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Environmental
Restoration
Program

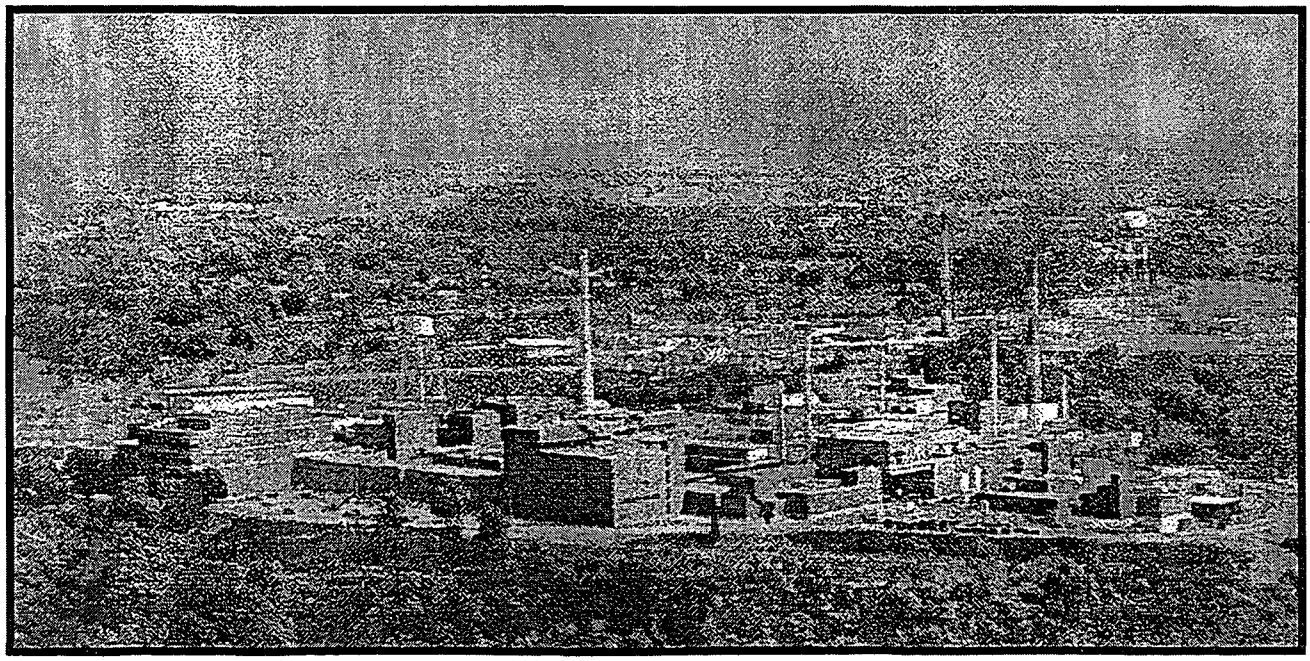
OhioEPA

Miamisburg Closure Project
Building Data Package

Building 28

(Transition)

Final
September 2003



The Mound Core Team
500 Capstone Circle
Miamisburg, OH 45342

September 2003

Mr. Daniel Bird, AICP
Planning Manager
Miamisburg Mound Community Improvement Corporation
720 Mound Road
COS Bldg. 4221
Miamisburg, Ohio 45342-6714

Dear Mr. Bird:

The Core Team, consisting of the U.S. Department of Energy Miamisburg Closure Project (DOE-MCP), U.S. Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA), appreciates your comments on the Building 28 Building Data Package. Attached is our response.

Should the responses to comments require additional detail, please contact Paul Lucas at (937) 847-8350, x314 and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MCP: Paul Lucas 9/8/03
Paul Lucas, Remedial Project Manager — date

USEPA: David P Seely 9/8/03
David P. Seely, Remedial Project Manager — date

OEPA: Brian K Nickel 9/16/03
Brian K. Nickel, Project Manager — date

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Response to MMCIC Comments on the
Building 28 Building Data Package
Public Review Draft
August 2003

Substantive Comments

Comment 1. It is our understanding from the review of the Building 28 Data Package that this building has been inspected and is ready for permanent transfer to MMCIC. MMCIC concurs with this proposed activity.

Response 1. We appreciate your input and review of the document.

Comment 2. The Building Data Package states that a walk-through survey was performed to identify asbestos containing materials. The report notes that the survey was of readily accessible areas only. Since MMCIC is to take ownership of this building, we would request more detailed information of the status of ACM in the building. Much of this information can likely be compiled from the two previous asbestos surveys (1989 and 1992) and the current walk-through inspection. MMCIC would request a report detailing the location, amount and condition of all asbestos containing materials. MMCIC is particularly concerned with any potentially friable ACM (including ceiling tiles, thermal insulation and piping insulation) that would require removal during any future renovation or demolition activities.

Response 2. A walk-through survey of Building 28 was performed on April 24, 2003 to identify whether there are any existing asbestos hazards that could affect building occupants. The walk-through survey was only of readily accessible areas and did not include areas that require inordinate or destructive means to gain access, such as behind walls, above ceilings, and in areas requiring a ladder to access. Additional information is provided in the two previous asbestos surveys (1989 and 1993), and the applicable sections of the Mound Asbestos Management Plan (1993), which have been added to Appendix I. Please note that much of the asbestos materials that are mentioned in those surveys have already been removed.

The purpose of a BDP is to present to the Core Team information and data regarding any recognized environmental conditions that may affect the subject property and building. The Core Team reviews and evaluates the information and data to determine whether there is any risk to human health or the environment. The Recommendation page bound in the front of the BDP documents the Core Team's decision that all existing environmental issues associated with the building have been resolved.

Accordingly, a complete and invasive asbestos survey of Building 28 is not necessary because there is no threat to workers in the building. If MMCIC is planning renovation or demolition activities in Building 28, it would be recommended that an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist be consulted to assess the materials to be affected by any renovation operation.

Comment 3. If MMCIC's understandings are correct, no specific response to the above comment is necessary, and MMCIC further understands these comments will be included in the final Building Data Package.

Response 3. We appreciate MMCIC's consideration regarding formal responses to comments. These responses are provided because of the additional information requested in Comment 2.

Errata

Comment 1. No comments.

MIAMISBURG CLOSURE PROJECT

BUILDING DATA PACKAGE
Notice of Public Review

The following document is available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio. Public comment on this document will be accepted July 26, 2003 through August 25, 2003.

BDP Building 28: Ceramic Production/Plastics Development

Questions can be referred to Paul Lucas at (937) 847-8350 ext. 314

U.S. Department of Energy
U.S. Environmental Protection Agency
Ohio Environmental Protection Agency

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RECOMMENDATION

Building 28

Background:

Since its original construction in 1966, Building 28 served several functions:

Maintenance Shop for heavy equipment	1966 to 1969
Plastics Development Facility	1969 to late 1980s
Fire Protection Support Operations (Room 5)	1974 to1975
W76 (weapons program) Processes (Room 5)	1975 to unknown end date
Ceramics Production Facility	1985 to 1995
Facility leased under DOE User Agreement to MMCIC for private industry use (Machine Shop)	1995 to present

From 1995 to the present, Building 28 has been leased under DOE User Agreement to MMCIC. The building will continue to be used as a machine shop and occupied by the current tenant, Mound Manufacturing Center, until it is transferred to MMCIC.

All radiological surface data and radon data are below applicable screening levels. All soil sampling (radiological and chemical) data that can be evaluated within the risk evaluation process are below applicable screening levels. The DOEES project data was not evaluated (BDP Table 2); however, that data is below the 2×10^{-5} RBGV, which is within the acceptable risk range (10^{-4} to 10^{-6} per the NCP). No lead-based paint or asbestos hazards currently exist in the building. No spills or releases associated with Building 28 were reported. All known environmental issues (BDP Table 2) associated with Building 28 have been resolved.

Recommendation:

After thorough review of the environmental data and the Building Data Package, the Core Team agrees that all existing environmental issues associated with Building 28 have been resolved. Future use of Building 28 will be restricted to commercial/industrial use. The Core Team hereby recommends that the U.S. Department of Energy submit a letter to the Administrator of the U.S. EPA for final approval of the lease or sale of this property, as required by Section 120(h) of CERCLA.

DOE/MCP: Paul Lucas — 7/23/03
Paul Lucas, Remedial Project Manager — Date

USEPA: David P Seely — 7/22/03
David P. Seely, Remedial Project Manager — Date

OEPA: — 7/23/03
Brian K. Nickel, Project Manager — Date

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REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**June 2003**
DRAFT (to Core Team)	The regulatory review period was held 9 June 2003 through 9 July 2003.	**June 2003**
DRAFT PROPOSED FINAL (incorporates Core Team comments)	No regulator comments were received during the review period. Text was added to or modified in Sections 2.3 and 4.2.3, and Appendix L in response to verbal suggestions by Ohio and US EPAs.	**July 2003**
PUBLIC REVIEW DRAFT	The public review period was 26 July 2003 through 25 August 2003.	**July 2003**
FINAL	The Core Team's responses to public comments are provided at the front of this document. The Asbestos information (Table 1) was revised to note that copies of the 1989 and 1992 asbestos surveys are provided in Appendix I, and the documents were added to Appendix I along with applicable excerpts from the Mound Asbestos Management Plan (1993).	**September 2003**

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TABLE OF CONTENTS

Section Page

Tables

Appendices

1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the transfer of Building 28 (Ceramic Production/Plastics Development) and its associated desiccant shed to the Miamisburg Mound Community Improvement Corporation (MMCIC) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and building.

Recognized Environmental Condition: The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a likely release, a past release, or a material threat of a release of any hazardous substances or petroleum into structures, or into the air, ground, groundwater, or surface water near the building.

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for Building 28 located at the Department of Energy (DOE) Miamisburg Closure Project (MCP) in Miamisburg, Ohio. The investigation performed to support this BDP models procedures found in *ASTM Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process* (Designation E 1527-97).

The scope of the investigation included Building 28, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation of Building 28 and its associated desiccant shed included the following:

A) A building and perimeter inspection.
B) An examination of historical aerial photographs and maps.
C) A review of federal and state regulatory agency records.
D) Personnel interviews.
E) A review of site records for:

    1) History of spills, releases, and chemical inventories
    2) Past sampling data

        - Radiological survey
        - Soil sampling
        - Lead-based paint
        - Asbestos
        - Radon

In addition to the building investigation conducted by site contractor personnel, documents were reviewed. Information used to compile BDPs includes the following:

- Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes, August 1990
- Operable Unit 9 (OU-9) Site Scoping Report, Volumes 1-12
- Mound Facility Physical Characterization, December 1992
- Active Underground Storage Tank Plan, November 1994
- OU-9 Hydrological Investigation, Bedrock Report, January 1994
- OU-9 Hydrological Investigation, Buried Valley Aquifer Report, March 1994
- Environmental Appraisal Report of the Mound Plant, March 1996
- Title Search
- Lease Information
- EDR Report - Radius Map
- Building Prints
- Potential Release Site (PRS) information
- MD-22153, Mound Site Radionuclides By Location, June 1995 Contaminant Surveys
- MLM-3791, Mound Facility Physical Characterization, December 1993

2.0 BUILDING 28 OVERVIEW

Building 28

Building 28 was constructed in 1966 as the Heavy Equipment Maintenance Building with approximately 4,000 square feet of floor space plus a large covered area to the south. Since then, it has undergone six additions and/or modifications and currently contains approximately 11,329 square feet of floor space.

Building 28 is a single-story building with a partial basement and penthouse (mechanical room). Floor plans are provided as Appendix D. The building is located in the north-central portion of the site (Figure 1). The building is made of concrete block construction with a brick veneer exterior.

The building uses central steam for heating and chilled glycol for cooling. Electric service is 480 volts. The building has potable and non-potable water and sanitary services.

Desiccant Shed

Included in the Building 28 transition is the building's stand-alone desiccant shed (measuring approximately 16 feet by 19 feet) located two feet south of Building 28 (shown

on Figure 3). The shed has corrugated metal walls and a concrete slab. When Building 28 was used as a ceramics production facility, there was a "dry room" located in the partial basement of Building 28, just on the other side of the wall from the shed. The dry room included glass melting equipment and a large production vacuum/inert gas furnace. The desiccant shed housed a rotating bed of dry gel. Air was pumped from the dry room to the shed where the gel absorbed moisture, thus reducing the relative humidity of the air before it was returned to the dry room. The gel was regenerated by heating with non-contact steam from the plant steam lines.

Note - this shed is separate and distinct from the Building 60 shed. The Building 60 shed was the solvent shed (PRS 127) that served both Buildings 28 and 60. The Building 60 solvent shed was demolished as part of the Building 60 demolition activities.

2.1 Past Uses of Building 28

Building 28 served several functions (see Table 1) since its original construction in 1966.

Table 1 - Programs and Processes Housed in Building 28

Maintenance Shop for heavy equipment	1966 to 1969
Plastics Development Facility	1969 to late 1980s
Fire Protection Support Operations (Room 5)	1974 to1975
W76 (weapons program) Processes (Room 5)	1975 to unknown end date
Ceramics Production Facility	1985 to 1995
Facility leased under DOE User Agreement to MMCIC for private industry use (Machine Shop)	1995 to present

2.2 Current Uses of Building 28

From 1995 to the present, Building 28 has been leased under DOE User Agreement to MMCIC. The building will continue to be used as a machine shop and occupied by the current tenant, Mound Manufacturing Center, until it is transferred to MMCIC.

2.3 Summary of Environmental Concerns and Findings - Building 28

Table 2 - Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data could be found for Building 28. Observed paint coatings were largely intact. Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building (Appendix J).	No further action is necessary to protect occupant or worker health unless any coatings are to be disturbed by close worker contact (sanding, grinding, scraping, torch cutting, etc.). If these types of activities are planned, the affected paint coatings should be tested to verify the absence of lead. These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.
Chemicals	Appendix K provides a list of chemicals known to have been present in the building and/or associated desiccant shed while in use during the ceramics production era, and a list of chemicals in the building and/or associated desiccant shed as reported by the current tenant.	No further action required.
Fluorescent Lamps and Polychlorinated Biphenyls (PCBs)	N/A	N/A
Air Emissions	At the time the building was leased, there were three operational fume hoods. All other fume hoods were tagged as administratively shut down to alert personnel that they should not be used. Fume hoods that were contaminated with methylene chloride were cleaned up under the 1995 Safe Shutdown program, removed, and disposed of.	Per the lease agreement, "the sub-lessee is responsible for obtaining and complying with the necessary environmental and any other permits required for the operation of the leased property." No notifications have been made. No further action required.

Table 2 - Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Asbestos	Previous asbestos surveys were completed in 1989 and 1992 (copies provided in Appendix I). These surveys were intended to identify all reasonably accessible asbestos-containing materials (ACMs) within the building for the purposes of identifying damaged material and managing asbestos in place. Documentation indicates that all damaged materials were repaired. On April 24, 2003 Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a walk-through survey of the readily accessible areas of Building 28 in order to verify the presence of previously identified ACMs. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing ACMs. Most of the materials previously identified appeared to have been completely removed during a previous asbestos removal effort. No damaged ACMs were seen during the survey (Appendix I).	Any remaining ACMs should be monitored periodically to ensure that they remain undamaged. No other actions would be required unless the building is scheduled for renovation or demolition; such activities would require the removal of affected asbestos.
Drainage Sumps	N/A	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Radiological surveys were performed and the building meets surface release criteria (see Section 2.4 and Appendix G).	No further action required.
Septic System	N/A	N/A
Wastewater	Handled by site wastewater facility.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	N/A	N/A
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A

Table 2 - Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Radon	Within acceptable limits (Appendix H).	N/A
Energetic Material/HVAC	N/A	N/A
Soil Sampling	Appendix L contains a graphic and table presenting results of all soil sampling data within a 30-foot perimeter of Building 28. A 30-foot perimeter was used in place of the standard 15-foot perimeter because of the limited data available. All analytical results that can be evaluated within the risk evaluation process are below applicable screening levels. Measurement results from the DOE Site Survey Project (DOEES) were judged to be lacking in quality for risk assessment purposes and segregated from the data set. Because the DOEES project data is not evaluated in the site risk evaluation, it is also not evaluated in this BDP. Even though the DOEES project data is not used, all results within 30 feet of Building 28 are below 2 x 10^{-5} Risk-Based Guideline Value (RBGV), which is within the acceptable risk range (10^{-4} to 10^{-6} per the NCP).	Based on the historical analytical data, soil sampling is not planned.

N/A: not applicable

The above information will be disclosed to the new owner via the Environmental Summary.

Documentation that Building 28 met the facility transition transfer criteria following the 1995 Safe Shutdown activities is provided in Appendix O. Safe Shutdown activities included, but were not limited to, a review of radioactive, explosive, chemical, and waste materials associated with previous building operations, as well as verification of the removal (if applicable) of said materials.

2.4 Radiological Characterization Summary for Building 28

A radiological assessment of Building 28 was performed by reviewing historic and operational records and performing radiological surveys. Until 1966, Building 28 was a heavy equipment maintenance facility. From 1969 to 1995, it was primarily used as a

plastics and ceramics processing facility. Since 1995 it has been used as a machine shop and continues to do so today. No radiological process systems were ever a part of the Building 28 operations, and no radioactive material were ever used or stored there. Radiological surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).

Two data points on the exterior walls were initially found to be above the surface release criteria, but based on additional testing were found to be the result of short-lived activity from radon daughters. The additional testing showed that no long-lived activity was present at these locations. All of the remaining data points were found to be below the surface release criteria. The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5 (see Table 3), and no further radiological surveys are required. Supporting documentation for the information summarized in the following table is contained in Appendix G.

Table 3: Radiological Summary

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm²) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm²) (Note 2)
Highest Alpha Smearable Activity	03-TF-0048	Interior Wall	5.8	20
Highest Alpha Fixed Activity	03-TF-0050	Exterior Wall	96	100
Highest Beta Smearable Activity	03-TF-0048	Interior Floor	10.2	1,000
Highest Beta Fixed Activity	03-TF-0050	Exterior Wall	1,825	5,000
Highest Tritium Smearable Activity	03-TF-0048	Interior Wall	12.77	10,000

Note 1: Residual radiological activity may be present and not be a concern (within applicable limits). This may result from or be a function of counting statistics, instrument variances, the randomness of decay, radon presence, and/or natural fluctuations in background levels.

Note 2: Guideline values per DOE Order 5400.5, Radiation Protection of the Public and the Environment.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 28 is located at the DOE MCP site, formerly known as Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

The Mound Plant at one time was situated on approximately 300 acres of land and contained approximately 130 buildings with a total of approximately 1.4 million square feet of floor space (the number of buildings is constantly diminishing as buildings are decommissioned and either sold or demolished). The original 182-acre site, purchased by the Manhattan Engineering District in 1946, consisted of two hills and an intervening valley

that runs approximately east and west. The 124-acre tract acquired in 1981 was an undeveloped mixture of fields and woods that undulates and slopes downward to the west, away from the main site. This area was acquired to serve as a buffer and has been used as a staging area and parking area for contractors working onsite.

To the west lies a railroad line and the north south trending Miami-Erie Canal. The northern boundaries of the site abut the residential area of Miamisburg, Ohio. Mound Road marks the northern half of the eastern perimeter of the facility then veers east, away from the southern half of the eastern boundary. A public golf course (belonging to the City of Miamisburg), the Miamisburg Mound Memorial Park, old agricultural fields, residential lots, and vacant wooded lots border the facility along Mound Road. Benner Road formed the southern property line of the Mound Plant (at the 300-acre stage), with agricultural fields and farms occupying the lands beyond.

3.2 Description of Structures, Roads, Other Improvements in Proximity to Building 28

As shown in the Appendix C figures, Building 28 is bordered on the south by its desiccant shed and grassy hillside; on the west by a water tower and P Building (Powerhouse), and the north by an asphalt roadway and W Building (Warehouse). The photos show Building 60 (Ceramic Facility) east of Building 28; however, Building 60 was demolished in April/May 2003.

3.3 Current and Past Uses of Buildings in Proximity to Building 28

The closest buildings to Building 28 are Buildings P, GW, W, and 47.

Buildings 47 (Central Fire House), W (warehouse), and GW (receiving/inspection) are currently undergoing preparations for demolition. Building P (powerhouse) is currently operational; however, once dependant buildings have been demolished or made stand-alone, Building P is scheduled to be demolished.

Building 60 was adjacent (to the east) to Building 28, and was a ceramic facility demolished in April/May 2003.

These facilities are believed to have had minimal or no environmental impact on Building 28.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), the site has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a

hazardous waste storage facility under a RCRA Part B Permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that no reportable chemicals are stored in Building 28.

The Mound Plant was identified as a contaminated site on the National Priorities List (NPL) under CERCLA (Superfund) in 1989. The Mound Plant was originally listed due to volatile organic compound (VOC) contamination in the western end of the lower valley area. The cleanup of the site was originally to be accomplished under the CERCLA mandated procedures for regulating Superfund Sites using the operable unit (OU) system to define and characterize cleanup areas. As the cleanup effort went forward, it became apparent that the site did not fit the profile for a cleanup strategy based on the operable units. The DOE, the United States Environmental Protection Agency (USEPA), and OEPA designed a new decision making process for the cleanup of the site.

The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach*. The Mound 2000 Process system divided the site into geographical parcels containing more than 400 PRSs with approximately equal number of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had a release of radioactive and/or hazardous materials. The PRSs were initially identified and documented as part of the Mound site scoping process under the Federal Facility Agreement (FFA). The original list of PRSs can be found in the OU9- Site Scoping Report Volume 12, Site Summary Report, 1994. One of the objectives of the Site Scoping report was to provide a comprehensive summary of PRSs identified through the scoping process. Subsequent to the 1994 Site Scoping Report, additional PRSs have been identified as information became available, bringing the site total to 440 PRSs. The assignment of a PRS does not necessarily mean that there is a threat to human health or the environment. The tabulation of all PRSs simply provides an explicit means of tracking and evaluating all potential releases onsite, the need for further action, and the identification of the authority responsible for action.

Through the process described above, the specific PRSs in the vicinity of Building 28 are shown on Figure 2 and listed in Table 4 (Section 4.2.3) along with their binning status. The two unbinned PRSs are associated with P Building and will be addressed in the P Building BDP. The six other PRSs (two of which were associated with Building 28) have been determined by the Core Team to require No Further Assessment (NFA). For a PRS to be binned NFA, the Core Team has reviewed the PRS data and agrees that all existing

environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with Building 28 have been identified.

4.2 Specific Record Sources for Building 28

4.2.1 Occurrence Reports

A search of the occurrence reporting system revealed two reports, both of which were minor and without environmental impact. Copies are provided in Appendix M.

- False alarm
- Calibration test error resulting in over pressurized container.

4.2.2 Spills and Releases

- None

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the FFA/DOE Environmental Restoration (ER) Program, DOE and the site contractor tabulated all of the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, eight are near Building 28 (Table 4, Figure 2). Additional information is included in Appendix N.

Table 4 - PRSs in Proximity to Building 28

PRS	CERCLA or Bldg. Related	Binning Status	Comments
101	Buildings	unbinned	Cooling Tower Basins. Will be addressed with Building P BDP.
102	Buildings	unbinned	Cooling Tower Drum Storage Area. Will be addressed with Building P BDP.
114	CERCLA	No Further Assessment (NFA)	Powerhouse Fuel Oil Storage Tank (Tank 113)
115	CERCLA	NFA	Powerhouse Fuel Oil Storage Tank (Tank 114)
116	CERCLA	NFA	Powerhouse Fuel Oil Storage Tank (Tank 115)
117	CERCLA	NFA	Powerhouse Fuel Oil Storage Tank (Tank 116)
126	CERCLA	NFA	Building 28 Solvent Storage Area
127	CERCLA	NFA	Building 28 Solvent Storage Shed. (This shed was included in the Building 60 demolition activities.)

4.3 Review of Building Prints

Building prints were reviewed and no significant items were identified. Floor plans are included in Appendix D.

4.4 Aerial Photographs

Three aerial photographs are presented in Appendix E; 1965 (prior to construction), 1968 (recently constructed), and 1996 (most recent aerial photo). These photographs were reviewed and no significant items were identified.

4.5 Interviews

During the 1995/96 site-wide Environmental Appraisal, Building 28 was leased and occupied by a private company. Accordingly, there was no Building Manager's Questionnaire completed at that time. The current Building Manager, Mark Tibbs, indicated that no significant items in the building had been reported to him.

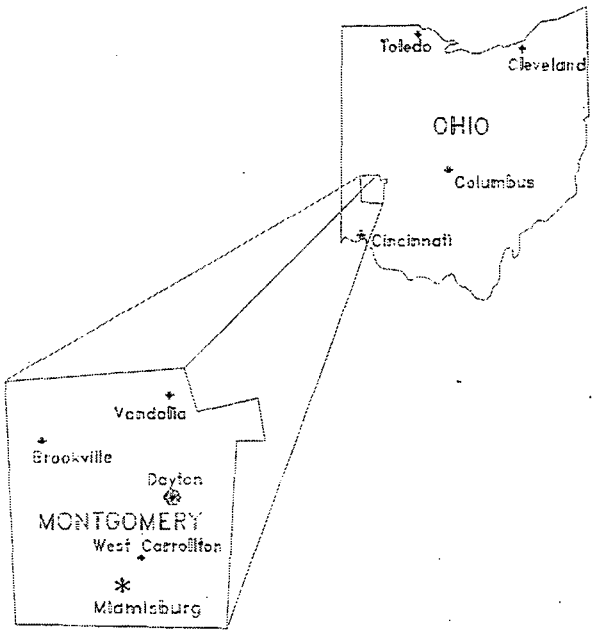
Appendix A

General Listing of Acronyms

ASTM	American Society for Testing and Materials
BDP	Building Data Package
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
cm^2	centimeters squared
CWA	Clean Water Act
DOE	United States Department of Energy
DPM	disintegrations per minute
EPA	United States Environmental Protection Agency
ER	Environmental Restoration (Program)
FFA	Federal Facility Agreement
HAZMAT	hazardous materials
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MCP	Miamisburg Closure Project
N/A	not applicable
NPDES	National Pollutant Discharge Elimination System
OEPA	Ohio Environmental Protection Agency
OU	Operable Unit
PCB	polychlorinated biphenyl
pCi/L	picoCuries per liter
PRS	Potential Release Site
RI/FS	Remedial Investigation/Feasibility Study
RAPCA	Regional Air Pollution Control Agency
RCRA	Resource Conservation and Recovery Act
RSDS	Radiological Survey Data Sheet
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

Appendix B

Map of Montgomery County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West Carrollton
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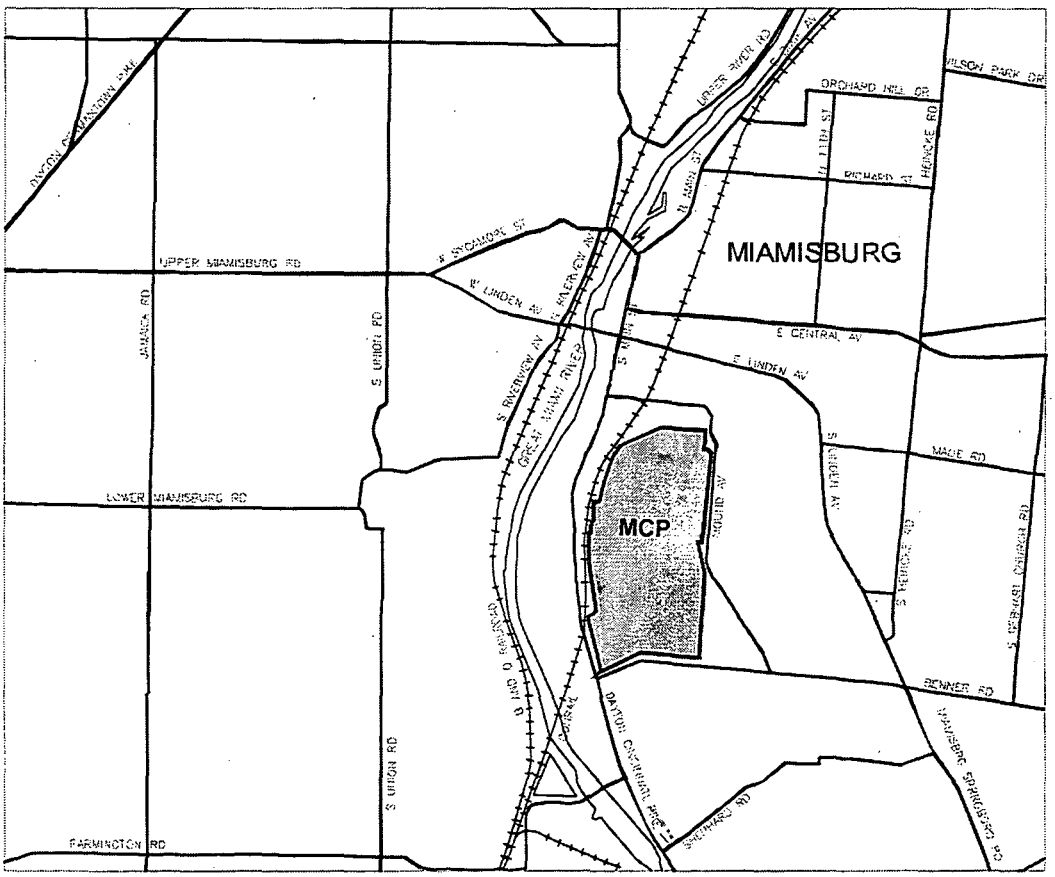
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FARMINGTON RD
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E LINDEN AV
W LINDEN AV
S CENTRAL AV
S MAIN ST
N MAIN ST
S SYCAMORE ST
ORCHARD HILL DR
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MAPLE RD
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SPRINGBORO PIKE

B1 of 1

Appendix C

Figures

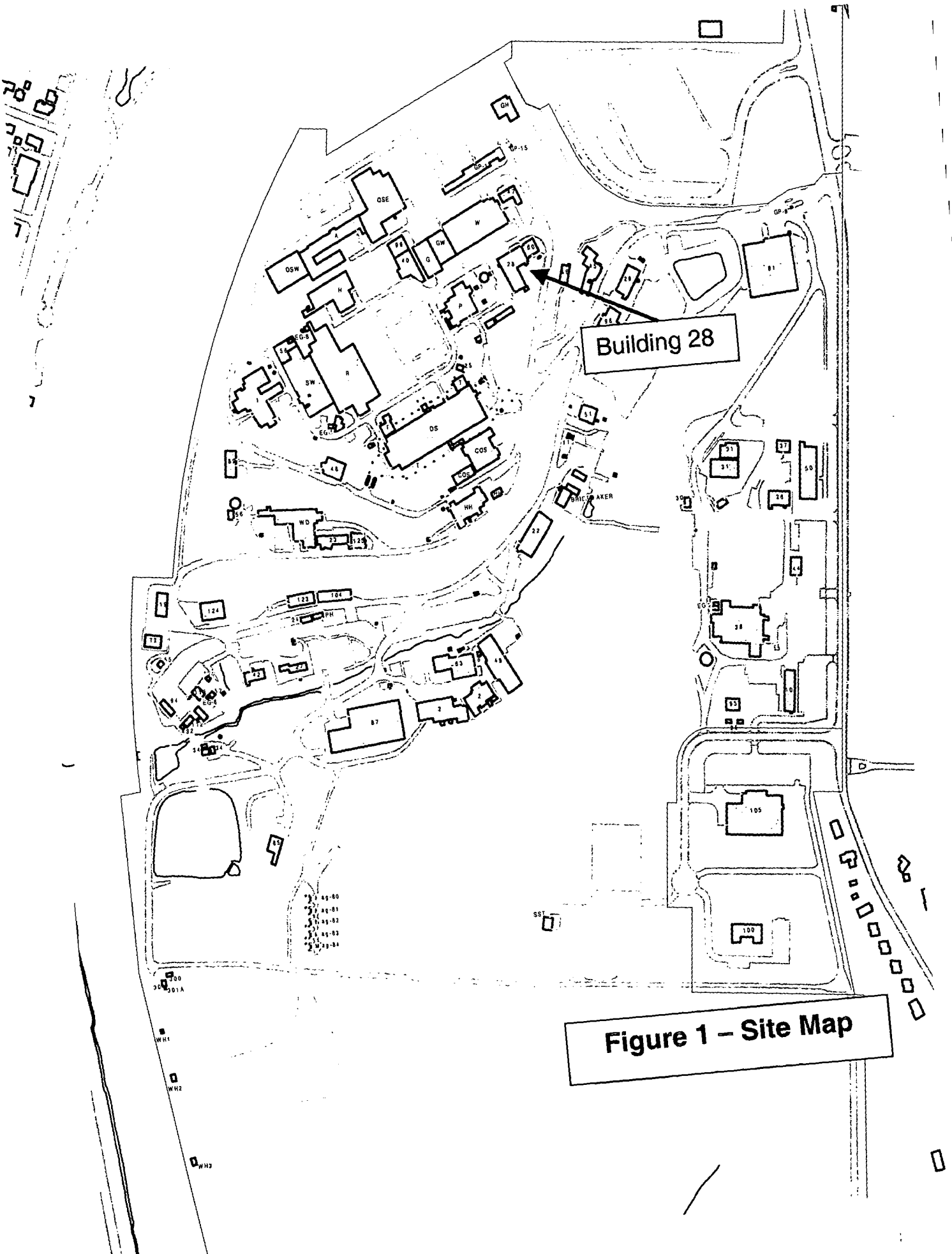
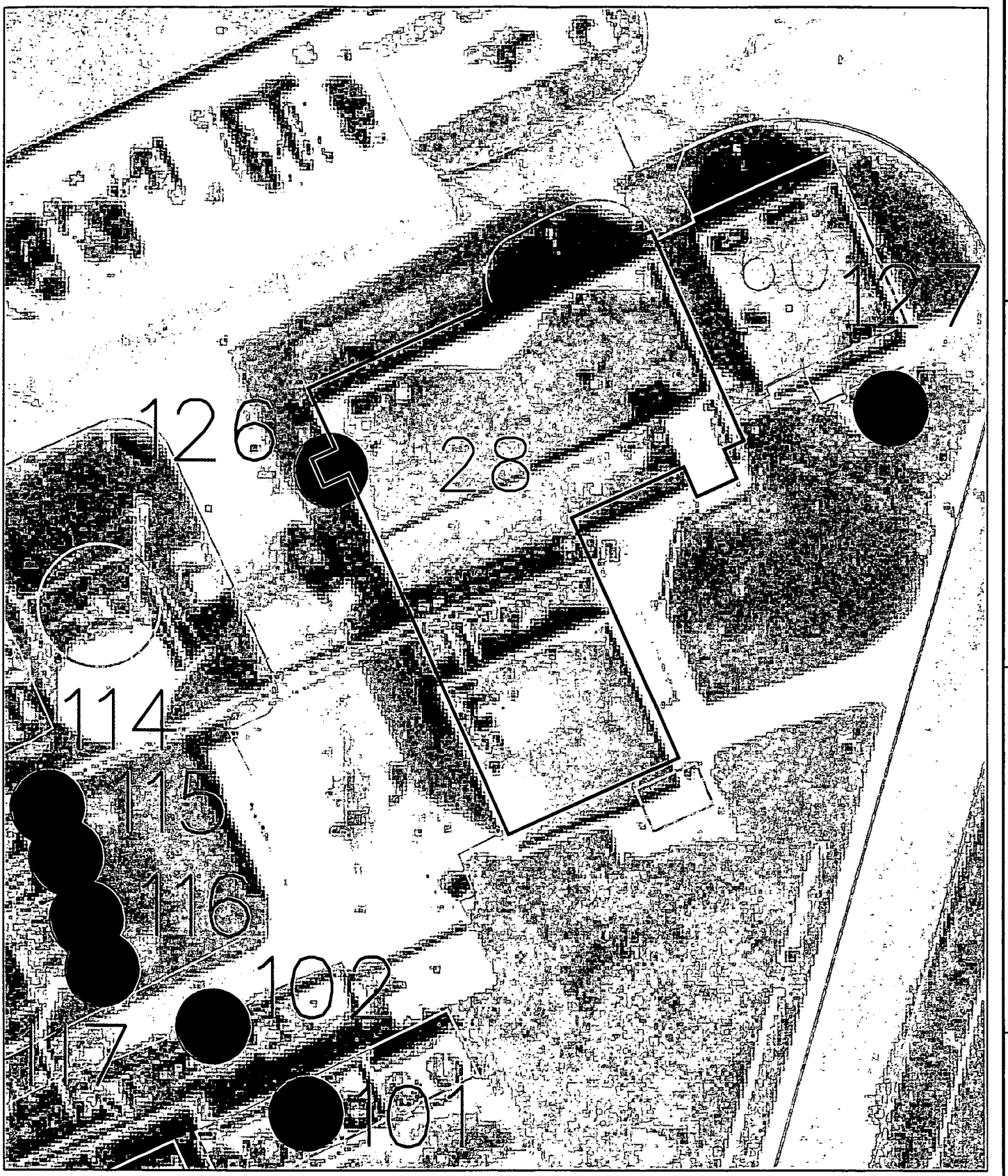


Figure 1 – Site Map



PRS Point
PRS Area
PRS Line

MOUND
Environmental Restoration Geographic Information System

Figure 2
Building 28
and Vicinity

ISS	DATE	REVISION	BY	CHKR	ENG	LPREC	APVD	M
	09/30/02		SSF					

DRAWING CLASSIFICATION	UNCLASSIFIED
SIZE	
DRAWING NUMBER	vicinity.dgn
JOB NUMBER	
DGN TYPE	STE
PRIM	ER-GIS
CADEC	
SCALE	
SHEET	1 OF
STATUS	MD-REL-##/##/##
ORIGIN	MSTATION / J

C2093

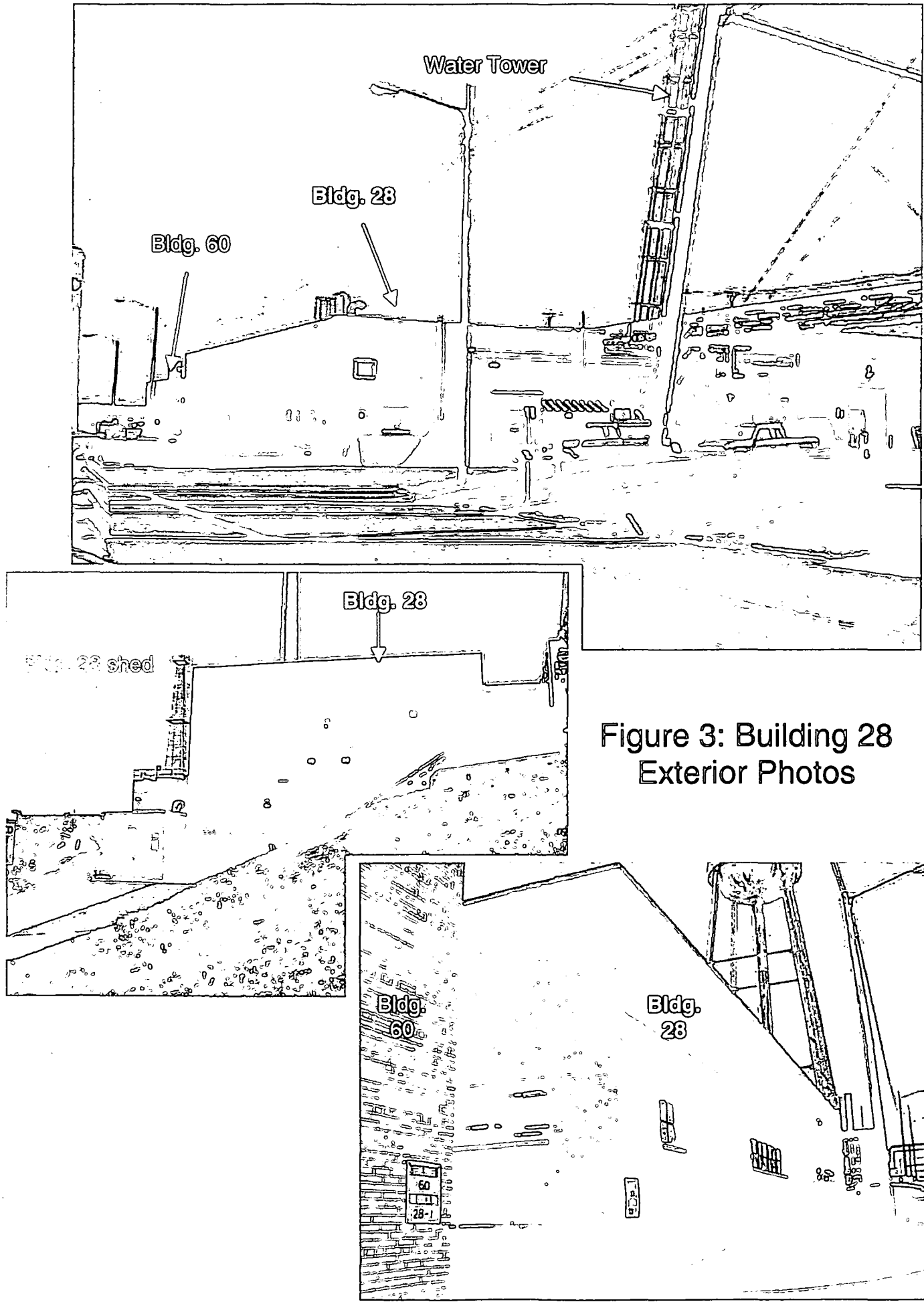
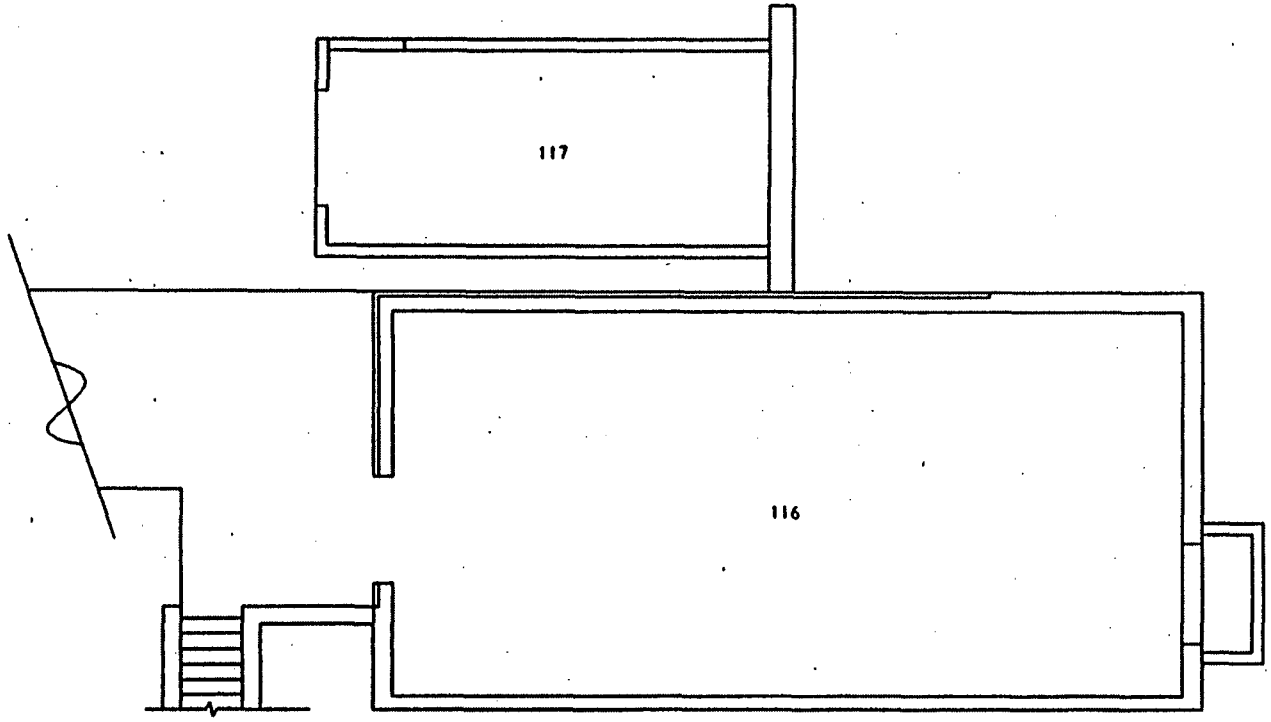


Figure 3: Building 28 Exterior Photos

Appendix D

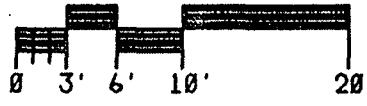
Floor Plans

NO	DATE	REVISION	BY	CHKR	ENG	UNEC	APVD	N
B	12/12/91	ASBUILT ISSUE	DCW				DVD	



D 1063

UNCLASSIFIED



UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: RDM
5/4/98

BLDG #28
BASEMENT
BLDG CODE:3028

APPROVALS:	DATE:
SAFETY COMMITTEE REQUIRED: ___NONE ___TRUEDOC ___TEDOC ___DNDOC	
TECH. REP.	
GR. MGR.	
TRUEDOC	
TEDOC	
DNDOC	

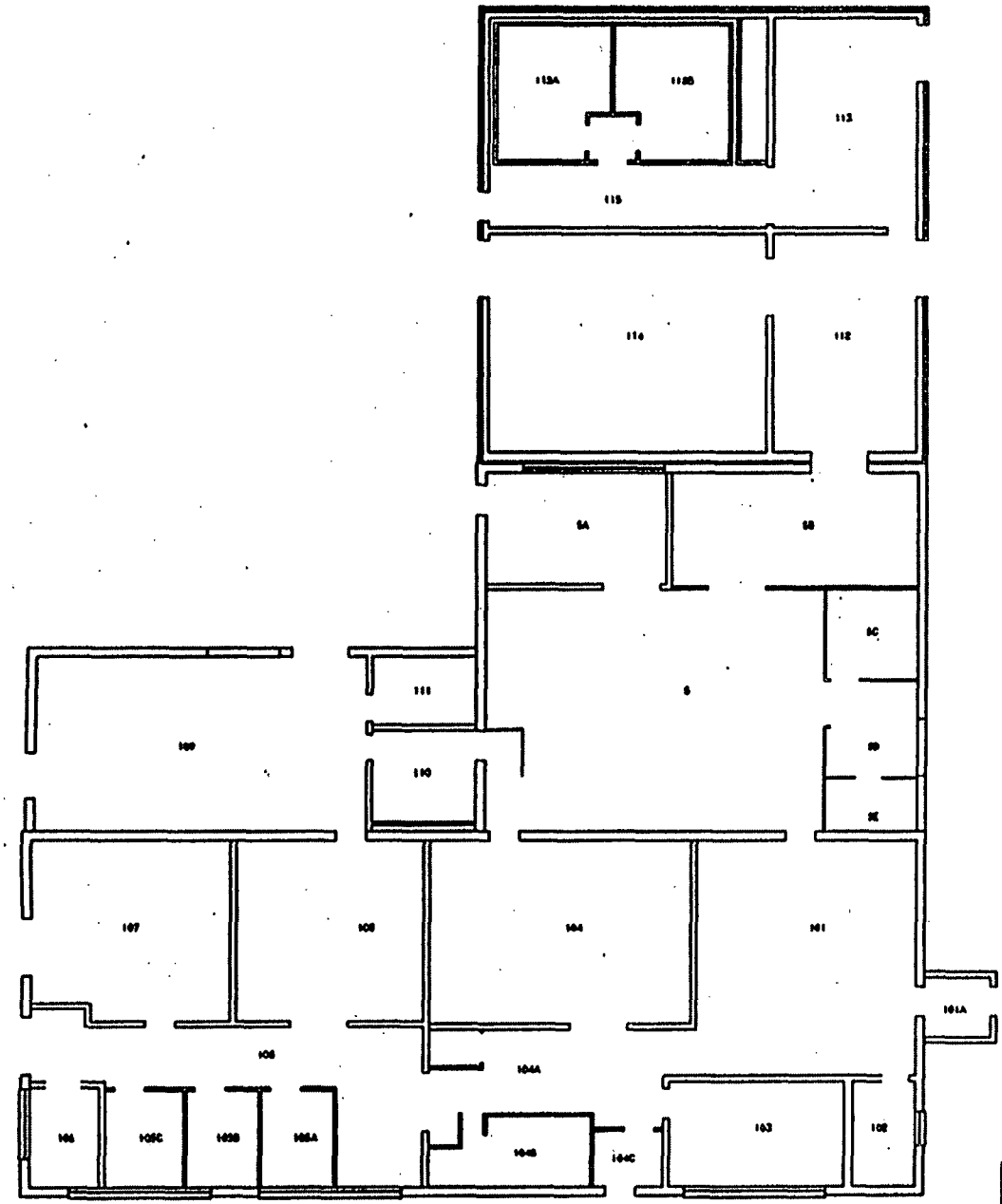
NOT FOR PUBLIC DISSEMINATION

MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

DESIGN DR	PROJ MGR	SHEET	1	2	3	4	5	6
SPECS	DES MGR	ISSUE	B	B	B			
LD & EZ	PROD REV	PART CLASSIFICATION						
DES MGR		DRAWING CLASSIFICATION: UCNI						
APVD	DATE	DWG TYPE SFP	PROG BLDG #28	CODE 14865	SCALE AS NOTED	SHEET 1 OF 3		
		STATUS MD-REL-12/12/91			ORIGIN MD-BR3-V3.8			

TITLE (U) TITLE CLASSIFICATION
BLDG #28
FLOOR PLANS

SIZE	DRAWING NUMBER	JOB NUMBER
C	FSC911240	12335



0 5' 10' 20' 40'

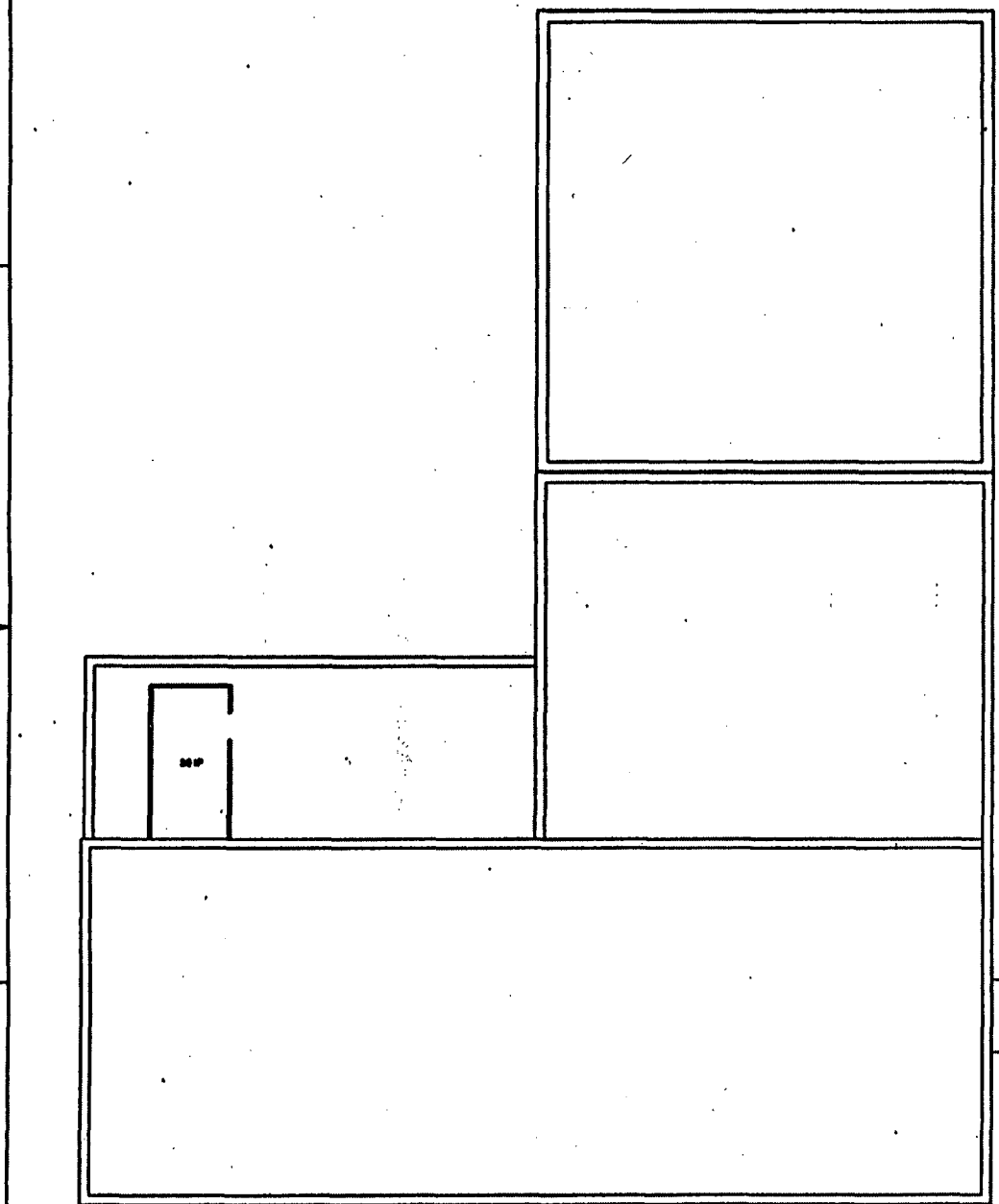
UNCLASSIFIED

BLDG #28
FIRST FLOOR
BLDG CODE:3028

NOT FOR PUBLIC DISSEMINATION

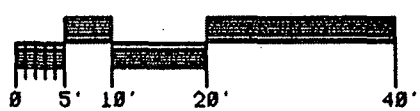
MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

DRAWING NUMBER	FSC911240	JOB NUMBER	12335
DRAWING CLASSIFICATION	UCNI		
SIZE C	CHECK 14965	SCALE AS NOTED	
	ISSUE 8	SHEET 2	
STATUS MD-REL-12/12/91			



D3063

UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: KDM
5/4/98



UNCLASSIFIED

BLDG #28
PENTHOUSE
BLDG CODE:3028

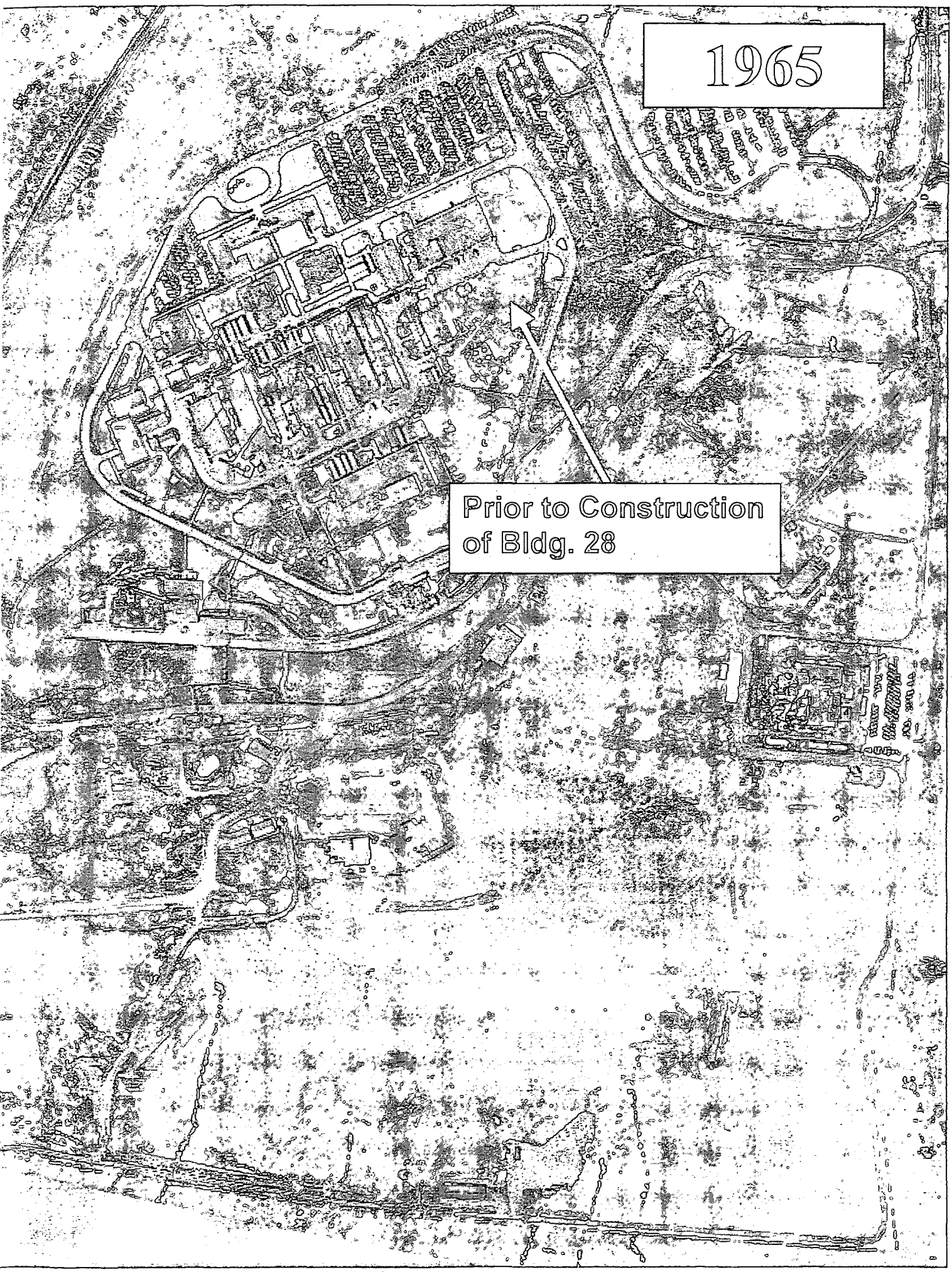
NOT FOR PUBLIC DISSEMINATION

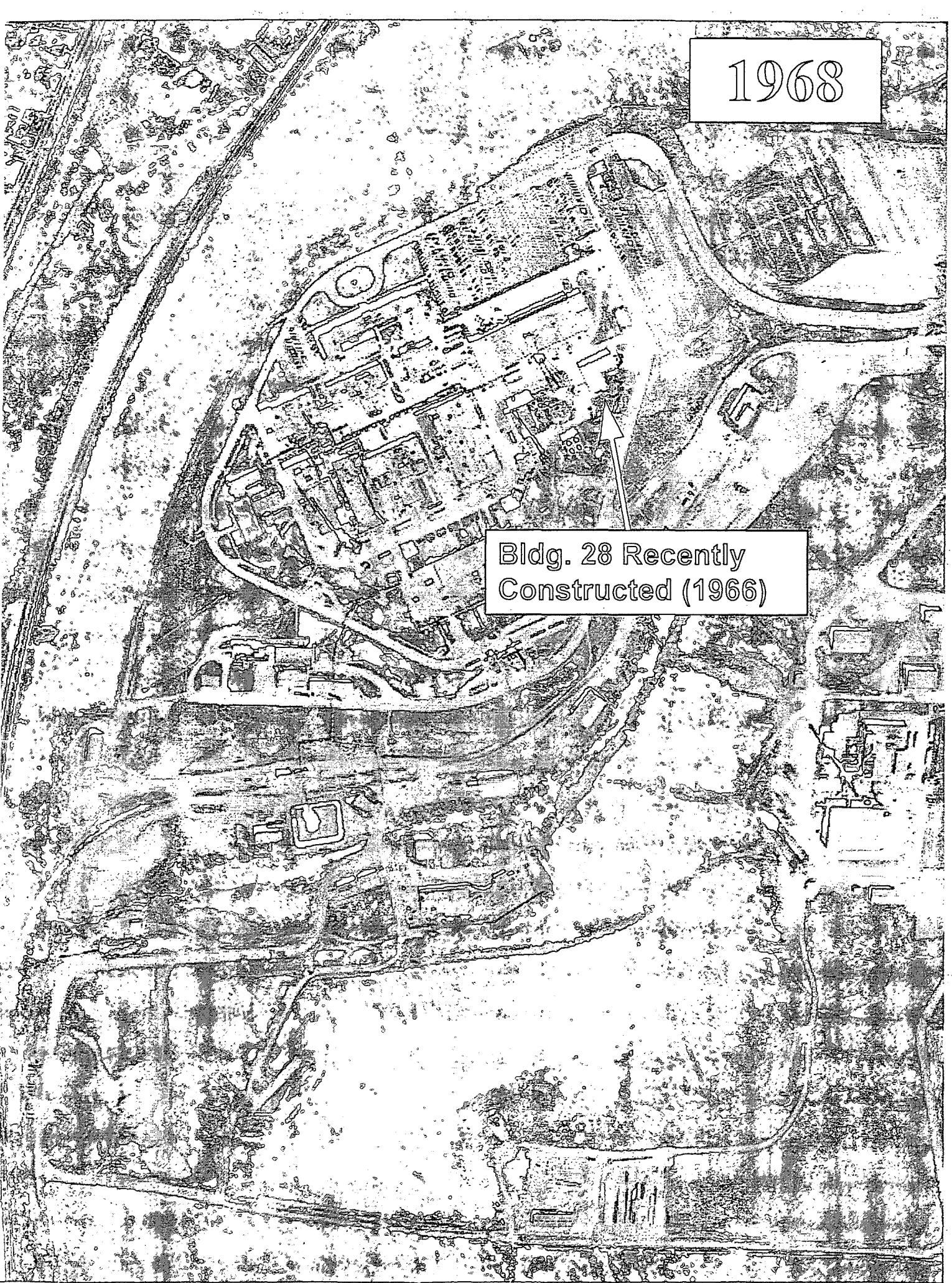
MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

DRAWING NUMBER	FSC911240
JOB NUMBER	12335
DRAWING CLASSIFICATION	UCNI
SIZE	C
CAGE	14865
SCALE	AS NOTED
TITLE	B
SHEET	3
STATUS	MD-REL-12/12/91

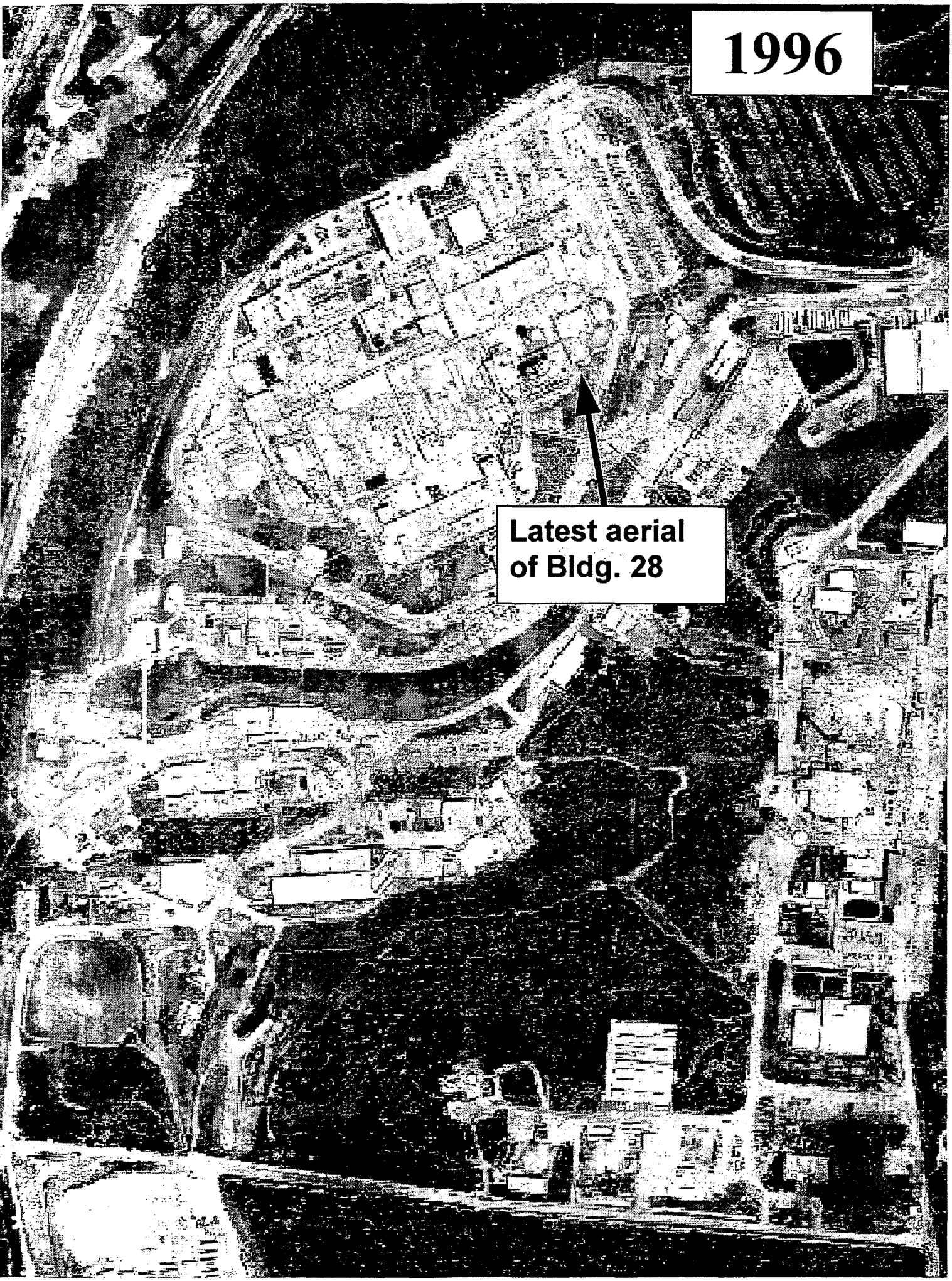
Appendix E

Aerial Photographs


1965
Prior to Construction
of Bldg. 28



E 2003


1996
Latest aerial
of Bldg. 28

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

9.51 BUILDING 28

9.51.1 Scope of Building 28 Report

In late 1995 and the early months of 1996, EG&G MAT performed a review of environmental conditions at the Mound Plant. The purpose was to develop a performance baseline, and to identify areas for improvement on a building and a sitewide basis. EG&G MAT did not perform a "due diligence" or Phase I Environmental Site Assessment as specified by ASTM 1527 or ASTM 1528. The scope of the appraisal effort and a discussion of the appraisal methodology are detailed in Sections 2.0 and 5.0, found in Volume 1 of this report.

A team of environmental professionals did not perform an environmental appraisal on Building 28 because it was a leased building.

9.51.2 Description of Building 28

Building 28 was a one-story, 11,329-square-foot structure. It was bordered by Building W to the north, a roadway to the south, Building P to the west, and Building 60 to the east. The location is shown in Attachment 1 (Section 9.51.4.1).

Building 28 was constructed in 1966. The building was used for ceramics development and production. The building is now leased. The building was not contaminated with radiological or energetic material (*Mound Facilities Physical Characterization*, 12-1-93).

9.51.3 Summary of Findings

Building 28 has undergone Safe Shutdown which includes removal of wastes and other materials plus equipment which cannot be released. A Health Physics safety determination and a liabilities assessment were made. ESAs (ASTM E 1527-94 or ASTM E 1528-93) were not conducted. The building has been leased by the Department of Energy (DOE) to the City of Miamisburg, which accepted the liabilities assessment. The General Purpose Lease between the DOE and the City of Miamisburg requires the sub-lessee to obtain and comply with regulatory agency permits.

Since the building has been leased, an Environmental Appraisal Checklist (EAC) was not prepared and no further action was taken concerning this building.

A photograph of the building is shown as Attachment 2 (Section 9.51.4.2).

F161

Appendix G

Radiological Information

Final Status Report
For
Building 28

Prepared by: Roderick C. Case / _____ **Date:** April 24, 2003

Reviewed by: Robert Coblentz / _____ **Date:** 04/28/03

Approved by: A. Steven Collas / _____ **Date:** 4/28/03

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1.0 Historical Review

Building 28 was constructed in 1966 as the Heavy Equipment Maintenance Building. At the time of construction, the building was 4,000-ft2 with an additional covered concrete pad of 1938 ft^2. Since construction, there have been six additions and/or modifications to this building. Today, Building 28 square footage is 11,329 ft^2.

Building 28 was converted to a plastics development facility in 1969 and continued to function as home to plastic developmental work. In the 1980s, a ceramics production operation was moved to Building 28. Ceramic development and ceramic support activities took place in Building 28, and in neighboring Building 60. With these operations, ceramic parts were cast using Sol-gel, metal parts were coated with a ceramic material in Building 60, and the finished ceramic parts were degreased and cleaned in ultrasonic baths in Building 28. Building 28 was conditionally transitioned to the Miamisburg Mound Community Improvement Corporation (MMCIC) in 1995 and leased to private industry.

Building 28 has not been used for any purpose other than as a plastics development and ceramics processing facility. No radiological process systems were ever a part of the facility and no radioactive materials were ever used or stored there.

A complete structural and operational history can be found in Reference 1.

2.0 Survey Objectives

The objective of this survey plan is to confirm the classification of Building 28 as non-impacted. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains. The survey data is compared directly to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined in the Survey Plan Form (see Enclosures).

Table 1 lists the permissible surface contamination guideline values as stated in DOE Order 5400.5. These limits are the Derived Concentration Guidelines (DCGL's) for building and structure release.

Table 1

Allowable Total Residual Surface Contamination (dpm/100cm²)*				
Radionuclides*		Average*	Maximum*	Removable*
Group 1	Transuranics, I-125, I129, Ra-226, Ac-227, Ra-228, Th-228, Th-230, Pa-231	100	300	20
Group 2	Th-Natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	1,000	3,000	200
Group 3	U-Natural, U-235, U-238 and associated decay products, alpha emitters	5,000	15,000	1,000
Group 4	Beta-gamma emitters (Radionuclides with decay modes other than alpha emission or spontaneous fission) except for Sr-90 and others noted above	5,000	15,000	1,000
Tritium		N/A	N/A	10,000

* Note: Refer to DOE Order 5400.5, Radiation Protection of the Public and the Environment, for specific information on surface contamination guidelines and additional notes.

The average activity levels shown in Table 1 assumes that the residual contamination is uniformly distributed across the survey unit and is the $DCGL_w$ for this survey. The maximum activity shown in Table 1 represents the Elevated Measurement Comparison ($DCGL_{emc}$) for small (<100cm^2) areas of activity that may be observed in the survey unit while scanning.

2.1 Survey Design

This survey was designed to evaluate the residual radioactivity on building internal and external surfaces. The building was divided into survey units as follows:

Survey Unit 1 – First Floor interior surfaces

Survey Unit 2 – External surfaces (Roof and Exterior Walls)

Since the variability is expected to be small within the survey unit, the Type I error chosen is α = 0.05 and the Type II error is β = 0.01. The number of data points is determined by calculating the relative shift (Δ/σ) from the DCGL value, the lower bound of the gray region (LBGR), and the standard deviation (σ) of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). For this survey plan, the LBGR is set at 50% of the $DCGL_w$. The standard deviation was estimated to be 17dpm/100cm^2 based on previous surveys of similar building surfaces. The relative shift was calculated as 2.95. The required number of data points (n = 20) was obtained from Table 5.5, Reference 2.

Loose surface contamination was measured by smearing an area of 100cm^2 at each data point. Smears were counted for gross alpha/beta activity. Removable tritium contamination was measured on interior surfaces by liquid scintillation counting of coin smears.

Replicate surveys were performed in accordance with Reference 3.

The instruments selected for this survey were the Ludlum 2350-1 datalogger with an L43-20 hand-held gas flow proportional (GFP) detector for alpha measurements. A Ludlum 2360 with an L43-89 scintillation probe was used for beta measurements in accordance with Reference 4. A surface scan of 1 ft^2 was performed at each data point and the highest measurement recorded. A Bicron MicroRem meter was used to measure general area gamma dose rates in occupied areas. Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The gross alpha and beta fixed point measurements from each survey unit were collected and compared directly to the $DCGL_w$. One data point on the exterior wall was initially 109 dpm/100cm^2. A resurvey of this data point was performed 30 minutes later and was 64 dpm/100cm2. A second data point on the exterior wall was initially 77 dpm/100cm^2. This location was resurveyed for quality control and found to be 109 dpm/100cm^2. It was assumed that these elevated readings were the result of short-lived activity from Radon daughters. To test this assumption, the affected areas were covered with a polyethylene sheet for 24 hours and re-surveyed. This process interrupts the equilibrium of the short-lived activity and allows the radon daughters to decay. The re-survey results showed that no long-lived activity was present at these locations. All of the remaining data points were found to be below the $DCGL_w$.

The following table shows the net results of the maximum and average total (fixed and removable) alpha and beta activity for each area.

Total Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	72	16.7	6.86	916	199.4	115.8
Survey Unit 2	96	47.9	10.6	1825	1244.4	268.8

The results of the removable alpha and beta surface activity are shown below. All results were significantly less than the $DCGL_w$.

Removable Alpha & Beta Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	5.75	1.89	0.74	10.2	3.26	1.17
Survey Unit 2	4.03	1.0	0.67	7.68	2.29	0.90

The highest removable tritium activity was 12.8 dpm/100cm2 (RSDS# 03-TF-0048). The average removable tritium was 3.8 dpm/100cm2 (±1.93). General area gamma dose rates were at background levels, 5-10μRem/hr (RSDS# 03-TF-0048) in occupied areas.

Sediment Sample Data

No sediment (or liquid) was present floor drains for sediment sampling. A smear sample was obtained at each sample location. Smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan (See RSDS # 03-TF-0049). The highest alpha activity was 3.5dpm/smear and the highest beta activity was 9.7dpm/smear. Direct alpha and beta measurements were taken at each sample location. The highest activity observed was 30dpm/100cm^2 alpha and 273dpm/100cm^2 beta.

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Eleven data points were selected at random from the sample group of 40 data points. The highest and lowest alpha measurements and corresponding beta measurements from each survey unit were included in the replicate set. Replicate measurements were taken at these locations using the same instruments and performed in the same manner as the original survey. The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is within a factor of two of the variance in the replicate samples (at 95% confidence level). Negative beta values occur when the measured value is below the instrument background level. These values are used for this analysis to show the true variability of the data set. The results of the replicate surveys are shown in the following table:

Replicate Analysis Results

Location #	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Initial	± 2σ	Replicate	Initial	± 2σ	Replicate
QC-04	0	0.00	19	148	24.33	24
QC-07	0	0.00	13	40	12.65	56
QC-12	19	8.72	13	-60	15.49	-16
QC-15	26	10.20	19	352	37.52	192
QC-17	13	7.21	13	192	27.71	5.0
QC-19	32	11.31	19	188	27.42	148
QC-02	96	19.60	90	1585	79.62	1535
QC-06	26	10.20	64	1615	80.37	1460
QC-08	77	17.55	109	1435	75.76	1575
QC-13	71	16.85	51	1825	85.44	1775
QC-15	26	10.20	64	1460	76.42	1505
Variance (S^2)	1125.78		1273.11	597252.9		592978.1
Ratio			0.884			1.007
Agreement			Yes			Yes

Replicate analyses were not performed on smears or sediment samples. Quality control procedures, blanks, and spikes are a part of the laboratory quality control program at Mound. Participation in the DOE/EML inter-laboratory quality assurance program provides acceptable assurance of nuclide identification reliability and ensures a high quality of sample results. Since a relatively small number of samples were taken for this survey, additional replicate analysis was not required for this survey.

Field instrumentation is source checked each day prior to use and again at the completion of survey activities for that day. A known source is placed in a source holder to ensure a reproducible geometry is achieved. Acceptance criteria is ± 20% of the initial source response following calibration. Results are documented in accordance with Mound Radiological Control procedures. Laboratory instrumentation is source checked and documented in accordance with Mound Laboratory procedures.

2.5 Conclusion

Building 28 is currently occupied under a lease agreement with MMCIC and will be permanently transitioned to MMCIC in accordance with Miamisburg Closure Project goals.

The objective of this survey plan is to confirm the classification of Building 28 as non-impacted. This was accomplished by comparing the survey data directly to the release criteria in accordance with the MARSSIM (Reference 2). The scanning survey found no elevated measurement areas above the $DCGL_w$. No activity was found above screening levels in sediment samples.

All of the DQO's for this survey plan have been met and no further surveys are required. Building 28 meets the surface release criteria established by DOE Order 5400.5.

G6646

The following tables show the maximum fixed and removable activity on the inside and outside building surfaces.

Building 28 Survey Results

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)	COMMENTS
Highest Alpha Smearable Activity	03-TF-0048	Interior Wall	5.8	20	
Highest Alpha Fixed Activity	03-TF-0050	Exterior Wall	96	100	
Highest Beta Smearable Activity	03-TF-0048	Interior Floor	10.2	1000	
Highest Beta Fixed Activity	03-TF-0050	Exterior Wall	1825	5000	
Highest Tritium Smearable Activity	03-TF-0048	Interior Wall	12.77	10,000	
Note 1: DOE Order 5400.5 (DCGLw)					

3.0 Enclosures

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 28-01

4.0 References

1. BWXTO, EC&AS Department, White Paper: Building 28 Structural History and Process History Summary Background Document, August 2002
2. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op. 402
4. MD80036, Issue 29, Op. No. 30030,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3

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Building 28 Survey Data Collection Sheet

		Smearable			Fixed		
Location	RSDS#	α	β	H^3	α	β	
F-W 01	0048	3.56	6.22	0	0	-40	
F-W 02	0048	1.31	0.13	11.02	19	0	
F-W 03	0048	1.59	1.2	0	13	-16	
F-W 04	0048	1.45	1.19	8.38	0	148	
F-W 05	0048	3.63	10.18	5.04	6	56	
F-W 06	0048	1.31	1.62	2.33	6	20	
F-W 07	0048	1.66	3.01	4.49	0	40	
F-W 08	0048	0.98	3.21	0.7	13	916	
F-W 09	0048	3.31	2.48	0	13	192	
F-W 10	0048	1.57	3.84	0	19	812	
F-W 11	0048	0	5.48	6.6	19	200	
F-W 12	0048	5.63	3.49	0	19	-60	
F-W 13	0048	1.56	2.63	0	6	68	
F-W 14	0048	1.31	2.51	3.94	19	148	
F-W 15	0048	5.75	2.16	12.5	26	352	
F-W 16	0048	0	0.17	5.69	19	36	
F-W 17	0048	1.56	1.61	0.73	13	192	
F-W 18	0048	0	1.68	0	19	272	
F-W 19	0048	1.66	9.23	12.77	32	188	
F-W 20	0048	0	3.34	1.8	72	464	
O-S 01	0050	1.97	3.72		77	1800	
O-S 02	0050	0	1.28		96	1585	
O-S 03	0050	0	0		58	1670	
O-S 04	0050	0	7.68		64	1555	
O-S 05	0050	1.99	2.44		45	1725	
O-S 06	0050	4.03	1.04		26	1615	109
O-S 07	0050	2.01	1.16		58	1435	
O-S 08	0050	2.01	1.16		13	1435	109
O-S 09	0050	0	2.56		64	1515	
O-S 10	0050	0	1.28		77	1615	
O-S 11	0050	3.98	4.88		32	1480	
O-S 12	0050	0	5.12		45	1760	
O-S 13	0050	0	0		71	1825	
O-S 14	0050	0	2.56		45	1235	
O-S 15	0050	4	3.6		26	1460	
O -S 16	0050	0	0.8		30	244	
O -S 17	0050	0	0.7		70	214	
O -S 18	0050	0	4.5		20	260	
O -S 19	0050	0	0.2		10	231	
O -S 20	0050	0	1.1		30	229	
	#	40	40	20	40	40	
	Avg	1.44575	2.779	3.7995	32.25	721.9	
	SD	1.645065	2.405121	4.40679	25.54408	705.1909	
	Max	5.75	10.18	12.77	96	1825	

95% Confidence Interval Calculator

N =	20	Min	Max	+/-
M =	538	536.07	539.93	1.93
s =	4.406			

1.96 X s / sqrt n

G-10of 46

	Inside Surfaces						
	Smearable			Fixed			
	α	β	H^3	α	β		
Number	20	20	20	20	20	+/- a	+/- b
Avg	1.892	3.269	3.7995	16.65	199.4	6.86	115.77
SD	1.678899	2.677746	4.406794	15.64499	264.15394	0.74	1.17
Max	5.75	10.18	12.77	72	916		
	Outside Surfaces						
Number	20	20	0	20	20		
Avg	0.9995	2.289	#DIV/0!	47.85	1244.4	10.58	268.83
SD	1.522161	2.048871	#DIV/0!	24.12964	613.37963	0.67	0.90
Max	4.03	7.68	0	96	1825		

Graph Data Alpha		
	Survey Uni	Survey Unit 2
AVG	16.65	47.85
MAX	72	96

Graph Data Beta		
	Survey Uni	Survey Unit 2
AVG	199.4	1244.4
MAX	916	1825

G-11 of 46

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg(cpm)	β Bkg(cpm)
1	L2350	5673/5143	8/13/03	0048	4	
2	L2360	5709/5795	8/2/03	0048		191
3	B-μRem	3944	9/24/03	0048		
4	L2360	5709/5795	8/2/03	0049	1	176
5	L2350	5673/5143	8/13/03	0050	4	
6	L2360	5833/5847	3/13/03	0050		176

Sample Data

RSDS-0049 Floor Drains Smears (dpm/100cm^2)

	H3	α	β
1	1.4	0	4.04
2	0	3.5	9.7
3	0	0	4.15
4	0	0	0.34

RSDS-0049 Floor Drains Direct (dpm/100cm^2)

	α	β
1	10	197
2	30	175
3	10	273
4	0	246

Replicate Fixed Point QC

	alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	initial	2σ	replicate	initial	2σ	replicate
QC 04	0	0.00	19	148	24.33	24
QC 07	0	0.00	13	40	12.65	56
QC 12	19	8.72	13	-60	15.49	-16
QC 15	26	10.20	19	352	37.52	192
QC 17	13	7.21	13	192	27.71	260
QC 19	32	11.31	19	188	27.42	148
QC 02	96	19.60	90	1585	79.62	1535
QC 06	26	10.20	64	1615	80.37	1460
QC 08	77	17.55	109	1435	75.76	1575
QC 13	71	16.85	51	1825	85.44	1775
QC 15	26	10.20	64	1460	76.42	1505
Variance (S2) =	1125.778		1273.111	597252.9		592978.1
Ratio			0.884273			1.007209
Agreement			YES			YES

	QC Measurements Location		RSDS# α	β
1	QC 04	0048	19	24
2	QC 07	0048	13	56
3	QC 12	0048	13	-16
4	QC 15	0048	19	192
5	QC 17	0048	13	260
6	QC 19	0048	19	148
7	QC 02	0050	90	1535
8	QC 06	0050	64	1460
9	QC 08	0050	109	1575
10	QC 13	0050	51	1775
11	QC 15	0050	64	1505

NUREG 1507 Table 5.1 (GFP) Background Count Rates for Various Materials (NCPM)		
	Alpha	Beta
Brick	6	567.2
Ceramic Block	15	792
Ceramic Tile	12.6	647
Concrete Block	2.6	344
Drywall	2.6	325
Floor Tile	4	308
Linoleum	2.6	346
Carbon Steel	2.4	322.6

BRICK beta	
dpm_{avg}	$ncpm_{avg}$
1580.667	316.1333

SURVEY PLAN FORM

SP NUMBER	28-01	DATE OF REQUEST	November 14, 2002
TYPE OF SP	☐ FSS ☐ CHARACTERIZATION ☐ REFERENCE ☒ OTHER: Scoping		
AREA/LOCATION	Building 28		
PURPOSE	Obtain scoping survey data to support building classification.		
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

☒ SEDIMENT SAMPLE: See Page 2 for specific sampling instructions

☐ Rubbelized Material:

☐ OTHER:

SURVEY TYPE

SURFACE SCAN	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L 2360	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	43-89		
SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L 2360	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	43-89		
DOSE RATE MEASURE-MENT	☐ BETA ☒ GAMMA ☐ ALPHA	INST. TYPE	Bicron MicroRem Meter	DETECTOR DISTANCE FROM SURFACE	Approximately 3' from floor surfaces
		PROBE TYPE	Internal		

SPECIAL PRECAUTIONS AND LIMITATIONS

1. All surveys shall be performed and documented in accordance with Mound Radiological Control procedures.
2. Obtain permission from the Building 28 proprietor prior to performing survey.
3. Obtain assistance from the responsible building custodian for access to upper walls, ceilings, roof, etc. Exercise extreme caution when performing surveys from ladders or scaffolds. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.
4. Ensure ventilation units are de-energized, as necessary prior to attempting to collect a sample. Obtain approval and assistance from the responsible building custodian to dismantle any equipment for sample collection.

SP NUMBER	28-01	DATE OF REQUEST	November 14, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Surface Measurements (Alpha/Beta) Using a Ludlum 2360 with a 43-89 Probe

1. Perform at least 20 alpha/beta surface measurements of interior floors and walls at various locations throughout th building. Selected locations should be broadly representative of the entire building and include major walkways storage areas, and office areas. Scan approximately $1ft^2$ at each location and record the highest alpha and bet activity observed at each location.
2. Perform at least 15 alpha/beta surface measurements at accessible locations on the exterior walls, stairs, an loading areas. Selected locations should be broadly representative of the entire building external surface. Sca approximately $1ft^2$ at each location and record of the highest alpha and beta reading observed at each location.
3. Perform at least 5 alpha/beta surface measurements at accessible locations on the roof. Selected locations shoul be broadly representative of the entire roof surface. Scan approximately $1ft^2$ at each location and record th highest alpha and beta reading observed at each location.
4. Record location, type of surface material (e.g., concrete, tile, carpet, etc.), and results on RSDS map in accordanc with Mound Rad Con procedures.

Loose Surface Contamination

1. Obtain a smear of $100cm^2$ at each survey point identified above.
2. Count each smear for alpha, beta, and H^3. H^3 analysis is not required for building external surfaces.
3. Record location and results on RSDS map in accordance with Mound Rad Con procedures

Sediment Sampling

1. Collect approximately 250ml of sediment from any accessible floor drain, ventilation units, roof drains, and an other area where debris has accumulated. If standing water is observed in floor drains, collect approximatel 100ml and submit for gross alpha and tritium analysis.
2. If insufficient material is present at these sample locations, obtain a representative smear or swab. If gross alph or beta activity is detected above background, submit smear for isotopic analysis.
1. Label sample container (EPA Dish) with sample number, date, time, and location in accordance with Moun procedures.
2. Document sample information and description of material on Attachment 1.
3. Submit samples to laboratory for isotopic analysis.
4. Show sample location on the RSDS map and attach laboratory sample results.

General Area Dose Rates using Bicron MicroRem Meter

1. Perform general area dose rates at approximately the center of each occupied room.
2. Record location and results on RSDS map in accordance with Mound Rad Con procedures

Quality Control

1. QC measurements will be performed by re-surveying 5 data points on the internal surfaces and 5 data points on th external surfaces. Data points should represent the range of activity between the highest and lowest value observed.
2. Sediment samples or smears with measured activity above the MDA may be resubmitted for replicate analysis Ensure that alpha and beta smear results are obtained before performing H^3 analysis.
3. Record location, material, and results on RSDS in accordance with Mound Rad Con procedures.

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS (continued)

APPROVAL SIGNATURES

MARISSM Engineer	R. Case	**DATE**	November 13, 2002
Technical Reviewer	G. Tomlinson	**DATE**	11-14-02
Rad Con Manager	D. Riley	**DATE**	11-14-02

SP CLOSE-OUT SIGNATURES

MARISSM Engineer	R. Case	**DATE**	4-24-03
Technical Reviewer	R.M. Coblentz	**DATE**	04/28/03
Rad Con Manager	A.S. Collas	**DATE**	4/28/03

COMMENTS

G-178 46

Survey Plan Form 28-01
Attachment 1

Sample Number	Sample Date	Sample Time	Sample Volume/ Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									

G-18 of 46

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 28 1/5	SURVEY NO. 03-TF-0048
PURPOSE: SCOPING SURVEY	RWP NO. NA
	DATE: 2-13-03
	TIME: 1100

MAP/DRAWING

SEE ATTACHMENTS

COPY

Dose rates performed in normally occupied areas only Per survey plan.

LEGEND: # = mrem/hr (γ) whole body
E = mrem/hr (β+η+γ) extremity on contact
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or /β = direct cont. measurement in dpm/100cm^2

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
MICRO R	3944	9-24-03
2360	5709/5795	8-2-03
2350	5673	8-13-03
	N	
	A	

[redacted]	HP# 7474	Date: 3-6-03
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed [redacted]	HP# 7707	Date: 03/12/03
Reviewed [redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0048

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See	Attached		Floor
2				
3				
4				
5				
6				
7				Floor
8				Wall
9				Floor
10				Wall
11				Floor
12				Wall
13				Floor
14				Floor
15				Wall
16				Floor
17				Floor
18				Floor
19				Wall
20	See	Attached		Floor
		N/A		

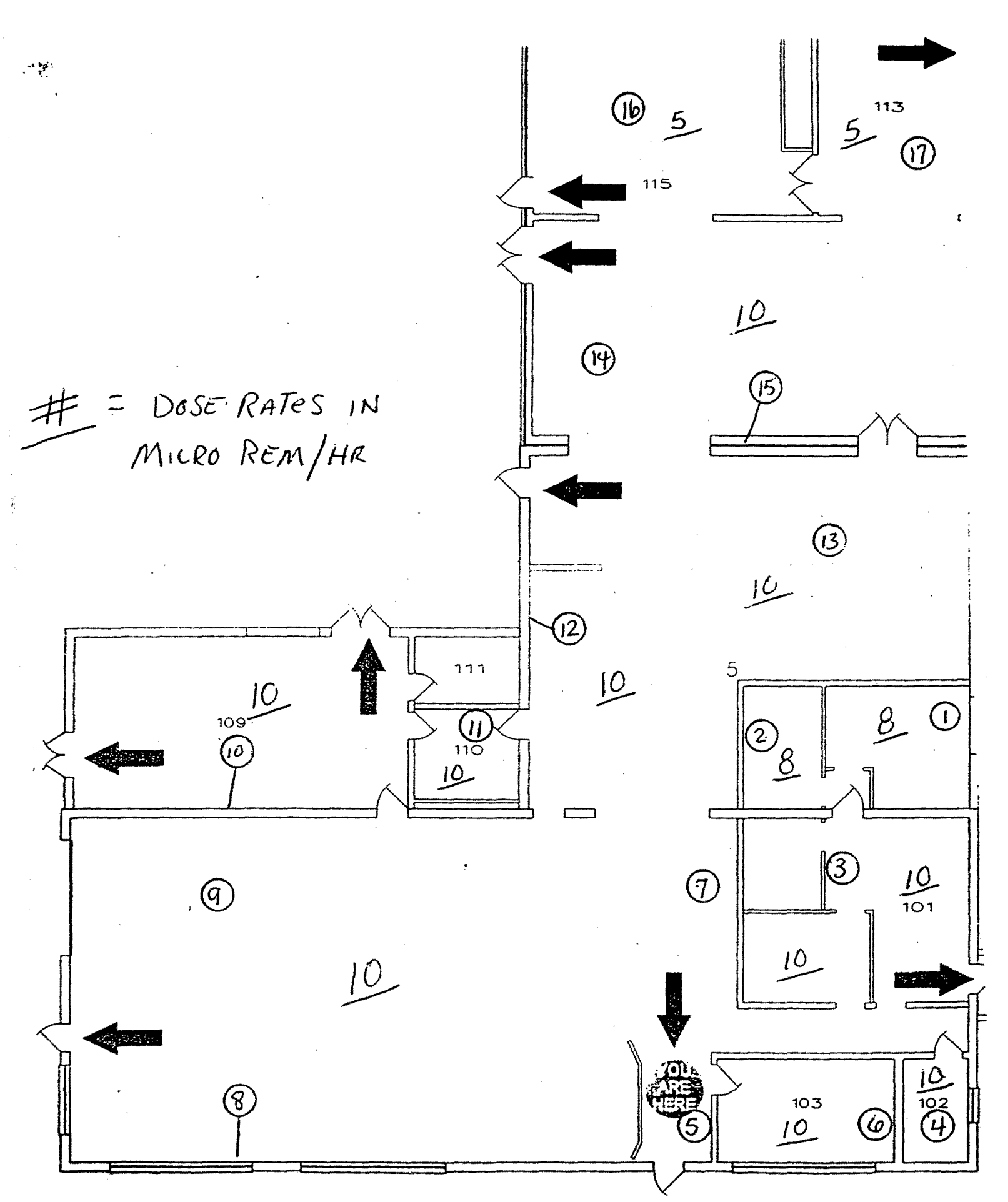
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
		N/A		

COMMENTS: None

NOTES:

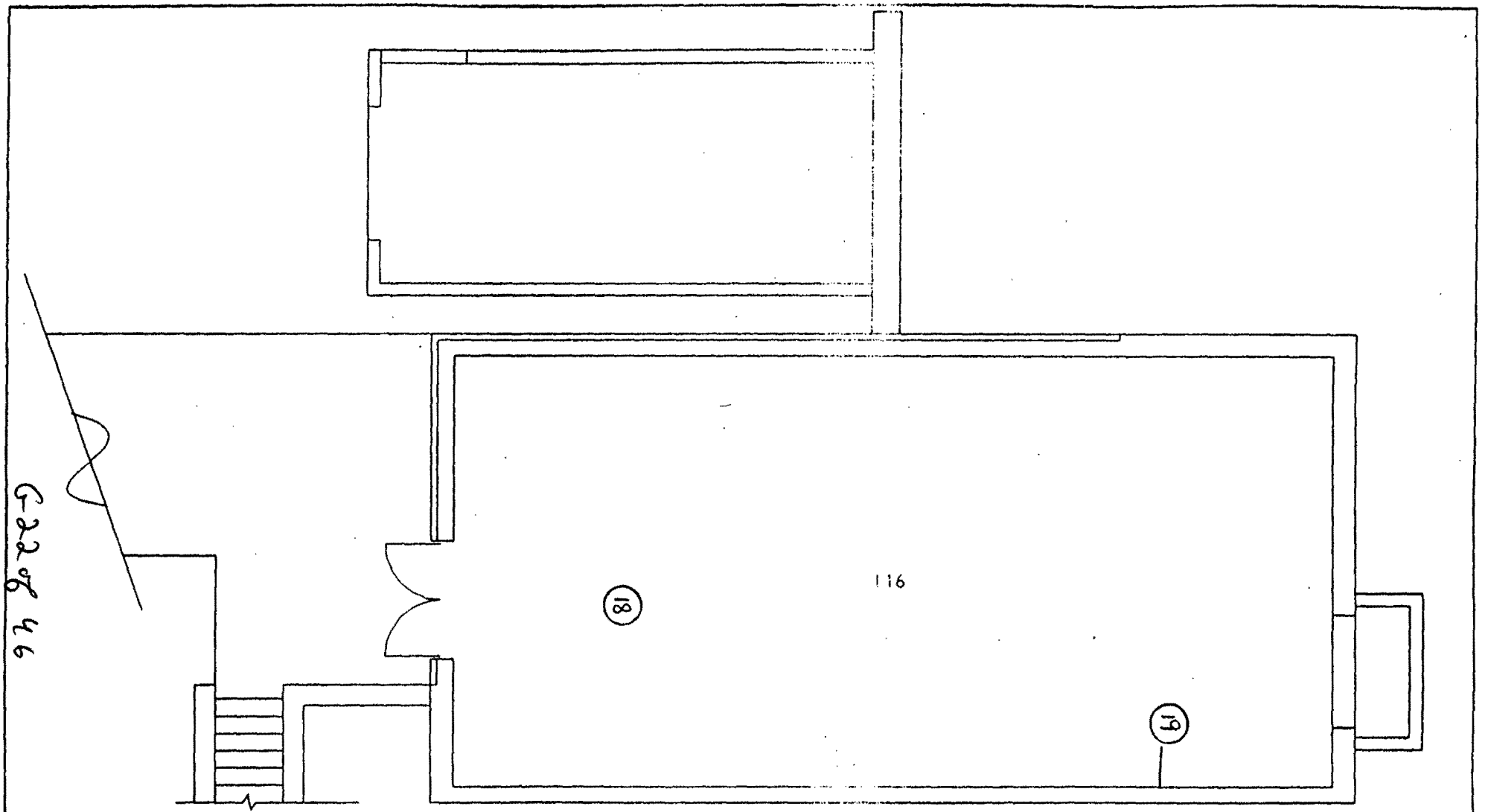
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)



BUILDING 28

FEET



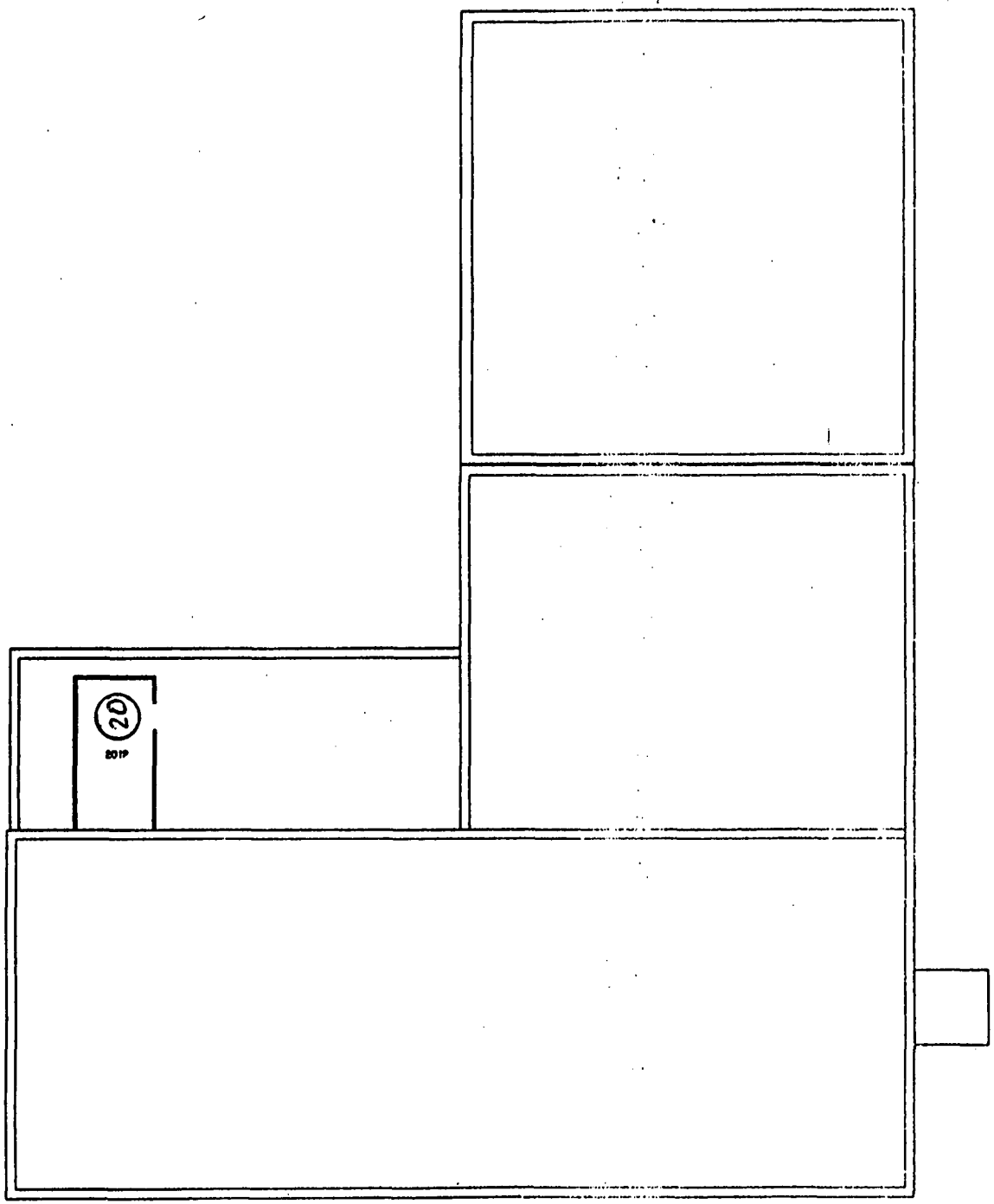
EG&G
MOUND APPLIED TECHNOLOGIES

SMALL SCALE FLOOR PLANS

BLDG. 28
BASEMENT

BLDG. CODE : 3028

REV. DATE CLASSIFICATION



EG&G
MOUND APPLIED TECHNOLOGIES

SMALL SCALE FLOOR PLANS

BLDG. 28
PENTHOUSE

BLDG. CODE : 3028

REV. DATE 01/12/89

CLASSIFICATION UCNI

28 BUILDING SCOPING SURVEY

RSDS# 03-TF-0048 RCT: KA RCT: PA

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	7474	5143	2		2/13/03	8:05	3	300	4
SRC CHECK	5673	7474	5143	2		2/13/03	8:39	2059	60	13228
SRC CHECK	5673	7474	5143	2		2/13/03	8:40	2066	60	13273
SRC CHECK	5673	7474	5143	2		2/13/03	8:42	2005	60	12881
SRC CHECK	5673	7474	5143	2		2/13/03	8:43	1985	60	12752
F-W 01	5673	7474	5143	2	1	2/13/03	9:42	0	60	0
F-W 02	5673	7474	5143	2	2	2/13/03	9:44	3	60	19
F-W 03	5673	7474	5143	2	3	2/13/03	9:45	2	60	13
F-W 04	5673	7474	5143	2	4	2/13/03	9:48	0	60	0
F-W 05	5673	7474	5143	2	5	2/13/03	9:51	1	60	6
F-W 06	5673	7474	5143	2	6	2/13/03	9:53	1	60	6
F-W 07	5673	7474	5143	2	7	2/13/03	9:55	0	60	0
F-W 08	5673	7474	5143	2	8	2/13/03	9:58	2	60	13
F-W 09	5673	7474	5143	2	9	2/13/03	9:59	2	60	13
F-W 10	5673	7474	5143	2	10	2/13/03	10:01	3	60	19
F-W 11	5673	7474	5143	2	11	2/13/03	10:03	3	60	19
F-W 12	5673	7474	5143	2	12	2/13/03	10:08	3	60	19
F-W 13	5673	7474	5143	2	13	2/13/03	10:11	1	60	6
F-W 14	5673	7474	5143	2	14	2/13/03	10:13	3	60	19
F-W 15	5673	7474	5143	2	15	2/13/03	10:15	4	60	26
F-W 16	5673	7474	5143	2	16	2/13/03	10:18	3	60	19
F-W 17	5673	7474	5143	2	17	2/13/03	10:19	2	60	13
F-W 18	5673	7474	5143	2	18	2/13/03	10:39	3	60	19
F-W 19	5673	7474	5143	2	19	2/13/03	10:40	5	60	32
QC 04	5673	6175	5143	2		2/13/03	10:30	3	60	19
QC 07	5673	6175	5143	2		2/13/03	10:29	2	60	13
QC 12	5673	6175	5143	2		2/13/03	10:26	2	60	13
QC 15	5673	6175	5143	2		2/13/03	10:24	3	60	19
QC 17	5673	6175	5143	2		2/13/03	10:21	2	60	13
QC 19	5673	6175	5143	2		2/13/03	10:42	3	60	19

28-BLDG CHARACTERIZATION BETA SURVEY RSDS# 03-TF-0048

RCT: KA RCT: PA

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
F-W 01	5709	7474	5795	1	2/12/03	181	60	-40
F-W 02	5709	7474	5795	2	2/12/03	191	60	0
F-W 03	5709	7474	5795	3	2/12/03	187	60	-16
F-W 04	5709	7474	5795	4	2/12/03	228	60	148
F-W 05	5709	7474	5795	5	2/12/03	205	60	56
F-W 06	5709	7474	5795	6	2/12/03	196	60	20
F-W 07	5709	7474	5795	7	2/12/03	201	60	40
F-W 08	5709	7474	5795	8	2/12/03	420	60	916
F-W 09	5709	7474	5795	9	2/12/03	239	60	192
F-W 10	5709	7474	5795	10	2/12/03	394	60	812
F-W 11	5709	7474	5795	11	2/12/03	241	60	200
F-W 12	5709	7474	5795	12	2/12/03	176	60	-60
F-W 13	5709	7474	5795	13	2/12/03	208	60	68
F-W 14	5709	7474	5795	14	2/12/03	228	60	148
F-W 15	5709	7474	5795	15	2/12/03	279	60	352
F-W 16	5709	7474	5795	16	2/12/03	200	60	36
F-W 17	5709	7474	5795	17	2/12/03	239	60	192
F-W 18	5709	7474	5795	18	2/12/03	259	60	272
F-W 19	5709	7474	5795	19	2/12/03	238	60	188
Penthouse	5709	7474	5795	20	2/12/03	307	60	464
BETA BACKGROUND FOR 2-13-2003 WAS------------->								191
ALPHA BACKGROUND FOR 2-13-2003 WAS------------->								3
Alpha								
Penthouse	5709	7474	5795	20	2/12/03	12	120	72
Beta								
QC 04	5709	6175	5795		2/12/03	197	60	24
QC 07	5709	6175	5795		2/12/03	205	60	56
QC 12	5709	6175	5795		2/12/03	187	60	-16
QC 15	5709	6175	5795		2/12/03	239	60	192
QC 17	5709	6175	5795		2/12/03	256	60	260
QC 19	5709	6175	5795		2/12/03	228	60	148

G-250646

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR010
Batch Ended: 2/12/03 14:57
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0048 ABERCROMBIE (20) BSB

Detector ID	Sample ID	Alpha Activity DPM	σ	flags	Beta Activity DPM	σ	flags
B1	1	3.56	2.90		6.22	3.32	
B2	2	1.31	2.01		0.13	1.69	
B3	3	1.59	2.12		1.20	2.22	
B4	4	1.45	2.02		1.19	2.01	
C1	5	5.63	3.02		10.18	3.98	
C2	6	1.31	1.87		1.52	2.00	
C3	7	1.66	2.12		3.01	2.50	
C4	8	0.98	2.10		3.21	2.92	
D1	9	3.31	2.76		2.48	2.47	
D2	10	1.57	2.15		3.84	2.72	
D3	11	0.00	2.20		5.48	3.15	
D4	12	5.63	3.64		3.49	2.67	
B1	13	1.56	2.06		2.63	2.50	
B2	14	1.31	2.04		2.51	2.39	
B3	15	5.75	3.65		2.16	2.57	
B4	16	0.00	2.01		0.17	1.64	
C1	17	1.56	2.11		1.61	2.16	
C2	18	0.00	1.87		1.68	2.00	
C3	19	1.66	2.19		9.23	3.77	
C4	20	0.00	2.10		3.34	2.92	

KA KA

Time: 2.00
Data Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5	18.6	0	0.0	5.63
Region B:	2.0	18.6	0	0.0	5.14
Region C:	40.0	2000	0	0.0	9.55

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0048 ABERCROMBIE (20) BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT2.DAT
Count Data Filename: c:\data\SDATA2.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	5.63	5.14	0	B	593.14		0.00	9.55
0	2.00	639.47	609.55	0		484.15	1394.99	131.87	0.00
1	2.00	0.00	0.00	0		572.09	0.00	0.00	0.00
2	2.00	6.87	6.36	0		651.47	11.02	9.48	0.00
3	2.00	0.00	0.00	0		600.33	0.00	0.00	0.00
4	2.00	4.37	4.22	0		626.31	8.38	9.07	1.45
5	2.00	2.70	3.19	0		657.95	5.04	8.13	0.00
6	2.00	1.09	0.66	0		505.07	2.33	8.44	2.45
7	2.00	2.37	2.51	0		641.09	4.49	8.10	0.00
8	2.00	0.37	0.52	0		635.72	0.70	7.18	0.00
9	2.00	0.00	0.00	0		612.10	0.00	0.00	0.45
10	2.00	0.00	0.08	0		607.99	0.00	0.00	3.45
11	2.00	3.20	3.69	0		538.94	6.60	9.23	0.45
12	2.00	0.00	0.00	0		470.52	0.00	0.00	0.45
13	2.00	0.00	0.00	0		590.34	0.00	0.00	0.00
14	2.00	1.93	2.04	0		552.87	3.94	8.51	0.00
15	2.00	5.98	5.83	0		525.93	12.50	10.59	1.45
16	2.00	2.87	2.86	0		587.23	5.69	8.70	0.95
17	2.00	0.37	0.36	0		596.66	0.73	7.42	0.00
18	2.00	0.00	0.30	0		651.32	0.00	0.00	0.00
19	2.00	6.55	5.58	0		605.59	12.77	10.11	1.95
20	2.00	0.87	1.36	0		534.59	1.80	8.10	0.00

KA

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KA 3-11-03

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 28 RM 110 & BASEMENT	SURVEY NO. 03-TF-0049
PURPOSE: SCOPING SURVEY	RWP NO. NA
	DATE: 2-12-03
	TIME: 1400

MAP/DRAWING

SEE ATTACHMENTS

COPY

LEGEND: # = mrem/hr (γ) whole body
E = mrem/hr (β+η+γ) extremity on contact
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or /β = direct cont. measurement in dpm/100cm^2

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5709/5795	8-203
	N	A

[redacted]	HP# 6170 7494	Date: 3-6-03
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewed by: [redacted]	HP# 7707	Date: 03/19/03
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98)

G2908 46

Survey No. 03-TF-0049

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See	ATTACHed		FLOOR DRAIN
2	↓	↓	↓	↓
3	↓	↓	↓	↓
4	See	ATTACHed		FLOOR DRAIN
		N	A	

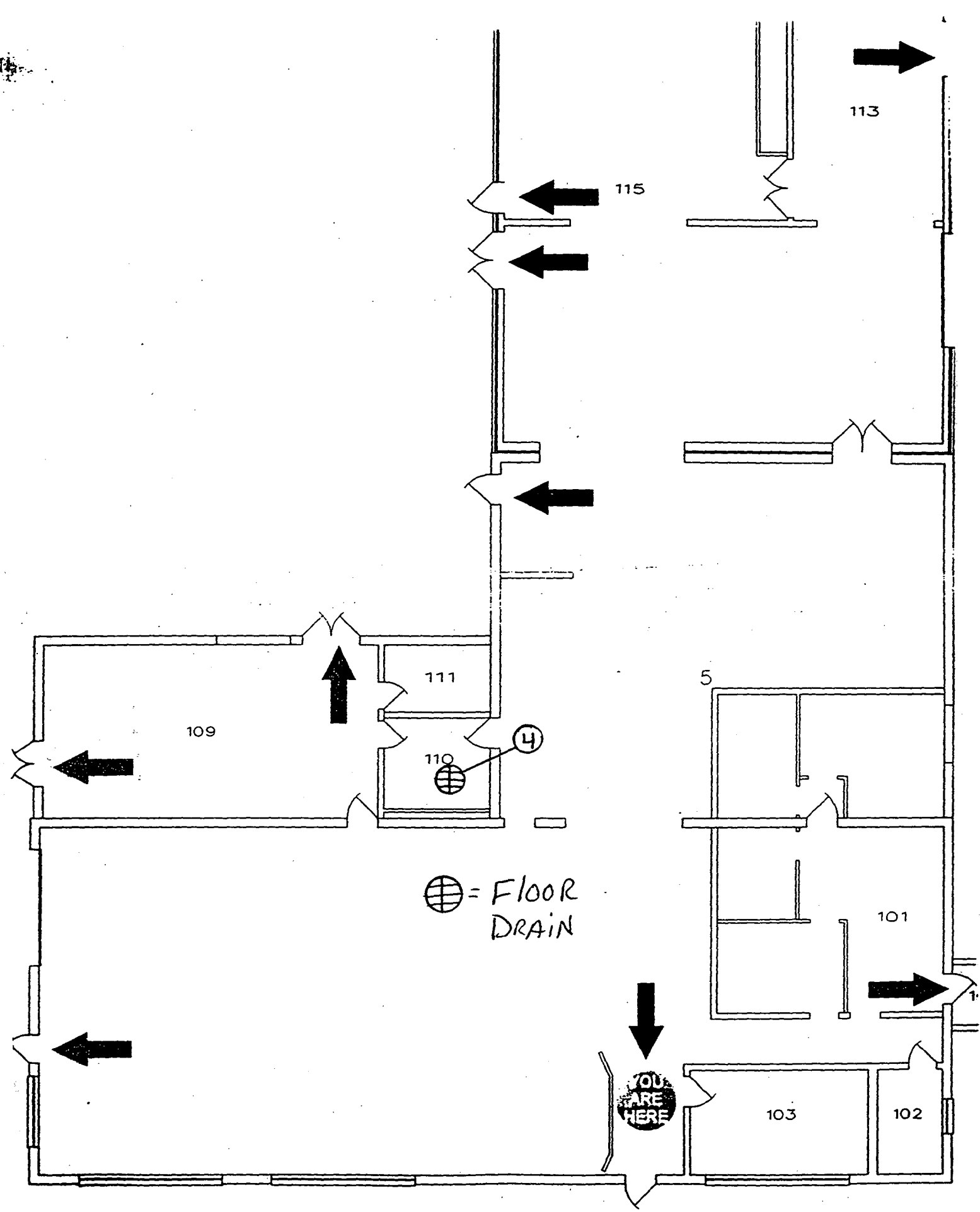
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
		N	A	

COMMENTS: None

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)

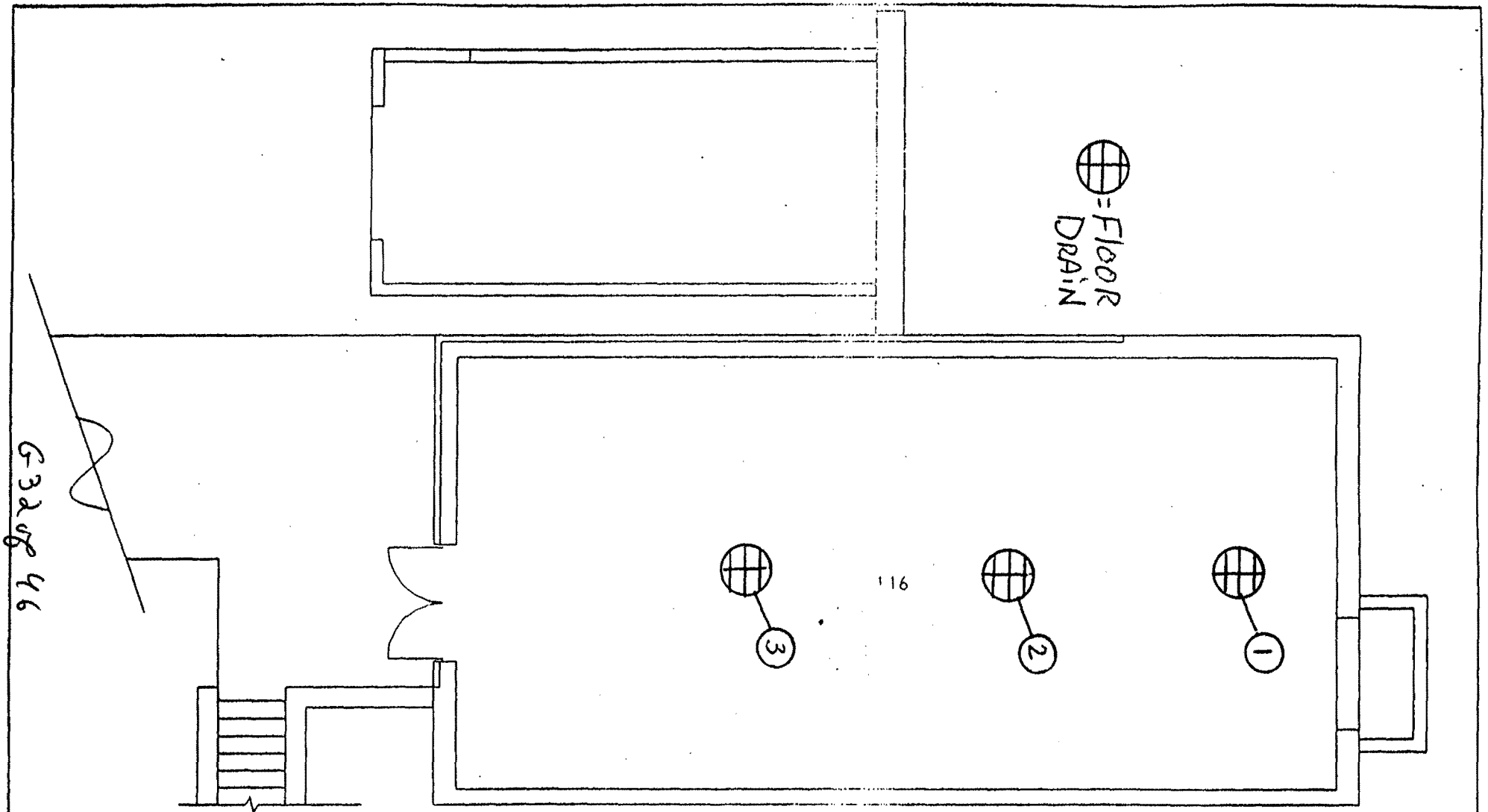


BUILDING 28

G31 of 46

30 of 67

FEET



G32 pg 46

EG&G
MOUND APPLIED TECHNOLOGIES

SMALL SCALE FLOOR PLANS

BLDG. 28
BASEMENT

BLDG. CODE : 3028

4 of 17

Sample Number	Sample Date	Sample Time	Sample Volume/ Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
28-01- FD-01	2-12-03	1400	NA	FLOOR DRAIN IN BASEMENT RSDS # 03-TF-0049	HKA	2-12-03	1440	KA	
28-01- FD-02	2-12-03	1403	NA	↓	HKA	2-12-03	1440	KA	
28-01- FD-03	2-12-03	1407	NA		HKA	2-12-03	1440	KA	
28-01- FD-04	2-12-03	1410	NA	FLOOR DRAIN IN ROOM 110 RSDS # 03-TF-0049	HKA	2-12-03	1446	KA	
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									
28-01-									

NA

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR009
Batch Ended: 2/12/03 14:56
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0049 ABERCROMBIE (4) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.09		4.04	2.86	
A2	2	3.50	2.82		9.70	3.82	
A3	3	0.00	2.17		4.15	2.78	
A4	4	0.00	2.01		0.34	1.67	

KA KA

B. S. Brown

Protocol #: 5 Pw H3 405828 User : 5268

Time: 2.00
Data Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5	18.6	0	0.0	7.66
Region B:	2.0	18.6	0	0.0	7.30
Region C:	40.0	2000	0	0.0	12.30

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
~~OZ-WM-0146 BAKO(25) BSB~~ 03-17-0049 Abercrombie (4) 2/13/03 bsl
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT5.DAT
Count Data Filename: c:\data\SDATA5.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	7.66	7.30	0	B	597.52		0.00	12.30
0	2.00	559.11	528.96	0		476.17	1232.81	119.60	0.00
1	2.00	0.58	0.95	0		415.61	1.40	10.62	0.39
2	2.00	0.00	0.00	0		411.72	0.00	0.00	0.00
3	2.00	0.00	0.00	0		404.27	0.00	0.00	2.70
4	2.00	0.00	0.00	0		599.10	0.00	0.00	0.00

KA

B A Brown

1 of 6

28-BLDG CHARACTERIZATION DRAIN SURVEY

RSDS#03-TF-0049 RCT: [illegible] RCT:_____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	6178	5847	1	3/14/03	197	60	105	2	60	10
2	5833	6178	5847	2	3/14/03	175	60	-5	4	60	30
3	5833	6178	5847	3	3/14/03	273	60	485	2	60	10
4	5833	6178	5847	4	3/14/03	246	60	350	0	60	-10
BETA BACKGROUND FOR 3-14-2003 WAS---------->								176			
ALPHA BACKGROUND FOR 3-14-2003 WAS---------->								1			

RADIOLOGICAL SURVEY DATA SHEET

Page 1 of 9/10 DJH 3-18-03

LOCATION: (BLDG./AREA/ROOM) 28 OUTSIDE	SURVEY NO. 03-TF-0050
PURPOSE: MARSSIM SURVEY PLAN 28-01 SCOPING	RWP NO. N/A
	DATE: 2-13-03
	TIME: 1500

MAP/DRAWING

COPY

SEE ATTACHED

LEGEND: # = mrem/hr (γ) whole body
E = mrem/hr (β+η+γ) extremity on contact
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or /β = direct cont. measurement in dpm/100cm^2

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5143	8-13-03
2360	5833/5847	3-13-04
	N/A	

[redacted] HPs 6178 7474 Date: 3-17-03

[redacted] SEE ATTACHED HPs Date:

Counted by: (Print Name)

Reviewed [redacted] HPs 7707 Date: 03/19/03

Reviewed/Approved by: (Print Name) [redacted]

ML-9620 (2-98)

2 of 9 10 DTA 3-18-03

Survey No. 03-TF-0050

Page ___ of ___

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
	Swipes (dpm/100cm²)			
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE ATTACHED		N/A	OUTSIDE YARD
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				ROOF
17				
18				
19				
20				
		N	A	

Removable Contamination				
	Swipes (dpm/100cm²)			
Sample #	β/γ	Alpha	Tritium	Comments
		N	A	

COMMENTS: N/A

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)

G3806 46

28 BUILDING SCOPING SURVEY

RSDS# 03-TF-0050 RCT: [illegible] RCT: KA

(ALPHA)

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	7474	5143	2		2/13/03	8:05	3	300	4
SRC CHECK	5673	7474	5143	2		2/13/03	8:39	2059	60	13228
SRC CHECK	5673	7474	5143	2		2/13/03	8:40	2066	60	13273
SRC CHECK	5673	7474	5143	2		2/13/03	8:42	2005	60	12881
SRC CHECK	5673	7474	5143	2		2/13/03	8:43	1985	60	12752
O-S 01	5673	6178	5143	2	1	2/13/03	14:16	12	60	77
O-S 02	5673	6178	5143	2	2	2/13/03	14:19	15	60	96
O-S 03	5673	6178	5143	2	3	2/13/03	14:21	9	60	58
O-S 04	5673	6178	5143	2	4	2/13/03	14:23	10	60	64
O-S 05	5673	6178	5143	2	5	2/13/03	14:25	7	60	45
O-S 06	5673	6178	5143	2	6	2/13/03	14:27	17	60	109
O-S 07	5673	6178	5143	2	7	2/13/03	14:29	9	60	58
O-S 08	5673	6178	5143	2	8	2/13/03	14:31	12	60	77
O-S 09	5673	6178	5143	2	9	2/13/03	14:33	10	60	64
O-S 10	5673	6178	5143	2	10	2/13/03	14:35	12	60	77
O-S 11	5673	6178	5143	2	11	2/13/03	14:41	5	60	32
O-S 12	5673	6178	5143	2	12	2/13/03	14:43	7	60	45
O-S 13	5673	6178	5143	2	13	2/13/03	14:45	11	60	71
O-S 14	5673	6178	5143	2	14	2/13/03	14:50	7	60	45
O-S 15	5673	6178	5143	2	15	2/13/03	14:52	4	60	26
QC 02	5673	7474	5143	2		2/13/03	15:01	14	60	90
QC 06	5673	7474	5143	2		2/13/03	14:58	10	60	64
QC 08	5673	7474	5143	2		2/13/03	14:56	17	60	109
QC 13	5673	7474	5143	2		2/13/03	14:47	8	60	51
QC 15	5673	7474	5143	2		2/13/03	14:53	10	60	64

28-BLDG CHARACTERIZATION BETA SURVEY OUTSIDE WALLS

RSDS#03-TF-0050 RCT: DJH RCT:_____

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
1	5833	6178	5847	1	2/14/03	536	60	1800
2	5833	6178	5847	2	2/14/03	493	60	1585
3	5833	6178	5847	3	2/14/03	510	60	1670
4	5833	6178	5847	4	2/14/03	487	60	1555
5	5833	6178	5847	5	2/14/03	521	60	1725
6	5833	6178	5847	6	2/14/03	499	60	1615
7	5833	6178	5847	7	2/14/03	463	60	1435
8	5833	6178	5847	8	2/14/03	463	60	1435
9	5833	6178	5847	9	2/14/03	479	60	1515
10	5833	6178	5847	10	2/14/03	499	60	1615
11	5833	6178	5847	11	2/14/03	472	60	1480
12	5833	6178	5847	12	2/14/03	528	60	1760
13	5833	6178	5847	13	2/14/03	541	60	1825
14	5833	6178	5847	14	2/14/03	423	60	1235
15	5833	6178	5847	15	2/14/03	468	60	1460
QC-2	5833	6178	5847	1	2/14/03	489	60	1565
QC-6	5833	6178	5847	2	2/14/03	468	60	1460
QC-8	5833	6178	5847	3	2/14/03	491	60	1575
QC-13	5833	6178	5847	4	2/14/03	531	60	1775
QC-15	5833	6178	5847	5	2/14/03	477	60	1505
BETA BACKGROUND FOR 2-14-2003 WAS---------->								176

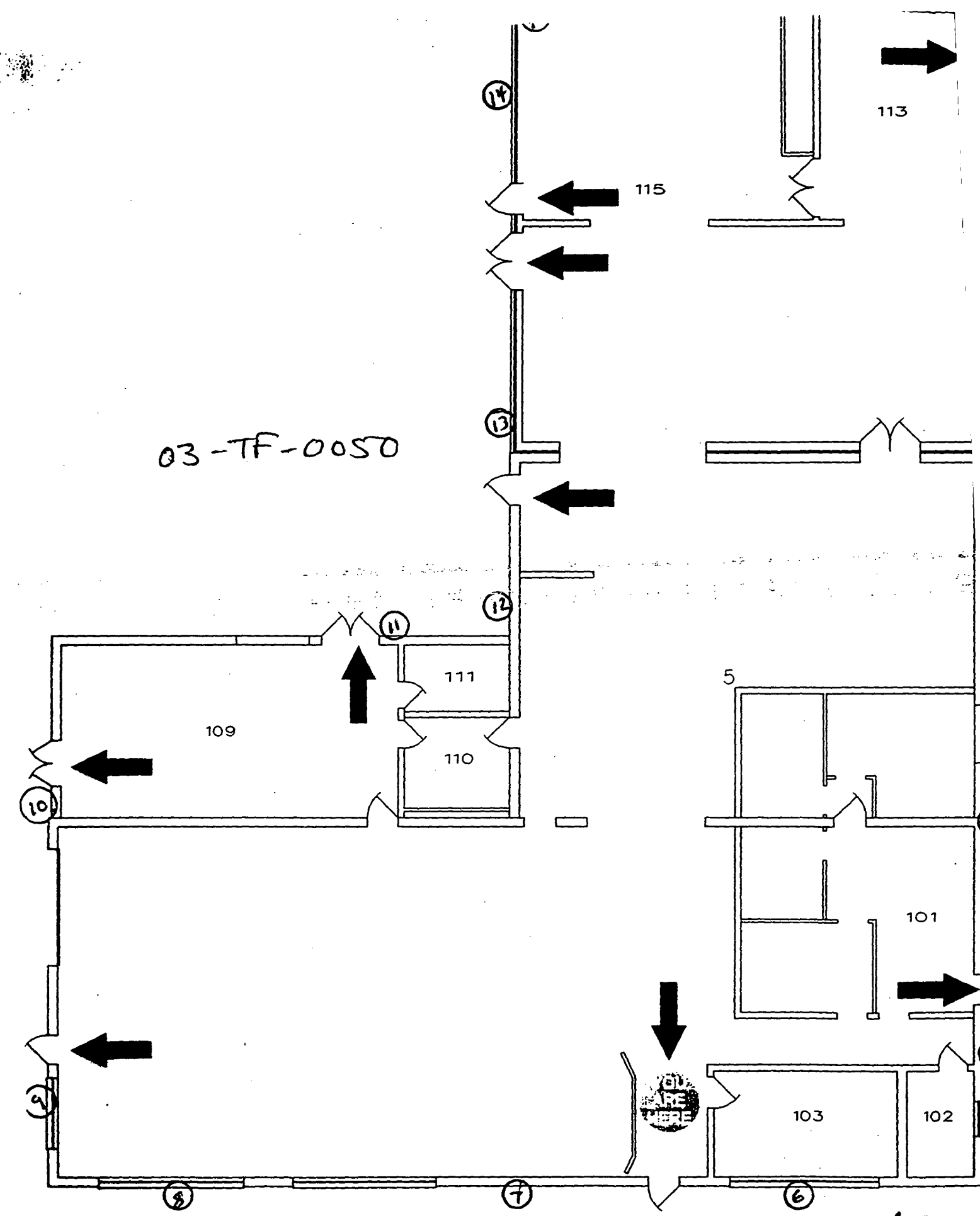
Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200302181525	**Count Date:**	2/18/2003
Group:	H	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0050 HARVEY (15) BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

	Efficiency (%)			Spillover (%)		
Alpha:	35.30	±	0.11	**Alpha to Beta:**	9.38	±	0.00
Beta:	44.94	±	0.12	**Beta to Alpha:**	0.85	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	42	1.97	1.89	3.72	2.58
2	31	0.00	0.02	1.28	1.48
3	17	0.00	0.00	0.00	0.00
4	8	0.00	0.04	7.68	3.64
5	97	1.99	1.89	2.44	2.10
6	71	4.03	2.67	1.04	1.50
7	18	2.01	1.89	1.16	1.49
8	18	2.01	1.89	1.16	1.49
9	49	0.00	0.02	2.56	2.10
10	19	0.00	0.02	1.28	1.48
11	96	3.98	2.67	4.88	2.98
12	38	0.00	0.03	5.12	2.97
13	17	0.00	0.00	0.00	0.00
14	85	0.00	0.02	2.56	2.10
15	58	4.00	2.67	3.60	2.58

DJH DJH



03-TF-0050

DJH

BUILDING 28

6 of 9/10
42 of 46
DJH
3-18-0

FEET

28-BLDG CHARACTERIZATION ROOF SURVEY

RSDS#03-TF-0050 RCT: 27A RCT:_____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
16	5833	6178	5847	16	2/14/03	244	60	340	4	60	30
17	5833	6178	5847	17	2/14/03	214	60	190	8	60	70
18	5833	6178	5847	18	2/14/03	260	60	420	3	60	20
19	5833	6178	5847	19	2/14/03	231	60	275	2	60	10
20	5833	6178	5847	20	2/14/03	229	60	265	4	60	30
QC-17	5833	6178	5847		2/14/03	194	60	90	9	60	80
BETA BACKGROUND FOR 3-14-2003 WAS---------->								176			
ALPHA BACKGROUND FOR 3-14-2003 WAS---------->								1			

C-43 of 96

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR024
Batch Ended: 3/17/03 14:46

Crosstalk correction performed.

Recalibration Date: 6/7/04
Batch ID: HARVEY 03-TF-0050 (5) CYR
Serial Number: 26966-2

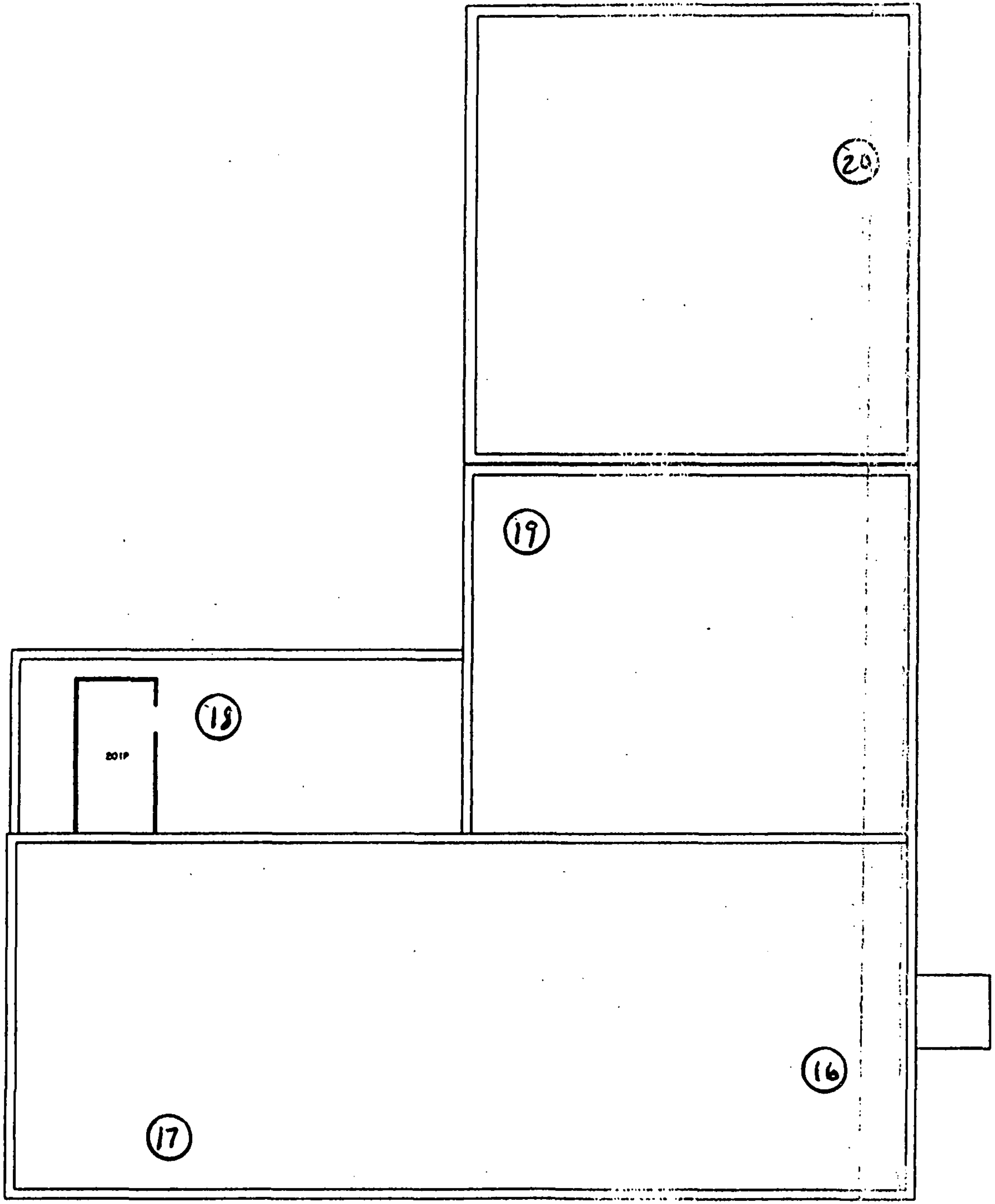
Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.8	2.0	
A2	2	0.0	2.2		0.7	2.0	
A3	3	0.0	2.0		4.5	2.8	
A4	4	0.0	2.0		0.2	1.8	
B1	5	0.0	2.0		1.1	2.7	

Dgtl Dgtl Carol G. Robinson

96 of 426

Page 1 of 1

3-18-03



EG&G
MOUND APPLIED TECHNOLOGIES

SMALL SCALE FLOOR PLANS

BLDG. 28

PENTHOUSE

BLDG. CODE : 3028

REV. DATE	CLASSIFICATION
01/12/89	UCNI

28 BUILDING RE-COUNT SURVEY

RSDS# 03-TF-0050 RCT: DH RCT: _____

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	7474	5143	2		3/14/03	14:27	3	300	4
SRC CHECK	5673	7474	5143	2		3/14/03	14:30	2079	60	13356
SRC CHECK	5673	7474	5143	2		3/14/03	14:32	2111	60	13562
SRC CHECK	5673	7474	5143	2		3/14/03	14:33	1994	60	12810
SRC CHECK	5673	7474	5143	2		3/14/03	14:35	2119	60	13613
RE-C 06	5673	7474	5143	2	1	3/14/03	14:50	4	60	26
RE-C 08	5673	7474	5143	2	2	3/14/03	14:52	2	60	13
SRC BKG	5673	7474	5143	2		3/14/03	14:58	2	300	3
SRC CHECK	5673	7474	5143	2		3/14/03	15:33	2068	60	13285
SRC CHECK	5673	7474	5143	2		3/14/03	15:34	2083	60	13382
SRC CHECK	5673	7474	5143	2		3/14/03	15:35	1923	60	12354
SRC CHECK	5673	7474	5143	2		3/14/03	15:37	1964	60	12617

Appendix H

Radon Information

UNC Geotech

UNC Geotech
2597 B 3/4 Road
P.O. Box 14000
Grand Junction, Colorado 81502-5504
303/242-8621

April 12, 1990

Dennis Murphy
EG&G Mound Applied Technonogies
P.O. Box 3000
Mound Road
Miamisburg, OH 45343-3000

Dear Mr. Murphy:

I have enclosed the results ~~of the radon~~ measurements made at your site as part of the DOE Indoor Radon Study. A copy of these results can be ~~provided in electronic format if desired.~~ The results will be forwarded to the study sponsor, the DOE Office of Projects and Facilities Management, by the end of April.

Please contact me at FTS 326-6293 or commercial (303) 248-6293 if you have any questions.

Sincerely yours,

Mark D. Pearson

Mark D. Pearson
Project Manager
UNC Geotech

cc: DOE Points of Contact

--	Bldg	Bldg Description	Room	pCi/l	pCi/l	Rsmld	Dupld	Date	Date	Comments
	21		ABOVE AIR SAMPLER	161.1	125.0	1670055	1666782	12/16/88	2/16/90	MET - OLD THORIUM STORAGE
	21		ABOVE AIR SAMPLERS	116.7		1668580		12/14/88	2/16/90	MET - OLD THORIUM STORAGE
		SH	19 NEO EAST WALL	4.8		1661547		12/12/88	2/19/90	HISTORY OF ELEVATED READING
	48		114 B CLOSET ON SPRINKLER PIPE	3.2		1671292		12/12/88	2/16/90	
	19		ROOM 1	2.6		1670051		12/13/88	2/19/90	
		OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661595		12/14/88	2/19/90	
	55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/18/88	2/19/90	
	57		ROOM 1	1.8		1661565		12/12/88	2/19/90	
	87		103	1.5		1661563		12/13/88	2/19/90	
	888	FIRE STATION	ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654468		12/12/88	2/19/90	
	24		ROOM 1 PLANT NORTH WALL	1.3		1672087		12/12/88	2/19/90	
		PAINT SHOP	PS 4	1.2		1661518		12/12/88	2/16/90	*
	30		ROOM 3 EAST	1.1		1671262		12/12/88	2/16/90	
	100		103 MIDDLE OF NORTH WALL	1.0		1670060		12/12/88	2/19/90	
	37		6 NORTH WALL	1.0		1670046		12/12/88	2/19/90	
	34		34 A WEST WALL	.9	.6	1672062	1672042	12/12/88	2/19/90	MET
	102		123	.9		1661577		12/14/88	2/19/90	
	61		RM 221 MIDDLE OF NORTH WALL	.9		1661585		12/13/88	2/19/90	
	67		101 N	.9		1670029		12/12/88	2/19/90	
	G-13	LOG	G-514 WEST WALL	.8		1661544		12/12/88	2/16/90	
		T	CORRIDOR 28	.8		1670039		1/15/90	2/19/90	
		T	153	.8		1670067		1/15/90	2/19/90	
		T	78	.8		1670077		1/15/90	2/19/90	
		T	38	.8		1661586		1/15/90	2/19/90	
	105	PARTS RACKINING BUILDING	STAIRWELL NEXT TO ROOM 127	.8		1661564		12/12/88	2/19/90	
	25	ARAC	3 ON BOOK CASE MIDDLE	.8		1671314		12/16/88	2/19/90	
	60		1 ON DOOR TO ROOM 3	.8		1670049		12/12/88	2/19/90	
		A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/16/88	2/16/90	
		C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL RM2	.8		1672052		12/12/88	2/16/90	
		R BUILDING	66 NORTH WALL	.8		1670060		12/13/88	2/16/90	
		SH	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/88	2/16/90	
		WO BLDG	WO 8	.8		1670045		12/16/88	2/16/90	
	87		124	.8		1670032		12/12/88	2/19/90	
	88		ROOM 116 ON NORHT WALL RIGHT OF CEN	.7	.5	1661524	1661635	12/12/88	2/19/90	
	89		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666783	1666532	12/15/88	2/19/90	
	22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1670070		12/13/88	2/19/90	
	56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1670066		12/12/88	2/19/90	
		E ANNEX	E 225 EAST WALL	.7		1661552		12/18/88	2/16/90	
		POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1670048		12/12/88	2/19/90	
		W BLDG	W-135	.7		1661553		12/12/88	2/16/90	
	26		ROOM 84 SOUTH WEST WALL	.6	.5	1672048	1667158	12/13/88	2/16/90	
	69		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/88	2/19/90	
	26		ROOM 84 SOUTH WEST WALL	.6		1671279		12/13/88	2/16/90	
	35		RM 7	.6		1654459		12/14/88	2/19/90	
	38	PP BLDG	PP CORR 136	.6		1670016		12/14/88	2/19/90	
	72		ON OVERHEAD DOOR BEAM	.6		1672069		1/03/90	2/19/90	
	93		HALLWAY 107 (MIDWAY)	.6		1661625		12/13/88	2/20/90	
	98	FIRE STATION	ROOM 114 DORM	.6		1661507		12/12/88	2/19/90	
		COS	NW STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/88	2/19/90	
		OSW	120 C	.6		1661573		12/12/88	2/16/90	
		SH	150 WEST END GAS BOX	.6		1670043		12/11/88	2/16/90	
		A	34 EAST WALL	.5	.7	1672075	1672051	12/14/88	2/16/90	
	47		102 MIDDLE OF EAST WALL	.5	.5	1650110	1666818	12/12/88	2/16/90	

Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Manid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
45		WORK STATION AREA	.4		1681568		12/14/89	2/19/90	
46		81 EAST WALL	.4		1672078		12/12/89	2/19/90	
49		HALL OUTSIDE RM 125	.4		1678028		12/14/89	2/19/90	
51		107 TOP OF FUME HOOD	.4		1681575		12/12/89	2/19/90	
63		ROOM 134	.4		1672059		12/13/89	2/20/90	
63W		RM 4	.4		1678078		12/14/89	2/19/90	
65		ROOM 10 CONFERANCE ROOM	.4		1671284		12/14/89	2/19/90	
66		OFFICE AREA	.4		1681554		12/12/89	2/19/90	
68		EAST WALL CENTER BEAM	.4		1681555		12/14/89	2/19/90	
69		RM 10A	.4		1681576		12/12/89	2/19/90	
70		170 MEETING ROOM CENTER WALL	.4		1678041		12/12/89	2/19/90	
88		ROOM 116	.4		1671295		12/12/89	2/19/90	
95	SR/PP	95- BLD-ROOM81	.4		1661531		12/12/89	2/20/90	
	OS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/13/89	2/19/90	
	I	I HALLWAY	.4		1661184		12/12/89	2/19/90	
	R BUILDING	R 21 WEST WALL	.4		1678057		12/15/89	2/20/90	
	POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1678026		12/12/89	2/19/90	
	R BUILDING	12 SOUTH WALL	.4		1681566		12/13/89	2/19/90	
34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
61		RM 151			1681567		12/13/89		MISSING

Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	R BUILDING	163 NEXT TO NORTH WALL	.5	.5	1660533	1666816	12/13/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671288		12/12/89	2/19/90	
	"B" 175 ——	175 WEST WALL	.5		1670048		12/12/89	2/16/90	
.6		ELECTRICAL PANEL RM IN ELECTRONICS	.5		1670062		12/12/89	2/19/90	
40		106	.5		1654480		12/13/89	2/16/90	
43		1 EAST WALL OVER WATER DISPENSER	.5		1670076		12/12/89	2/20/90	
44		ON BULLETIN BOARD	.5		1670047		12/12/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5		1670058		12/12/89	2/16/90	
50		CELL 113	.5		1661582		12/13/89	2/19/90	
79		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1661605		12/18/89	2/16/90	
89		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1670079		12/15/89	2/19/90	
91		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1661593		12/15/89	2/16/90	
92		HALLWAY RIGHT OFF ROOM 8	.5		1661509		12/12/89	2/19/90	
94		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
	A	215 WEST WALL	.6		1661572		12/14/89	2/16/90	
	A	1040 WEST WALL	.5		1661580		12/14/89	2/16/90	
	COS	110 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	319 WALL CABINET TO RIGHT OF SINK	.5		1661590		12/12/89	2/19/90	
	E BUILDING	158 WEST WALL	.6		1670033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.6		1670072		12/14/89	2/16/90	
	E ANNEX	E 212 NORTH WALL	.5		1661587		12/19/89	2/16/90	
	GH BUILDING	ROOM 2	.6		1670065		12/12/89	2/16/90	
	GP 81	1A MIDDLE OF WEST WALL	.6		1670054		12/12/89	2/19/90	
	H BLDG	ROOM 127	.5		1661571		12/12/89	2/16/90	
	HH	HH-8	.5		1671269		12/19/89	2/19/90	
	I BUILDING	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	M BUILDING	M 108	.5		1670056		12/15/89	2/19/90	
	OSE	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSM	4HT FLOOR	.5		1670028		12/12/89	2/16/90	
	OSE	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1670036		12/15/89	2/16/90	
	OSM	319	.5		1670069		12/13/89	2/16/90	
	OSM	2ND FLOOR	.5		1661611		12/12/89	2/16/90	
	POWER HOUSE PH-1	STATIONARY BOARD CORNER	.5		1670073		12/12/89	2/19/90	
	R BUILDING	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	SW/R TRITIUM COMPLEX	128 OVER LARGE METAL FLOOR DISC	.5		1670019		12/12/89	2/16/90	
	W BLDG	W135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
	WO BLDG	WOA 110	.5		1671301		12/18/89	2/16/90	
	"B" 124 ——	EAST WALL	.5		1667189		12/12/89	2/16/90	
	OSE	113 BULLETIN BOARD OPPOSITE ELEVATO	.5		1670027		12/15/89	2/16/90	
TF-2		114 EAST WALL CENTER OF ROOM	.4		1670064		12/12/89	2/19/90	
	HH	HH-24	.4		1667187		12/14/89	2/19/90	
	OS BUILDING	CORRIDOR 7 NEXT TO ROOM 216	.4		1661614		12/13/89	2/19/90	
	GP 81	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	136 QC OFFICE	.4		1670017		12/12/89	2/19/90	
27		CELL 8 - WALL	.4		1661583		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	101	.4		1672061		12/12/89	2/19/90	
29		HALLWAY	.4		1672105		12/14/89	2/19/90	
	TEST FIRE BUILDING 3	3-315	.4		1672036		12/12/89	2/19/90	
38	PP BLDG	PP CORR 16/BAY 2 WALL	.4		1661570		12/14/89	2/19/90	
39		BREAK RM	.4		1670050		12/14/89	2/19/90	
42		101 B EAST WALL	.4		1670031		12/13/89	2/19/90	

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 5/20/03 3:45PM
Subject: Building 28!!!

Don & Val -

For Building 28 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos surveys were completed in 1989 and 1992. These surveys were intended to identify all reasonably accessible asbestos-containing materials within the building for the purposes of identifying damaged material and managing asbestos in place. Documentation indicates that all damaged materials were repaired.

On April 24, 2003 Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a walk-through survey of the readily accessible areas of Building 28 in order to verify the presence of previously identified asbestos-containing materials. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. Most of the materials previously identified appeared to have been completely removed during a previous asbestos removal effort. No damaged asbestos-containing materials were seen during the survey. Any remaining asbestos-containing materials should be monitored periodically to ensure that they remain undamaged. No other actions would be required unless the building is scheduled for renovation or demolition; such activities would require the removal of affected asbestos.

Lead

No previous lead surveys or sampling data could be found for Building 28. Observed paint coatings were largely intact.

Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the buildings. No further action would be necessary to protect occupant or worker health unless any coatings were to be disturbed by close worker contact (sanding, grinding, scraping, torch cutting, etc.). If these types of activities are planned, the affected paint coatings should be tested to verify the absence of lead.

These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Kramer, Donald

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INVENTORY AND ASSESSMENT OF ASBESTOS-CONTAINING MATERIALS IN BUILDINGS OF THE EG&G MOUND APPLIED TECHNOLOGIES FACILITY MIAMISBURG, OHIO

by

PEI Associates, Inc.
11499 Chester Road
Cincinnati, Ohio 45246

PN 6441

for

EG&G MOUND APPLIED TECHNOLOGIES, INC.
MIAMISBURG, OHIO

March 1989

CONTENTS

I 46 80

CONTENTS (continued)

I 506 80

4.43 Building 28

The following asbestos-containing materials were identified in Building 28:

- Preformed-block pipe insulation
- Cementitious insulation
- Pipe wrapping
- Transite
- Floor tiles

The three homogeneous areas of asbestos-containing thermal system insulation identified during the inspection of Building 28--preformed-block pipe insulation, cementitious insulation on pipe fittings, and pipe wrapping--are in generally good condition with the exception of transite in Room 112 and two cementitious fittings in the men's restroom. Because of the small amount of material present, PEI recommends removal of the cementitious fittings.

TABLE 1. HOMOGENEOUS AREAS OF SUSPECT ASBESTOS-CONTAINING MATERIALS IN BUILDING 28, EG&G MOUND APPLIED TECHNOLOGY
(Inspected September 15, 1988)

Homogeneous area No.	Type of material	Description of homogeneous area	Does homogeneous material contain asbestos? (assumed/sampled)
1	Thermal system insulation	Preformed-block pipe insulation on steam line	Yes (sampled)
2	Thermal system insulation	Cementitious insulation between section of fibrous-glass pipe insulation	Yes (sampled)
3	Thermal system insulation	No drip pipe wrapping	Yes (sampled)
4	Miscellaneous	Transite paneling in selective areas	Yes (assumed)
5	Miscellaneous	2-ft by 4-ft textured ceiling tele (Dot & cut) in selective areas	No (sampled)
6	Miscellaneous	12 in by 12 in textured ceiling tile (Dot & cut) in selective areas	No (sampled)
7	Miscellaneous	2-ft by 4-ft tectured ceiling tile (dot & large cut) in selective areas	No (sampled)
8	Miscellaneous	9 in by 9 in floor tiles in selective areas	Yes (assumed)
9	Miscellaneous	12 in by 12 in floor tiles in selective areas	Yes (assumed)
10	Miscellaneous	Furance bricks in selective areas	No (sampled)
11	Miscellaneous	Wooven Blanket in selective areas	No (sampled)

TABLE 2. DATA SUMMARY FOR BULK SAMPLES OF SUSPECT ASBESTOS-CONTAINING MATERIALS IN BUILDING 28, EG&G MOUND APPLIED TECHNOLOGY

Homo-geneous area No.	Field sample No.	Sample date (1988)	PEI Laboratory requisition No.	Floor/room No.	Sample location	Asbestos fiber content
1	MRC-6351	9/15/88	T8-09-220-01A	1/101	West wall above the ceiling tile above the air condition controls	5% Chrysotile 15% Amosite
2	MRC-6352	9/15/88	T8-09-220-02A	1/101	North wall, roof drain by phone 135 and emergency lights	10% Chrysotile 10% Amosite
2	MRC-6353	9/15/88	T8-09-220-03A	1/101	North-west corner, on cold water line	10% Chrysotile 15% Amosite
3	MRC-6354	9/15/88	T8-09-220-04A	1/101	On the domestic hot water tank line	10% Chrysotile
2	MRC-6355	9/15/88	T8-09-220-05A	1/101	South west corner near ceiling, or small steam line	None detected
5	MRC-6356	9/15/88	T8-09-220-06A	1/101	Above west door way	None detected
3	MRC-6357	9/15/88	T8-09-220-07A	1/101	South wall, cold water line near water fountain	20% Chrysotile
2	MRC-6358	9/15/88	T8-09-220-08A	1/102 crawl space	North west corner on lower presure steam lines going to mens restroom	15% Chrysotile
2	MRC-6359	9/15/89	T8-09-220-09A	1/103	On hot water line just north west of access ladder to crawl space	None detected
2	MRC-6360	9/15/88	T8-09-220-10A	1/101 crawl space	Above ceiling tiles on hot water line beside light in south-west corner	None detected

(continued)

Table 2

Homo-geneous area No.	Field sample No.	Sample date (1988)	PEI Laboratory requisition No.	Floor/room No.	Sample location	Asbestos fiber content
6	MRC-6361	9/15/88	T8-09-220-11A	1/103	Above door to room 104A	None detected
6	MRC-6362	9/15/88	T8-09-220-12A	1/103	QA Sample same as 6361	None detected
6	MRC-6363	9/15/88	T8-09-220-13A	1/103	Above door to Room 104	None detected
5	MRC-6364	9/15/88	T8-09-220-14A	1/105	Above door to Room 104A water line	None detected
2	MRC-6365	9/15/88	T8-09-220-15A	1/107	On steam line in south-east corner	None detected
3	MRC-6366	9/15/88	T8-09-220-16A	1/107	On water line in north-east corner	20% Chrysotile
2	MRC-6367	9/15/88	T8-09-220-17A	1/109	On line above east door to outside (main steam line)	None detected
2	MRC-6368	9/15/88	T8-09-220-18A	1/109	On line in north-east corner of room above door	None detected
2	MRC-6369	9/15/88	T8-09-220-19A	1/109	On condensate return line south of ladder to Mezzanine	None detected
2	MRC-6370	9/15/88	T8-09-220-20A	1/109	In mezzanine on steam line in south west corner above Room 111	None detected
2	MRC-6371	9/15/88	T8-09-220-21A	1/109	On steam line on west wall of mezzanine, beside ductwork	None detected
2	MRC-6372	9/15/88	T8-09-220-22A	1/109	QA sample same as 6371	None detected

(continued)

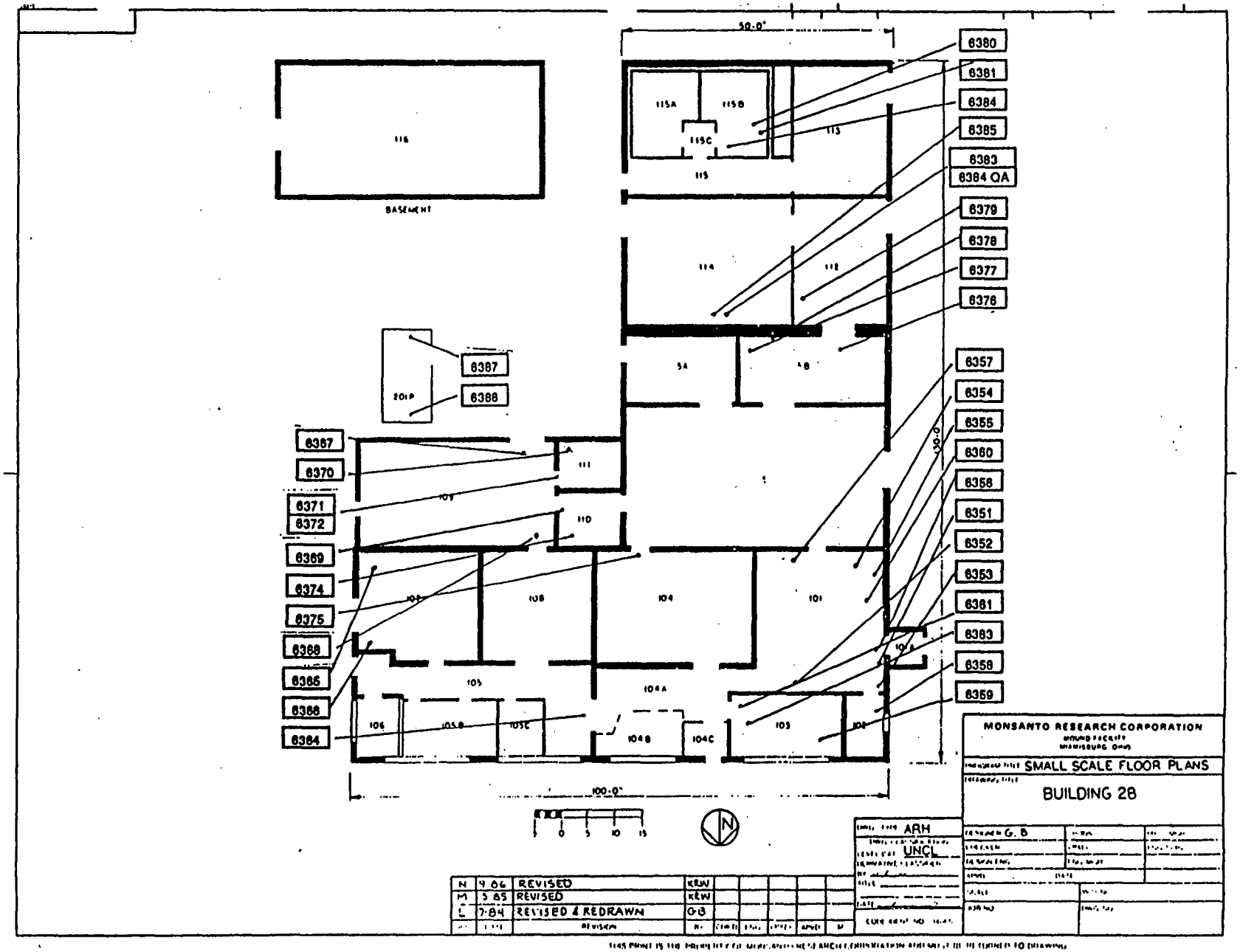
Table 2

Homo-geneous area No.	Field sample No.	Sample date (1988)	PEI Laboratory requisition No.	Floor/room No.	Sample location	Asbestos fiber content
2	MRC-6373	9/15/88	T8-09-220-23A	1/109	On hot water line out of north wall in north west corner of mezzanine above Room 110	None detected
5	MRC-6374	9/15/88	T8-09-220-24A	1/104	Above door to Room 5	None detected
7	MRC-6375	9/15/88	T8-09-220-25A	1/5	Above doot to Room 104	None detected
7	MRC-6376	9/15/88	T8-09-220-26A	1/5B	Above door to Room 112	None detected
3	MRC-6377	9/15/88	T8-09-220-27A	1/5B	On line in south-east corner covering of a fiber-glass line	45% Chrysotile
2	MRC-6378	9/15/88	T8-09-220-28A	1/5B	On the base of the line in south-east corner	25% Chrysotile
4	MRC-6379	9/15/88	T8-09-220-29A	1/112	Lab hood wall, east side	5% Chrysotile
10	MRC-6380	9/15/88	T8-09-220-30A	1/115B	On top of table in which the glass melting furnace sits	None detected
4	MRC-6381	9/15/88	T8-09-221-01A	1/115B	The lining of the outside walls of the glass melting furnace	10% Asbestos
11	MRC-6382	9/15/88	T8-09-221-02A	1/115B	Around the inlet of the vent	None detected
10	MRC-6383	9/15/88	T8-09-221-03A	1/114	Table on the north wall which the glass furance sits on	None detected
10	MRC-6384	9/15/88	T8-09-221-04A	1/114	QA sample same as 6383	None detected

(continued)

Table 2

Homo-geneous area No.	Field sample No.	Sample date (1988)	PEI Laboratory requisition No.	Floor/room No.	Sample location	Asbestos fiber content
4	MRC-6385	9/15/88	T8-09-221-05A	1/114	The lining of the outside walls of the glass melting furnace	10% Asbestos
2	MRC-6386	9/15/88	T8-09-221-06A	Penthouse	Steam water line an south wall	None detected
2	MRC-6387	9/15/88	T8-09-221-07A	Penthouse	Hot water line an south wall	None detected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4-227

Asbestos Inspection and Assessment Summary
EG&G Mound Applied Technologies

Building	Inspector	Inspection date	Homo-geneous area no.	Floor/Room/Location	Material type	Approximate amount of material	Friable ?	Condition of the material	Potential for disturbance	Hazard rank	Response priority	Response action
Building 27	D. Ellcessor	09/30/88	4	1/Room 1	Pipe wrapping	50 feet	No	Good	High	5	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 12	Cementitious insulation	13 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	4	1/Room 12	Pipe wrapping	14 feet	No	Good	High	5	7	4
Building 27	D. Ellcessor	09/30/88	6	1/Room 12	Transite	32 sq feet	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 13	Cementitious insulation	18 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 14	Cementitious insulation	3 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 14	Cementitious insulation	3 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 16	Cementitious insulation	3 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 2	Cementitious insulation	5 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 3	Cementitious insulation	7 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	4	1/Room 3	Pipe wrapping	30 feet	No	Good	High	5	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 4	Cementitious insulation	10 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 5	Cementitious insulation	6 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	1/Room 6	Cementitious insulation	3 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	2/Corridor 19	Cementitious insulation	2 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	2/Crawl space over rooms 17,18 and 24	Cementitious insulation	10 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	2/Room 20	Cementitious insulation	10 fittings	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	3	2/Room 22	Cementitious insulation	1 fitting	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	1	2/Room 25	Preformed-block insulation	14 sq feet	No	Good	Low	7	7	4
Building 27	D. Ellcessor	09/30/88	2	2/Room 25	Preformed-block pipe insulation	100 feet	No	Good	Moderate	6	7	4
Building 27	D. Ellcessor	09/30/88	2	2/Room 25	Preformed-block pipe insulation	20 feet	Yes	Fair	Moderate	3	3	3
Building 27	D. Ellcessor	09/30/88	3	2/Room 25	Cementitious insulation	45 fittings	No	Good	Moderate	6	7	4
Building 27	D. Ellcessor	09/30/88	4	2/Room 25	Pipe wrapping	7 feet	No	Good	Moderate	6	7	4
Building 27	D. Ellcessor	09/30/88	7	Throughout the building	Floor tile	4300 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	2	1/Room 101	Cementitious insulation	6 fittings	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	8	1/Room 101	Floor tile	225 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 101; circulating water, hot and cold water	Pipe wrapping	100 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	1	1/Room 101, steam line	Preformed-block pipe insulation	10 feet	No	Good	Moderate	7	7	4
Building 28	G. Marshall	09/15/88	2	1/Room 102, men's restroom	Cementitious insulation	2 fittings	Yes	Poor	High	1	1	1
Building 28	G. Marshall	09/15/88	9	1/Room 102, men's restroom	Floor tile	77 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	2	1/Room 103	Cementitious insulation	3 fittings	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	8	1/Room 103	Floor tile	240 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	4	1/Room 103, hood	Transite	15 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 104	Pipe wrapping	20 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	8	1/Room 104	Floor tile	560 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	9	1/Room 104A	Floor tile	300 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 104B	Pipe wrapping	10 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	8	1/Room 105	Floor tile	450 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	8	1/Room 105	Floor tile	120 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	9	1/Room 107	Floor tile	440 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	4	1/Room 107, northwest corner	Transite	18 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 107, on small lines	Pipe wrapping	25 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	2	1/Room 107, southeast corner	Cementitious insulation	16 fittings	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	2	1/Room 107,105 and 108, above ceiling	Cementitious insulation	25 fittings	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	9	1/Room 108	Floor tile	400 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	2	1/Room 109	Cementitious insulation	40 fittings	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 109	Pipe wrapping	20 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	9	1/Room 109	Floor tile	780 sq feet	No	Good	Low	7	7	4

04/05/89

Asbestos Inspection and Assessment Summary
EG&G Mound Applied Technologies

Building	Inspector	Inspection date	Homo-geneous area no.	Floor/Room/Location	Material type	Approximate amount of material	Friable ?	Condition of the material	Potential for disturbance	Hazard rank	Response priority	Response action
Building 20	G. Marshall	09/15/88	2	1/Room 109, above rooms 111 and 110	Cementitious insulation	35 fittings	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	9	1/Room 110, women's restroom	Floor tile	110 sq feet	No	Good	Low	7	7	4
Building 20	G. Marshall	09/15/88	9	1/Room 111, men's restroom	Floor tile	110 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	9	1/Room 112	Floor tile	391 sq feet	No	Good	Low	7	7	4
Building 20	G. Marshall	09/15/88	4	1/Room 112, northeast corner	Transite	21 sq feet	Yes	Poor	High	1	1	1
Building 28	G. Marshall	09/15/88	9	1/Room 113	Floor tile	391 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	9	1/Room 114	Floor tile	510 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	4	1/Room 114, on glass furnace	Transite	5 sq feet	No	Good	Low	7	7	4
Building 20	G. Marshall	09/15/88	9	1/Room 115	Floor tile	180 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 115, on selective lines	Pipe wrapping	25 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	4	1/Room 115B, on glass furnace	Transite	5 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	4	1/Room 115B, table	Transite	24 sq feet	No	Good	Low	7	7	4
Building 20	G. Marshall	09/15/88	9	1/Room 5	Floor tile	1182 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 5, on hot water lines, east wall center	Pipe wrapping	25 feet	No	Good	Low	7	7	4
Building 20	G. Marshall	09/15/88	9	1/Room 5A	Floor tile	200 sq feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 5A, cold water lines, south center	Pipe wrapping	20 feet	No	Good	Low	7	7	4
Building 20	G. Marshall	09/15/88	9	1/Room 5B	Floor tile	300 feet	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	2	1/Room 5B, roof drains	Cementitious insulation	4 fittings	No	Good	Low	7	7	4
Building 28	G. Marshall	09/15/88	3	1/Room 5B, water line, south east corner	Pipe wrapping	20 feet	No	Good	Low	7	7	4
Building 29	R. Schraft	10/24/88	2	1/Hallway	Preformed-block pipe insulation	4 feet	No	Good	Low	7	7	4
Building 29	R. Schraft	10/24/88	1	1/Room 1	Pipe wrapping	5 feet	No	Good	Moderate	6	7	4
Building 29	R. Schraft	10/24/88	2	1/Room 1	Preformed-block pipe insulation	100 feet	No	Good	Low	7	7	4
Building 29	R. Schraft	10/24/88	3	1/Room 1	Cementitious insulation	46 fittings	No	Good	High	5	7	4
Building 29	R. Schraft	10/24/88	3	1/Room 10	Cementitious insulation	10 fittings	No	Good	High	5	7	4
Building 29	R. Schraft	10/24/88	4	1/Room 2	Floor tile	64 sq feet	No	Good	High	5	7	4
Building 29	R. Schraft	10/24/88	2	1/Room 4A crawl space	Preformed-block pipe insulation	48 feet	Yes	Fair	Low	4	6	3
Building 29	R. Schraft	10/24/88	3	1/Room 5	Cementitious insulation	5 fittings	No	Good	High	5	7	4
Building 29	R. Schraft	10/24/88	2	1/Room 6	Preformed-block pipe insulation	4 feet	No	Good	Low	7	7	4
Building 29	R. Schraft	10/24/88	2	1/Room 8	Preformed-block pipe insulation	8 feet	No	Good	Low	7	7	4
Building 29	R. Schraft	10/24/88	3	1/Room 8	Cementitious insulation	26 fittings	No	Good	High	5	7	4
Building 29	R. Schraft	10/24/88	3	Mezzanine/Room 6	Cementitious insulation	34 fittings	No	Good	High	5	7	4
Building 29	R. Schraft	10/24/88	2	Roof/Penthouse	Preformed-block pipe insulation	22 feet	Yes	Fair	High	2	3	3
Building 3	R. Schraft	10/27/88	2	1/Room 311	Preformed-block pipe insulation	10 feet	No	Good	High	5	7	4
Building 3	R. Schraft	10/27/88	2	1/Room 327	Preformed-block pipe insulation	21 feet	No	Good	High	5	7	4
Building 3	R. Schraft	10/27/88	2	1/Room 320	Preformed-block pipe insulation	36 feet	No	Good	High	5	7	4
Building 3	R. Schraft	10/27/88	2	Throughout selected areas of building	Floor tile	8000 sq feet	No	Good	High	5	7	4
Building 30	R. Schraft	10/25/88	1	1/Room 1	Preformed-block pipe insulation	18 feet	No	Good	High	5	7	4
Building 30	R. Schraft	10/25/88	2	1/Room 3A	Transite	30 sq feet	No	Good	Low	7	7	4
Building 33	R. Schraft	10/28/88	1	1/Crawl space	Cementitious insulation	35 fittings	No	Good	Low	7	7	4
Building 33	R. Schraft	10/28/88	2	1/Rooms 1-3	Floor tile	1345 sq feet	No	Good	High	5	7	4
Building 35	R. Schraft	11/01/88	1	1/Crawl space	Cementitious insulation	3 fittings	No	Good	Low	7	7	4
Building 35	R. Schraft	11/01/88	1	1/Room 3	Cementitious insulation	1 fitting	No	Good	Low	7	7	4
Building 35	R. Schraft	11/01/88	1	1/Room 4	Cementitious insulation	61 fittings	No	Good	High	5	7	4
Building 36	R. Schraft	10/28/88	2	1/Hallway	Cementitious insulation	1 fitting	No	Good	High	5	7	4
Building 36	R. Schraft	10/28/88	1	1/Room 1	Preformed-block pipe insulation	6 feet	No	Good	High	5	7	4
Building 36	R. Schraft	10/28/88	2	1/Room 4	Cementitious insulation	2 fittings	No	Good	High	5	7	4
Building 36	R. Schraft	10/28/88	1	1/Room 5	Preformed-block pipe insulation	30 feet	No	Good	High	5	7	4
Building 36	R. Schraft	10/28/88	2	1/Room 5	Cementitious insulation	1 fitting	No	Good	High	5	7	4

I 1496 80

MOUND ASBESTOS SURVEY
SELECTED PLANT BUILDINGS

VOLUME I

PREPARED FOR:
EG&G MOUND APPLIED TECHNOLOGIES, INC.
P. O. BOX 3000
MIAMISBURG, OHIO 45343-3000

May 1993
BWS&C JOB NO.: 18148-00

PREPARED BY:
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TABLE OF CONTENTS

I. INTRODUCTION

A. Project Goals and Parameters

This report has been compiled for EG&G Mound Applied Technologies, Inc. (EG&G), as an agent of the United States Department of Energy (DOE), to locate and identify asbestos containing materials (ACM) in selected site structures. More specifically, this report indicates ACM amounts in place and the access and coordination necessary to find and identify ACM (and non-ACM) materials. To achieve these goals, the body of this report includes sample analysis results; detailed information on buildings; and other applicable documentation assimilated for the asbestos survey. Also, a drawing set including each project structure and the tested suspect materials within is provided. While broad in expectation, the primary goal of this project justifies the effort; that is, providing the greatest achievable level of safety to those with possible exposure to asbestos.

1. Definitions

The definitions presented below are the industry's developed style of reference. Those relative to the EG&G Mound survey are shown.

A. AHERA (Asbestos Hazard Emergency Response Act) - E.P.A. rules for asbestos control in schools. Considered "state of the art" procedures for other projects.

B. ACM (Asbestos Containing Material) - Any material containing more than 1 percent asbestos.

C. ACBM (Asbestos Containing Building Material) - Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of the building.

D. Friable - ACM that can be crumbled or reduced to powder by hand pressure.

E. Surfacing Materials - Material sprayed or trowelled on surfaces for acoustical, decorative, or fireproofing purposes.

F. TSI (Thermal System Insulation) - Insulation used to inhibit heat transfer or prevent condensation on pipes, boilers, tanks, ducts and various other components of hot and cold water systems and heating, ventilation, and air conditioning (HVAC) systems.

G. Miscellaneous Materials - Other products and materials such as floor tile, ceiling tile, and fabrics.

H. Asbestos - The asbestiform varieties of: chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonitegrunerite); anthophyllite; tremolite; and actinolite.

I. Asbestos Debris - Pieces or dust from ACBM that can be identified by color, texture, or composition by an accredited inspector to be ACM.

J. Accessible - ACM that is subject to disturbance by occupants, custodial, or maintenance personnel in the course of their normal activities.

K. Accredited - A person or laboratory accredited in accordance with Chapter 3701-34 of the Ohio Administrative Code.

L. Homogeneous Area - An area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color, configuration and texture.

M. Functional Space - A room, group of rooms, or homogeneous area (including crawl spaces or the space between a dropped ceiling and the floor or roof deck above) designated by a person accredited to prepare management plans, design abatement projects, or conduct response actions.

N. Operations and Maintenance Program - A program of work practices to maintain friable ACBM in good condition, ensure clean-up of asbestos fibers previously released, and prevent further release by minimizing and controlling friable ACBM disturbance or damage.

O. Vibration - The periodic motion of friable ACBM which may result in the release of asbestos fibers.

P. Thermal System Insulation ACM - Thermal system insulation that is ACM.

Q. Miscellaneous ACM - Miscellaneous material that is ACM.

R. Surfacing ACM - Surfacing material that is ACM.

2. Standards Compliance

To achieve the necessary results, a survey based on AHERA (Asbestos Hazard Emergency Response Act) specifications was implemented. AHERA regulations are within United States EPA (Environmental Protection Agency) rule, and are regarded as the most current and reasonable to utilize for asbestos. Other Federal agencies with jurisdiction over asbestos-related practices include the USDOT (United States Department of Transportation) and OSHA (Occupational Safety and Health Administration). The structures for these agencies are as follows:

FEDERAL AGENCIES WITH ASBESTOS REGULATION RESPONSIBILITIES

A. EPA

1. TSCA (Toxic Substance Control Act)

a. AHERA
b. Employee Protection Rule

2. CAA (Clean Air Act)

a. NESHAP (National Emission Standard for Hazardous Air Pollutants)

B. OSHA

1. Construction

2. General Industry

3. Respiratory Protection

4. Hazard Communication

C. USDOT

1. 1975 Hazardous Materials Transportation Act (HMTA)

a. Hazardous Substances
b. Emergency Response Communication Standards

I 19.6 80

State Agencies also have jurisdiction over asbestos-related practices, as seen in the following:

STATE AGENCIES WITH ASBESTOS REGULATION RESPONSIBILITIES

A. ODOH (Ohio Department of Health)

1. Ohio Asbestos Emission Control Rules

B. OEPA (Ohio Environmental Protection Agency)

C. PUCO (Public Utilities Commission of Ohio)

The sections of code developed by these agencies have made AHERA a well developed approach to asbestos activities. The EG&G Mound site structure survey considered many elements of this legislation directly.

3. Project Buildings

The project as originally conceived encompassed 79 buildings. However, by comparing the dates of construction to the date of cessation of use of ACM in construction, this survey coverage was reduced to 59 buildings. The buildings covered by the survey are shown in Table IA. The buildings removed from the survey are shown in Table IB. E Annex was included in the E Building survey and WDA was included in the WD Building survey, to be consistent with existing Mound practices and nomenclature.

TABLE I-A
BUILDINGS SURVEYED FOR ACM

1	36	50	89	H-H
2	37	51	94	I
3	38	55	A	M
23	39	56	B	OSW
24	40 (Orig)	57	C	P
25	42	58	DS	PS
27	43	60	E	T
28	45	62	G	SW
29	46	63	GH	T
30	47	65	GP-1	W
33	48	67	GW	WD
35	49	88	H	

I 20 of 80

TABLE I-B BUILDINGS REMOVED FROM SURVEY				
22	87	98	102	COS
44	91	99	104	OSE
61	92	100	105	
85	95	101	112	

B. Survey Assumptions

The definition of this project's scope required the integration of certain assumptions. These included some suggested by AHERA, but also some that are specific to the Mound facility. The following addresses them in detail.

1. Assumed Positive Materials

AHERA allows for suspect asbestos containing materials to be assumed positive due to the destructive nature of the sampling, the hazardous nature of the material, the complexity or the extent of a typically positive sample, or any other reason that the inspector and the Owner deem appropriate. For this reason, the following were assumed positive (and noted on the drawings as such):

A. Floor Coverings: Carpet, floor tile, linoleum, and underlying mastics.

B. Transite (Hoods, walls, or miscellaneous sheets).

C. Items visible but not available for sampling (due to material nature, radiological concerns, or adjacent atmospheric controls).

2. Subject Building Components

An original guideline of the project was to investigate structures built prior to 1985. Many of these buildings had additions or renovations outside of the asbestos suspicion window, as well as the original construction relevant to the project.

The codes developed by AHERA define specific building materials that may or may not have been manufactured with asbestos. The inspector must locate suspect asbestos-containing materials, some of which are from the list presented below:

AHERA SUSPECT MATERIALS

MATERIAL	SUSPECTED ACBM	NOT COVERED BY AHERA RULE
Concrete		x
Cinder block		x
Surfacing material (e.g. spray-applied or trowelled-on materials on walls and ceilings)	x	
Blackboards		x
Wall board (material could be gypsum, transite, or other product)	x	
Pressed wood		x
Thermal system insulation	x	
Corrugated-like paper product used for thermal insulation	x	
Wall or ceiling carpet		x
Gaskets in heating and air conditioning equipment	x	
Floor tile (includes adhesives)	x	
Ceiling tile and panels	x	
Exterior roofing shingles		x *
Auditorium curtains		x *
Cement asbestos water pipe	x	
Chemical lab table and desk tops		x *
Fire doors	x	
Fire brick for boilers	x	
Suspected ACBM stored in building		x *
ACBM cloth adjoining airducts	x	
Chemical lab gloves		x *
Fire blanket		x *
Glass		x
Steel		x
Sheeting in fume hood	x	
Brake shoes		x *
Kiln bricks and cement		x *
Bunsen burner pad		x *

* Could contain asbestos.

Of these, fire doors and fire brick were chosen to be excluded from the survey (treated as non-positive). The only suspected ACBM not located within buildings on-site was cement asbestos water pipe.

The EG&G Mound asbestos survey was further defined to include only those asbestos-suspect materials within the building. Another assumption was made that since Building 29 was used for manufacturing asbestos products, the equipment and materials in that building related to asbestos production were to be considered as building materials in storage. Thus, those materials and machinery were not included in this survey (see AHERA Suspect Materials list above).

3. Homogeneous Area Formation

Also, AHERA "Homogeneous Area" definitions were subject to much scrutiny and evaluation for this effort. In the course of gathering building historical data, many expansions were encountered in several major structures. The materials in an addition must be thoroughly evaluated to determine if they require separate homogeneous areas, or if they can be included in homogeneous areas which extend through the original structure and/or other additions. Thus, a great deal of research was expended to determine the boundaries for the homogeneous areas to fulfill these requirements.

4. Coordinating Projects Overlap

The survey completed by Barge, Waggoner, Sumner and Cannon included a great deal of coordination. Areas with ongoing and planned asbestos abatement projects were largely omitted from the survey, either as entire buildings or isolated sections. However, areas of previous documented asbestos abatement were included in the survey for verification and upgrade to the current identification standards (as defined by AHERA).

C. Inspection and Sampling Information

With a knowledge of the project buildings' data, an AHERA-based scope, and all foreseeable measures considered, the survey began. Beginning September 9, 1991, Sean Fisher of Barge, Waggoner, Sumner and Cannon (BWS&C) surveyed the site with Randy Hayes as an assistant and Glenn Dixon and Jack Gutwein as escorts. Upon receiving his certification, Randy Hayes completed the site inspection and sampling with Joe Zimmerman or Brett Krouskop as assistants and Glenn Dixon and Jack Gutwein as escorts.

All structures included in the project scope had comprehensive inspection and sampling services performed on ACM suspect materials. Detailed drawings were kept as well as the initial Chain of Custody documentation (Appendix B). Samples were taken of suspect ACM within the project scope. Since this survey was entirely non-destructive in nature, it is likely that asbestos-containing materials exist in areas which were inaccessible. Caution should be exercised when dismantling equipment which may include internal asbestos components.

Samples were analyzed by polarized light microscopy in accordance with EPA and National Institute for Occupational Safety and Health (NIOSH) approved laboratory techniques to determine the concentration and type of asbestos present (see Appendix C for certifications of the inspectors and laboratory). The laboratory sample analyses (see Appendix A) were documented as asbestos-positive for concentrations greater than or equal to one percent (1%).

Section II provides the sample data for the suspect ACM in all the project structures. Utilizing this data in conjunction with the project drawings will provide a valuable comprehensive resource for determining necessary response actions and/or repair needs.

II. SURVEY RESULTS

A. Project Summary

Those buildings in which TSI ACM was found are shown in Table II; these buildings may, or may not, include other forms of ACM and/or materials assumed to contain asbestos. Those buildings in which no TSI ACM was found but did include other forms of ACM and/or materials assumed to contain asbestos are shown in Table III. Those buildings in which no ACM was found are shown in Table IV.

TABLE II

BUILDINGS IN WHICH TSI ACM WAS FOUND

1	33	47	C	M
2	35	48	DS	OSW
3	36	49	E	P
23	37	50	G	PS
24	38	56	GH	R
25	40 (Orig)	57	GP-1	SW
27	42	60	GW	T
28	43	62	H	W
29	45	A	H-H	WD
30	46	B	I	

I24 & 80

TABLE III BUILDINGS IN WHICH NO TSI ACM WAS FOUND					
51	63	65	67	88	89

TABLE IV BUILDINGS IN WHICH NO ACM WAS FOUND					
39	55	58	94		

Almost 1,700 samples were taken and analyzed. The results of the analysis and the information gathered during the field inspection were combined and summarized on an individual sample basis on the Mound Asbestos Survey Sample Data Reports. These are best utilized by cross-referencing them with a building's drawing from the set of project drawings.

The project drawings show the individual sample locations, total asbestos content, and extent of each homogeneous area for each building in the survey.

B. Building Results

The results of the Mound Asbestos Survey are presented here on a "per building" basis ordered with the number designated buildings first in ascending numerical order, followed by the letter designated buildings in alphabetical order. Each building included in the survey project has the following information presented:

1. Building Summary

The building summary includes the building characteristics and an overview of the homogeneous areas for suspect ACM in the building, and a listing of the materials that were "assumed positive" as discussed in Section I. The "assumed positive" heading includes those materials in each building selected by the inspector to be shown as ACM without utilizing sample analysis for verification. The homogeneous areas are indicated to be either positive or negative for ACM; appropriate information regarding the "assumed positive" materials is included with N/A (Not Applicable) being indicated for information not included in the scope of the project.

Other notes and references are included for information pertinent to each building.

2. Sample Data Reports

The Mound Asbestos Survey Sample Data Reports contain information on an individual sample basis as to percentages of both asbestos constituents and other materials, location, condition, assessment category (for ACM), and an estimation of the material amount in the homogeneous area (for ACM).

The "Actinolite" and "Tremolite" forms of asbestos were not found in this survey. Therefore, they are not shown on the Sample Data Reports.

The Sample Data Reports for each building are arranged in homogeneous area sequence immediately following the Building Summary for that building. In general, the sample information is arranged in ascending numerical order for each homogeneous area and also for each building.

MOUND ASBESTOS SURVEY
BUILDING SUMMARY

BUILDING 28

FLOORS:	Two	PIPE CHASES:	None
DATE BUILT:	1966	PENTHOUSE:	Yes
CRAWLSPACE:	Yes	GROSS AREA, SQ. FT.:	11,329
SUSPENDED CEILING:	Yes	ADDITIONS:	1969, 1984

Asbestos was found to be present in Thermal System Insulation and/or other material in Building 28. The homogeneous areas for the suspect Asbestos Containing Materials are shown below. Refer to the Mound Asbestos Survey Sample Data Report for specific information on sample constituents, estimated amounts of the material, assessments, and percentages of each constituent in the sample.

HOMOGENEOUS AREAS
Sample Numbers: 0.546-0.584, 1.600-1.602

No.	Description	Result
1	Pipe Joint Insulation, Type I, Hard Joints w/Fiberglass Runs	Positive
2	Pipe Insulation, Type II, Hard	Positive
3	Pipe Joint Insulation, Type II, Hard	Positive
4	Pipe Insulation, Type VIII, Tar Wrap	Positive
5	Pipe Joint Insulation, Type VIII, Tar Wrap	Positive
6	Condensate Tape (White)	Positive
7	Condensate Tape (Black)	Positive
8	Ductwork Flex Connector	Negative
9	Ceiling Tile, CT1-B, (1'x1'), Fissured w/Pinholes	Negative
10	Ceiling Tile, CT3-F, (2'x4'), Pits w/Pinholes	Negative
11	Ceiling Tile, CT3-B, (2'x4'), Fissured w/Pinholes	Negative
12	Drywall	Negative
13	Drywall Joint Compound	Negative
14	Plaster I	Negative
15	Plaster II	Negative
16	HVAC Tape (Cloth)	Negative
17	Pipe Joint Insulation, Type I, Hard Joints w/Fiberglass Runs, Rooms 109-111 Only	Negative

Assumed ACM:	Amount	Location
Transite (Hood)	46 SF	Room 112
Transite (Hood)	53 SF	Room 112
Transite (Hood)	53 SF	Room 112
Transite (Hood)	53 SF	Room 103
Transite (Hood)	65 SF	Room 103
Transite (Hood)	53 SF	Room 112
* Floor Tile	N/A	N/A

I276 80

MOUND ASBESTOS SURVEY
BUILDING SUMMARY

BUILDING 28

HOMOGENEOUS AREAS, cont'd
Sample Numbers: 0.546-0.584, 1.600-1.602

Drawing Reference: P9, P10

* Floor tile quantities not included in scope.

I 28 of 80

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Pipe Joint Insulation, Type I, Hard Joints w/Fiberglass Runs

Assessment Category: ACBM with Potential for Damage

ACM Amount: 210 ea
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.546	0.547	0.548
Room:	101	101	107
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	917654	917655	917656
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	0	12	0
Anthophyllite:	0	0	0
Chrysoltile:	15	7	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	15	19	0
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	60	55	55
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	5	5	5
Cork:	0	0	0
Cotton:	0	0	0
Fibrous Glass:	0	0	2
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	15	15	35
Opaques:	5	5	3
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	1	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Pipe Insulation, Type II, Hard

Assessment Category: ACBM with Potential for Significant Damage

ACM Amount: 40 lf
Condition: Good
Access: 2-10 Feet
Vibrations: Low
Comments:
None

Sample No.:	0.549	0.550	0.551
Room:	101	109	109
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	917657	917658	917659
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	20	0	0
Anthophyllite:	0	0	0
Chrysoltile:	5	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	25	0	0
Adhesive:	0	1	0
Aggregates:	0	0	0
Binder:	65	70	70
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	0	18	22
Cork:	0	0	0
Cotton:	0	0	0
Fibrous Glass:	0	8	5
Foam:	0	0	0
Foil:	3	3	2
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	7	0	0
Opaques:	3	0	0
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	1	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Pipe Joint Insulation, Type II, Hard

Assessment Category: ACBM with Potential for Significant Damage

ACM Amount: 15 ea
Condition: Good
Access: 2-10 Feet
Vibrations: Low
Comments:
None

Sample No.:	0.552	0.553	0.554
Room:	101	101	101
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	917660	917661	917662
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	No
Fibrous:	Yes	Yes	Yes
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	15	25	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	15	25	0
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	60	35	43
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	8	5	2
Cork:	0	0	0
Cotton:	0	5	0
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	15	30	55
Opaques:	2	0	0
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Pipe Insulation, Type VIII, Tar Wrap

Assessment Category: ACBM with Potential for Significant Damage

ACM Amount: 60 lf
Condition: Good
Access: 2-10 Feet
Vibrations: Medium
Comments:
None

Sample No.:	0.555	0.556	0.557
Room:	5B	5B	5B
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	917663	917664	917665
Friable:	No	No	No
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	15	15	25
Crocidolite:	0	0	0
TOTAL ASBESTOS:	15	15	25
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	40	40	35
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	20	10	20
Cork:	0	0	0
Cotton:	0	0	0
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	20	30	15
Opaques:	5	5	5
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Pipe Joint Insulation, Type VIII, Tar Wrap

Assessment Category: ACBM with Potential for Significant Damage

ACM Amount: 60 lf
Condition: Good
Access: 2-10 Feet
Vibrations: Medium
Comments:
None

Sample No.:	0.558	0.559	0.560
Room:	5B	5B	5B
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	917666	917667	917668
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	10	12	10
Crocidolite:	0	0	0
TOTAL ASBESTOS:	10	12	10
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	35	45	35
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	3	3	3
Cork:	0	0	0
Cotton:	0	0	0
Fibrous Glass:	10	8	10
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	25	20	25
Opaques:	2	2	2
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	15	10	15
Vermiculite:	0	0	0
Vinyl:	0	0	0

I.33of 80

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Condensate Tape (White)

Assessment Category: ACBM with Potential for Significant Damage

ACM Amount: 485 lf
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.561	0.562
Room:	5A	5A
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	917669	917670
Friable:	No	No
Layered:	No	No
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	25	30
Crocidolite:	0	0
TOTAL ASBESTOS:	25	30
Adhesive:	0	0
Aggregates:	0	0
Binder:	0	0
Calcite:	0	0
Carbonates:	0	0
Cellulose:	5	5
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	20	20
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	0	0
Opaques:	0	0
Paint:	0	0
Perlite:	0	0
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	50	45
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

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MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Condensate Tape (Black)

Assessment Category: ACBM with Potential for Significant Damage

ACM Amount: 10 lf
Condition: Good
Access: 2-10 Feet
Vibrations: Low
Comments:
None

Sample No.:	0.563	0.564
Room:	104B	104B
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	917671	917672
Friable:	No	No
Layered:	Yes	Yes
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	25	20
Crocidolite:	0	0
TOTAL ASBESTOS:	25	20
Adhesive:	0	0
Aggregates:	0	0
Binder:	40	45
Calcite:	0	0
Carbonates:	0	0
Cellulose:	5	5
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	25	25
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	0	0
Opaques:	5	5
Paint:	0	0
Perlite:	0	0
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

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MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Ductwork Flex Connector

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Access: 2-10 Feet
Vibrations: High
Comments:
None

Sample No.:	0.565	0.566
Room:	201P	201P
Floor:	P	P
Column/Row:	-/-	-/-
Lab ID No.:	917673	917674
Friable:	Yes	Yes
Layered:	No	No
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	20	20
Calcite:	0	0
Carbonates:	0	0
Cellulose:	5	10
Cork:	0	0
Cotton:	75	70
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	0	0
Opaques:	0	0
Paint:	0	0
Perlite:	0	0
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Ceiling Tile, CT1-B, (1'x1'), Fissured w/Pinholes

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.567	0.568
Room:	103	103
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	917675	917676
Friable:	Yes	Yes
Layered:	No	Yes
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	13	10
Calcite:	0	0
Carbonates:	0	0
Cellulose:	85	85
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	0	0
Opaques:	0	3
Paint:	0	0
Perlite:	2	2
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Ceiling Tile, CT3-F, (2'x4'), Pits w/Pinholes

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Access: 2-10 Feet
Vibrations: Low
Comments:
None

Sample No.:	0.569	0.571
Room:	5	5
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	917677	917679
Friable:	Yes	Yes
Layered:	Yes	Yes
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	8	5
Calcite:	0	0
Carbonates:	0	0
Cellulose:	40	40
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	35	35
Opaques:	2	5
Paint:	0	0
Perlite:	15	15
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Ceiling Tile, CT3-B, (2'x4'), Fissured w/Pinholes

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.570	0.572
Room:	5	5
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	917678	917680
Friable:	Yes	Yes
Layered:	Yes	No
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	5	5
Calcite:	0	0
Carbonates:	0	0
Cellulose:	40	40
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	35	35
Opaques:	5	0
Paint:	0	0
Perlite:	15	20
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

F 396 80

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Drywall

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.573	0.574
Room:	104	104
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	917681	917682
Friable:	Yes	Yes
Layered:	Yes	Yes
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	15	10
Calcite:	0	0
Carbonates:	0	0
Cellulose:	18	18
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	65	70
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	0	0
Opaques:	2	2
Paint:	0	0
Perlite:	0	0
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Drywall Joint Compound

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.575	0.576
Room:	104	104
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	917683	917684
Friable:	Yes	No
Layered:	Yes	Yes
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	55	18
Calcite:	0	0
Carbonates:	0	0
Cellulose:	25	55
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	0	20
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	10	2
Mineral Wool:	0	0
Opaques:	10	5
Paint:	0	0
Perlite:	0	0
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Plaster I

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.577	0.578	0.579
Room:	107	107	106
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	917685	917686	917687
Friable:	No	No	No
Layered:	Yes	Yes	Yes
Fibrous:	No	No	No
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	0	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	0	0	0
Adhesive:	0	0	0
Aggregates:	20	25	20
Binder:	28	30	30
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	0	0	0
Cork:	0	0	0
Cotton:	0	0	0
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	0	0	0
Opaques:	2	5	15
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	50	40	35
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

Plaster II

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.580	0.581	0.582
Room:	5A	5A	5A
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	917688	917689	917690
Friable:	No	No	No
Layered:	No	No	Yes
Fibrous:	No	No	No
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	0	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	0	0	0
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	20	10	10
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	0	0	0
Cork:	0	0	0
Cotton:	0	0	0
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	0	0	0
Opaques:	0	5	5
Paint:	0	0	0
Perlite:	10	10	10
Plaster:	70	75	75
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

F4306 80

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 11/07/91 Code: 3028 Building: 28

Homogeneous Area Description:

HVAC Tape (Cloth)

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Medium

Sample No.:	0.583	0.584
Room:		
Floor:	B	B
Column/Row:	-/-	-/-
Lab ID No.:	917691	917692
Friable:	No	Yes
Layered:	No	No
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	35	20
Calcite:	0	0
Carbonates:	0	0
Cellulose:	5	5
Cork:	0	0
Cotton:	60	75
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	0	0
Opaques:	0	0
Paint:	0	0
Perlite:	0	0
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

F 44 of 80

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: [redacted] Date: 08/31/92 Code: 3028 Building: 28

Homogeneous Area Description:

Pipe Joint Insulation, Type I, Hard Joints w/Fiberglass Runs, 109-111

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: >10 Feet
Vibrations: Low

Sample No.:	1.600	1.601	1.602
Room:	109	109	109
Floor:	1	1	1
Column/Row:	-/-	-/-	-/-
Lab ID No.:	925966	925967	925968
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	0	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	0	0	0
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	37	37	38
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	0	0	2
Cork:	0	0	0
Cotton:	3	3	3
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	55	55	50
Opaques:	5	5	7
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

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MOUND

ASBESTOSMANAGEMENT PLAN

PREPARED FOR:

EG&G MOUND APPLIED TECHNOLOGIES

POST OFFICE BOX 3000

SEPTEMBER 30, 1993
BWS&C JOB NO. 18283-00

PREPARED BY:
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LIST OF APPENDICES

I. SUMMARY

A. INTRODUCTION and PURPOSE

The purpose of this Asbestos Management Plan is to provide a document which will guide the control of asbestos-containing building materials (ACBM) in 74 specified buildings at the Mound Plant site. It identifies, assesses the hazard, recommends a response action, and assigns priority levels for each instance of asbestos-containing material in each building. A preliminary estimate of cost for each recommended response action is also included.

The specified buildings are as follows:

1	36	62	A	R
2	37	63	B	SD
3	38	65	C	SW
17	40	66	DS	T
19	42	67	E	W
23	43	68	G	WD
24	45	70	GH	
25	46	72	GP1	
26	47	79	GW	
27	48	80	H	
28	49	88	HH	
29	50	89	I	
30	51	93	M	
31	56	106	OSW	
33	57	113	P	
34	59		PH	
35	60		PS	

B. FORMAT

This management plan uses as a general format the Asbestos Management Plan as required in schools by the Asbestos Hazard Emergency Response Act (AHERA) regulations in 40 CFR Part 763. The AHERA regulations are not legally binding on this project, but its provisions are considered the "state of the art" approach to managing ACBM. However, many of the regulation's requirements are not relevant to non-school facilities; so this Management Plan adapts those sections to the circumstances at the Mound Plant.

C. SITE DESCRIPTION

The Mound Plant is a Federal facility operated by EG&G Mound Applied Technologies, Inc. for the United States Department of Energy (DOE). Mound is located in Miamisburg, Ohio which is approximately 16 km southwest of Dayton, Ohio. The Mound property occupies approximately 1.24 km^2.

Mound originated as a technical organization in 1943 as part of the Manhattan Engineering District operated by the Monsanto Chemical Company. In 1947 construction of a permanent facility in Miamisburg began, and operations for the production of components for nuclear weapons and non-weapons use started in 1947.

The buildings covered by this plan were constructed at various dates between 1947 and 1984. Many also underwent multiple renovations and additions during that time period. Those buildings included in the plan which were built subsequent to the 1978 Environmental Protection Agency (EPA) ban on the use of asbestos-containing building materials either incorporate materials that are assumed to contain asbestos; or which were applied after construction from existing Mound supply stocks. The materials assumed to contain asbestos, primarily floor tile or linoleum, flooring adhesives, and asbestos cement products, shall be treated as ACM until sampling and analysis proves otherwise.

IS2of 80

D. DATA SOURCES

Information for this management plan is taken primarily from the report of the asbestos survey conducted by Barge, Waggoner, Sumner, and Cannon from September 1991 to August 1992. Additional sources were various documents supplied by EG&G Mound and include the Mound Asbestos Program Manual, and documentation regarding recent abatement activity. Where necessary, field inspections were conducted to verify the data provided. A full list of sources and references is presented in Appendix D.

E. DESCRIPTION OF METHODOLOGY

1. Hazard Assessment

The first step in creating an AHERA-styled management plan is the assessment of the hazard associated with each instance of asbestos-containing material in a given building, and assigning a numerical "Hazard Rank." A number of factors must be considered in arriving at the "hazard assessment." These include determining what will constitute the "response area," appraising the materials' friability, its current condition and potential for damage (physical assessment from inspector's report), accessibility, and the area's occupancy and usage patterns.

Each of these factors must be considered carefully when assigning a Hazard Rank, as this rating is critical in selecting the appropriate response action, and in prioritizing the execution of those actions. Some of the factors are discussed in greater length below.

a. Response Area

A "response area" is an area of a building which is characterized by an asbestos-containing material or materials which have a common hazard assessment and can be treated with a common response action. A "response area" can consist of related materials (homogeneous areas) extending over many functional spaces (e.g. - all floor tile and mastic in a building), or all related asbestos-containing material in one functional space (e.g. - all pipe

insulation, tank insulation, and duct insulation in a mechanical room). The limits of a given "response area" may change as the condition of the materials within it changes.

b. Friability

The guidelines within AHERA for assessing the current condition of a suspected ACBM begin with the determination of friability. A material determined to be "friable" is one which "when dry, may be crumbled, pulverized, or reduced to powder by hand pressure; and includes previously non-friable material after such material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure." This definition is applied strictly when assessing surfacing materials[1] or miscellaneous materials[2]. However, when assessing thermal system insulation[3], guidelines modify the definition of friability. The AHERA preamble states:

> "An undamaged jacket on thermal system insulation may be properly seen as an enclosure, which prevents fiber release and reduces hazard, but does not change the characteristics of material friability behind or under the enclosure."
>
> "Accordingly...thermal system insulation that has retained its structural integrity and that has an undamaged protective jacket or

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[1]surfacing material - "material that is sprayed-on, trowelled on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fire-proofing materials on structural members, or other materials on surfaces for acoustical, fire-proofing, or other purposes."

[2]miscellaneous materials - "interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing materials or thermal system insulation."

[3]thermal system insulation - "material applied to pipes, fittings, boilers, breaching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or other purposes."

wrap that prevents fiber release shall be treated as non-friable."

Because the purpose of the Mound Asbestos Survey was not to meet a minimum regulatory requirement, but rather to provide comprehensive data on the location of asbestos-containing materials at the plant site, this distinction was not observed during the course of the survey. Likewise, such a distinction will not be recognized in the course of writing this management plan. All materials which are friable irrespective of any covering or jacket are considered friable. Any other materials which are currently non-friable, irrespective of the presence or a jacket or covering, will be addressed as non-friable, but still included in the management plan.

c. Physical Assessment Categories

After determination of friability and type of application, AHERA requires that a suspect ACBM be placed in one of seven categories as follows:

1) Damaged or significantly damaged thermal system insulation.

2) Damaged friable surfacing material ACM.

3) Significantly damaged friable surfacing material.

4) Damaged or significantly damaged friable miscellaneous ACM.

5) ACBM with "potential for damage."

6) ACBM with "potential for significant damage."

7) Any remaining friable ACBM or friable suspected ACBM.

For purposed of this management plan, an eighth category is added:

8) Non-friable Assumed ACBM.

d. Assessing Current Condition

A material is considered "damaged" if it has "deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or which has delaminated such that its bond to the substrate (adhesion) is inadequate, or which for any other reason, lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of the ACM into layers; separation of the ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars, or other signs of physical injury on the ACM.

Thermal system insulation is considered damaged when it "has lost its structural integrity, or its covering, in whole or in part, is crushed, water stained, gouged, punctured, missing or not intact such that it is not able to contain fibers."

It can be deduced from these two definitions that there is a broad span of condition between perfect and damaged. Under AHERA, there are degrees of minor disturbance that fall short of the "damage" criteria. The material does not have to be in perfect condition to be rated good. The primary determinant is a material's capacity for releasing fibers.

The definition of "significantly damaged" is more restrictive and is defined as "damaged ACM in a functional space where the damage is extensive and extreme." This distinction is further addressed in the AHERA preamble and described as "damage evenly distributed over 10% of a functional space or localized over 25% of the functional space."

e. Assessing Potential Damage

AHERA's physical assessment categories include those for "potential damage" and "potential for significant damage." Those are defined as follows:

Potential for damage -

1) "Friable ACM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities.

2) "There are indications that there is a reasonable likelihood that the material will become damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage."

The definition of "potential for significant damage" is the same as above except there must be a "reasonable likelihood the material will become *significantly* damaged..."

Also there is an additional constraint that "the material is subject to *major or continuing disturbance*, due to factors including, but not limited to, accessibility or, under certain circumstances, vibration or air erosion."

f. Re-assessing Potential Damage

The physical assessments of many homogeneous areas in the Mound Asbestos Survey Report have described various friable asbestos-containing materials as having "potential for significant damage." AHERA requires that such an assessment be supported by identification of factors which may in the future constitute a "major or continuing disturbance." Since the report omits this identification, it was necessary to consider the individual circumstances to determine if such conditions could exist, and when they did not to modify the assessment to "potential for damage."

This distinction is an important one because of the response actions imposed by AHERA for a homogeneous area assessed to have "potential for significant damage;" that being to take immediate protective measures to prevent any damage, or if protective measures are not practicable - to immediately isolate the area until removal of the material can take place. Thus, an exaggerated physical assessment can lead to

an incorrect hazard assessment and precipitate unnecessary and costly abatement action which could possibly create a greater risk of exposure than leaving the material in place.

2. Description of Response Actions

There is a broad range of options available for responding to the presence of asbestos-containing materials in a building. The applicability of a particular response action is dependent on a number of factors including the material's friability, current condition, potential for future damage, area accessibility, area occupancy, room conditions, and cost. The selection and prioritization of response actions will be addressed in latter sections of this management plan.

The main possible response actions are:

- Operations and Maintenance Program (O&M)
- Preventative
- Repair
- Enclosure
- Encapsulation
- Removal

The repair of existing damage is generally considered part of an O&M Program, but this plan specifies those locations where repairs must take place prior to instituting the more routine aspects of the O&M Program.

Detailed descriptions of the various Response Actions are found below:

a. Operations and Maintenance Program

An O&M Program is intended to be used for the management of asbestos-containing materials which are going to be left in

place. Materials which are in good condition or can be repaired to good condition are ideal candidates for an O&M Program. In recent years the EPA has promoted O&M as a desirable alternative to the removal of ACBM in good condition. It is their position that an improperly conducted abatement action can crate a greater hazard than the asbestos in an undisturbed state. EPA recommends that ACBM be managed in place if it is currently in good condition and does not pose a risk of exposure now or in the future, and is not going to be disturbed in the course of renovation or demolition work.

There are steps which can be taken to minimize asbestos fiber release or re-suspension of already released fibers, or control fiber releases quickly and safely if they occur. O&M programs are designed to achieve both these goals.

EPA recommends a pro-active, in-place management program whenever asbestos is discovered. In many buildings, a well-run O&M program may be all that is necessary to control the release of asbestos until the ACM is removed through renovation or demolition activities. An emergency repair to equipment or building services, or an unexpected incident such as ACM falling from a surface would necessitate a different control strategy. However, if ACM is properly managed release of asbestos fibers into the air is minimized. The exposure to asbestos fibers, and therefore the risk of asbestos-related disease, can be reduced to negligible levels for all building occupants.

An O&M program also provides an effective, less costly alternative to wholesale removal operations.

OBJECTIVES OF AN OPERATIONS & MAINTENANCE PROGRAM

The principle objective of an O&M program is to minimize exposure of all building occupants to asbestos fibers. To accomplish this objective, an O&M program includes work practices to (1) maintain ACM in good condition, (2) ensure proper clean-up of asbestos fibers previously released, (3) prevent further release of asbestos fibers, (4) monitor condition of ACM.

An effective O&M program should address all types of ACM present in a building. It, when developed and implemented in a particular facility, should include specific direction on how to deal with each general category of ACM. Specified O&M work practices should be employed by trained personnel during building cleaning, maintenance, and general operational activities that may involve ACM.

Starting the O&M Program

A comprehensive asbestos control program for a building should include these basic steps:

- Appoint an Asbestos Program Manager and develop an organizational policy.

- Conduct a physical and visual inspection of the building and take bulk samples of suspect materials to determine if ACM is present, establish an ACM inventory, and assess the ACM's condition and potential for disturbance. This has been completed for 74 buildings at Mound.

- If ACM is located, develop an O&M program, based on the inspection and assessment data.

- Select and implement abatement actions other than O&M whenever necessary.

The Asbestos Program Manager (APM)

At Mound, the position of APM is generally held by an employee in the Industrial Hygiene Group. In general, the APM should have the authority to oversee all asbestos-related activities in the building, including inspections, O&M activities, and other abatement actions. In addition, he or she should oversee the custodial and maintenance staffs, contractors, and outside service vendors with regard to all asbestos-related activities.

Building Inspection and Assessment

To determine whether an asbestos control and management program should be implemented, the owner should have an initial building inspection performed to locate and assess the condition of all ACM in the building. At Mound, this has already been performed in 62 buildings in the form of the Mound Asbestos Survey conducted by Barge, Waggoner, Sumner, and Cannon between September 1991 and March 1992. An additional 19 building were surveyed in August 1993.

Implementing and Managing an O&M Program

When managing an O&M program, the APM should oversee all asbestos-related activities and monitor the work performed at the site by contractors, such as electricians and plumbers, who might inadvertently disturb ACM. At Mound this is accomplished directly by the Mound Construction Inspector. The APM is responsible for the permit system which is designed to prevent accidental disturbances of ACM. Under this system, the Mound Project Engineer must receive a work permit from the Mound Industrial Hygiene Group before commencing work. At that time, the APM will inform the engineer whether the project could disturb ACM and provides any special instructions to make sure the work is done properly.

In addition, the Mound Construction Inspector routinely and frequently checks the work of contractors to see if their work is disturbing ACM.

The Asbestos Program manager should periodically review the written O&M plan to determine whether it should be updated. For example, if all ACM were removed from some areas of a building during a recent renovation, or if some ACM was damaged, the O&M program would be revised accordingly. The O&M program should remain in effect as long as there is ACM in the building.

Elements of the O&M Program

To achieve its objectives, an O&M Program should include seven elements. Although these should appear in any O&M

program, the extent of each will vary according to the conditions in the building. A successful O&M program should included the following elements:

- **Notification:** Program to tell building occupants where ACM is located, and how and why to avoid disturbing the ACM. All persons affected should be properly informed.

- **Surveillance:** Regular ACM surveillance to note, assess, and document and changes in the ACM's condition.

- **Controls:** Work control/permit system to control activities which might disturb the ACM.

- **Work Practices:** O&M work practices to avoid or minimize fiber release during activities affecting ACM.

- **Worker Protection:** Medical and respiratory protection programs, as applicable.

- **Training:** Commensurate with level of activity for Asbestos Program Manager and maintenance and custodial staff.

Informing Building Occupants

Building occupants should be informed about the location and condition of the ACM that they might disturb, and stress the need to avoid disturbing the material. Occupants should be notified for two reasons: (1) building occupants should be informed of any potential hazards in their vicinity; and (2) informed persons are less likely to unknowingly disturb the material and cause fibers to be release into the air.

At Mound, asbestos warning labels have been applied to all known thermal system insulation in the 74 buildings covered under this management plan. These labels remind maintenance workers and others not to inadvertently disturb the ACM.

Information sessions reinforce and clarify written notices and labels, and provide an opportunity to answer questions. All employees likely to disturb ACM should be included in the notification process on a continuing basis. New

employees should be informed about the presence of asbestos before they begin work.

ACM Surveillance

Re-inspection and Periodic Surveillance

A visual reinspection of al ACM should be conducted at regular intervals as part of the O&M program. Combined with ongoing reports of changes made by service workers, the re-inspection should help ensure that any ACM damage or deterioration will be detected and corrective action taken.

According to EPA regulation for schools (AHERA), an accredited inspector must re-inspect school buildings once every three years to reassess the condition of the ACM. The AHERA regulations for schools also require a routine surveillance check of ACM every six months to monitor its condition. AHERA is legally binding only for schools, and because Mound is so radically different from a school environment in terms of exposure potential and potential for damage; it is recommended that the frequency of re-inspections be somewhat less than what AHERA requires.

This planner believes that it would be sufficient, given the circumstances at Mound, to conduct routine surveillance of friable materials on an annual basis, and to re-inspect non-friable materials every two years. It would be unreasonable to expect either changes in the material's condition or the area circumstances in a time period less than that.

Work Control/Permit System

The O&M program should include a work permit system to control work that could disturb ACM. This system already exists at Mound in the form of the "Project Asbestos Survey" Form ML-8652, which requires a person to determine through the Industrial Hygiene Group if their project will be affected by the presence of asbestos.

O&M Work Practices

The O&M Program focuses on a special set of work practices for the custodial, maintenance, and construction staff. The nature and extent of any special work practices should be tailored to the likelihood that the ACM will be disturbed and that fibers will be released. In general, four categories of O&M work practices are recognized:

- **Worker Protection Programs** - These work practices help ensure custodial and maintenance staff are adequately protected from asbestos exposure.

- **Basic O&M Procedures** - Basic procedures are used to perform routine custodial and maintenance tasks that may involve ACM.

- **Special O&M Cleaning Procedures** - Special techniques to clean up asbestos fibers on a routine basis.

- **Procedures for Asbestos Fiber Release Episodes** - If moderate amounts of ACM are disturbed the maintenance staff will use these procedures to address the hazard. If large amounts of ACM are disturbed, the clean up work should be performed by an accredited asbestos abatement contractor.

Worker Protection Programs

A worker protection program includes engineering controls, personal exposure monitoring, medical surveillance, and personal protection. Engineering controls are the preferred method of worker protection.

According to the OSHA Asbestos Standard for Construction and General Industry (29 CFR 1926.58 and 29 CFR 1910.1001, respectively), any employee exposed to airborne concentrations of more than 0.2 f/cc of asbestos (8-hour time-weighted average) or 1 f/cc during any 30-minute period during the 8-hour work day, must use protective clothing and respirators. While it is possible that maintenance workers directly involved in work that is disturbing ACM may approach these limits, it is highly unlikely that the general occupants of any building at Mound would come remotely close to these levels.

Respirators

Because Mound has in place an extensive Respiratory Protection Program, that aspect of the O&M program will not be addressed in this Management Plan, except to note that the same respirator cartridge that is used for radionuclides is appropriate for asbestos fibers as well.

Protective Clothing

Protective clothing is disposable and consists of coveralls, a head cover, and foot covers made of synthetic fabric which limits the passage of asbestos fibers. This type of clothing prevents the worker's regular clothing from becoming contaminated.

Medical Surveillance

Because Mound has in place an extensive Medical Surveillance Program, that aspect of the O&M program will not be addressed in this Management Plan.

Basic O&M Procedures

Basic O&M procedures to minimize and contain asbestos fibers may include wet methods, use of mini-enclosures, use of portable power tools equipped with special local ventilation attachments, and avoidance of certain activities such as sawing, sanding and drilling ACM. Maintenance activities can be divided into three categories with regard to their potential for disturbing ACM:

Contact with ACM Unlikely

Many routine maintenance activities can be conducted in buildings without contacting the ACM. In these situations, the employees must be aware of appropriate procedures should an accidental disturbance occur.

Accidental Disturbance of ACM

There will be various maintenance activities that would cause the accidental disturbance of ACM. In these cases the workers performing the work should be trained and equipped to clean up or repair ACM, or personnel with such training should be available on short notice.

Manipulation or Disturbance of ACM

Normal maintenance activities could require the removal of asbestos-containing insulation on pipes or beams.

Small Disturbances

Small-scale, short duration operations, maintenance, and repair activities involving ACM must be performed in accordance with 40 CFR Part 61, Subpart M. It is required that work procedures be developed to reduce asbestos exposure during small maintenance and renovation operations. Work procedures include wet methods, use of glovebags, mini-enclosures, and enclosure of asbestos-containing materials.

Large Disturbances

Maintenance activities disturbing ACM - other than small-scale, short duration maintenance activities must be designed by persons accredited to design response actions and conducted by persons accredited to conduct response actions.

Specialized Cleaning Procedures

Cleaning up asbestos contamination within a facility is one of the primary objective of an O&M program. Dry brooms, mops, dust cloths, and standard vacuum cleaners simply re-suspend asbestos fibers into the air. Use of wet methods and H.E.P.A. vacuums prevent this problem.

Fiber Release Episodes

Special procedures are generally need to minimize the spread of fibers throughout a building after asbestos fiber

releases occur. These procedures are needed whether the disturbance is intentional or unintentional.

Major fiber release should be isolated by closing doors and/or erecting temporary barriers to restrict airflow as well as access to the site. Signs should be posted as necessary immediately outside the fiber release site to prevent persons not involved in the clean up operation from inadvertently entering the area. If asbestos fibers could enter the HVAC system, the system should be shut down or modified to prevent fiber entry.

b. Preventative

This is simply taking measures that will keep material that has a risk for potential damage from becoming damaged. It can include the application of metal jacketing on pipe insulation, the application of a heavy coat of bridging encapsulant, or the construction of a physical barrier that may not necessarily be airtight, but will protect the material from impact or abrasion.

c. Repair

This is simply the process of returning damaged ACM to an undamaged condition or to an intact condition through limited replacement or patching.

d. Encapsulation

Encapsulation consists of treating ACM with a liquid that, after proper application surrounds or imbeds the asbestos fibers in an adhesive matrix to prevent fiber releasee, as the encapsulation crates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulants).

e. Enclosure

Enclosure is the process of creating an air-tight barrier installed between the friable asbestos and the building

I676 80

environment. They are typically constructed by mechanical attachment or spray application.

f. Removal

Removal is the process by which the ACM is stripped from its substrate, collected, and placed in containers for burial at an approved asbestos landfill site.

3. Selection of Response Actions

Response actions are selected based on a combination of the material's current condition, potential for damage, accessibility, type of asbestos in the material, and level of friability. A Hazard Rank is assigned that takes all of these factors into account, but primarily the current condition and potential for damage.

Hazard Ranks are assigned as follows:

Current Condition	Potential for Damage	Hazard Rank
GOOD	LOW	#1
GOOD	MODERATE	#2
GOOD	HIGH (Significant Damage)	#3
FAIR (Damaged)	LOW	#4
FAIR	MODERATE	#5
FAIR	HIGH	#6
POOR (Significantly Damaged)		#7

Likewise, the response action is chosen according to the type of material, and the Hazard Rank assigned. In AHERA, for each type of material (thermal system insulation, surfacing material, or miscellaneous), the seven hazard rankings have an appropriate response. For the purposes of this management plan, given the industrial nature of the site, all three types of materials warrant the same response actions for a given condition:

Condition/Rank	Response
GOOD/#1	O&M
POTENTIAL FOR DAMAGE/#2	O&M
POTENTIAL FOR SIGNIFICANT DAMAGE/#3	PREVENT/O&M
DAMAGED W/LOW POTENTIAL FOR ADDITIONAL DAMAGE/#4	REPAIR/O&M
DAMAGED W/MODERATE POTENTIAL FOR ADDITIONAL DAMAGE/#5	REPAIR/O&M
DAMAGED W/POTENTIAL FOR SIGNIFICANT DAMAGE/#6	REPAIR/PREVENT/ O&M
SIGNIFICANTLY DAMAGED/#7	ISOLATE/ABATE

It should be noted that in any case where repairs or preventative measures are required, that if such measures are either ineffective, or not practicable, then the material shall be removed, or otherwise abated.

4. Prioritization of Response Actions

a. Priority Levels

Immediately - The recommended response action should be implemented immediately in order to eliminate an imminent

hazard to the lives or health of building users; or to achieve compliance with existing laws, rules, or regulations of a Federal, State, or Local government agency.

As Soon As Possible (ASAP) - Conditions do not present an immediate threat to the building's general occupants, or constitute a regulatory violation; but there does exist a risk to unprotected maintenance personnel, and minor additional damage could create a regulatory violation, or require the area to be isolated. Maintenance personnel working in these areas should take precautions against disturbing the material, and in certain circumstances should be equipped with appropriate personal protective equipment (PPE), including respirators.

Planned - Conditions present minimal or no risk to building occupants, or of creating a regulatory violation. The recommended response action can be carried out as schedule and budget constraints permit, except for Operations and Maintenance Programs. In that case, re-inspections should take place as scheduled and accidental releases should be cleaned up immediately after they occur. Most non-friable, and friable materials in good condition, are included in this level.

The individual repose areas are ranked according to the Hazard Ranks based on the material condition. A listing of those individual areas which require removal of material or extensive repairs can be found in Appendix E - Priority List.

5. Basis for Cost Estimate

Because so many factors affect the cost of performing any type of asbestos-related work, it is impossible to project an accurate cost estimate without additional details.

Some of the important variables are - information regarding the sequencing of the work (i.e. - will the work be scheduled by priority ranking or by building); time of year

the work is performed (asbestos abatement is typically more costly in the summer months when demand for those services by schools increase); how much of the work will be done by Mound personnel; and regulatory requirements triggered by the amount of material treated at one time.

One critical assumption that was made is that, except in very limited circumstances, it is always least expensive, and most desirable, to implement an O&M program in situations where the material is in good condition or can be made in good condition with minimal repairs. This assumption is consistent with guidelines issued by the U.S. EPA, and also with current Mound policy. Therefore, no comparisons of cost were made between the various response options.

For O&M work, it was assumed that the majority of the annual inspections would be performed by an outside consultant. A basic cost of $60.00 per hour was used. The number of hours estimated was based on the type of material in a given response area; the size of the area; previous experience in each building; access difficulties; security considerations; and health risk factors. A minimum of one hour was assigned to each response area.

Any estimate of costs for an O&M program must also include a projection of the costs of cleaning up fiber releases, and special procedures that must be observed because of the presence of asbestos. That proved nearly impossible to predict, so the hours estimate for inspections was made generously. The estimate for inspections was also made with the assumption that each response area stood alone. That is - no consideration was made for the fact that the physical boundaries of many of the response areas overlap, and that it will not be necessary to actually tour each building a number of times equal to the number of response areas. The actual costs are likely to be somewhat less than estimated.

The "abatement work" refers to all cleanup, repair, encapsulation, and removal work recommended in this management plan. It is intended that the work recommended will bring the facility in compliance with all regulations pertaining to asbestos in the workplace, and will put all of

the asbestos-containing material there in "good" condition, not releasing fibers to the environment. The recommendations <u>are not</u> intended to leave any building *asbestos free*.

The "abatement costs" are even more difficult to accurately calculate. A combined labor and materials rate of $50.00 per hour was used without making a detailed breakdown of materials required to perform the various repairs, cleanups, and minor abatement jobs needed. Labor usage was projected based, again. on the type of material involved, the amount, size of the area, access difficulties, security considerations, and health factors. Except in very small areas, a minimum of $250.00 was assigned to each response area. Each abatement response was estimated as a stand alone project, but excluding mobilization costs. It is assumed that the majority of major abatement work would be performed by outside contractors, while the lesser repair and cleanup work would be done by Mound trades.

It is almost certain that some economies of scale will be achieved through scheduling more than one response at a time, so total abatement costs are likely to lower than estimated in the Building Plans.

I 72 & 80

Building 28

Inspection Date ..... 11/7/91.

Inspector..... Sean Fisher

Sample Numbers..... 0.546 - 0.584, 1.600 - 1.602

Data Review

The visual inspection identified 17 separate material as potentially asbestos-containing homogeneous areas. Those are listed in the Building Summary of the Survey Report. Of those, Polarized Light Microscopy indicated that 7 were positive for the presence of asbestos. All were various forms of pipe lagging or fitting insulation. Materials assumed to contain asbestos are Transite™ fume hood liners and floor tile and mastic. The pipe insulation is grouped into response areas by physical location, with the other two types of material comprising their own response areas as follows:

A) Pipe Insulation - Main Entrance
B) Pipe Insulation - Room 101
C) Pipe Insulation - Room 107
D) Pipe Insulation - Room 5B
E) Condensate Tape
F) Flooring
G) Transite™ Fume Hoods

Total Abatement Cost..... $200.00

Total O&M Cost/Year..... $1200.00

I738 80

Building 28

Response Area Designation.....A

Rooms Included:

5; 5B; 5D; 101; 102; 103; 104; 104A; 105; 105B; 105C; 107; 108

Materials Included:

Pipe Joint Insulation - Hard w/Fiberglass Runs

Response Area Description

Pipe Joint Insulation - Hard w/Fiberglass Runs - Main Building Entrance

Recommended Response O&M

Priority Level.....Planned

Hazard Rank.....2

Response Justification

The Survey Report lists this material as having "potential for damage," and its current condition is good. As such the appropriate Hazard Rank is #2.

The recommended response action is to place the area on the O&M list for planned and regular surveillance.

Annual O&M Cost.....$180.00

Abatement Cost.....$Not Considered

Building 28

Response Area Designation.....B

Rooms Included:

101

Materials Included:

Pipe Insulation - Hard
Pipe Joint Insulation - Hard

Response Area Description

Pipe Insulation - Hard -Room 101

Recommended Response Prevent Damage/O&M

Priority Level.....Planned

Hazard Rank.....3

Response Justification

The Survey Report lists this material as having "potential for significant damage." No factors constituting a "major or continuing disturbance" are identified in the Report, however it is believed that the material's proximity to the main building entrance, and its high accessibility and occupancy warrants such an assessment. As a material currently in good condition, but with potential for significant damage, a Hazard Rank #3 is appropriate.

The recommended response is to take preventative measures adequate to protect the material from damage and subsequently placing the location on the O&M list . A possible approach would be to apply a metal jacket or enclosure around the pipe riser to a height sufficient to avoid impact from wheeled carts of carried objects

Annual O&M Cost.....$180.00
Abatement Cost.....$200.00

I 7506 80

Building 28

Response Area Designation..... C

Rooms Included:

107

Materials Included:

Pipe Insulation - Hard
Pipe Joint Insulation - Hard

Response Area Description

Pipe Insulation - Hard - Room 107

Recommended Response O&M

Priority Level..... Planned

Hazard Rank..... 1

Response Justification

The Survey Report lists these materials as having "potential for significant damage," but does not identify any factors which would cause a "major or continuing disturbance." The material is located above a drop ceiling, is not in an area regularly used by building occupants; nor is there a reasonable likelihood of damage resulting from changes in the building's use, operations or maintenance practices, occupancy, or recurrent damage. Therefore the assessment is downgraded to "any other friable asbestos-containing material," and assigned a Hazard Rank #1.

The recommended response action is to place the material/location on the O&M list for continued surveillance.

Annual O&M Cost..... $180.00

Abatement Cost..... $Not Considered

1760 80

Building 28

RESPONSE AREA DESIGNATION..... D

Rooms Included:

5B

Materials Included:

Pipe Insulation - Tar Wrap
Pipe Joint Insulation - Tar Wrap

Response Area Description

Pipe Insulation - Room 5B

Recommended Response O&M

Priority Level..... Planned

Hazard Rank..... 2

Response Justification

The Survey Report lists these materials as having "potential for significant damage." However, there is no identification of factors which could lead to a "major or continuing disturbance," nor are there any indications that such conditions exist. Therefore the assessment is downgraded to "potential for damage," and a Hazard Rank #2 is assigned.

Since the material is currently in good condition, the recommended response is to place the material on the O&M list for continued surveillance.

Annual O&M Cost..... $120.00

Abatement Cost..... $Not Considered

I 77 of 80

Building 28

RESPONSE AREA DESIGNATION.....E

Rooms Included:

5; 5A; 5B; 101; 102; 103; 104B; 105; 105C; 107; 109; 110; 111; 115; 115A

Materials Included:

Condensate Tape (White)
Condensate Tape (Black)

Response Area Description

Condensate Tape

Recommended Response O&M

Priority Level.....Planned

Hazard Rank.....1

Response Justification

These materials are listed in the Survey Report as having "potential for significant damage." However, the report does not identify any factors which could constitute a "major or continuing disturbance," and there are no indications that such conditions exist. Furthermore, these materials are not friable and the potential for a fiber release episode is almost non-existent. The assessment is downgraded to "other friable asbestos-containing materials," and a Hazard Rank #1 is assigned.

The recommended response is to add the material to the O&M list for regular re-inspection.

Annual O&M Cost.....$240.00

Abatement Cost.....$Not Considered

I78of 80

Building 28

RESPONSE AREA DESIGNATION..... F

Rooms Included:

5; 5A; 5B; 5C; 101; 101A; 102; 103; 104; 104A; 104B; 104C; 105; 105A; 105B; 105C; 106; 107; 108; 110; 111; 112; 113; 114; 115; 115A; 115B

Materials Included:

Floor Tile
Mastic

Response Area Description

Flooring

Recommended Response O&M

Priority Level..... Planned

Hazard Rank..... 1

Response Justification

This material has not been positively identified as asbestos-containing and is currently in good condition with little potential for damage. Therefore, a Hazard Rank #1 is assigned and the material should be included in the O&M program.

An alternative is to sample and analyze the material possibly enabling it to be removed from surveillance with a resultant long-term cost savings.

Sampling and analysis is recommended prior to any activity that might disturb the material or cause it to become friable.

Annual O&M Cost..... $180.00
Abatement Cost..... $Not Considered

I796 80

Building 28

RESPONSE AREA DESIGNATION..... G

Rooms Included:

102; 103

Materials Included:

Transite™

Response Area Description

Transite™ Fume Hoods

Recommended Response O&M

Priority Level..... Planned

Hazard Rank..... 1

Response Justification

This material is currently in good condition and is non-friable. It presents a low potential for future damage and the area has low and infrequent occupancy. Since the material is currently in good condition, the appropriate response is to place the material on the O&M list and re-inspect it on a regular basis.

Annual O&M Cost..... $120.00

Abatement Cost..... $Not Considered

Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 5/20/03 3:45PM
Subject: Building 28!!!

Don & Val -

For Building 28 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos surveys were completed in 1989 and 1992. These surveys were intended to identify all reasonably accessible asbestos-containing materials within the building for the purposes of identifying damaged material and managing asbestos in place. Documentation indicates that all damaged materials were repaired.

On April 24, 2003 Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a walk-through survey of the readily accessible areas of Building 28 in order to verify the presence of previously identified asbestos-containing materials. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. Most of the materials previously identified appeared to have been completely removed during a previous asbestos removal effort. No damaged asbestos-containing materials were seen during the survey. Any remaining asbestos-containing materials should be monitored periodically to ensure that they remain undamaged. No other actions would be required unless the building is scheduled for renovation or demolition; such activities would require the removal of affected asbestos.

Lead

No previous lead surveys or sampling data could be found for Building 28. Observed paint coatings were largely intact.

Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the buildings. No further action would be necessary to protect occupant or worker health unless any coatings were to be disturbed by close worker contact (sanding, grinding, scraping, torch cutting, etc.). If these types of activities are planned, the affected paint coatings should be tested to verify the absence of lead.

These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Kramer, Donald

J1061

Appendix K

Chemical Information

Chemicals known to have been in Building 28 and/or its desiccant shed while in use by Mound.

4 step solution
Acetone
Alumina
Bioact EC-7
Butyl carbitol acetate
CH2Cl2
Citric acid
Diacetone alcohol
Diisopropyl alcohol
Ethyl alcohol
Hydrochloric acid
Hydrofluoric acid
Isopropyl alcohol
Methyl isobutyl ketone
Methylene alcohol
Methylene chloride
Mineral spirits
Molybdenum powder
Nitric acid
Nonylphenoxypolyethoxyethanol
Nuosperse #657 surfactant
Sodium bicarbonate
Sol-gel
Sorbitan monooleate
Span 80
Sulfuric acid
Toluene
Triton N-101
Wesgo 522-B (nickel oxide)
Wesgo 538 (molybdenum)

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Chemicals reported to be in Building 28 and/or its desiccant shed by the current tenant.

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MOUND CHEMICAL INVENTORY
MOUND MANUFACTURING
UPDATE: 5/00

4/23/02 - Reviewed by MMC AND Correct. AJ Hodap III

Al Hodap
CONTACT NAME
865-4014
TELEPHONE NUMBER

CHEMICALS REPORTED TO FIRE DEPT.	CURRENT QUANTITY STORED	MAXIMUM QUANTITY STORED	STORAGE LOCATION
Note: Company did not permit inspection.	**Instead, provided chemical quantities**		
using Fire Dept. list.			
Acetone	5 gallons	5 gallons	BLDG. 28
Aerojet Accelerator	stop using		N/A
Anti-Static Fluid	stop using		N/A
Antiseize	12 oz.	12 oz.	BLDG. 28
Bathroom Cleaner	1 gallon	1 gallon	BLDG. 28
Bio-Act EC-7	stop using		N/A
Black Developer	12 oz.	12 oz.	BLDG. 28
Block Dresser	stop using		N/A
BP Dielectric	5 gallons	5 gallons	BLDG. 28
Ceramic Foam Block	material not chemical		BLDG. 28
Cimperial 1011	2 gallons	100 gallons	BLDG. 28

KS of 16

MOUND CHEMICAL INVENTORY
MOUND MANUFACTURING
UPDATE: 5/00

CHEMICALS REPORTED TO FIRE DEPT.	CURRENT QUANTITY STORED	MAXIMUM QUANTITY STORED	STORAGE LOCATION
Cleaning Compound	stop using		N/A
Coating, Ethylcellulose Dip Plastic	3 quarts	3 quarts	BLDG. 28
Conquest	don't use		N/A
Cool Tool II	1 quart	1 quart	BLDG. 28
Correction Fluid, Liquid Paper	16 oz.	16 oz.	BLDG. 28
Cuttin & Grinding Fluid	stop using		N/A
Defoamer	stop using		N/A
Degreaser	5 gallons	5 gallons	BLDG. 28
Doall Gage Block Preservative	stop using		N/A
Drain Cleaner	2 quarts	2 quarts	BLDG. 28
Dry Imager	1 gallon	1 gallon	BLDG. 28
Dykem Layout Fluids	2 quarts	2 quarts	BLDG. 28
Dykem Remover & Thinner	stop using		N/A
EDM Oil	15 gallons	15 gallons	BLDG. 28
Ethyl Alcohol	5 gallons	5 gallons	BLDG. 28
Everlube 810	2 quarts	2 quarts	BLDG. 28
Factoquench	stop using		N/A

MOUND CHEMICAL INVENTORY
MOUND MANUFACTURING
UPDATE: 5/00

CHEMICALS REPORTED TO FIRE DEPT.	CURRENT QUANTITY STORED	MAXIMUM QUANTITY STORED	STORAGE LOCATION
Form-A-Thread	stop using		N/A
Fuser Oil	12 oz.	12 oz.	BLDG. 28
G-10 Glass Epoxy	material not chemical		BLDG. 28
Gage Block Cleaner	stop using		N/A
Gasket Remover	stop using		N/A
Gulfcut 11D	5 gallons	5 gallons	BLDG. 28
Hicut/GT-1	stop using		N/A
High Vacuum Grease	12 oz.	12 oz.	BLDG. 28
Honing Oil	1 gallon	1 gallon	BLDG. 28
Ink: Blue Toolmaker's	stop using		N/A
Kerosene Solvent	stop using		N/A
Lava Soap	5 bars	20 bars	BLDG. 28
Lens Rainbow Cleaning & Anti Fog Sol.	stop using		N/A
Loctite	12 oz.	12 oz.	BLDG. 28
Machine Cleaner - Polish	stop using		N/A
Marker Board #202	30 marker pens	30 marker pens	BLDG. 28

K 7 of 10

MOUND CHEMICAL INVENTORY
MOUND MANUFACTURING
UPDATE: 5/00

CHEMICALS REPORTED TO FIRE DEPT.	CURRENT QUANTITY STORED	MAXIMUM QUANTITY STORED	STORAGE LOCATION
Met-All Polishes	stop using		N/A
Mineral Oil	1 gallon	1 gallon	BLDG. 28
Mistic Mist	stop using		N/A
Mobil DTE 13	10 gallons	10 gallons	BLDG. 28
Mobil Vacuoline	40 gallons	40 gallons	BLDG. 28
Permabond	3 oz.	3 oz.	BLDG. 28
Regular Agitene-Cleaning Compound	stop using		N/A
Rust Treatment, Extend	stop using		N/A
Safetap	stop using		N/A
Silicone, Polymer	8 oz.	8 oz.	BLDG. 28
Super Glue	1 oz.	4 oz.	BLDG. 28
Tap Magic	1 quart	1 quart	BLDG. 28
Tool Saver	stop using		N/A
Turco	24 oz.	24 oz.	BLDG. 28
Vaseline Intensive Care Lotion	50 oz.	50 oz.	BLDG. 28
W&B Gun Drilling 2190	stop using		N/A
Wax, Freeman Machineable	material not chemical		BLDG. 28

01 of 8 71

MOUND CHEMICAL INVENTORY
MOUND MANUFACTURING
UPDATE: 5/00

CHEMICALS REPORTED TO FIRE DEPT.	CURRENT QUANTITY STORED	MAXIMUM QUANTITY STORED	STORAGE LOCATION
WD-40	70 oz.	70 oz.	BLDG. 28
Carbon/Composite Graphite	Not Chemical; Not Provided		BLDG. 28
Cemented Tungsten Carbide	Not Chemical; Not Provided		BLDG. 28
Coolspar	Not Chemical; Not Provided		BLDG. 28
Cutting Tool	Not Chemical; Not Provided		BLDG. 28
Diamond Grinding Wheels	Not Chemical; Not Provided		BLDG. 28
Diamond Slurry	Not Chemical; Not Provided		BLDG. 28
Dry Shine	Not Chemical; Not Provided		BLDG. 28
Liquid Soap	Not Chemical; Not Provided		BLDG. 28
Media 100	Not Chemical; Not Provided		BLDG. 28
Media F-9	Not Chemical; Not Provided		BLDG. 28
Media X	Not Chemical; Not Provided		BLDG. 28
Nickel Plated Abrasive Products	Not Chemical; Not Provided		BLDG. 28
Oxide	Not Chemical; Not Provided		BLDG. 28
Poco Graphite	Not Chemical; Not Provided		BLDG. 28
Tumble Soap	Not Chemical; Not Provided		BLDG. 28

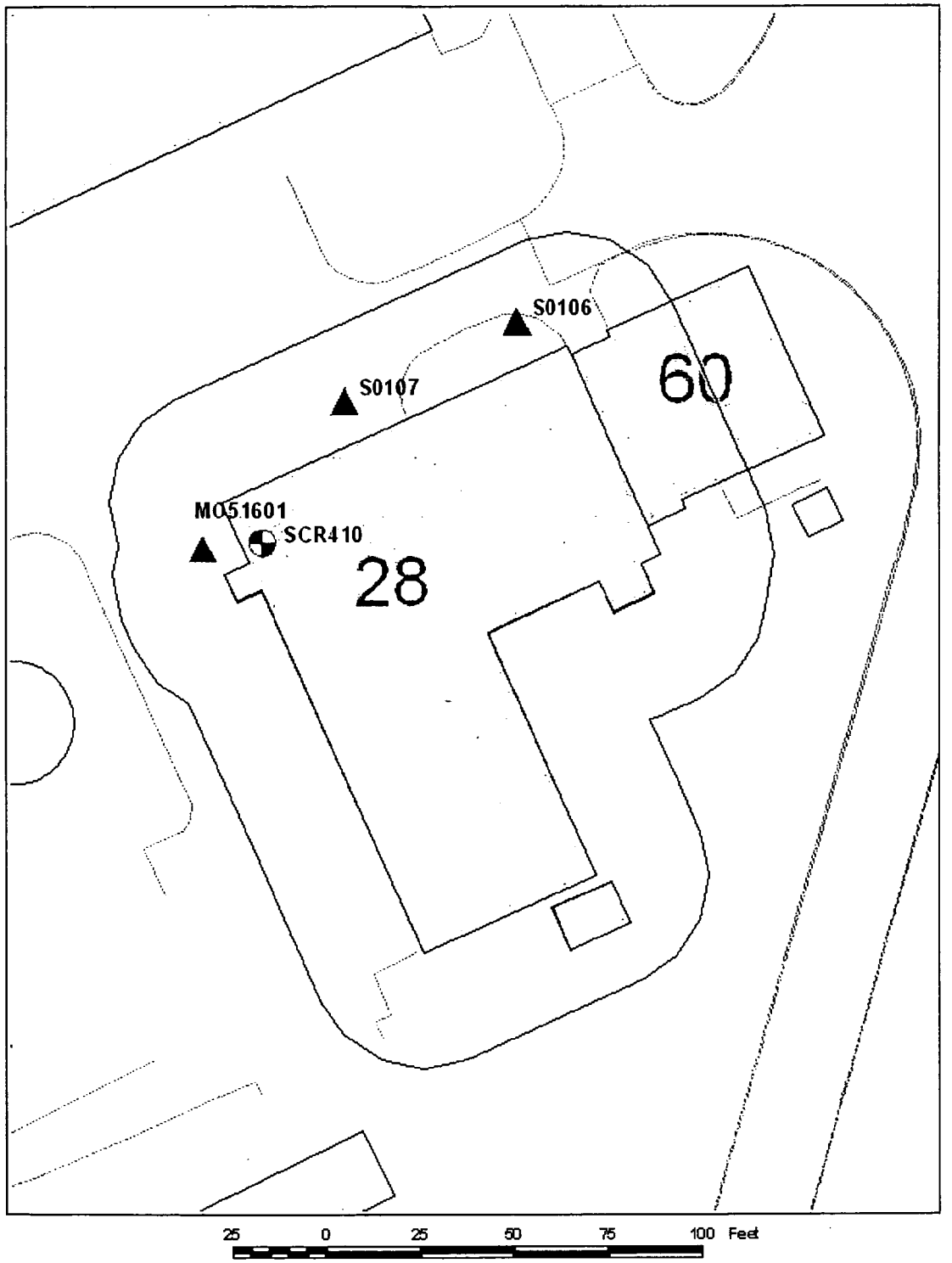
MOUND CHEMICAL INVENTORY
MOUND MANUFACTURING
UPDATE: 5/00

CHEMICALS REPORTED TO FIRE DEPT.	CURRENT QUANTITY STORED	MAXIMUM QUANTITY STORED	STORAGE LOCATION
Aluminums; Several Different	Not Chemical; Not Provided		BLDG. 28
Brass	Not Chemical; Not Provided		BLDG. 28
Bronze	Not Chemical; Not Provided		BLDG. 28
Iron	Not Chemical; Not Provided		BLDG. 28
Modatherm II Insulation	Not Chemical; Not Provided		BLDG. 28
Nickel; Several Different Alloy Components	Not Chemical; Not Provided		BLDG. 28
Plastics; Several Different Kinds	Not Chemical; Not Provided		BLDG. 28
Steel; Several Different Alloys	Not Chemical; Not Provided		BLDG. 28

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 30 feet of Building 28



Sample Detect

N
W E
S

MOUND

c:\cad_prof\bldg_28\estbldg28_301093002.apr

09/30/02

L106 15

Building 28 Detects

Location_na	Sample_id	Collection_d	Value_name	Measured_valu	Value_u	Detection_li	Chem_cl	Start_	End_	Lab	Data	Project_co	Comments*
MO51601	MO516017	19870722	2,4-Dimethylphenol	59.0000	UG/KG	340.0000	ORSVO	0.0	0.0	J		DOEES**	
MO51601	MO516017	19870722	2-Methylnaphthalene	480.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	2-Methylphenol	29.0000	UG/KG		ORSVO	0.0	0.0	J		DOEES**	
MO51601	MO516017	19870722	4-Methylphenol	180.0000	UG/KG		ORSVO	0.0	0.0	J		DOEES**	
MO51601	MO516017	19870722	Acenaphthene	2000.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Anthracene	5100.0000	UG/KG		ORSVO	0.0	0.0	J		DOEES**	
MO51601	MO516017	19870722	Benzo(a)anthracene	9200.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	1
MO51601	MO516017	19870722	Benzo(a)pyrene	7900.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	1
MO51601	MO516017	19870722	Benzo(b)fluoranthene	8000.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	1
MO51601	MO516017	19870722	Benzo(g,h,i)perylene	4500.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Benzoic Acid	130.0000	UG/KG		ORSVO	0.0	0.0	J		DOEES**	
MO51601	MO516017	19870722	Bis(2-ethylhexyl)phthalate	1300.0000	UG/KG		ORSVO	0.0	0.0	B		DOEES**	
MO51601	MO516017	19870722	Butyl Benzyl Phthalate	610.0000	UG/KG		ORSVO	0.0	0.0	B		DOEES**	
MO51601	MO516017	19870722	Chloroform	15.0000	UG/KG		ORVOA	0.0	0.0	BJ		DOEES**	
MO51601	MO516017	19870722	Chrysene	8600.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Dibenz(a,h)anthracene	1100.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	16
MO51601	MO516017	19870722	Dibenzofuran	1500.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Di-n-octyl Phthalate	200.0000	UG/KG		ORSVO	0.0	0.0	BJ		DOEES**	
MO51601	MO516017	19870722	Fluoranthene	18000.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Fluorene	3100.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Indeno(1,2,3-cd)pyrene	5800.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	1
MO51601	MO516017	19870722	Naphthalene	2400.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Phenanthrene	16000.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
SCR410	93101118	19931011	Plutonium-238	28.0000	PCI/G		RAD	0.0	0.0			SCRDATA	12
S0107	6201	19840801	Plutonium-238	0.5200	PCI/G	0.0100	RAD	0.0	0.0			RSS	2
S0106	6202	19840801	Plutonium-238	0.0600	PCI/G	0.0100	RAD	0.0	0.0			RSS	
MO51601	MO516017	19870722	Pyrene	18000.0000	UG/KG		ORSVO	0.0	0.0			DOEES**	
MO51601	MO516017	19870722	Toluene	7.0000	UG/KG		ORVOA	0.0	0.0	BJ		DOEES**	

L3 of 15

*Comments

1	Exceeds the 10-6 Risk-Based Guide Value (RBGV)
2	Exceeds the OU9 Soil Background Value
3	Exceeds screening level
5	Exceeds MCL
6	Exceeds the Guide Value based on the hazard index

Lab and data qualifiers are defined on the pages immediately following the non-detects table in this appendix.
Comparison values for results with comments are provided on the "Comparisons for Soil Analytical Results" table at.the end of this appendix.

***All analytical results that can be evaluated within the risk evaluation process are below applicable screening levels. Measurement results from the DOE Site Survey Project (DOEES) were judged to be lacking in quality for risk assessment purposes and segregated from the data set. Because the DOEES project data is not evaluated in the site risk evaluation, it is also not evaluated in this BDP. Even though the DOEES project data is not used, all results within 30 feet of Building 28 are below 2 x 10^{-5} Risk-Based Guideline Value (RBGV), which is within the acceptable risk range (10^{-4} to 10^{-6} per the NCP).*

Building 28 Non-Detects

Location_n	Sample_id	Collection_	Value_name	Measured_valu	Value_uni	Detection_limit	Chem_c	Start_	End_	Lab_	Data	Project_code
MO51601	MO516017	19870722	1,1,1-Trichloroethane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,1,2,2-Tetrachloroethane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,1,2-Trichloroethane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,1-Dichloroethane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,1-Dichloroethene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,2,4-Trichlorobenzene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,2-Dichlorobenzene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,2-Dichloroethane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,2-Dichloroethene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,2-Dichloropropane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,3-cis-Dichloropropene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,3-Dichlorobenzene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,3-trans-Dichloropropene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1,4-Dichlorobenzene	340.0000	UG/KG		ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	1-chloro-4-phenoxybenzene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2,2'-oxybis(1-chloropropane)	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2,4,5-Trichlorophenol	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2,4,6-Trichlorophenol	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2,4-Dichlorophenol	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2,4-Dinitrophenol	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2,4-Dinitrotoluene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2,6-Dinitrotoluene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2-Butanone	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2-Chloronaphthalene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2-Chlorophenol	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2-Hexanone	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2-Nitroaniline	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	2-Nitrophenol	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	3,3'-Dichlorobenzidine	670.0000	UG/KG	670.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	3-Nitroaniline	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	4,6-Dinitro-o-Cresol	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	4-Bromophenyl-phenyl Ether	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	4-Chloro-3-methylphenol	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	4-Chloroaniline	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	4-Methyl-2-pentanone	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0		U	DOEES
MO51601	MO516017	19870722	4-Nitroaniline	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0		U	DOEES

4 of 15

Location_n	Sample_id	Collection_	Value_name	Measured_valu	Value_uni	Detection_limit	Chem_c	Start_	End_	Lab_	Data	Project_code
MO51601	MO516017	19870722	4-Nitrophenol	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Acenaphthylene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Acetone	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Benzene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Benzo(k)fluoranthene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Benzyl Alcohol	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Bis(2-chloroethoxy)methane	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Bis(2-chloroethyl)ether	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Bromodichloromethane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Bromoform	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Bromomethane	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Carbon Disulfide	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Carbon Tetrachloride	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Chlorobenzene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Chloroethane	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Chloromethane	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Dibromochloromethane	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Dichloromethane (Methylene Chloride)	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Diethyl Phthalate	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Dimethyl Phthalate	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Di-n-butyl Phthalate	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Ethylbenzene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Hexachlorobenzene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Hexachlorobutadiene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Hexachlorocyclopentadiene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Hexachloroethane	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Isophorone	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Nitrobenzene	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	N-Nitroso-di-n-propylamine	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	N-Nitrosodiphenylamine	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Pentachlorophenol	1700.0000	UG/KG	1700.0000	ORSVO	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Phenol	340.0000	UG/KG	340.0000	ORSVO	0.0	0.0	U		DOEES
SCR410	93101116	19931011	Plutonium-238	20.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA
SCR410	93101117	19931011	Plutonium-238	5.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA
SCR410	93101119	19931011	Plutonium-238	3.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA
MO51601	MO516017	19870722	Styrene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Tetrachloroethene	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
S0107	6201	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS

S1 9257

Location_n	Sample_id	Collection_	Value_name	Measured_valu	Value_uni	Detection_limit	Chem_c	Start_	End_	Lab_	Data	Project_code
S0106	6202	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS
SCR410	93101118	19931011	Thorium-232	0.9000	PCI/G		RAD	0.0	0.0	U		SCRDATA
SCR410	93101117	19931011	Thorium-232	0.6000	PCI/G		RAD	0.0	0.0	U		SCRDATA
SCR410	93101116	19931011	Thorium-232	0.5000	PCI/G		RAD	0.0	0.0	U		SCRDATA
SCR410	93101119	19931011	Thorium-232	0.4000	PCI/G		RAD	0.0	0.0	U		SCRDATA
MO51601	MO516017	19870722	Trichloroethylene (TCE)	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Vinyl Acetate	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Vinyl Chloride	50.0000	UG/KG	50.0000	ORVOA	0.0	0.0	U		DOEES
MO51601	MO516017	19870722	Xylenes, Total	25.0000	UG/KG	25.0000	ORVOA	0.0	0.0	U		DOEES

S1997

LABORATORY DATA QUALIFIERS (LABQUAL)

The following qualifiers will be applied to the organic analysis results by the laboratory in accordance with CLP SOW direction:

ORGANICS

U	Indicates compound was analyzed for but not detected. The associated sample quantitation limit will be the CRQL, corrected for dilution and for percent moisture.
J	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) assuming a 1:1 response, 2) when the qualitative data indicated the presence of a compound that meets the volatile, semivolatile, and pesticide/Aroclor identification criteria, and the result is less than the CRQL but greater than zero.
N	Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds, where identification is based on a mass spectral library search.
P	Used for pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns.
C	Applies to pesticide results where the identification has been confirmed by GC/MS.
B	Used when the analyte is found in the associated blank as well as in the sample. This flag must be used for a TIC as well as for a positively identified target compound.
E	Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
D	Identifies all compounds identified in an analysis at a secondary dilution factor.
A	Indicates that a TIC is a suspected aldol-condensation product.

INORGANICS

B	Indicates that the reported value was obtained from a reading that was less than the CRDL but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates that the analyte was analyzed for but not detected.
E	Indicates the reported value is estimated because of the presence of interferences.
M	Duplicate injection precision was not met.
N	Spiked sample recovery not within control limits.
S	Reported value was determined by the Method of Standard Additions (MSA).
W	Post-digestion spike for Furnace AA analysis is out of control limits, while sample absorbency is less than 50% of spike absorbency.
*	Duplicate analysis not within control limits.
+	Correlation coefficient for the MSA is less than 0.995.

L706 15

DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

U	The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J	The associated numerical value is an estimated quantity.
R	The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
N	Presumptive evidence of the presence of the material.
NJ	Presumptive evidence of the presence of the material at an estimated quantity.
UJ	The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

SUB-QUALIFIER CODES

ORGANICS

D	Duplicates
B	Qualified due to blank
C	Qualified due to calibration
H	Holding time exceeded
K	Qualified due to surrogate recovery
L	Qualified due to Laboratory Control Sample
S	Qualified due to matrix spike recovery
I	Qualified due to internal standard
N	Tentative identification (only for TICs)
P	Pesticide/PCB results have >25 percent difference on two different columns
+	Positive bias (added after subqualifier)
-	Negative bias (added after subqualifier)

INORGANICS

D	Duplicates
B	Qualified due to blank
C	Qualified due to calibration
H	Holding time exceeded
L	Qualified due to Laboratory Control Sample
S	Qualified due to matrix spike recovery
I	Qualified due to interference
+	Positive bias (added after subqualifier)
-	Negative bias (added after subqualifier)
Examples of final qualification might be J-C, UJ-S(+), UJ-BC(-), etc.	

The subqualifiers have been included to clarify any reports you may use. The subqualifiers have been captured when it was included in the electronic data submitted by the contractor. Most of the data in MEIMS does not include them.

The above data was extracted from the OU9 Site Wide Quality Assurance Project Plan, pages 9-16 and Appendix H page 3-1. It was updated from the Methods Compendium.

L806 15

Comparisons for Soil Analytical Results			
10-6 Risk-Based Guideline Values			
107-06-2	1,2-Dichloroethane	3.20E+00	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.91E+02	MG/KG
72-55-9	4,4'-DDE	9.00E+00	MG/KG
50-29-3	4,4'-DDT	9.00E+00	MG/KG
309-00-2	Aldrin	1.80E-01	MG/KG
5103-71-9	Alpha Chlordane	8.50E+00	MG/KG
12672-29-6	Aroclor-1248	3.85E-01	MG/KG
11096-82-5	Aroclor-1260	3.85E-01	MG/KG
7440-38-2	Arsenic	1.20E+03	MG/KG
71-43-2	Benzene	8.90E+00	MG/KG
56-55-3	Benzo(a)anthracene	4.10E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.10E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.10E+00	MG/KG
207-08-9	Benzo(k)fluoranthene	4.10E+01	MG/KG
7440-41-7	Beryllium	7.00E-01	MG/KG
319-85-7	Beta-BHC	1.65E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.15E+02	MG/KG
75-27-4	Bromodichloromethane	4.80E+01	MG/KG
75-25-2	Bromoform	3.75E+02	MG/KG
7440-43-9	Cadmium	1.00E+04	MG/KG
56-23-5	Carbon Tetrachloride	4.60E+00	MG/KG
67-66-3	Chloroform	3.10E+00	MG/KG
7440-47-3	Chromium	1.50E+03	MG/KG
218-01-9	Chrysene	4.10E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.10E-01	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane	3.95E+02	MG/KG
60-57-1	Dieldrin	1.85E-01	MG/KG
5103-74-2	Gamma Chlordane	8.50E+00	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.30E+00	MG/KG
76-44-8	Heptachlor	0.66	MG/KG
1024-57-3	Heptachlor Epoxide	0.33	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.10E+00	MG/KG
78-59-1	Isophorone	3.15E+03	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.00E+02	MG/KG
87-86-5	Pentachlorophenol	2.50E+01	MG/KG
121-82-4	RDX	2.70E+01	MG/KG
79-01-6	Trichloroethene (or trichloroethylene)	5.09E+00	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	1.10E-02	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	1.40E-03	MG/L
7440-34-8	Actinium-227	4.50E-01	PCI/G
14596-10-2	Americium-241	6.30E+00	PCI/G
13982-38-2	Bismuth-207	1.60E-01	PCI/G
10045-97-3	Cesium-137	3.40E-01	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	6.20E-01	PCI/G

 L906 15

13981-16-3	Plutonium-238	6.10E+00	PCI/G
15117-48-3	Plutonium-239	5.50E+00	PCI/G
PU239/240	Plutonium-240	6.10E+00	PCI/G
13966-00-2	Potassium-40	1.42E+00	PCI/G
14331-85-2	Protactinium-231	3.90E-01	PCI/G
13982-63-3	Radium-226	9.00E-02	PCI/G
10098-97-2	Strontium-90	9.40E+00	PCI/G
14274-82-9	Thorium-228	1.10E-01	PCI/G
14269-63-7	Thorium-230	9.00E-02	PCI/G
7440-29-1	Thorium-232	7.00E-02	PCI/G
10028-17-8	Tritium	2.35E+04	PCI/G
13968-55-3	Uranium-233	9.68E-01	PCI/G
13966-29-5	Uranium-234	1.05E+01	PCI/G
15117-96-1	Uranium-235	1.60E+00	PCI/G
24678-82-8	Uranium-238	1.00E-01	PCI/G
14596-10-2	Americium-241	4.90E-01	PCI/L
14331-79-4	Bismuth-210	2.20E+01	PCI/L
15262-20-1	Radium-228	3.30E-01	PCI/L
13967-73-2	Strontium-85	1.10E+02	PCI/L
10098-97-2	Strontium-90	3.90E+00	PCI/L
15623-47-9	Thorium-227	4.00E+00	PCI/L
14274-82-9	Thorium-228	6.90E-01	PCI/L
14269-63-7	Thorium-230	1.20E-01	PCI/L
7440-29-1	Thorium-232	3.10E-01	PCI/L
24678-82-8	Uranium-238+D	2.02E-01	PCI/L
OU9 Soil Background Values			
72-54-8	4,4'-DDD	4.2	MG/KG
72-55-9	4,4'-DDE	4.3	MG/KG
50-29-3	4,4'-DDT	13	MG/KG
309-00-2	Aldrin	ND	MG/KG
5103-71-9	Alpha Chlordane	ND	MG/KG
319-84-6	Alpha-BHC	ND	MG/KG
7429-90-5	Aluminum	19000	MG/KG
14596-10-2	Americium-241	ND	MG/KG
12672-29-6	Aroclor-1248	ND	MG/KG
11097-69-1	Aroclor-1254	58	MG/KG
11096-82-5	Aroclor-1260	ND	MG/KG
7440-38-2	Arsenic	8.6	MG/KG
7440-39-3	Barium	180	MG/KG
7440-41-7	Beryllium	1.3	MG/KG
319-85-7	Beta-BHC	ND	MG/KG
7440-69-9	Bismuth	ND	MG/KG
13982-38-2	Bismuth-207	ND	MG/KG
14331-79-4	Bismuth-210m	ND	MG/KG
7440-43-9	Cadmium	2.1	MG/KG
7440-70-2	Calcium	310000	MG/KG
7440-47-3	Chromium	20	MG/KG
7440-48-4	Cobalt	19	MG/KG

7440-50-8	Copper	26	MG/KG
57-12-5	Cyanide	ND	MG/KG
60-57-1	Dieldrin	ND	MG/KG
959-98-8	Endosulfan I	ND	MG/KG
1031-07-8	Endosulfan Sulfate	ND	MG/KG
72-20-8	Endrin	ND	MG/KG
7421-93-4	Endrin Aldehyde	ND	MG/KG
53494-70-5	Endrin Ketone	ND	MG/KG
5103-74-2	Gamma Chlordane	ND	MG/KG
58-89-9	Gamma-BHC (Lindane)	ND	MG/KG
76-44-8	Heptachlor	ND	MG/KG
1024-57-3	Heptachlor Epoxide	ND	MG/KG
77-47-4	Hexachlorocyclopentadiene	ND	MG/KG
7439-89-6	Iron	35000	MG/KG
7439-92-1	Lead	48	MG/KG
7439-93-2	Lithium	26	MG/KG
7439-95-4	Magnesium	40000	MG/KG
7439-96-5	Manganese	1400	MG/KG
7439-97-6	Mercury	ND	MG/KG
72-43-5	Methoxychlor	30	MG/KG
7439-98-7	Molybdenum	27	MG/KG
7440-02-0	Nickel	32	MG/KG
7440-09-7	Potassium	1900	MG/KG
7782-49-2	Selenium	ND	MG/KG
7440-22-4	Silver	1.7	MG/KG
7440-23-5	Sodium	240	MG/KG
7440-28-0	Thallium	0.46	MG/KG
7440-31-5	Tin	20	MG/KG
7440-62-2	Vanadium	25	MG/KG
7440-66-6	Zinc	140	MG/KG
7440-34-8	Actinium-227	1.10E-01	PCI/G
10045-97-3	Cesium-137	0.42	PCI/G
14255-04-0	Lead-210	1.20E+00	PCI/G
13981-16-3	Plutonium-238	0.13	PCI/G
15117-48-3	Plutonium-239	1.80E-01	PCI/G
PU239/240	Plutonium-240	1.80E-01	PCI/G
13966-00-2	Potassium-40	37	PCI/G
14331-85-2	Protactinium-231	1.10E-01	PCI/G
13982-63-3	Radium-226	2	PCI/G
10098-97-2	Strontium-90	0.72	PCI/G
14274-82-9	Thorium-228	1.5	PCI/G
14269-63-7	Thorium-230	1.9	PCI/G
7440-29-1	Thorium-232	1.4	PCI/G
10028-17-8	Tritium	1.6	PCI/G
13966-29-5	Uranium-234	1.1	PCI/G
15117-96-1	Uranium-235	0.11	PCI/G
24678-82-8	Uranium-238	1.2	PCI/G

L11of 15

Core Team Determined Screening Levels			
7439-92-1	Lead	400	MG/KG
7440-34-8	Actinium-227	5.60E-01	PCI/G
14596-10-2	Americium-241	6.3	PCI/G
13982-38-2	Bismuth-207	0.175	PCI/G
10045-97-3	Cesium-137	0.76	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	1.80E+00	PCI/G
13981-16-3	Plutonium-238	55	PCI/G
14331-85-2	Protactinium-231	4.00E+00	PCI/G
13982-63-3	Radium-226	2.1	PCI/G
14274-82-9	Thorium-228	1.61	PCI/G
14269-63-7	Thorium-230	2	PCI/G
7440-29-1	Thorium-232	1.47	PCI/G
15117-96-1	Uranium-235	1.7	PCI/G
24678-82-8	Uranium-238+D	1.3	PCI/G
	Maximum Contaminant Level for Drinking Water		
71-55-6	1,1,1-Trichloroethane	0.2	MG/L
79-00-5	1,1,2-Trichloroethane	0.005	MG/L
75-35-4	1,1-Dichloroethene	0.007	MG/L
120-82-1	1,2,4-Trichlorobenzene	0.07	MG/L
156-59-2	1,2-cis-Dichloroethene	0.07	MG/L
106-93-4	1,2-Dibromoethane	0.00005	MG/L
95-50-1	1,2-Dichlorobenzene	0.6	MG/L
107-06-2	1,2-Dichloroethane	0.005	MG/L
78-87-5	1,2-Dichloropropane	0.005	MG/L
156-60-5	1,2-trans-Dichloroethene	0.01	MG/L
106-46-7	1,4-Dichlorobenzene	0.075	MG/L
95-95-4	2,4,5-Trichlorophenol	0.05	MG/L
94-75-7	2,4-D	0.07	MG/L
7440-36-0	Antimony	0.0006	MG/L
7440-38-2	Arsenic	0.05	MG/L
7440-39-3	Barium	2	MG/L
71-43-2	Benzene	0.005	MG/L
50-32-8	Benzo(a)pyrene	0.002	MG/L
7440-41-7	Beryllium	0.004	MG/L
117-81-7	bis(2-ethylhexyl)phthalate	0.006	MG/L
75-27-4	Bromodichloromethane	0.008	MG/L
75-25-2	Bromoform	0.008	MG/L
7440-43-9	Cadmium	0.005	MG/L
56-23-5	Carbon Tetrachloride	0.005	MG/L
57-74-9	Chlordane	0.002	MG/L
108-90-7	Chlorobenzene	0.1	MG/L
67-66-3	Chloroform	0.008	MG/L
7440-47-3	Chromium	0.1	MG/L
7440-50-8	Copper	1.3	MG/L
57-12-5	Cyanide	0.2	MG/L
96-12-8	Dibromochloropropane	0.0002	MG/L

L1206 15

75-09-2	Dichloromethane (Methylene Chloride)	0.005	MG/L
88-85-7	Dinoseb	0.007	MG/L
1746-01-6	Dioxin	0.00000003	MG/L
72-20-8	Endrin	0.002	MG/L
100-41-4	Ethylbenzene	0.07	MG/L
16984-48-8	Flouride	4	MG/L
58-89-9	Gamma-BHC (Lindane)	0.0002	MG/L
76-44-8	Heptachlor	0.0004	MG/L
1024-57-3	Heptachlor Epoxide	0.0002	MG/L
118-74-1	Hexachlorobenzene	0.001	MG/L
77-47-4	Hexachlorocyclopentadiene	0.05	MG/L
7439-92-1	Lead	0.015	MG/L
7439-97-6	Mercury	0.002	MG/L
72-43-5	Methoxychlor	0.04	MG/L
7440-02-0	Nickel	0.1	MG/L
NO3	Nitrate	10	MG/L
14797-65-0	Nitrite	1	MG/L
87-86-5	Pentachlorophenol	0.001	MG/L
7782-49-2	Selenium	0.05	MG/L
100-42-5	Styrene	0.1	MG/L
127-18-4	Tetrachloroethene	0.005	MG/L
7440-28-0	Thallium	0.002	MG/L
108-88-3	Toluene	1	MG/L
8001-35-2	Toxaphene	0.003	MG/L
79-01-6	Trichloroethene	0.005	MG/L
75-01-4	Vinyl Chloride	0.002	MG/L
1330-20-7	Xylenes, Total	10	MG/L
7440-34-8	Actinium-227	0.4	PCI/L
14596-10-2	Americium-241	1.2	PCI/L
13982-38-2	Bismuth-207	1200	PCI/L
10045-97-3	Cesium-137	120	PCI/L
10198-40-0	Cobalt-60	400	PCI/L
13981-16-3	Plutonium-238	1.6	PCI/L
13982-63-3	Radium-226	4	PCI/L
10098-97-2	Strontium-90	40	PCI/L
14274-82-9	Thorium-228	16	PCI/L
14269-63-7	Thorium-230	12	PCI/L
7440-29-1	Thorium-232	2	PCI/L
10028-17-8	Tritium	20000	PCI/L
13968-55-3	Uranium-233	20	PCI/L
13966-29-5	Uranium-234	20	PCI/L
15117-96-1	Uranium-235	24	PCI/L
24678-82-8	Uranium-238	24	PCI/L
Guideline Values based on the Hazard Index			
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	7.00E+04	MG/KG
75-34-3	1,1-Dichloroethane	7.80E+00	MG/KG
120-82-1	1,2,4-Trichlorobenzene	2.04E+04	MG/KG
156-59-2	1,2-cis-Dichloroethene	2.13E+03	MG/KG

L136 15

156-60-5	1,2-trans-Dichloroethene	4.30E+03	MG/KG
99-65-0	1,3-Dinitrobenzene	2.00E+02	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.00E+03	MG/KG
78-93-3	2-Butanone	9.30E+03	MG/KG
95-57-8	2-Chlorophenol	1.06E+03	MG/KG
108-10-1	2-Methyl-4-pentanone	7.00E+02	MG/KG
50-29-3	4,4'-DDT	1.10E+02	MG/KG
106-44-5	4-Methylphenol	1.10E+03	MG/KG
67-64-1	Acetone	2.10E+04	MG/KG
309-00-2	Aldrin	6.4	MG/KG
5103-71-9	Alpha Chlordane	110	MG/KG
7429-90-5	Aluminum	210000	MG/KG
120-12-7	Anthracene	6.40E+04	MG/KG
7440-36-0	Antimony	8.50E+01	MG/KG
11097-69-1	Aroclor-1254	4.30E+00	MG/KG
7440-38-2	Arsenic	6.40E+01	MG/KG
7440-39-3	Barium	1.50E+04	MG/KG
65-85-0	Benzoic Acid	8.50E+05	MG/KG
7440-41-7	Beryllium	1.10E+03	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	4.30E+03	MG/KG
75-27-4	Bromodichloromethane	4.30E+03	MG/KG
75-25-2	Bromoform	4.30E+03	MG/KG
85-68-7	Butyl Benzyl Phthalate	4.30E+04	MG/KG
7440-43-9	Cadmium	2.10E+02	MG/KG
75-15-0	Carbon Disulfide	2.80E+02	MG/KG
56-23-5	Carbon Tetrachloride	1.50E+02	MG/KG
75-00-3	Chloroethane	1.60E+02	MG/KG
67-66-3	Chloroform	2.10E+03	MG/KG
7440-47-3	Chromium	1.10E+03	MG/KG
18540-29-9	Chromium-VI	6.39E+02	MG/KG
7440-50-8	Copper	7.90E+03	MG/KG
57-12-5	Cyanide	4.30E+03	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.08E-02	MG/KG
124-48-1	Dibromochloromethane	4.30E+03	MG/KG
75-09-2	Dichloromethane	1.00E+03	MG/KG
60-57-1	Dieldrin	1.10E+01	MG/KG
84-74-2	Di-n-butyl Phthalate	2.10E+04	MG/KG
117-84-0	Di-n-octyl Phthalate	4.30E+03	MG/KG
959-98-8	Endosulfan I	1300	MG/KG
33213-65-9	Endosulfan II	1300	MG/KG
100-41-4	Ethylbenzene	4.80E-01	MG/KG
86-73-7	Flourene	8.50E+03	MG/KG
206-44-0	Fluoranthene	8.50E+03	MG/KG
5103-74-2	Gamma Chlordane	110	MG/KG
58-89-9	Gamma-BHC (Lindane)	64	MG/KG
76-44-8	Heptachlor	110	MG/KG
1024-57-3	Heptachlor Epoxide	2.8	MG/KG
110-54-3	Hexane	9.10E+01	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.08E-01	MG/KG

78-59-1	Isophorone	4.30E+04	MG/KG
7439-96-5	Manganese	2.70E+04	MG/KG
7439-97-6	Mercury	6.40E+01	MG/KG
72-43-5	Methoxychlor	1100	MG/KG
7440-02-0	Nickel	4.30E+03	MG/KG
87-86-5	Pentachlorophenol	6.40E+03	MG/KG
108-95-2	Phenol	1.30E+05	MG/KG
129-00-0	Pyrene	6.40E+03	MG/KG
7782-49-2	Selenium	1100	MG/KG
7440-22-4	Silver	1.10E+03	MG/KG
127-18-4	Tetrachloroethene	2.10E+03	MG/KG
7440-28-0	Thallium	17	MG/KG
7440-31-5	Tin	130000	MG/KG
108-88-3	Toluene	2.50E+02	MG/KG
75-69-4	Trichlorofluoromethane	7.30E+02	MG/KG
7440-62-2	Vanadium	1.50E+03	MG/KG
1330-20-7	Xylenes, Total	4.30E+05	MG/KG
7440-66-6	Zinc	6.40E+04	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	2.90E-01	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	2.50E-01	MG/L
71-55-6	1,1,1-Trichloroethane	1.80E+00	MG/L
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	2.50E+03	MG/L
7429-90-5	Aluminum	100	MG/L
7440-42-8	Boron	9.00E+00	MG/L
18540-29-9	Chromium-VI	3.00E-01	MG/L
7440-48-4	Cobalt	6	MG/L
7440-50-8	Copper	4.00E+00	MG/L
7439-98-7	Molybdenum	0.5	MG/L
7782-49-2	Selenium	0.5	MG/L
7440-28-0	Thallium	0.008	MG/L
7440-31-5	Tin	60	MG/L
2691-41-0	HMX	1.10E+04	UG/KG
121-82-4	RDX	6.40E+04	UG/KG

L15 of 15

Appendix M

Occurrence Reports

A search of the occurrence reporting system revealed two reports, both of which were minor and without environmental impact. Copies are provided in Appendix M.

- False alarm
- Calibration test error resulting in over pressurized container.

ALO-DA-EGGM-EGGMAT04-1993-0004 Final Report

Occurrence Report

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Yonko, Jon D.
Title: Manager, Facilities Maint. & Util. **Telephone No.:** (513) 865-3151

(Facility Manager/Designee)

Name: D. L. Heitz
Title: Fire Protection Supervisor **Telephone No.:** (513) 865-3125

(Originator/Transmitter)

Name: J. D. Yonko **Date:** 08/04/1993

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT04-1993-0004

Evacuation of Building 28 due to false alarm

2. Report Type and Date: Final

	Date	Time
Notification:	02/10/1993	12:42 (MTZ)
Initial Update:	02/23/1993	14:20 (MTZ)
Latest Update:	02/23/1993	14:20 (MTZ)
Final:	08/06/1993	12:15 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: EG&G Mound Applied Technologies

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Bldg. Evac. Alarm

8. UCNI?: No

9. Plant Area: Main Hill

10. Date and Time Discovered: 02/09/1993 12:58 (ETZ)

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11. Date and Time Categorized: 02/09/1993 14:45 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
02/09/1993	13:00 (ETZ)	Fred Holbrook	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Evacuation of Building 28 due to false alarm

15. Nature of Occurrence:

01) Facility Condition
H. Operations

16. Description of Occurrence:

On February 9, 1993 at 1258 hours (ETZ) the building evacuation bells rang, for an unknown reason, in Building 28; the building was therefore evacuated. The likely cause of the false signal is an equipment malfunction.

There were no injuries or environmental concerns, and no impacts to production or safety systems.

This Occurrence Report was reviewed by an Authorized Derivative Classifier, (J. D. Yonko) at 1300 hours (ETZ) on 08/04/93, and contains no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Operating Conditions

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

After investigating the alarm and finding no immediate problem, the alarm system was reset and the people were allowed to re-enter the building.

20. Direct Cause:

1) Equipment/Material Problem
A. Defective or Failed Part

21. Contributing Cause(s):

22. Root Cause:

m2 of 10

1) Equipment/Material Problem
A. Defective or Failed Part

23. Description of Cause:

A committee was formed to evaluate the incident. On the day of the false alarm at Building 28 (Ceramics Production Building); waterflow alarm testing was being conducted at another production facility (I Building). Due to the configuration of the system, the testing at I Building initiated a computer "coded" signal to all buildings on site. A building evacuation alarm will ring when it receives the "coded" signal plus an alarm signal from within the given building; this activates a relay in the designated building for the evacuation. This alarm command for Building 28, however never showed up in the computer history. Thus a spurious signal on the line activated the evacuation alarm relay. The investigation committee was not able to determine the source of that signal; we do know that it was not computer generated.

24. Evaluation (by Facility Manager/Designee):

Infrequent system "bugs" of this nature are difficult to track, especially when it does not demonstrate a pattern over a longer period of time. The age and reliability of this alarm system is the prime contributor to this incident.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.

The alarm system was reset.	
Target Completion Date: 02/09/1993	**Completion Date:** 02/09/1993

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

The alarm system is an old system by today's standards and needs to be replaced. The Data Gathering Panel and relay panel in the building are original equipment. New panels that are less susceptible to spurious signals are currently available. The Emergency Notification System (ENS) line item was developed in 1990 as an FY93 Project to resolve these type problems; unfortunately the project has low priority at DOE

M3of10

Headquarters and has now been bumped to FY95. A General Plant Project (GPP) was submitted in June 1993, for FY94 funding, that will upgrade the current system. The GPP funding request will be forwarded to Albuquerque this quarter for their consideration. We have reset bell relays every morning for the last two and a half years and will continue to do that. It is not a fix but it masks most of the problems.

31. Similar Occurrence Report Numbers:

1. ALO-DA-EGGM-EGGMAT04-1992-0006

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Yonko, Jon D., Facility Manager/Designee
Date: 08/05/1993
Telephone No.: (513) 865-3151

Approved by: HOLBROOK, FRED B., Facility Representative/Designee
Date: 08/05/1993
Telephone No.:

Approved by: KUMAR, RAMENDRA, Program Manager/Designee
Date: 08/06/1993
Telephone No.: (301) 903-2865

M4 of 10

ALO-DA-EGGM-EGGMAT04-1993-0001 Final Report

Occurrence Report

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Yonko, Jon D.
Title: Manager, Facilities Maint. & Util. **Telephone No.:** (513) 865-3151

(Facility Manager/Designee)

Name: De Hart, R. L.
Title: Manager, Metrology **Telephone No.:** (513) 865-4197

(Originator/Transmitter)

Name: Yonko, Jon D. **Date:** 05/04/1993

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT04-1993-0001

Release of Dioctyl Phthalate (DOP) mist due to a restricted outlet line and subsequent over pressurization of container.

2. Report Type and Date: Final

	Date	Time
Notification:	01/14/1993	11:52 (MTZ)
Initial Update:	01/27/1993	14:07 (MTZ)
Latest Update:	01/27/1993	14:07 (MTZ)
Final:	05/11/1993	08:53 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: EG&G Mound Applied Technologies

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Equipment, Bldg. 28

8. UCNI?: No

9. Plant Area: Main Hill

10. Date and Time Discovered: 01/13/1993 14:00 (ETZ)

MS610

11. Date and Time Categorized: 01/13/1993 17:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
01/13/1993	14:00 (ETZ)	Paul Matthews	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Release of Dioctyl Phthalate (DOP) mist due to a restricted outlet line and subsequent over pressurization of container.

15. Nature of Occurrence:

10) Cross-Category Items
C. Potential Concerns/Issues

16. Description of Occurrence:

On January 13, 1993 at approximately 1400 hours (ETZ), during the process of leak testing clean bench HEPA filters in Room 5 of Building 28, the lid popped off of a vessel containing approximately 1 gallon of Dioctyl Phthalate (DOP) releasing a mist into the room (Aldrich Chemical Co. Catalog No. D20115-4). After the container lid came off, the container fell over and the remaining DOP liquid (approximately 3 quarts) spilled onto the floor.

The equipment involved is used to generate an aerosol of DOP mist with an average particle size sufficiently small enough to challenge a Class 100 clean bench for leaks. The air flow from the container introduces the mist into the intake of a clean bench blower which then distributes the mist through the back side of the HEPA filter. Leaks in the filter are detected using a photometer.

Two Physical Metrology technicians were exposed to the DOP mist and to a lesser degree to the liquid when they decided to cleanup the area. The exposure to the mist lasted from 5-15 minutes. An additional exposure to the liquid (to a lesser degree) of approximately 30 minutes was brought about by the decision by the technicians to clean up the spill, due to the slippery nature of the chemical.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (J. D. Yonko) on 05/04/93 at 0700 hours and contains no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

18. Activity Category:

03 - Normal Operations

M6 of 10

19. Immediate Actions Taken and Results:

The air supply was disconnected from the container; then, it was returned to its upright position. The area was barricaded with janitor signs and chairs. Rubber gloves, paper towels, and lint free cloths were used to clean up the spill, and the floor was washed. Materials used during the cleanup were placed in a plastic trash liner, sealed, placed in side a second plastic bag, then taken to COS Building, Room 115, and placed in a fume hood pending proper disposal.

The two Physical Metrology technicians reported the incident to Metrology Management.

Management, concerned about the inhalation of DOP mist and the possibility of cold weather affecting respiration, contacted the Mound Medical Department, then arranged for transportation of the employees to Medical. Medical personnel then examined employees, determined there were no immediate respiratory concerns, and released employees to return to work. No significant (short of long range) health problems are anticipated.

An investigation was initiated consisting of representatives from Safety, Industrial Hygiene, and Metrology. The investigation found that the container, designed to be operated at a pressure of from 15 to 20 psi, had distorted damage to the lid, body, and rubber seal. The air being supplied to the container at the time of the incident was approximately 100 psi. A pressure regulator, which is a separate piece of equipment used to control pressure to provide safe operating ranges, was not in use at the time of the incident. The container was not labeled as to its contents or pressure rating.

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20. Direct Cause:

4) Design Problem
B. Inadequate or Defective Design

21. Contributing Cause(s):

5) Training Deficiency
A. No Training Provided

6) Management Problem
A. Inadequate Administrative Control

22. Root Cause:

6) Management Problem
A. Inadequate Administrative Control

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23. Description of Cause:

Two Metrology technicians, while following methodologies that were demonstrated by another technician, connected the DOP aerosol equipment directly into the "building" air supply.

Building air at the connection was equipped with a gage indicating a pressure of 100 psi which exceeded the 15-25 psi

M706 10

needed to conduct the test. During this particular test, it appears that the outlet line (the line that normally carries DOP mist to the blower intake) became partially or completely restricted which allowed the pressure to build within the container. A possible scenario, is that the pressure build-up first distorted the container and lid to the point that the pressure blew out the rubber seal between the container and lid interface. Then, due both to the distortion and to the failure of the blown seal to release internal pressure quickly enough, the lid then popped loose from the right-type clamp used to seal the lid to the container. The root cause of this incident is the lack of administrative controls and systems to ensure proper training of employees and availability of procedures for leak testing of HEPA filters. It appears that the potential for this incident to occur has always been there and the fact that it occurred without injury/hazardous exposures to employees is fortunate. The "near miss" provides many "lessons" to be learned.

24. Evaluation (by Facility Manager/Designee):

I have reviewed the statement of Metrology Management and concur.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1.	The DOP container has been tagged and removed from service. Additionally, this service has been discontinued until all corrective actions are completed.	
	Target Completion Date: 01/14/1993	**Completion Date:** 01/14/1993
2.	Identify and review site-wide, similar Mound leak testing activities. Evaluate impact and application of corrective actions.	
	Target Completion Date: 04/30/1993	**Completion Date:** 04/06/1993
3.	Investigate alternate testing methods and alternate materials for HEPA filter testing.	
	Target Completion Date: 04/30/1993	**Completion Date:** 03/31/1993
4.	Develop a system to ensure that personnel are knowledgeable of pertinent procedures required to do leak testing of HEPA filters.	
	Target Completion Date: 04/30/1993	**Completion Date:** 04/27/1993
5.	Identify replacement aerosol generator equipment that has proper safety protection and ensure proper identification with appropriate HAZ-COM label(s). Initiate a purchase order to procure that equipment.	
	Target Completion Date: 05/30/1993	**Completion Date:** 04/12/1993
6.	Develop or provide commercially available training program(s) and ensure that applicable personnel are properly trained in HEPA filter leak testing.	
	Target Completion Date: 05/30/1993	**Completion Date:** 04/22/1993

27. Impact on Environment, Safety and Health:

M8 of 10

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

No major effects to the employees, environment, or programs resulted from the incident. However, major injuries could have occurred if the container would have exploded. The lessons learned are that "word of mouth training" is not acceptable for activities involving energetic materials, chemicals (regardless of hazard levels), pressures, etc. Procedures and systems should be adequate and accessible enough to provide personnel with the knowledge and direction they need to perform calibrations and/or tests accurately and safely.

During the subsequent site-wide review, it was discovered that Facility Maintenance personnel were also performing similar DOP leak testing and already had the necessary procedures, training, equipment, and personnel to meet corrective actions stemming from this incident. An alternate testing material (Emory 3004) was identified and subsequently approved for use by Industrial Hygiene personnel. Technical approvals for substitution of this material will still be required before the new material can be officially used. Facility Maintenance personnel have now assumed the responsibility for bench top HEPA filter testing.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Yonko, Jon D., Facility Manager/Designee
Date: 05/04/1993
Telephone No.: (513) 865-3151

m9of10

Approved by: MATTHEWS, PAUL O., Facility Representative/Designee
Date: 05/10/1993
Telephone No.:

Approved by: KUMAR, RAMENDRA, Program Manager/Designee
Date: 05/11/1993
Telephone No.: (301) 903-2865

M10 of 10

Appendix N

PRS Information

Recommendation sheets are not generated for PRSs requiring Further Assessment or that are unbinned. Accordingly, there are no recommendation sheets for PRSs 101 and 102 included herein.

MOUND PLANT
PRS 113/114/115/116/117
FORMER TANK SITE - POWERHOUSE FUEL OIL STORAGE TANKS AND SOIL CONTAMINATION

RECOMMENDATION:

Potential Release Sites (PRSs) 113, 114, 115, 116, and 117 were identified to address fuel oil and toluene contamination in the soil located on the east side of the powerhouse.

PRSs 114-117 are the four underground fuel oil tanks that were removed. Removal of the tanks and contaminated soils was initiated in 1995 and completed in 1996. The treatment of the soils is ongoing in accordance with the Action Memorandum for the Fuel Oil Storage Removal Action (FOSRA). The On-Scene Coordinator (OSC) Report for the FOSRA will document residual levels and the requirements for this removal per the Ohio Bureau of Underground Tank Regulations (BUSTR).

PRS 113 refers to a single toluene soil gas detection prior to the removal activities. Toluene was identified at a concentration of 447 parts per billion (ppb), which is below the 414,800 ppb calculated acceptable soil gas concentration.

Therefore, since these PRSs are part of an active removal action, NO FURTHER ASSESSMENT is recommended.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 3/19/97 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 3/18/97 (date)

OEPA: Brian K. Nickel, Project Manager — 3/18/97 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 5/8/97 to 6/16/97

☐ No comments were received during the comment period.

☒ Comment responses can be found on page 1, 2 of this package.

MOUND PLANT
PRS 126/127
SOLVENT STORAGE SITE - OUTSIDE AREA NEXT TO BUILDING 28

RECOMMENDATION:

Potential Release Sites (PRSs) 126 and 127 refer to the temporary storage locations for waste solvents generated by the Building 28/60 operations. The solvents were used in cleaning operations during the manufacture of weapon components. There are no historical records of any spill or leak of solvents from either of the waste solvent storage areas.

Volatile organic compounds (VOCs) were detected in the surrounding soil gas samples collected in 1993. All the VOC concentrations were below the calculated acceptable soil gas criteria. Samples analyzed for plutonium and thorium were below their respective radiological guideline criteria, 25 pCi/g for plutonium-238 (Mound ALARA) and 15 pCi/g for subsurface thorium (40 CFR 192.41). Therefore, PRSs 126/127 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 10/3/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 10/3/96 (date)

OEPA: Brian K. Nickel, Project Manager — 10/3/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 10/12/96 to 11/15/96

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

Appendix O

1995 Transition Acceptance Form for Building 28

EM BUILDING TRANSITION ACCEPTANCE SIGNATURE FORM
FOR
THE FACILITY KNOWN AS:

BUILDING 28

LOCATED AT THE
MOUND PLANT
MIAMISBURG, OH

This signature page acknowledges that the Subject facility meets the EM-60 Facility Transition Transfer Criteria except as noted on the attached exhibits:

PHASE I CRITERIA COMPLETE -
Reference Attached Exhibit A For Exceptions

Mitchell R. Pfillabaum — EG & G Representative — Date 5/24/95

Steve Halliday — DOE/MB Representative — Date 5/22/95

CONCUR: [signature] — DOE/MB — Date 5/31/95

PHASE II CRITERIA COMPLETE -
Reference Attached Exhibit B For Exceptions

EG & G Representative — Date

DOE/MB Representative — Date

CONCUR: DOE/MB — Date

PHASE III CRITERIA COMPLETE -
Reference Attached Exhibit C For Exceptions

EG & G Representative — Date

DOE/MB Representative — Date

CONCUR: DOE/MB — Date

CONCUR: DOE/EM-60 — Date

EXHIBIT A

PHASE I EXCEPTIONS
TO THE EM ACCEPTANCE CRITERIA
FOR THE BUILDING
KNOWN AS

28

LOCATED AT THE
MOUND PLANT
MIAMISBURG, OH

The following exceptions to the EM Acceptance Criteria are noted to facilitate completion of Phase I Activities for the Subject building:

none - SH 5/25/95

EM-60 CONCURRENCE: _____ **DATE:** _____

PHASE I ACTIVITIES

EM BUILDING TRANSITION CHECKLIST
FOR
THE BUILDING KNOWN AS:

28

LOCATED AT THE MOUND PLANT
MIAMISBURG, OH

COMPLETED ACTION ITEM	BY	DATE	COMMENTS
DP Activities Ceased	JM/DH	9/21/94	
Structure Access Controlled by Building Manager	JM/DH	12/14/94	EXTERIOR DOOR LOCKS CHANGED
-Ongoing Work for Others- (Must Be Approved by EM)	JM/DH	12/8/94	N/A
Notification to DOE/MB that Reconfiguration/Stock Pile Support/Economic Development Groups Should be Notified of Pending Phase II Disposition Activities	JM/DH	10/11/94	SEE ATTACHMENT (1)
EM Criteria Exceptions Have Been Noted and Identified	JM/DH	12/4/94	
PHASE I ACTIVITIES COMPLETE (Walkthrough)	JM/DH	12/14/94	READY FOR SIGNOFF

PHASE II ACTIVITIES

EM BUILDING TRANSITION CHECKLIST
FOR
THE BUILDING KNOWN AS:

28

LOCATED AT THE MOUND PLANT
MIAMISBURG, OH

COMPLETED ACTION ITEM	BY	DATE	COMMENTS
REVIEW/INVENTORY COMPLETE OF RADIOACTIVE MATERIALS	JM/DH	12/14/94	N/A
REVIEW/INVENTORY COMPLETE OF EXPLOSIVE MATERIALS	JM/DH	12/14/94	N/A
REVIEW/INVENTORY COMPLETE OF PRODUCTION CHEMICALS	JM/DH	12/14/94	All Chemicals dispositioned at time of walk thru SEE ATTACHMENT (3)
REVIEW/INVENTORY COMPLETE OF EXISTING WASTE MATERIALS	JM/DH	12/14/94	All waste removed at time of walk thru
RADIOACTIVE MATERIALS INVENTORY REMOVED FROM BLDG	JM/DH	12/14/94	N/A
EXPLOSIVE MATERIAL INVENTORY REMOVED FROM BLDG	JM/DH	12/14/94	N/A
CHEMICAL INVENTORY REMOVED FROM BLDG	JM/DH	12/14/94	SEE ATTACHMENT (3)
WASTES HAVE BEEN PROPERLY REMOVED FROM BLDG	JM/DH	12/14/94	
NON-STRUCTURAL EQUIPMENT HAS BEEN RELOCATED	JM/DH	12/14/94	EQUIPMENT EARMARKED FOR ECONOMIC DEVELOPM'T SEE ATTACHMENT (4)
REMAIN. EQUIP. HAS BEEN DISPOSITON TAGGED BY RECONFIGURATION	JM/DH	12/14/94	DRY ROOM
STOCK PILE SUPPORT	JM/DH	12/14/94	N/A
ECONOMIC DEVELOPMENT	JM/DH	12/14/94	BALANCE OF BUILDING SEE ATTACHMENT (4)
STRUCTURE/REMAIN. EQUIP. HAS BEEN SURVEYED FOR RESIDUAL CONTAMINATION	DH	02/14/95	SEE ATTACHMENT (9)
STRUCTURE/REMAIN. EQUIP. HAS BEEN INSPECT/REVIEWED BY INDUSTRIAL SAFETY	DH	02/14/95	Action completed SEE ATTACHMENT (5)
LIABILITIES HAVE BEEN DOCUMENTED	JM/DH	12/14/94	SEE ATTACHMENT (5)
REMAIN. EQUIP. HAS BEEN INSPECT/REVIEWED BY OPSEC	JM/DH	12/15/94	SEE ATTACHMENT (6)
ALL PROGRAMMATIC WASTE GENERATION HAS CEASED WITHIN, AND TO THIS BLDG	JM/DH	12/14/94	
EM CRITERIA EXCEPTIONS HAVE BEEN NOTED AND IDENTIFIED	JM/DH	12/14/94	SEE ATTACHMENT (2)
PHASE II ACTIVITIES COMPLETE (WALKTHROUGH)	JM/DH	12/14/94	READY FOR SIGNOFF

PHASE III ACTIVITIES

EM BUILDING TRANSITION CHECKLIST
FOR
THE BUILDING KNOWN AS:

28

LOCATED AT THE MOUND PLANT
MIAMISBURG, OH

COMPLETED ACTION ITEM	BY	DATE	COMMENTS
REMAINING "NON-ESSENTIAL" EQUIPMENT HAS BEEN DE-ENERGIZED	JM/DH	12/14/94	EQUIPMENT IS BEING UTILIZED BY BUS. DEV.
UTILITY LOTO/BLANKING ACTIVITIES COMPLETED	JM/DH	12/14/94	N/A
SPECIFIC BUILDING/EQUIPMENT SURVEILLANCE/MAINTENANCE REQUIREMENTS HAVE BEEN DETERMINED	JM/DH	12/20/94	SEE ATTACHMENT (7)
SURVEILLANCE/MAINTENANCE ACTIVITIES HAVE COMMENCED	DH	12/20/94	SEE ATTACHMENT (7)
ALL HISTORICAL RECORDS AND FILES HAVE BEEN INVENTORIED	JM/DH	12/14/94	
RECORDS/FILES HAVE BEEN RELOCATED/STORED/DESTROYED	JM/DH	12/14/94	
ALL INVESTIGATIVE SURVEY DATA HAVE BEEN REVIEWED	DH	02/14/95	
ANY REMAINING HAZARD AREAS HAVE BEEN CLEARLY IDENTIFIED	JM/DH	12/14/94	
BUILDING VACATED - ACCESS CONTROLLED BY BUILDING MANAGER	JM/DH	12/14/94	STAR CITY RIGHT-TO-USE STILL UTILIZES BLDG. SEE ATTACHMENT (8)
FINAL BUILDING DOCUMENT PACKAGE COMPLETE ("AS-LEFT" DRAWINGS/EQUIP. MANUALS-MAINT. RECORDS/LIABILITY LIST/ETC.)	JM/DH	12/14/94	SEE ATTACHMENT (10)
EM CRITERIA EXCEPTIONS HAVE BEEN NOTED AND IDENTIFIED	JM/DH	12/14/94	SEE ATTACHMENT (2)
PHASE III ACTIVITIES COMPLETE (WALKTHROUGH)	JM/DH	12/14/94	READY FOR SIGNOFF