and queried where projected; solid where approximately located.

Fault

U = upthrown side
 D = downthrown side

Dashed and queried where projected;
 Solid where approximately located.

X Quarry
Quarry expansion based on 1984 aerial photographs.



BASEMAP SOURCE:
 OHIO DEPARTMENT OF NATURAL RESOURCES
 OPEN FILE MAPS BG-C4E1, BG-C4F1, 1992

PRELIMINARY ASSESSMENT
 FORMER SCIOTO LABORATORY COMPLEX
 MARION, OHIO

RECONNAISSANCE BEDROCK GEOLOGIC MAP
 MARION EAST, MONNETT QUADRANGLES, OHIO

FIGURE 4

10/11/04 10:00 AM S:\CADD\A\REPORTS\A\040901\A\040901.dwg Aug 27, 2004 10:00 AM

APPENDICES

APPENDIX A

List of Documents/Reference Sources

Appendix A
List of Documents/Reference Sources

Document #	Title	To	From/Written by	Date	Origin	Source
	Memorandum Subject: Dayton Operations	AEC Commissioners	CL Wilson	3/24/1947		DOE-Maryland
	Minutes of AEC Meeting 3/26/47 concerning operations in Dayton, OH		AEC?	3/26/1947		DOE-Maryland
AEGR-1	Report of Radiation Survey	Commanding Officer, MED	Pearson, AEC Admin Asst	Apr-47	AEC	Ohio EPA
SAB200175970000	Memo; Subject: Proposed Location of Alternate Dayton Production Unit	The Commissioneres	Carroll L. Wilson	10/9/1947	AEC	Ohio EPA
SAB200175980000	112th AEC Meeting; Alternate Dayton Production Unit			10/21/1947	AEC	Ohio EPA
	Memorandum Subject: Alternate Dayton Production Units	Director of Production	RB Snapp (AEC Secretary)	10/22/1947		DOE-Maryland
SAB200175990000	Site Selection - Monsanto Unit VI			11/7/1947	AEC	Ohio EPA
	Minutes of AEC Meeting 11/14/47 regarding physical security at AEC facilities		AEC?	11/14/1947		DOE-Maryland
	Letter re: Acquisition of real property at Jefferson Proving Grounds	Chief of Engineers	CL Wilson	11/20/1947		DOE-Maryland
SAB200176010000	Decision on AEC 15; Site Selection - Monsanto Unit VI			1/19/1948	AEC	Ohio EPA
SAB200176000000; OH.45A-3	AEC Meeting Minutes Section Title: AEC 15 - Site Selection Monsanto Unit VI			1/21/1948		Ohio EPA
SAB200176020000	Commission Action on AEC 15	Walter Williams	Roy Snapp	1/23/1948		
	Letter re: AEC acquisition of Scioto Ordnance Works	J Larson (War Assets Admin)	WJ Williams (AEC)	1/27/1948		DOE-Maryland
	Memorandum Subject: Site Selection - Unit VI	JG Franklin (AEC)	WJ Williams (AEC)	1/27/1948		DOE-Maryland
	Letter re: AEC acquisition of Scioto Ordnance Works	LH Brereton (AEC Military Liason Cmmte)	WJ Williams (AEC)	1/27/1948		DOE-Maryland
	Minutes of AEC Meeting 2/29/48 entitled Site Selection - Monsanto Unit VI		AEC?	2/29/1948		DOE-Maryland
MLM-MU-48-63-0023	Monthly Information Health Report - Monsanto Chem Co Units III, IV, and V		Prep by RA Miller	3/1/1948		DOE-Oak Ridge
	Memorandum forwarding a letter from LH Brereton to the Commissioners	RB Snapp (AEC Secretary)	WJ Williams (AEC)	Mar-48		DOE-Maryland

Appendix A
List of Documents/Reference Sources

Document #	Title	To	From/Written by	Date	Origin	Source
SAB20017605000	Letter Re: Selection of Scioto for Location of Unit VI for Production of Postum and Urchins	AEC, General Manager	L.H. Brereton, Lt. General USAF	3/8/1948		Ohio EPA
	Report AEC 15/1 Site Selection - Monsanto Unit VI - Letter from Military Liason committee, Note by the Secretary			3/22/1948		DOE-Maryland
	Memorandum Subject: Site Selection - Monsanto Unit VI	WJ Williams (AEC)	TO Jones (AEC)	4/13/1948	AEC	DOE-Maryland
48546	Monthly Progress Report - Activities at Scioto Laboratory as of April 19, 1948 through May 26, 1948		LH Houck	5/28/1948		Mound
MLM-MU-48-72-0025	Electronics Progress Report - Mound Laboratory		Prep by Heyd, Ohmart	12/1/1948		DOE-Oak Ridge
481227	Installation Procedure at Scioto	Dunbar	MM Haring	12/15/1948		DOE
AL4907060033	Production Report for June 1949 Part I: Production Narrative		Monsanto	1949		Ohio EPA
49124	Construction Budgets - Mound and Scioto Laboratories		AEC	1/11/1949		www.marion.doe.gov
49-03-54	Production Report for February 1949			3/1/1949	Monsanto	DOE-Miamisburg
MLM-MU-49-64-0011	Calorimetry Progress Report - Mound Laboratory		Prep by Parks	4/1/1949		DOE-Oak Ridge
68569	Hot Standby for Scioto Lab	Cook	Dunbar	4/4/1949		DOE-Oak Ridge
97742	"Hot" Standby for Scioto Laboratory	Cook	Dunbar	4/4/1949		DOE-Oak Ridge
91823	Scioto Laboratory	Williams	Franklin	4/19/1949		DOE-Oak Ridge
97971	Scioto Laboratory	Williams	Franklin	4/19/1949		DOE-Oak Ridge
110628	Memo; Subject:Scioto Laboratory			4/19/1949		DOE-Oak Ridge
SAB200176090000	Memo re:Budget Assumptions for FY1951	Williams, Director of Production	Franklin	4/19/1949		Ohio EPA
SAB200180590000	Progress Memorandum, March 1-31, 1949		E.C. McCarthy	4/19/1949		DOE-Miamisburg
93970	Scioto Laboratory	Franklin	Williams	6/7/1949		DOE-Oak Ridge
91828	Scioto Laboratory	Dunbar	Cook	6/9/1949		DOE-Oak Ridge
97969	Scioto Laboratory	Dunbar	Cook	6/9/1949		DOE-Oak Ridge
91824	Scioto Laboratory	Franklin	Williams	6-13-49?		DOE-Oak Ridge
MLM-314	Electronics Accomplishment Report - Mound Laboratory			7/1/1949	Prep by Gnagey	DOE-Oak Ridge

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Document #	Title	To	From/Written by	Date	Origin	Source
112711	Military Defense Plans - Scioto Laboratory	Walter Williams	RW Cook	8/9/1949		DOE-Oak Ridge
9705	Budget Estimates - Fiscal Year 1951, Part III - Dayton Area, OR Ops			8/24/1949	AEC	DOE-Oak Ridge
9707	Budget Estimates - Fiscal Year 1951, Part IV - OR Ops Office			8/26/1949	AEC	DOE-Oak Ridge
MLM-341	Engineering Manual for Equipment and Services - Scioto Laboratory - Volume I			Sep-49	Monsanto	Ohio EPA
MLM-342	Engineering Manual for Equipment and Services - Scioto Laboratory - Volume II - PR Building			Sep-49	Monsanto	Ohio EPA
MLM-343	Construction Completion Report			9/1/1949	Monsanto	DOE-Miamisburg
MLM-343?	Engineering Manual for Equipment and Services - Scioto Laboratory - Volume II - WD Building			Sep-49	Monsanto	Ohio EPA
97968	Military Defense Plans - Scioto Laboratory	Cook, Acting Manager - Oak Ridge	Uthus, Acting Director, Div of Security, WashDC	9/6/1949		DOE-Oak Ridge
97967	Military Defense Plans - Scioto Laboratory	Dunbar	Cook	9/15/1949		DOE-Oak Ridge
MLM-CF-49-10-46	Narrative Summary			10/17/1949	AEC (DAO)	DOE-Miamisburg
SAB200180520000	Subject: New-Type Urchin	Mr. E.A. Walker, US AEC	Robert F. Meehan, Monsanto Laboratory	10/17/1949	Monsanto	DOE-Miamisburg
91621	Outline for "Cold Stand-By" Operation of Scioto Laboratory	Paring/Haring?		11/23/1949		DOE-Oak Ridge
97749; OH.45A-1	Outline for "Cold Stand-By" Operation of Scioto Laboratory			11/23/1949		DOE-Oak Ridge&MD
49-11-61	Budget Estimates for FY 1951			11/25/1949	AEC (DAO)	DOE-Miamisburg
MLM-396	Outline for "Cold Stand-By" Operation of Scioto Laboratory	Dunbar	Haring	12/15/1949	AEC	
	Paper entitled Ohio Participation in Atomic Energy Program			1949/1950		DOE-Maryland
MLM-423-1	Calorimetric Assay Group - Operating Manual			1/1/1950	Monsanto	DOE-Miamisburg
MLM-426-1	Inventory and Sampling Group - Operating Manual			1/3/1950	Monsanto	DOE-Miamisburg
MLM-418-1	Concentration Cells - Operating Manual			2/15/1950	Monsanto	DOE-Miamisburg

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Document #	Title	To	From/Written by	Date	Origin	Source
MLM-419-1	Process Laboratory - Operating Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-419-2	Process Laboratory - Fabrication of Equipment			2/15/1950	Monsanto	DOE-Miamisburg
MLM-420-1	Electrolysis Laboratory - Operating Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-420-2	Fabrication of Equipment - Electrolysis Laboratory			2/15/1950	Monsanto	DOE-Miamisburg
MLM-421	Hydrolysis Area - Operating Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-422-1	Waste Disposal Building - Operating Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-424-1	Operations Counting Group - Operating Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-428-5	Primary Control Group - Protective Coating Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-428-6	Primary Control Group - Fabrication of Protective Coating Equipment			2/15/1950	Monsanto	DOE-Miamisburg
MLM-428-7	Primary Control Group - Inventory Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-429-1	Assembly Group - Sealing and Canning Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-431	Health Precautions Manual			2/15/1950	Monsanto	DOE-Miamisburg
MLM-CF-50-02-37	Pilot Plant Building Justification			2/15/1950	Monsanto	DOE-Miamisburg
MLM-436	Appendix I, Preservation of Laboratory Instruments in Static Storage			2/22/1950	Monsanto	DOE-Miamisburg
MLM-451	Extended Operations at Scioto Laboratory			5/1/1950	Monsanto	DOE-Miamisburg
MLM-CF-50-05-49	Budget Estimates - Fiscal Year 1952			5/26/1950	AEC (DAO)	DOE-Miamisburg
MLM-423-2	Calorimetric Assay Group - Fabrication of Equipment			6/1/1950	Monsanto	DOE-Miamisburg
MLM-425-1	Electrolytic Purity Assay Group - Operating Manual			6/30/1950	Monsanto	DOE-Miamisburg
MLM-424-2	Operations Counting Group - Fabrication of Equipment			7/1/1950	Monsanto	DOE-Miamisburg
97753	Report on Scioto Lab Operation	Cook	Williams	7/17/1950		DOE-Oak Ridge
50-07-46	Summary of Operating Costs by Programs 7/1/49 to 6/30/50			7/21/1950	Monsanto	DOE-Miamisburg
97755	Report on Scioto Lab Operations	Sapirie	Dunbar	7/24/1950		DOE-Oak Ridge

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Document #	Title	To	From/Written by	Date	Origin	Source
97756	Report on Scioto Lab Operations	Sapirie	Dunbar	7/24/1950		DOE-Oak Ridge
MLM-504	Mound & Scioto Laboratories, A Brochure on the AEC Facilities Operated by Monsanto Chemical Co.			10/23/1950	Monsanto	DOE-Miamisburg & Ohio EPA
SAB200180530000	Subject: Changes and Additions at Scioto Laboratory to Allow Production of Urchins and/or Toms	Dr. M.M. Haring	Robert F. Meehan, Monsanto Laboratory	11/24/1950	Monsanto	DOE-Miamisburg
97924	Brochure on Mound and Scioto Laboratories	Williams	Cook	12/22/1950		DOE-Oak Ridge
51-01-02	Budget Estimates Fiscal Year 1951			1/2/1951	Monsanto	DOE-Miamisburg
MLM-CF-51-01-13	Production Report for December 1950			1/2/1951	Monsanto	DOE-Miamisburg
51-01-41	Special Tooling at Scioto Laboratory			1/16/1951	AEC (DAO)	DOE-Miamisburg
MLM-537	Report on Mound Laboratory Activities for January 1951			1/31/1951	Monsanto	DOE-Miamisburg
51-02-19	Preliminary Program Assumptions			2/7/1951	AEC (DAO)	DOE-Miamisburg
MLM-543	Report on Mound Laboratory Activities for February 1951 - Part I			2/28/1951	Monsanto	DOE-Miamisburg
MLM-550	Report on Mound Laboratory Activities for March 1951 - Part I			3/30/1951	Monsanto	DOE-Miamisburg
49173	Transmittal of Draft of Staff Paper on Scioto Laboratory	Belcher	Sapirie	5/29/1951	DOE	DOE
MLM-587	Assembly Group - Sealing and Canning Manual			6/12/1951	Monsanto	DOE-Miamisburg
	Valuation Statement: Plant and Equipment - Scioto Laboratory			6/30/1951		DOE-Maryland
	Appendix D of Contract AT-33-1-Gen-53			7/27/1951		
MLM-582	Parts Processing Group - Recovery Operations Manual (M)			1/2/1952	Monsanto	DOE-Miamisburg
MLM-802	Mound Laboratory Monthly Report for January, 1953			1/30/1952	Monsanto	DOE-Miamisburg
52-03-21	Inspection Trips to Scioto Laboratory by Operation Division, February 1952	Dr. J.J. Burbage	Edw C. McCarthy, Director, Op Div	3/7/1952	Monsanto	DOE-Miamisburg
MLM-676	Report on Mound Laboratory Activities for March, 1952			3/31/1952	Monsanto	DOE-Miamisburg
MLM-690	Report on Mound Laboratory Activities for April, 1952			4/30/1952	Monsanto	DOE-Miamisburg

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Document #	Title	To	From/Written by	Date	Origin	Source
MLM-CF-52-06-60	Summary of Operating Costs			6/1/1952	Monsanto	DOE-Miamisburg
MLM-726	Mound Laboratory Monthly Report for July, 1952			7/31/1952	Monsanto	DOE-Miamisburg
MLM-753	Mound Laboratory Monthly Report for September, 1952			9/30/1952	Monsanto	DOE-Miamisburg
91068	Comparative Study of Mound and Scioto Operations AEC Contract vs. Private Ownership			11/12/1952		DOE-Oak Ridge
104403	Comparative Study of Mound and Scioto Operations			11/12/1952		DOE-Oak Ridge
MLM-782	Mound Laboratory Monthly Report for November, 1952			11/28/1952	Monsanto	DOE-Miamisburg
52-12-52	U.S. Atomic Energy Commission Midyear Review FY53 Budget Operating Costs & Related Adjusting Items			12/12/1952	Monsanto	DOE-Miamisburg
MLM-789	Mound Laboratory Monthly Report for December, 1952			12/31/1952	Monsanto	DOE-Miamisburg
53-01-84	Program Assumptions - FY 1955			1/15/1953	AEC (DAO)	DOE-Miamisburg
	Litr: Actinium Items Plant	Roberson (AEC)	Burbage (Director)	1/19/1953	AEC	www.marion.doe.gov
53-02-92	U.S. Atomic Energy Commission Construction Project Data Sheet			2/17/1953	Monsanto	DOE-Miamisburg
MLM-812	Mound Laboratory Monthly Report for February, 1953			2/27/1953	Monsanto	DOE-Miamisburg
	Supplement #2: Preliminary Proposal Relocation and Expansion of Process Machining Facilities - Mound Laboratory			3/2/1953	Monsanto	Ohio EPA
92306	Plant and Equipment costs - Mound and Scioto	Roberson	Armstrong	3/9/1953		DOE-Oak Ridge
92198	Visit to Scioto and Mound	Files	Armstrong	3/13/1953		DOE-Oak Ridge
53-03-92	Revision of FY 1954 Congressional Budget Estimates			3/16/1953	AEC (DAO)	DOE-Miamisburg
53-03-94	Revised Budget for Program 3000 and Subprogram 9300 Dayton FY 1954			3/16/1953	AEC (DAO)	DOE-Miamisburg
104402	Operating Inventories	Roberson, Area Manager, Miamisburg	Sapirie, Manager, Oak Ridge	3/27/1953		Ohio EPA

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Document #	Title	To	From/Written by	Date	Origin	Source
	Routing Form w/attached correspondence regarding security arrangements at Mound and Scioto Laboratories	JH Roberson (AEC)	SR Sapirie (AEC)	3/27/1953		DOE-Maryland
MLM-823	Mound Laboratory Monthly Report for March, 1953			3/31/1953	Monsanto	DOE-Miamisburg
MLM-CF-53-04-49	Initial Budget Estimates, Fiscal Year 1955			4/13/1953	Monsanto	DOE-Miamisburg
MLM-505	Long Range Plan for Mound and Scioto Laboratories			5/18/1953	Monsanto	DOE-Miamisburg
SAB200180540000	Minutes of Meeting with the Atomic Energy Commission on May 29, 1953, at the Monsanto Chemical Company, St. Louis Missouri		J.J. Burbage	6/4/1953	Monsanto	DOE-Miamisburg
	Report regarding Scioto Laboratory		Manager ORO	6/19/1953		DOE-Maryland
SAB200180550000	Report by the Manager, ORO, Atomic Energy Commission, Scioto Laboratory; Subj: To consider the disposition of Scioto Laboratory			6/22/1953		DOE-Miamisburg & Ohio EPA
92201	Transmittal of Scioto Staff Papers	Roberson	Sapirie	7/22/1953		DOE-Oak Ridge & Ohio EPA
	Comprehensive Report of Mound Laboratory Activities			8/14/1953		DOE-Miamisburg
SAB200180560000	Comprehensive Report of Mound Laboratory Activities, August 24, 1953 - Extract			8/24/1953		DOE-Miamisburg
SAB200180570000	Subject: Alternate Budgets for Mound Operation - FY1955	John H. Roberson, Manager, Dayton Area, Miamisburg	S.R. Sapirie, Manager, Oak Ridge	8/27/1953		DOE-Miamisburg
SAB200180580000	Subject: Reducing Expenditures in the Initiator Program	John H. Roberson, Manager, Dayton Area, Miamisburg	S.R. Sapirie, Manager, Oak Ridge	9/3/1953		DOE-Miamisburg
	Memorandum forwarding a draft staff paper w/subject Scioto Laboratory	RB Snapp (AEC Secretary)	RW Cook (AEC)	10/9/1953		DOE-Maryland
	Report AEC 15/2 entitled Scioto Laboratory, Note by the Secretary			10/16/1953		DOE-Maryland

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List of Documents/Reference Sources

Document #	Title	To	From/Written by	Date	Origin	Source
	Scioto Laboratory; Subject: To consider the disposal of Scioto Laboratory		By: Director of Production	10/19/1953	AEC	Ohio EPA
	AEC Meeting Minutes Entitled AEC 15/2 - Scioto Laboratory		AEC?	10/21/1953		DOE-Maryland
	Memorandum Subject: Commission Action on AEC 15/2 - Scioto Laboratory	RW Cook (AEC)	RB Snapp (AEC Secretary)	10/21/1953		DOE-Maryland
	Memorandum Subject: Press Release on Scioto Laboratory	RW Cook (AEC)	RB Snapp (AEC Secretary)	10/22/1953		DOE-Maryland
	AEC Correspondence Reference Form mentions letter regarding disposal of the Scioto Laboratory	JCAE (Congressional Joint Cmte on Atomic Energy)	Chairman Strauss	11/4/1953		DOE-Maryland
53-11-75	U.S. Atomic Energy Commission Program Summary			11/10/1953	Monsanto	DOE-Miamisburg
MLM-CF-53-11-74	Fiscal Year 1954 Mid-Year Budget Review			12/1/1953	Monsanto	DOE-Miamisburg
	Report AEC 15/3 Entitled Decision on AEC 15/2. Scioto Laboratory, Note by the Secretary			12/2/1953		DOE-Maryland
MLM-CF-53-12-69	Subject: Program Assumptions for Program 3000	Dr. J.J. Burbage, Director, Monsanto Chemical Co	John H. Roberson, Manager, Dayton Area, US AEC	12/14/1953		DOE-Miamisburg
	Letter regarding closure of the Scioto Laboratory	R LeBaron (Military Liason Committee)	LL Strauss (AEC)	12/22/1953		DOE-Maryland
	Status of Decisions and Their Implementation AEC Office of Sec Forms for AEC 15/2 and AEC 15/4		AEC?	1954		DOE-Maryland
SAB200176270000	Letter Re: Advising of approval to dispose of Scioto Lab	Cole (Chairman, Joint Committee on Atomic Energy) U.S. Congress	Strauss, Chairman	1/5/1954		Ohio EPA
	Memorandum Subject: Press Release on Scioto Laboratory	RB Snapp (AEC Secretary)	ER Trapnell (AEC)	1/5/1954		DOE-Maryland
	Memorandum Subject: Draft Staff Paper, Unclassified Disposal of Scioto Laboratory	RB Snapp (AEC Secretary)	JF Kaufmann (AEC)	2/5/1954		DOE-Maryland
54-03-82	Monsanto Chemical Company Revised Financial Plan FY 1954			3/1/1954	Monsanto	DOE-Miamisburg

Appendix A
List of Documents/Reference Sources

Document #	Title	To	From/Written by	Date	Origin	Source
SAB200176280000	Unclassified Disposal of Scioto Laboratory (Decision on AEC 15/4)			3/9/1954	AEC	Ohio EPA
	AEC Meeting Minutes Subject: AEC 15/4 Unclassified Disposal of Scioto Laboratory		AEC?	3/17/1954		DOE-Maryland
	Memorandum Subject: Commission Action on AEC 15/4 - Unclassified Disposal of Scioto Laboratory	EJ Bloch, Director, Production	RB Snapp (AEC Secretary)	3/17/1954		DOE-Maryland
	Letter regarding disposal of the Scioto Laboratory	R LeBaron (Military Liason Committee)	KD Nichols (AEC)	3/31/1954		DOE-Maryland
	Letter regarding disposal of the Scioto Laboratory	WS Cole (Chairman, JCAE)	LL Strauss (AEC)	4/7/1954		DOE-Maryland
54-09-48	Third Interim Report on Audit of Administrative & Financial Functions Monsanto Chemical Co.			4/30/1954	Monsanto	DOE-Miamisburg
SAB200176290000	Letters to the Joint Committee: Items of Information	EJ Bloch, Director, Production	WB McCool, Assist Secretary	8/27/1954		
	Memorandum Subject: Letter to JCAE on Disposal of Scioto Laboratory	RB Snapp (AEC Secretary)	FK Pittman (AEC)	9/2/1954		DOE-Maryland
MLM-CF-55-06-38	Budget Submission, Fiscal Year 1957			6/17/1955	Monsanto	DOE-Miamisburg
	Letter- Identifying sites where radiological materials may have been left or buried on US Army Installations	Col. John D. Spence, US Army Toxic and Haz Materials Agency	William Mott, Public Safety Division	7/23/1982	Office of Operational Safety	Ohio EPA
OH.45A-2	The Scioto Ordnance Plant and The Marion Engineer Depot of Marion, Ohio - A Profile after Forty Years		Charles D. Mosher and Delpha Ruth Mosher	1987		DOE-Maryland
	DOE Ltrr identifying sites that may be radiologically contaminated	Carl Schafer, Director of Env. Policy, Pentagon	Fiore, Director, Office of Nuc Energy (DOE)	5/29/1987	DOE	Ohio EPA

Appendix A
List of Documents/Reference Sources

Document #	Title	To	From/Written by	Date	Origin	Source
	History of the Production Complex: The Methods of Site Selection		History Associates Incorporated, Rockville, MD for DOE	Sep-87	DOE	Ohio EPA
	DOE Ltr - Responding to Request for info on MED FUSRAP	Doxey, Director, DERP, Sec of Defense	Fiore, Director, Office of Environ Restoration (DOE)	6/20/1990	DOE	Ohio EPA
	Letter from DOE to USACE	Carl Schafer, Director of Env. Policy, Pentagon	James Fiore, DOE	5/29/1997	DOE	Ohio EPA
	Memorandum of Understanding between the US DOE and USACE Regarding Program Administration and Execution of the FUSRAP			3/17/1999	DOE/USACE	www.marion.doe.gov
OH.45A-5	Letter from DOE to USACE	William Augustine, Dep Chief, Programs Mgmt Div, USACE	James Fiore, DOE	10/19/99	DOE	Ohio EPA
101411	Scioto Laboratory, Re: Consideration of disposition of Scioto Lab		By: Manager, ORO	na		DOE-Oak Ridge & Ohio EPA
112704	"PR" Bldg - First Floor Plan - Scioto Laboratory - Marion, Ohio			na		DOE-Oak Ridge
112706	Survey Report - Scioto Laboratory (UHII VI) Marion, Ohio	Sapirie	BW Menke	na		DOE-Oak Ridge
MLM-430	Scioto Laboratory Special Machine Shop Operating Manual			None	Monsanto	DOE-Miamisburg
OH.45A-4	Report DOE/USEPA/Ohio EPA: Mound Plant Potential Release Site Package, PRS 320-325			Not Dated	DOE/USEPA/Ohio EPA	DOE-Maryland
	Scioto Laboratory - Marion, Ohio "PR" Building - First Floor Plan			Unk	DOE-Oak Ridge	DOE-Oak Ridge
	Budget/Balance Sheets - Mound			Various	Monsanto	Ohio EPA
92161	Plant and Equipment - Scioto Laboratory					DOE-Oak Ridge
SAB200176040000	Site Selection - Monsanto Unit VI	Jones	Anamosa			Ohio EPA

Appendix A
List of Documents/Reference Sources

Document #	Title	To	From/Written by	Date	Origin	Source
SAB200176260000	Letter Re: Advising of approval to dispose of Scioto Lab	Lenaron (Chairman, Military Liason Cmte to the AEC)	Strauss, Chairman			Ohio EPA
	Map - Building Area Specifications, Scioto Laboratory, Marion, Ohio				GSA	Ohio EPA
	Mound Laboratory Budget Submission, Fiscal year 1956				Monsanto	DOE-Miamisburg
	General & Statistical Data of Oak Ridge Operations and Facilities Under OHDO Management as of June 1, 1948		Reports and Statistics Branch		www.marion.doe.gov	www.marion.doe.gov
	Letter Re: Eniwetok Marine Biological Laboratory use of Scioto Laboratory Equipment	JR Turan, AEC	WR Boss	2/10/1954		
B6E23, OH.45	Ohio Participation in the Atomic Energy Program			Unknown		

Note: Due to the age and condition of some of the documents, some information was hard to decipher or unavailable. Therefore, some blanks remain on the table. References are provided in chronological order.

APPENDIX B

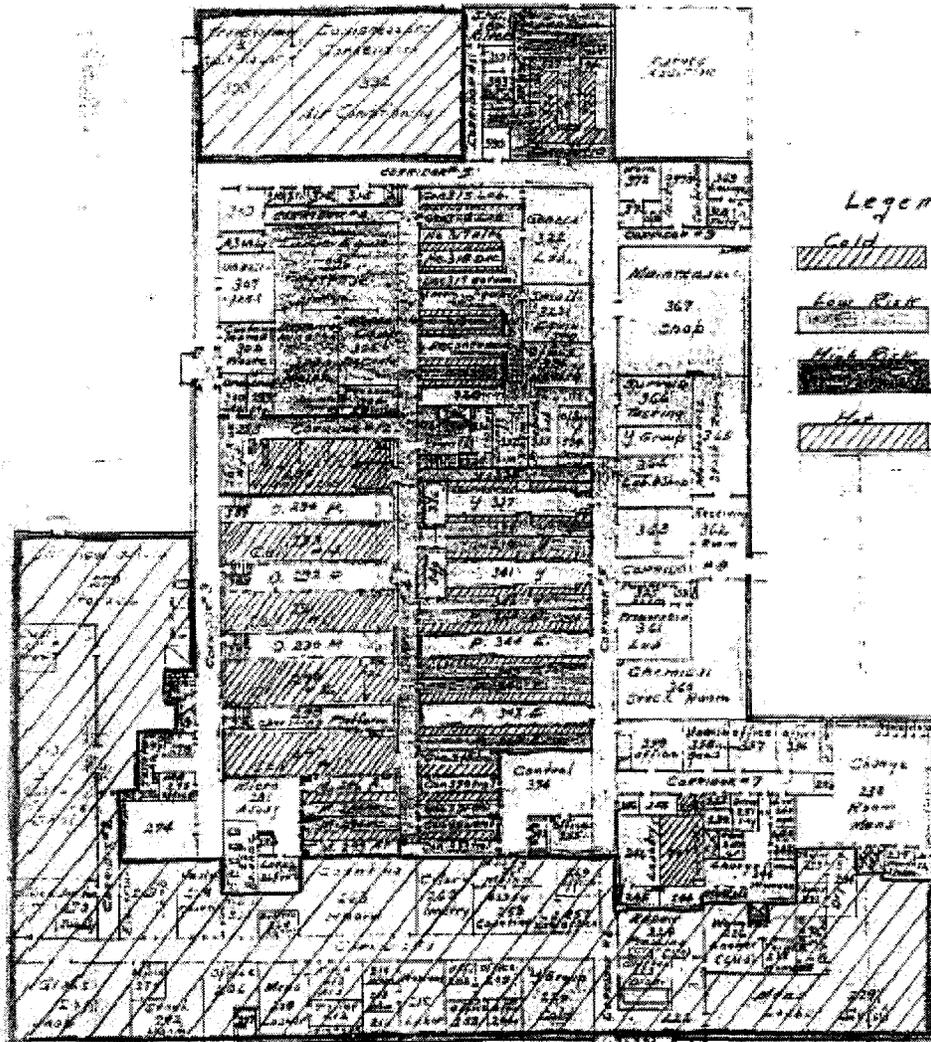
Floor Plan, PR Building (Figure B1)

Scioto Laboratory - Marion, Ohio

PR BLDG - FIRST FLOOR PLAN

Scale approx. 1/4" = 1'-0"

* 17770001630 *



Legend

- Cold
- Low Risk
- High Risk
- H/A

SECRET

PRELIMINARY ASSESSMENT
FORMER SCIOTO LABORATORY COMPLEX
MARION, OHIO

PR BUILDING - FIRST FLOOR PLAN

FIGURE B1

SOURCE:
MONSANTO CHEMICAL CO.,
ENGINEERING MANUAL FOR
SCIOTO LABORATORY, VOL II,
SEPTEMBER 1949.

APPENDIX C

Selected Pages from Noteworthy Operational History Historical Documents

Memorandum from Franklin to Williams, Subject: Scioto Laboratory
Atomic Energy Commission
April 19, 1949

~~SECRET~~

This Document contains 2 Pages

This copy 4 of 9 Series A

SAB 200176310000

Walter J. Williams, Director of Production
Washington
J. C. Franklin, Manager, Oak Ridge

April 19, 1949

SCIOTO LABORATORY

REFER TO
SYMBOL: P:SR5

CAUTION
This document contains information affecting the National Defense of the United States. Its transmission or disclosure of its contents in any manner to an unauthorized person is prohibited and may result in severe criminal penalties under applicable Federal laws.

The budget assumptions which were received from Washington recently for the flash estimate for fiscal year 1951 stated that the Scioto Laboratory would be placed in "hot" standby at the beginning of fiscal year 1951. A discussion of this assumption by Messrs. Carothers and Sapirie clarified the intent as reflecting safe budget preparation policy rather than a change in existing plans for the operation of the Scioto facility.

The construction plans for the Scioto Laboratory provide for the deferment of construction of the Isolated Laboratory and the Cafeteria. Construction drawings and specifications have been completed for these two buildings, but construction will not be initiated until operation of the plant is assured. It is anticipated, however, that the operating contractor will request the construction of these facilities as soon as specific plans are made for placing the plant in operation.

The construction of the Unit VI facilities is progressing very efficiently, and the cost report for the month of March indicated a saving of approximately \$1,240,000 of the authorized construction estimate. This amount is more than sufficient to complete the deferred construction. It is considered desirable that the portion of this saving required for the deferred construction be retained for use in the event operation of the plant is authorized and construction of these facilities must be accomplished. Two methods of retaining these funds have been considered:

- a. Complete the current construction program under the Maxon contract and demobilize the construction organization but retain the contract open for the remainder of the five-year period for which the funds obligated against the contract can be utilized* (through fiscal year 1952). The Maxon Construction Company has indicated a willingness to cooperate in this respect.
- b. Transfer the funds required for the accomplishment of the deferred construction from the Maxon contract to the Monsanto contract. This alternative has not been discussed with Monsanto, but it is assumed

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	DETERMINATION (CIRCLE NUMBER)
TEST REVIEW DATE: 2/2/85	1. CLASSIFICATION RETAINED
AUTHORITY: 20X	2. CLASSIFICATION CHANGED TO:
NAME: [Signature]	3. CHANGES TO DOC CLASSIFIED INFO
2ND REVIEW DATE: [Signature]	4. COORDINATE WITH:
AUTHORITY: [Signature]	5. CLASSIFICATION CANCELED
NAME: [Signature]	6. CLASSIFIED INFO BRACKETED
	7. OTHER (SPECIFY):

* 19990001845 *



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RHTG # 110,628

BOX # 243

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-2-

Walter J. Williams

April 19, 1949

J. C. Franklin

SCIOTO LABORATORY

REFER TO
SYMBOL: P:SES

that they will interpose no objection to it. There is the possibility, however, that the allocation of approximately \$900,000 under an operating contract for the deferred construction might be objected to by the Budget Bureau.

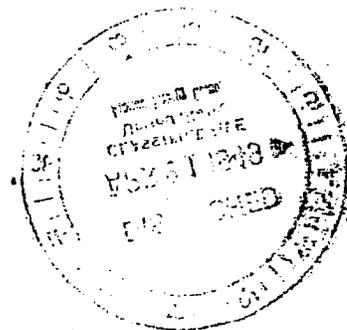
Your advice is desired on the following questions of policy:

- a. What schedule of future operations should be assumed for use in future organizational and facility planning for the Scioto Laboratory?
- b. Should funds be retained out of the present construction authorization for the future accomplishment of the deferred construction?
- c. Which method of retaining the funds for deferred construction do you recommend?

J. C. Franklin
J. C. Franklin

CC, K. A. Dunbar, Miamisburg
F. C. Watters
S. R. Sapirie

Sapirie/jl



~~SECRET~~

Outline for "Cold Stand-by Operation" of Scioto Laboratory
Atomic Energy Commission - M.M Haring Laboratory Director
November 23, 1949

Pages 11 & 39

DECLASSIFIED

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MLM-396

A. PURPOSE

This outline has been prepared to establish the general method of operation of Scioto Laboratory ~~in cold stand-by condition~~ and to aid in the administration of Scioto Laboratory under these conditions. It is fully realized that this outline does not cover in minute detail all policies for Scioto operation, but it is hoped that enough detail is included to establish the "tone" for the complete operation in the defined condition.

Cold stand-by operation is defined as limited operation and maintenance of this facility. Limited operation does not include any processing of radioactive materials.

The plant is built in every detail, including (as far as feasible) complete installation of apparatus and equipment. A partial stock of supplies, sufficient to begin expanded operations, is on hand. The plant is maintained in good condition. Some equipment is canned, but none covered with heavy grease. All machines, motors, etc. are turned over at regular intervals. Delicate instruments are inspected and repaired regularly. The power plant is run at a level to prevent freezing and permit comfortable working. The chemical equipment itself will not be used in this cold stand-by operation because this would necessitate the institution of extensive health measures and the presence of a technical staff.

Expansion, with transition to more extensive operations, is covered in the "Outline for Hot Stand-by Operation of Scioto Laboratory."

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MIM-396

not used in daily routine work. This is necessary in order that proper preparations can be made for the prevention of any toxic effects and the emergency treatment in case of an accident.

Blood Donors

Before donating blood, all employees should consult the company physician.

Accidents

Transportation for employees sent home will be arranged by the Business Manager. During off-duty hours, if the doctor is not available, the Troopers in charge will apply first-aid treatment, and, in case of a serious accident, the patient will be taken directly to a hospital for the necessary treatment.

Health Physics

In the event of extended operations at Scioto Laboratory, it will be necessary to utilize the personnel monitoring facilities at Mound Laboratory until the "I" Building can be constructed. Facilities for the rest of the Health Physics Program have been provided.

All instruments required for carrying out the Health Physics Program will have been purchased and properly installed, with the exception of "I" Building equipment, before December 31, 1949. All instruments that operate from a normal, electric, wall outlet will be ready for immediate use; all battery-operated instruments will require the installation of batteries. It will be necessary to obtain these batteries from Mound Laboratory or by purchase.

UNCLASSIFIED

Extended Operations at Scioto Laboratory. Mound Laboratory
Atomic Energy Commission
May 1, 1950

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MM-451

- c. Construct barracks in the warehouses.
- d. Construct a trailer camp on the site.

The first proposition is naturally the most attractive, the third and fourth are the most likely to be available.

7. Immediate Requisition or Transfer of Supplies

Because of the lack of authorization, few if any, operational supplies are now in Scioto Laboratory warehouses. A good supply of materials necessary for maintenance of mechanical equipment has been transferred from the surplus stock of the Maxon Construction Company to the Scioto Laboratory warehouses. Bills of material have been prepared to cover all needed starting supplies and stock. Duplicate lists will be kept at each site. These will be transposed into purchase orders immediately when an emergency arises. It is estimated that the majority of the required items can be obtained in approximately two months if Mound Laboratory purchasing facilities are available to aid in the requisitioning program. If Mound Laboratory stocks are available to supply immediate needs, the time loss would only be that required to truck these materials to Marion, Ohio. The lack of our raw material merits special consideration. To change the stream of supply to Scioto Laboratory on a continuous, fully operating basis, the change date must be anticipated by at least seven months. However, real emergency can be materially alleviated by the use of the Mound Laboratory stockpile which, with its decay factor, could furnish a full production quota for a period of 10 weeks at full operating level. Since it is estimated above that a six-month interval would be necessary for transition to full operation at Scioto Laboratory, it is felt that this

*Mound and Scioto Laboratories, A Brochure on the Atomic Energy Commission
Facilities Operated by Monsanto Chemical Company*
Atomic Energy Commission
October 23, 1950

Page 67

UNCLASSIFIED

MEM-504

III. SCIOTO LABORATORY

A. Functions

Scioto Laboratory was designed and built to furnish a replacement Mound Laboratory production facilities if needed, or, supplemental production capacity for polonium and special items. No provision was made for research or development. All other facilities were tailored to maintenance and essential services. Although less pretentious than Mound Laboratory, its principal building has greater production capacity than that site. Being designed with the experience accumulated at the parent site, it is more efficient and, in some respects, more convenient. By Commission directive it is, at present, in a state known as "Cold Standby," i.e., in a functioning state but, to date, uncontaminated with radioactivity. Accordingly, the staff consists almost entirely of security and maintenance personnel. Frequent and regular inspections by Mound Laboratory technical personnel insure its readiness for service.

B. The Site

This laboratory is located about 5 miles northeast of downtown Marion, Ohio, on a part of the reservation formerly known as Scioto Ordnance Works. It is also about 100 miles northeast of Mound Laboratory. The whole site is extremely flat and is rich agricultural land. No rock is encountered to a very considerable depth. The reservation has an area of 1162 acres. The main body is approximately rectangular, being about 6000 ft. in an east - west direction and 6000 ft. in a north - south direction. On the western end a spur runs north for about 6000 ft. while its counterpart to the south runs southeast about 6500 ft. These spurs were to allow control of rail facilities clear out to the main lines. Anywhere in the rectangular part would be useful for construction.

The reservation is served by about 7.5 miles of blacktop road and 9.7 miles of railroad tracks including sidings, 2.7 miles of which were reconditioned during construction. A large classification yard is located on the site. A parking lot just outside the fence on the south side near the main building cares for all cars presently on the site. It is surfaced with steel landing mat and can be extended almost indefinitely. Only part of the property is presently fenced in. The main portion runs east and west about 3900 ft. and north and south about 800 ft. A spur runs about 1500 ft. west to include trooper headquarters and the access road. The outer perimeter is about 13,000 ft. around. The main building is surrounded by an inner perimeter fence. All fencing is 8 ft. high cyclone. Ground around the main building has been sown with grass seed which has grown well. Much of the enclosed area is crushed stone and gravel and is fairly hard.

UNCLASSIFIED

Scioto Laboratory Report by the Manager, ORO
Atomic Energy Commission
June 22, 1953

Pages 1-2

6/22/53

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Redacted Version or Extract
for Public Distribution

ATOMIC ENERGY COMMISSION
MOUND LABORATORY-MONSANTO
Central File No. 53-6-70 (EXTRACT)

SCIOTO LABORATORY

Report by the Manager, ORO

THE PROBLEM

1. To consider the disposition of Scioto Laboratory

BACKGROUND

2. On November 7, 1947, the Commission considered a report by the Director of Production entitled "Site Selection, - Monsanto Unit VI" concerning the need for alternate and supplementary polonium and uranium producing facilities. At that time the construction of the Mound Laboratory was nearing completion. It was expected that by January 1, 1950, the military requirements for polonium would be increased beyond the capacity of the Mound Laboratory for the production of polonium. In the event of an accident at the Mound, the initiator production would be curtailed, since there was no other plant for the production of polonium, polonium could not be successfully stockpiled, and a replacement plant could not be put into operation in less than a year. The General Manager was authorized to provide alternate initiator production facilities, and a portion of the Scioto Ordnance Works at Marion, Ohio, was selected as the Site. Conversion of the Ordnance Works' facilities, and construction of the process and waste disposal units were authorized by the Manager, ORO, on June 21, 1948. Construction was completed July 1, 1949, and the plant was accepted for operation on August 15, 1949. Since October 1, 1949, the plant has been

MOUND LABORATORY
 REVIEW
 DATE: 11/13/2000
 BY: [Signature]
 AUTHORITY: [Signature]
 NAME: H. HARRIS
 END REVIEW DATE: 11/13/2000
 AUTHORITY: [Signature]
 NAME: [Signature]

William 4/13/2000

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~~RESTRICTED DATA~~
 - 1 -

~~RESTRICTED DATA~~
 This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmission or the disclosure of its contents in any manner to unauthorized persons is prohibited.

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maintained in standby by the Monsanto Chemical Company.

3. The Site, which was procured from the War Assets Administration, comprises 1,183 acres, more or less, with 21 miscellaneous buildings, fencing, roads, railroad siding, water, sewerage, and electrical distribution systems. The acquisition cost was approximately \$635,000. The production process building and process waste disposal plant were constructed by the Commission at a cost of approximately \$6,000,000 and \$600,000 respectively. Some \$800,000 was spent on site improvement, bringing the total expenditure by the Commission to approximately \$7,531,000 excluding the cost of acquisition of the Site.

4. Since the completion of Mound Laboratory in 1948, operating experience and process improvements have continually increased the plant capacity for concentration of polonium and production of initiators. Most recent estimates indicate that Mound could furnish the required number of present strength initiators through about 1957.

DO E
b(3)

There has been no significant experience of work stoppage because of spills of radioactive material or failure of process equipment. During fiscal years 1950, 1951, and 1952, it was assumed each year that Scioto would be activated in the ensuing year. Scioto was also considered as a location for a polonium-208 initiator plant, and as a location for an actinium initiator plant. During FY 1953, the polonium-208 project was abandoned, and plans for construction of an actinium plant were deferred. Recognizing the ability of Mound to satisfy initiator requirements, except

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Scioto Laboratory Subject: To consider the Disposal of Scioto
Atomic Energy Commission - Director of Production Laboratory
October 16, 1953

Pages 3-4

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APPENDIX "A"

BACKGROUND

1. At Meeting 122 on November 14, 1947, the Commission considered a report by the Director of Production entitled "Site Selection - Monsanto Unit VI" concerning the need for alternate and supplementary postum and urchin producing facilities. At that time the construction of the Mound Laboratory was nearing completion. It was expected that by January 1, 1950, the military requirements for polonium would be increased beyond the capacity of the Mound Laboratory for the production of polonium. In the event of an accident at Mound, the initiator production would be curtailed, since there was no other plant for the production of polonium, polonium could not be successfully stockpiled, and a replacement plant could not be put into operation in less than a year. By Commission approval of the recommendation of the above referenced report, the General Manager was authorized to provide alternate initiator production facilities, and a portion of the Scioto Ordnance Works at Marion, Ohio, was subsequently selected as the site. Conversion of the Ordnance Works' facilities, and construction of the process and waste disposal units were authorized by the Manager, ORO, on June 21, 1948; construction was completed July 1, 1949; and the plant was accepted for operation on August 15, 1949. Since October 1, 1949, the plant has been maintained in standby by the Monsanto Chemical Company.

2. The site, a plot plan of which is designated as Appendix "B"* to this report, was procured from the War Assets

*Not attached to this paper but on file in the Office of the Secretary.

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Administration and comprises 1,277 acres, more or less, with 21 miscellaneous buildings, fencing, roads, railroad siding, water, sewerage, and electrical distribution systems. The acquisition cost was approximately \$631,250. The production process buildings and process waste disposal plant were constructed by the Commission at a cost of approximately \$6,000,000 and \$600,000 respectively. Some \$800,000 was spent on site improvement, bringing total expenditure by the Commission to approximately \$7,531,000 excluding the cost of acquisition of the site.

3. The estimated cost of standby operation for Scioto during FY 1954 is \$290,000, which provides for a staff of thirty-seven contractor people and contains an allocation for Mound overhead.

DISCUSSION

4.

Deletion

Furthermore, operating experience has shown that no significant disruption of production should be expected at Mound as a result of the release of radioactive material or the failure of process equipment. In the event of an interruption of production at Mound, either by an industrial accident, sabotage, or aerial bombardment (short of a direct atomic bomb hit), it is probable that restoration of Mound could be accomplished more expeditiously than activation of Scioto.

5. In light of the cost of maintaining Scioto in standby, its lack of essentiality to the initiator program, as well as the

Appendix "A"

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Unclassified Disposal of the Scioto Laboratory
Report to the General Manager by the
Atomic Energy Commission - Director of Classification
March 9, 1954

Appendix A Pages 3-5

~~CONFIDENTIAL~~~~CONFIDENTIAL~~APPENDIXBACKGROUND AND DISCUSSION

1. The Division of Production, as a consequence of the curtailment of polonium production, is planning to dispose of the Scioto Laboratory. This facility at Marion, Ohio, was originally built as a standby facility for the Mound Laboratory and has never been placed in active production. In order to insure, before any disposal action is taken, that Scioto Laboratory could not be utilized effectively within the AEC over-all program, a number of steps have been taken. These included a survey by both Directors and working committees of the various operating Divisions to determine if the facilities could be used within their programs. During the hearings of the Ad Hoc Subcommittee on the Mound Laboratory Program it was stated: "over the three month period preceding the hearings of this subcommittee the management of the (Mound) Laboratory held at least three talks weekly with interested persons." These talks included discussions on potential programs for Scioto Laboratory. At one time it appeared that Scioto would prove satisfactory for a portion of the ANP program, but the facility was subsequently rejected by Pratt and Whitney.

2. As a result of the planned disposal, the Division of Production requested the Office of Classification to render an opinion on whether or not unclassified disposal of the Scioto facility will reveal Restricted Data. The Office of Classification inspected the facility and determined that insofar as the process or the process technology at Scioto were concerned, no classified information can be obtained from access to or possession of the facility and its equipment, as the facility now stands

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(partially dismantled). However, this same inspection indicated that data other than process data may be determined or surmised by uncleared individuals if the facility is disposed of on an unclassified basis.

3. The following is a summary of the information which can be obtained from visual inspection of the facility:

a. The facility was some sort of a production laboratory.

Remark: This is evident from the fact that the layout of the laboratory is completely dissimilar from normal research laboratories. The equipment that is installed, is installed on a permanent basis, the equipment itself is larger than is normal in a research laboratory, and there is extensive duplication and triplication implying that the facility was built for a purpose other than research.

b. The production operation involved the separation of radioactive materials.

Remark: This is evident in the fact that shielding of all types abounds in the facility. In addition, rows of "dry boxes" which are fairly standard for handling alpha radioactive products fill the laboratory.

c. Separation created two types of materials, a waste material and a product. The waste material was more highly radioactive insofar as gamma activity is concerned than the other materials and the product was either very toxic or was an alpha emitter (or a weak beta emitter).

Remark: This is evident from the layout and sequence of the equipment. On one end, there were the rubber glove lines and the dry boxes and on the other end the massive shielding customary with highly radioactive materials.

d. The facility has never been in active production.

Remark: This is evident from the newness of the equipment, the lack of any indication of normal wear and tear and in some cases the fact that protective coatings for storage are still intact.

e. The facility was operated for the AEC by the Monsanto Chemical Company which also operates the Mound Laboratory at Miamisburg, implying that the facility is probably for similar purposes.

4. From the above and the fact that we are disposing of this facility at the same time that we are curtailing activities

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at the Mound Laboratory, it is probable that one can deduce that Scioto was a standby facility for the Mound Laboratory for processing polonium. AEC 654/2 - "Declassification Policy for Mound Laboratory," contained a discussion of the probability that the mission and purpose of Mound with respect to polonium initiators had already been compromised. It is the opinion of the Division of Production and the Office of Classification that the above cited facts which would be available to purchasers involved in the unclassified disposal of Scioto, would not imply the mission of Scioto Laboratory to any greater extent than is presently implied by its relation to the Mound Laboratory and by the publicly available data on Mound.

5. If the Scioto Laboratory were to be disposed of on a classified basis, it would be necessary to remove equipment, to destroy the classified aspects, and to place the building in a virtually stripped-down condition. The estimated cost of this action is \$100,000. In disposing of the building on an unclassified basis, we do not anticipate any cost, except that GSA sometimes requires us to hold a building for 12 months while they attempt to dispose of it. In such case, the guard cost is estimated at \$75,000 to \$100,000. At the present time, it is costing us approximately \$290,000 per annum to maintain Scioto. If we retain the facility on a classified basis, maintenance on a reduced basis would cost approximately \$150,000 per annum. Since there appears to be no present use for the facility for other AEC programs, it is believed that the unclassified disposal will be of advantage to the AEC.

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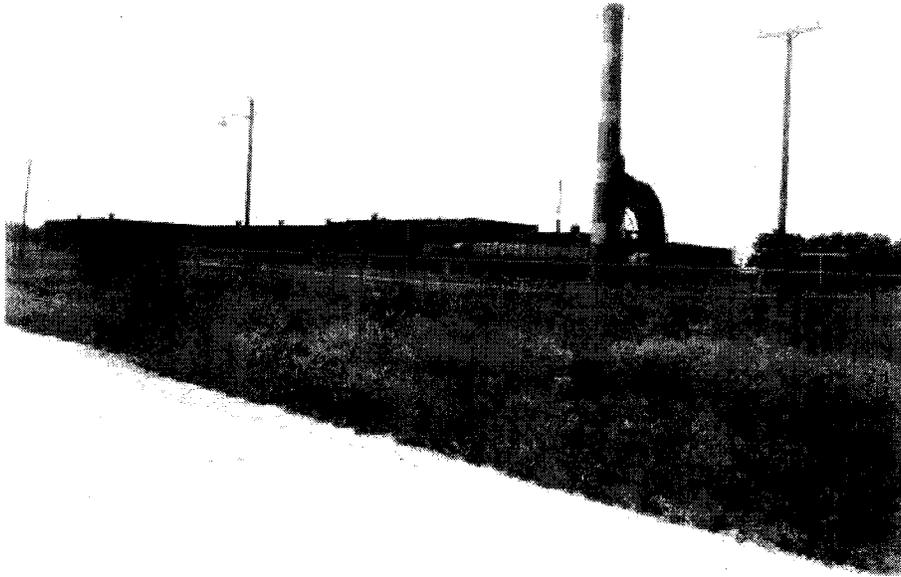
APPENDIX D

Site Photographs

Scioto Laboratory Complex
Historical (most likely taken between 1948 and 1950) and Recent (1998 and 2002)
Site Photographs



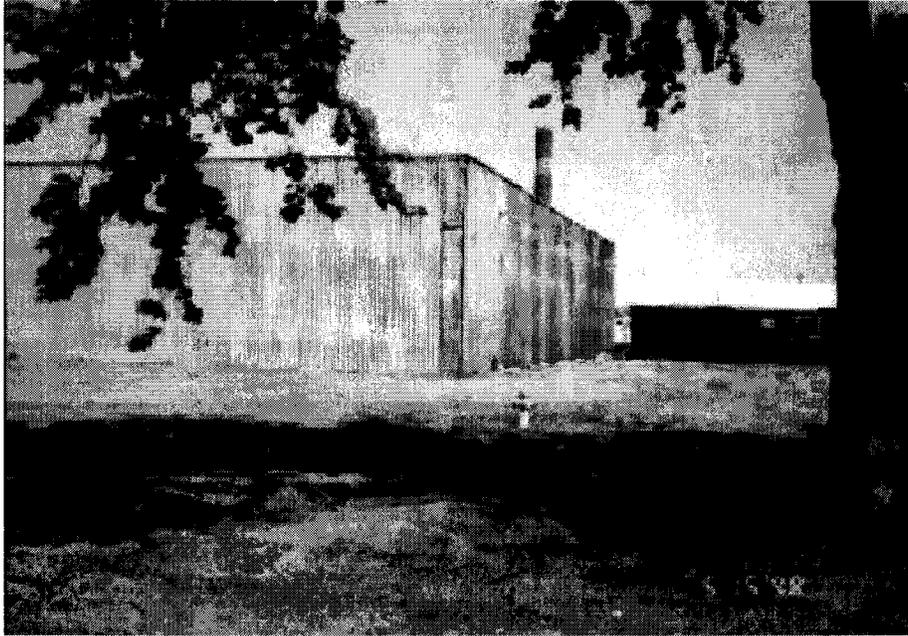
Historical Photo: Scioto Laboratory Complex



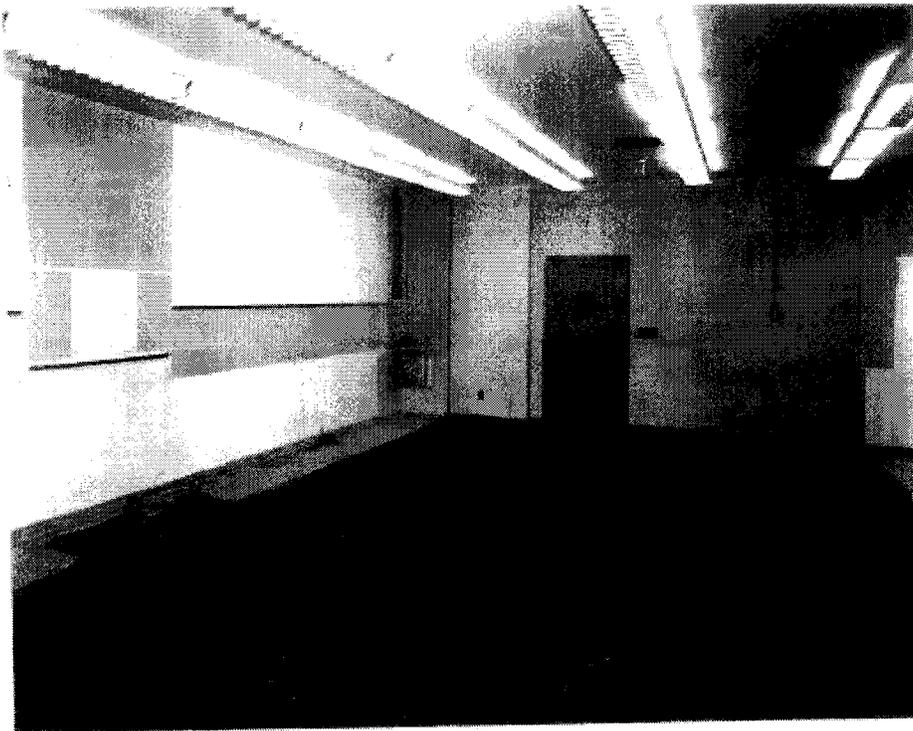
Historical Photo: Process Research (PR) Building from Rear



May 1998: Process Research (PR) Building South End of the East Side of Building



May 1998: Process Research (PR) Building is on the Left



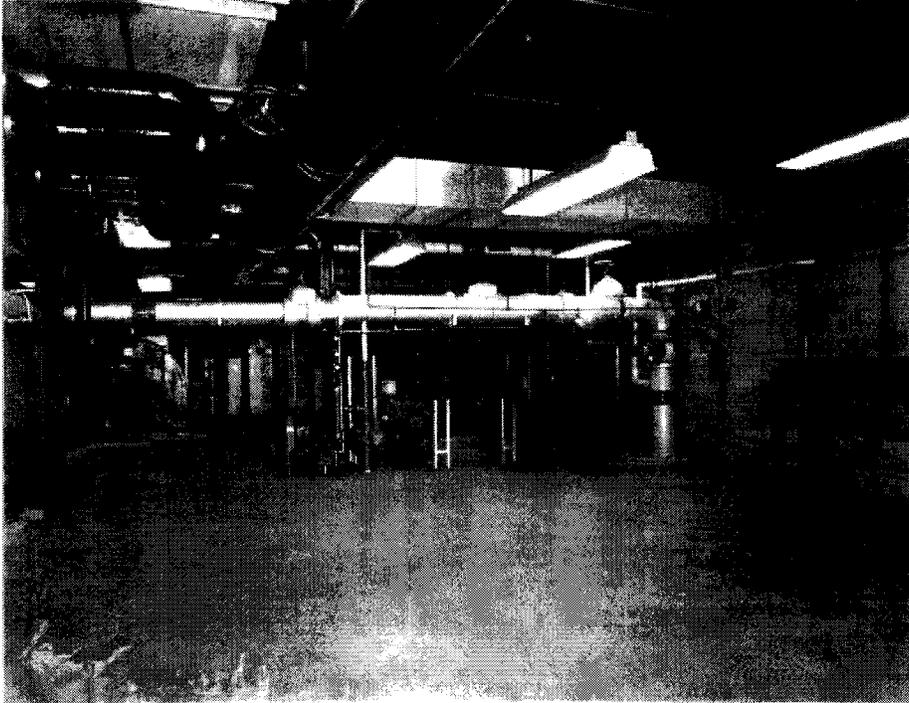
Historical Photo: Process Research (PR) Building Typical Lab



Historical Photo: Upper Level of the Process Research (PR) Building



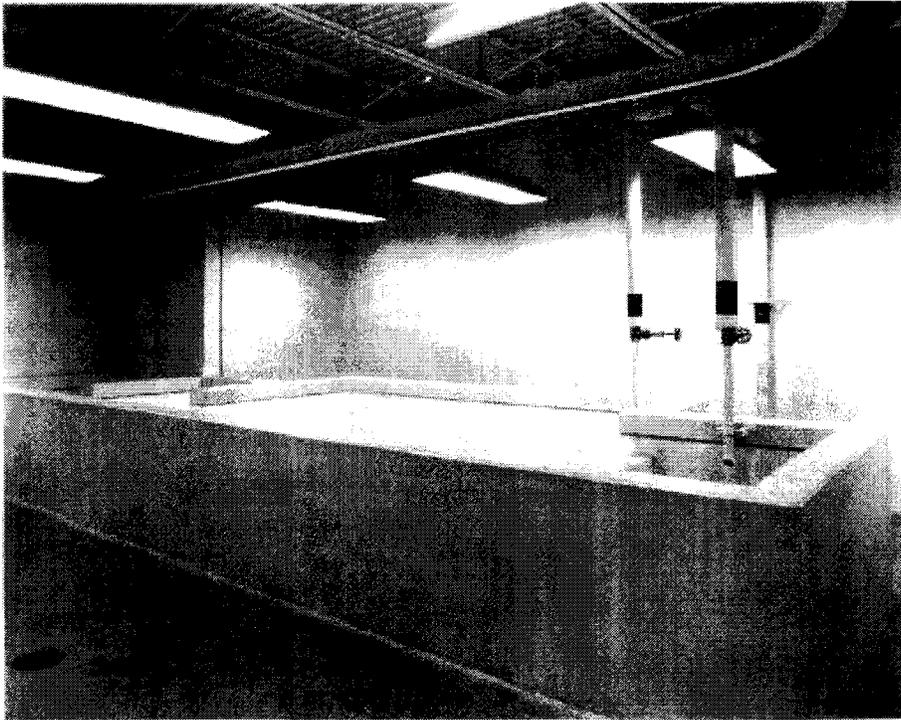
August 2002: Upper Level of the Process Research (PR) Building



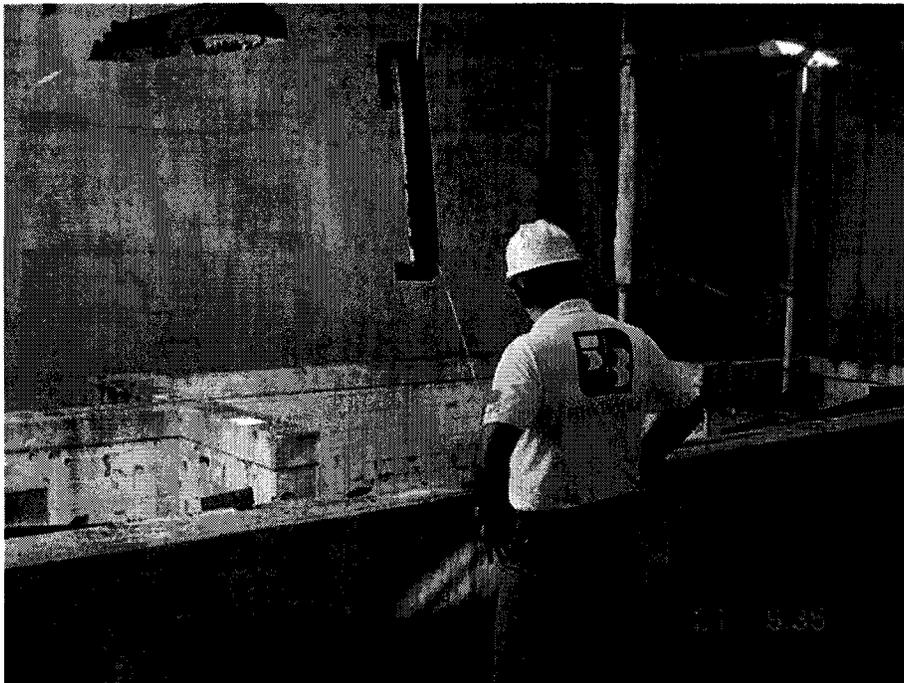
Historical Photo: Upper Level of the Process Research (PR) Building



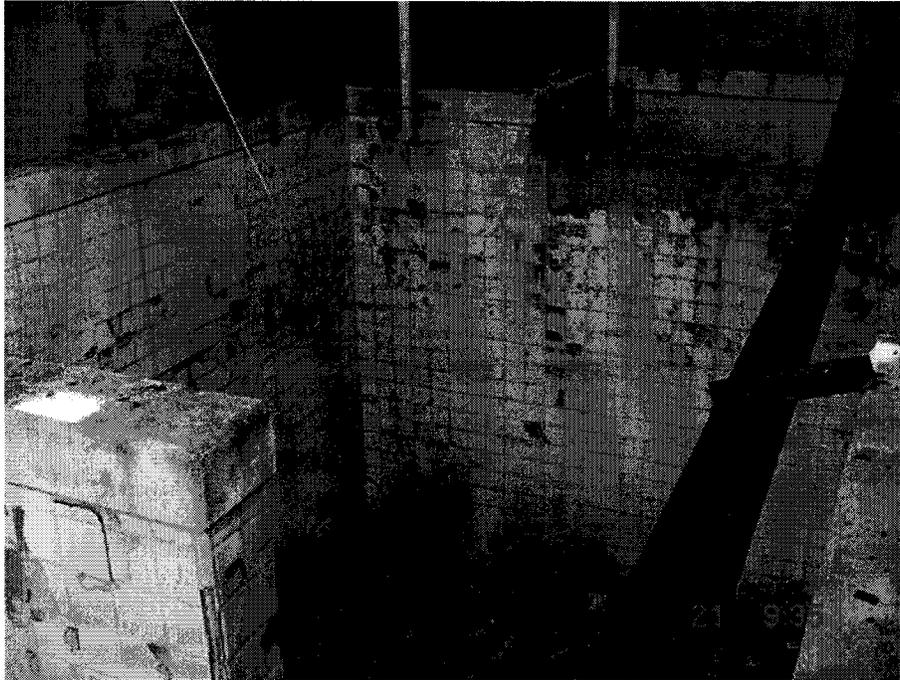
August 2002: Lower Level of the Process Research (PR) Building



Historical Photo: Pool in the Process Research (PR) Building



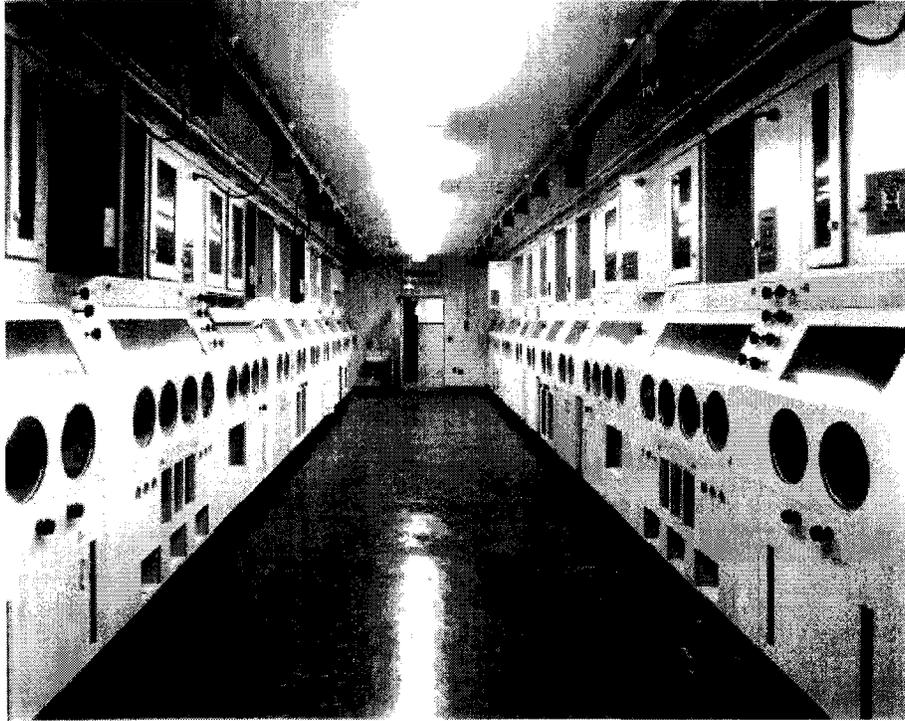
August 2002: Pool in the Process Research (PR) Building



August 2002: Pool in the Process Research (PR) Building



August 2002: Process Research (PR) Building



Historical Photo: Hood Line in the Process Research (PR) Building



August 2002: Southern Wall of the Waste Disposal (WD) Building



August 2002: Northern Wall of the Waste Disposal (WD) Building