30 01 0406100004

CH2M HILL
Mound, Inc.
1 Mound Road
P.O. Box 3030
Miamisburg, OH
45343-3030

CH2MHILL

SM-047/03
July 7, 2003

Mr. Richard B. Provencher, Director
Miamisburg Closure Project
U. S. Department of Energy
P. O. Box 66
Miamisburg, OH 45343-0066

ATTENTION: Paul Lucas

SUBJECT: Contract No. DE-AC24-03OH20152
VARIOUS DOCUMENTS
Bldg 46-GFS/I: Planning Documents Complete- Activity ID: EBDEE046AK
Bldg 47-GFS/I: Planning Documents Complete - Activity ID: EBDEE00WAK

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Mr. Provencher:

Paul Lucas from your office has approved the release of the following final documents:

- Building 46, Building Data Package, Final
- Building 47, Building Data Package, Final

If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact Bob Ransbottom at extension 4220.

Sincerely,

R.C. Ransbottom for K.L. Kehler

K. L. Kehler
SMPP/TFV Project Manager

KLK/VKD

Enclosures

cc: Dave Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Frank Schmaltz, DOE/MCP, (1) w/attachments
Lisa Rawls, DOE/MCP, w/o attachments
Randy Tormey, DOE/MCP, (1) w/attachments
Terry Tracy, DOE/HQ, (1) w/attachments
Dann Bird, MMCIC, (1) w/attachments
Jim Bonfiglio, MESH, (1) w/attachments
Public Reading Room, (4) w/attachments
John Fulton, CH2M Hill, w/o attachments
Bob Ransbottom, CH2M Hill, (1) w/attachments
Val Darnell, CH2M Hill, (1) w/attachments
Kurt Kehler, CH2M Hill, (1) w/attachments
DCC (1) w/attachments
Admin Record (2) w/attachments

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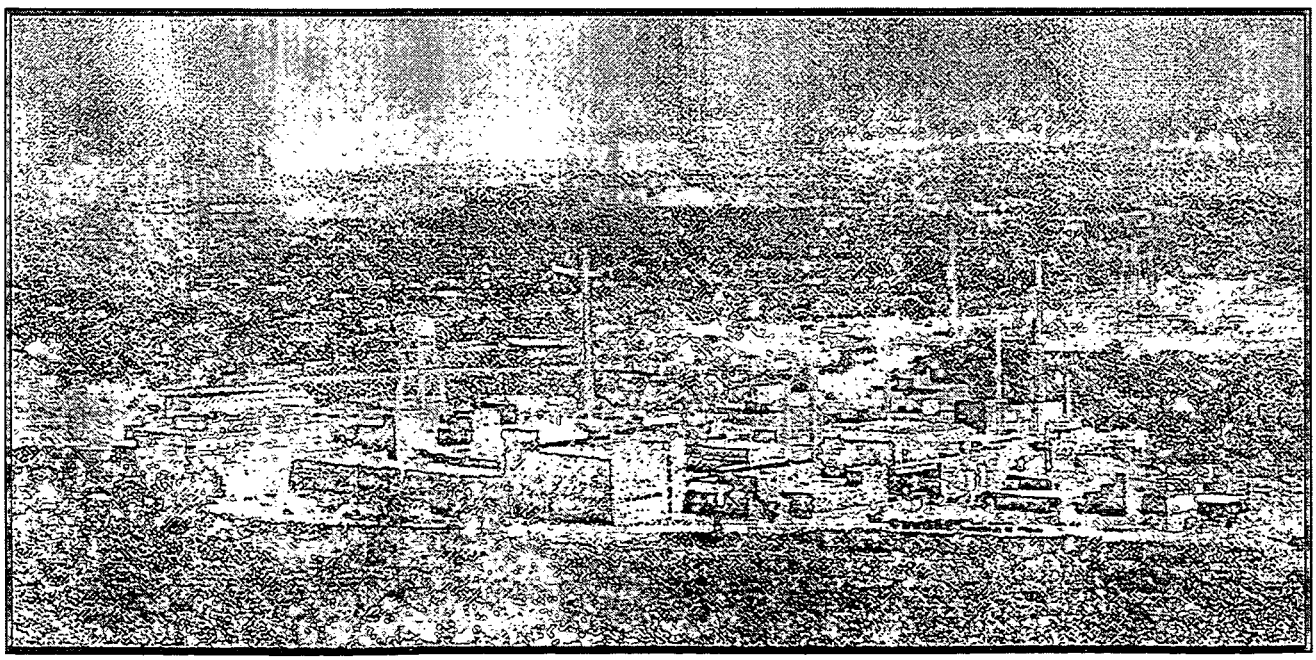
Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Building 46
(Demolition)

Final
July 2003



The Mound Core Team
P.O. Box 66
Miamisburg, Ohio 45343-0066

June 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 46 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 Paul Lucas, Remedial Project Manager	6/23/03 date
USEPA:	David P. Seely David P. Seely, Remedial Project Manager	6/23/03 date
OEPA:	Brian K. Nickel Brian K. Nickel, Project Manager	6/23/03 date

Response to MMCIC Comments on the Building 46 Data Package Public Review Draft May 2003

Substantive Comments

Comment 1. From our review of the Building 46 Public Review Draft it appears that the building has gone through the Safe Shutdown Process and is ready for demolition. We understand that the building was used as a welding development facility and a machine shop, but that no energetic or radioactive materials were used in the building. MMCIC understands that the demolition activity will be in accordance with the requirements outlined in the *Mound 2000 Approach*.

Response 1. Safe Shutdown activities were underway at the time the Public Review Draft of the BDP was released, and they were completed prior to commencement of demolition activities. Your understanding is correct that Building 46 was used as a welding development facility and a machine shop, and no energetic or radioactive materials were used in the building. The building demolition was in accordance with the requirements of *Mound 2000*. We appreciate your input and review of the document.

Comment 2. It is MMCIC's understanding that after the demolition and slab removal process is complete, the area will be restored to an appropriate condition in accordance with the *Mound Reuse Plan*.

Response 2. After the demolition and slab removal, the area will be restored by grading to promote proper drainage, and covering with grass seed and mulch for erosion control. The Core Team understands MMCIC's request and encourages MMCIC to meet with DOE to obtain an agreeable end state.

Errata

Comment 1. No Comments.

Miamisburg Closure Project

MIAMISBURG CLOSURE PROJECT
BUILDING DATA PACKAGE

The following Building Data Packages (BDPs) will be available for your information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio. Building 46: May 14, 2003, Building 47: May 19, 2003

BDP Building 46: Welding Development Facility
BDP Building 47: Central Fire Station

Questions can be referred to Frank Schmaltz at (937) 865-3178.

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REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**April 2003**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
PUBLIC REVIEW DRAFT	The public review period will commence on May 14, 2003.	**May 2003**
FINAL	The Core Team response to public comments is included in this document. No changes to the document were made based on those comments. No comments from Ohio EPA or US EPA were received. The Final Status Report (Radiological) is included in Appendix G.	**July 2003**

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1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the demolition of Building 46 (Welding Development Facility) 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 46 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 46, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation of Building 46 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 46 OVERVIEW

Building 46 was constructed in 1969 on the north central portion of the site (Figure 1). The building is a one-story, 2,439 square-foot structure, constructed of reinforced concrete block. The roof structure is of a typical metal joist (cross-bridge metal frame) and ribbed deck with a built-up asphalt membrane. The main floor is divided into five rooms: a laboratory, desk area, janitor's closet, and women's and men's toilet rooms. There is a second-floor penthouse (mechanical room) with concrete-block construction located on the southern third of the structure. Building 46 has not had any additions constructed onto it, and remains at the "as constructed" square footage. Floor plans are included as Appendix D.

Equipment noted to be in the building per the as-built drawings includes: Miller air crafter welder, Miller programmed welder, metalographs, microscopes, polish wheels, grind wheels, various weld boxes (i.e. vacuum and dry train), fume hoods, spot welder, electron beam welder, resistance welder, drill press, belt sander, and helium leak detector.

Roof drains and single-pass cooling water from the electron beam welder are discharged to the stormwater system. Sinks, toilets, and floor drains discharge to sanitary lines serviced by the site water treatment facility. The building uses central steam for heating and chilled water for cooling, and has 480 volt electric service.

2.1 Past Uses of Building 46

Building 46 was constructed and used as a specialized welding facility. Welding development supported the Heat Source Program through the development of joining (weld) technologies and quality programs for capsules and other metal parts, such as capsule design on the heat source capsule. Welding development was also conducted to support the energetic materials program by evaluating various metals and alloys for pieces and parts. However, no energetic materials were present in the building. Machine shop operations were also conducted in the building.

2.2 Current Uses of Building 46

Building 46 is currently inactive. The equipment and furnishings are in the process of being removed. All required equipment will be removed from the building, and any remaining equipment will be left in place and demolished/disposed of with the building.

2.3 Summary of Environmental Concerns and Findings - Building 46

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data could be found for Building 46. 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. (Appendix J).	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. Per Waste Management, building debris containing lead-based paint can be disposed of in a sanitary landfill.
Chemicals	Appendix K provides a list of chemicals reportedly used or stored in Building 46. Applicable pages from the CY2001 Emergency and Hazardous Chemical Inventory Report (dated March 2002) are also provided.	All chemicals will be removed prior to demolition, and dispositioned by Waste Management.
Fluorescent Lamps and PCBs	Fluorescent lamps were used in the building. Ballasts may contain polychlorinated biphenyls (PCBs).	Ballasts that may contain PCBs will be removed prior to demolition, and disposed of by Waste Management.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Air Emissions	Four processes (all in Room 1) were considered to be air emissions sources: 1) weld development (ethanol), 2) machining tools (particulates), 3) polisher, and 4) vacuum pumps (vapors).	All processes resulting in de minimis air emissions have been discontinued and discarded. No further action required.
Asbestos	An asbestos survey (Appendix I) was completed in August of 2002 in accordance with EPA NESHAP requirements. Three types of materials were found to contain asbestos that must be removed prior to demolition: pipe insulation, transite hood, and fire doors. Roofing materials and floor tile are assumed to contain asbestos. Being classified as EPA Nonfriable Category I types of materials, the removal of roofing and floor tile is not necessary prior to demolition by normal heavy-duty means.	Asbestos abatement will be performed prior to building demolition to remove pipe insulation, transite hood, and fire doors in accordance with current state and federal regulations.
Drainage Sumps	There are no drainage sumps.	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	No research, development, or production activities using radioactive materials occurred in the building. The Final Status Report is provided in Appendix G. Additional information provided in Section 2.4.	The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5. 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
Radon	Within acceptable limits (Appendix H).	No further action required.
HVAC	HVAC refrigerant will be drained and disposed of during Safe Shutdown.	No further action required.
Energetic Materials	Energetic materials were not present in the building.	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 30 feet of the Building 46 perimeter, and provides tables for all detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). All results are below applicable screening levels. A 30-foot perimeter was reviewed due to the limited number of samples within the standard 15-foot perimeter.	Based on the historical analytical data, post-demolition soil sampling is not planned.

N/A: Not applicable

2.4 Radiological Summary for Building 46

A radiological assessment of Building 46 was performed by reviewing historic and operational records and performing radiological surveys. Building 46 housed specialized welding facilities that were used for welding development efforts in support of the heat source and energetic materials programs. Machine shop operations are also conducted in the building. The building has been used for the same purpose since its construction and no research, development, or production activities using radioactive materials have occurred in the building. No radioactive material was ever used or stored there.

Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The fixed point, scanning, and smear surveys found no residual activity above the $DCGL_w$.

The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5 (See Table 2), and no further radiological surveys are required. Subsurface material (under-slab, footers, etc) and associated soil is not evaluated in this survey, but will be assessed separately when surfaces are accessible.

Supporting documentation for the information summarized in the following table and is provided in the Final Status Report (Appendix G).

Table 2 - Radiological Summary

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 2)
Highest Alpha Smearable Activity	03-TF-0115	Roof	4.37	20
Highest Alpha Fixed Activity	03-TF-0115	Roof	77	100
Highest Beta Smearable Activity	03-TF-0115	Roof	6.85	1,000
Highest Beta Fixed Activity	03-TF-0115	Roof	1,650	5,000
Highest Tritium Smearable Activity	03-TF-0116	Interior Floor	45.2	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 46 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, and Other Improvements in Proximity to Building 46

As shown on Figure 3, Building 46 is bordered to the north by a concrete sidewalk, security fence, and asphalt parking area; to the west by a concrete-lined drainage ditch and grassy upward sloping hillside; to the south (main building entrance) by a concrete sidewalk, grassy area, and concrete-lined drainage ditch, and to the east by a concrete sidewalk, grassy area, and asphalt access road (to Building 45).

3.3 Current and Past Uses of Buildings in Proximity to Building 46

Building 45, east of Building 46, contains 9,682 square feet of floor space. The building serves as the Health Physics Calibration facility. The building was constructed in 1968 and had additions built in 1988 and 1995. Building 45 is currently in use, and will be transitioned to MMCIC when the property is transferred.

Building 28, west of and across the street from Building 46, was initially a ceramic production facility. Later it was converted to a machine shop and continues to serve in that capacity. The building is currently leased to a private company, and will be transitioned to MMCIC when the property is transferred. The building encompasses 11,329 square feet of floor space.

Building 60, northwest of Building 46, was a ceramic facility. It is currently undergoing demolition.

These buildings are believed to have had no environmental impact on Building 46.

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 reportable chemicals were stored in Building 46 (Appendix K).

The Mound Plant was identified as a contaminated site on the National Priorities List 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 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." The Mound 2000 Process system divided the site into geographical parcels containing over 400 PRSs with approximately equal numbers 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 releases of radioactive and/or hazardous materials. For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach*.

4.2 Specific Record Sources for Building 46

4.2.1 Occurrence Reports

There were no occurrence reports generated for Building 46.

4.2.2 Spills and Releases

There were no reportable spills or releases.

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, none are at or near Building 46 (Figure 2).

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

Aerial photographs from 1968 (prior to construction), 1983 (following construction), and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

Past Building Manager, P.C. Molloy, was interviewed via a building manager questionnaire (included in Appendix F). The current Building Manager, Mark Tibbs, was interviewed regarding past facility operations and current conditions. No significant items related to the building were identified based on the questionnaire or interviews.

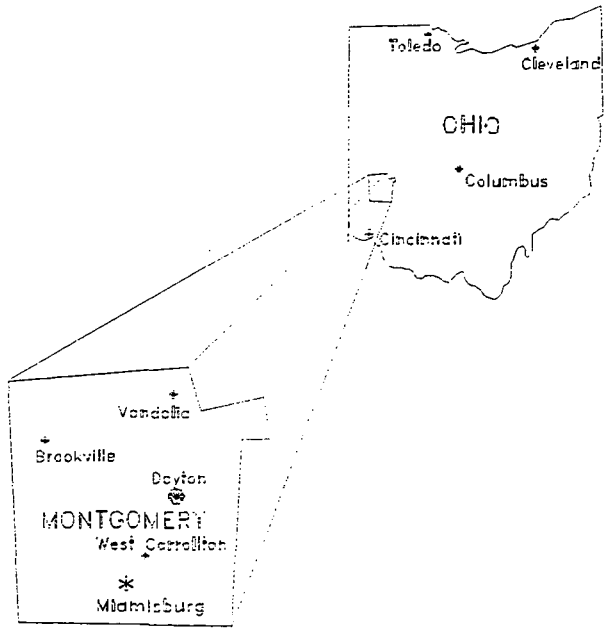
Appendix A

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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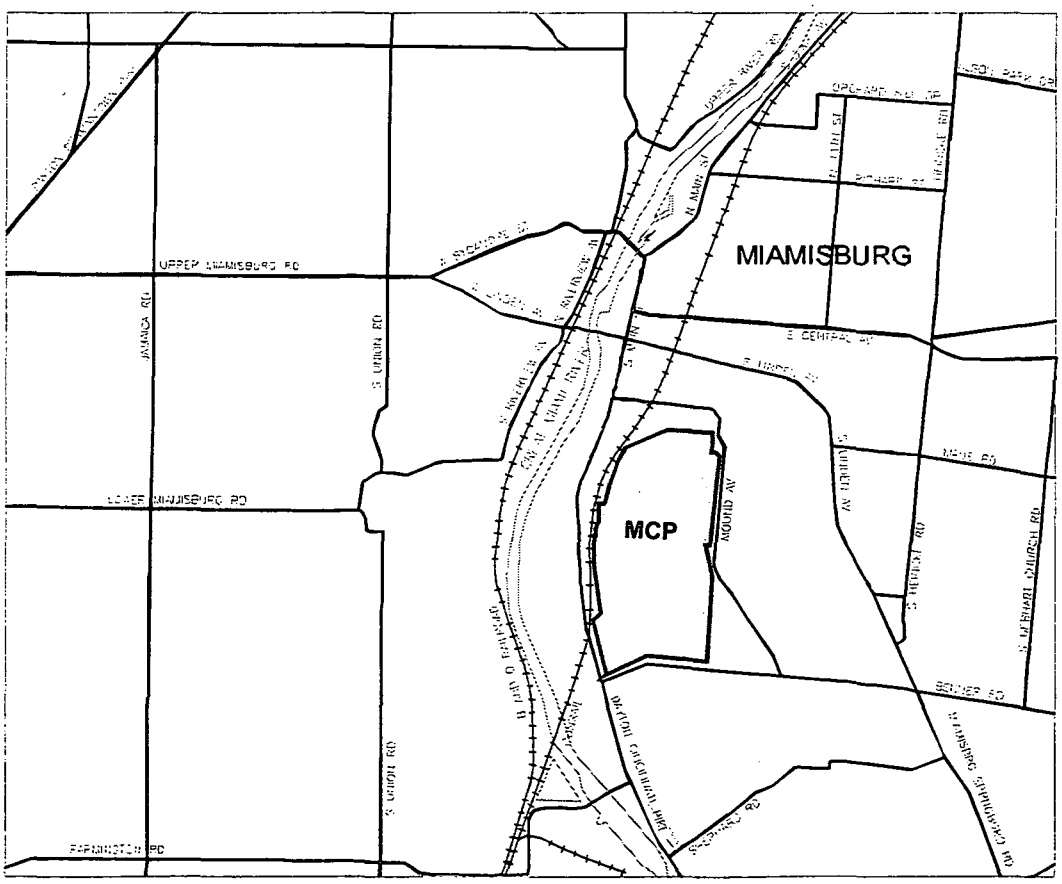
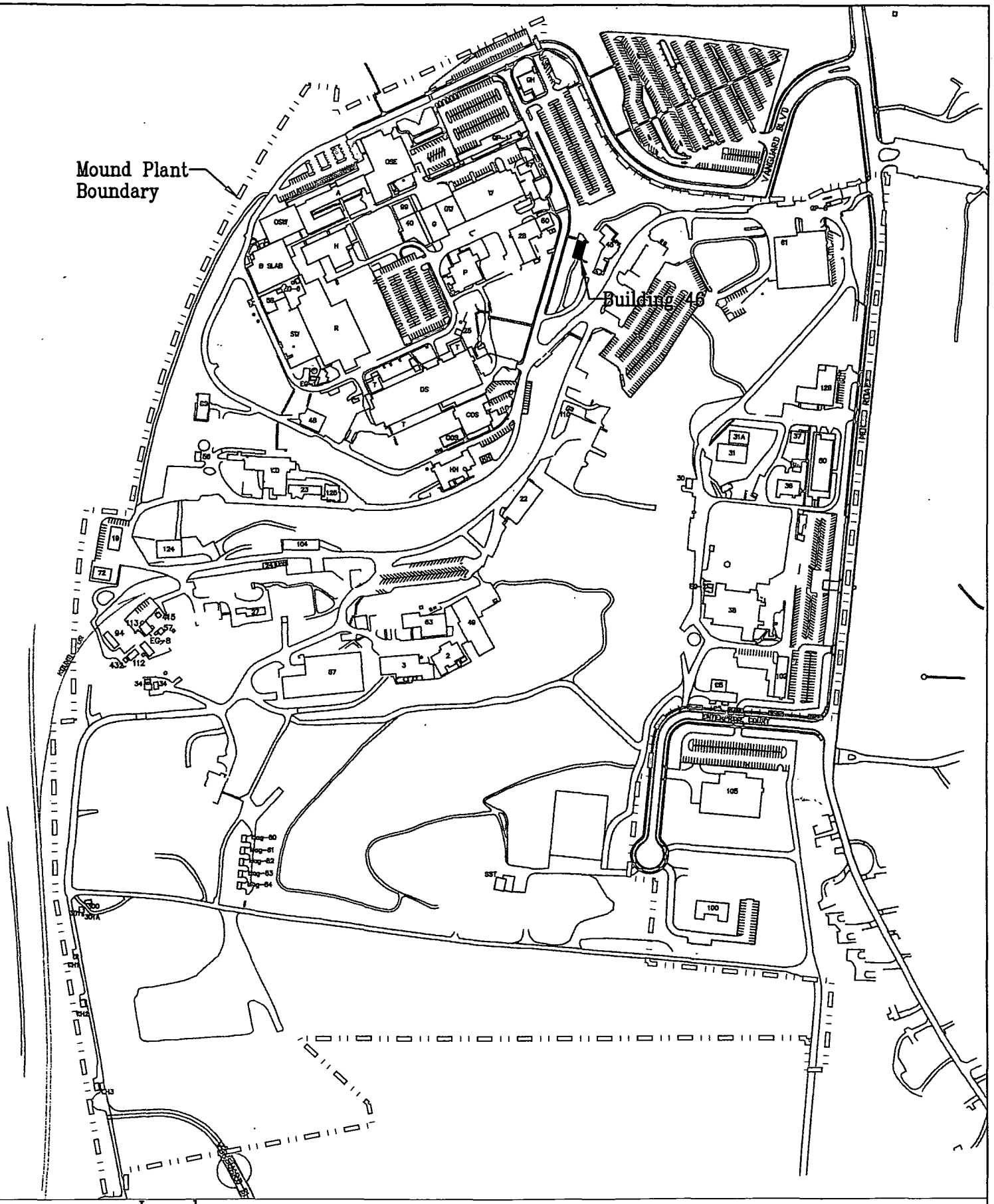
OHIO
Columbus
Cincinnati
Vandalia
Brookville
Dayton
MONTGOMERY
West Carrollton
Miamisburg


MIAMISBURG
MCP
UPPER MIAMISBURG RD
LOWER MIAMISBURG RD
S UNION RD
S CENTRAL AV
MOUND AV
S HOLLY RD
S DEBARD CHURCH RD
BEUSER RD
FARMINGTON RD

B1 of 1

Appendix C

Figures



Legend

45 Structures
Roadway
Mound Spur
Railroad
Mound Plant Boundary

0 225 450 900
SCALE IN FEET

MOUND
Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	o					

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

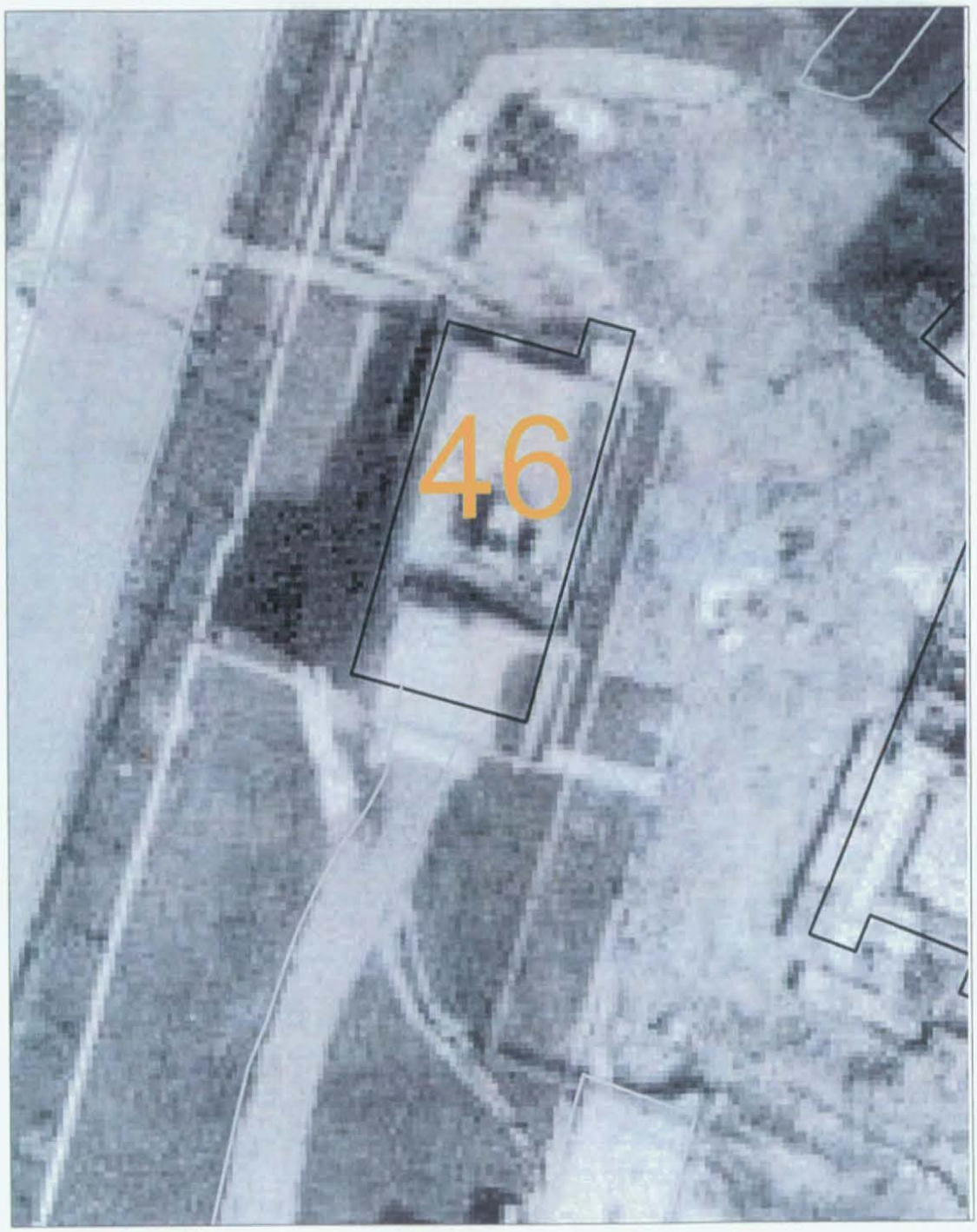
SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

DWG TYPE STE | PRMG ER-GIS | CAGEC | SCALE | SHEET 1 OF

STATUS MD-REL-00/00/00 | ORIGIN AUTOCAD

Figure 1
Location of Building 46

SS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M



Legend

45	Structures
	PRS Point
	PRS Area
	PRS Line

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Program

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					
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ISSUE	*																				

Figure 2
Building 46
and Vicinity

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

DWG TYPE STE | PRIMG ER-GIS | CAGEC | SCALE | SHEET 1 OF

STATUS MD-REL-**/**/** | ORIGIN AUTOCAD

south and east sides

north side

Figure 3
Building 46

west and south sides

Appendix D

Floor Plans

Building 46, Weld Development

Room	Function
1	Laboratory
2	Desk Area
3	Janitor's Closet
4	Women's Toilet Room
5	Men's Toilet Room

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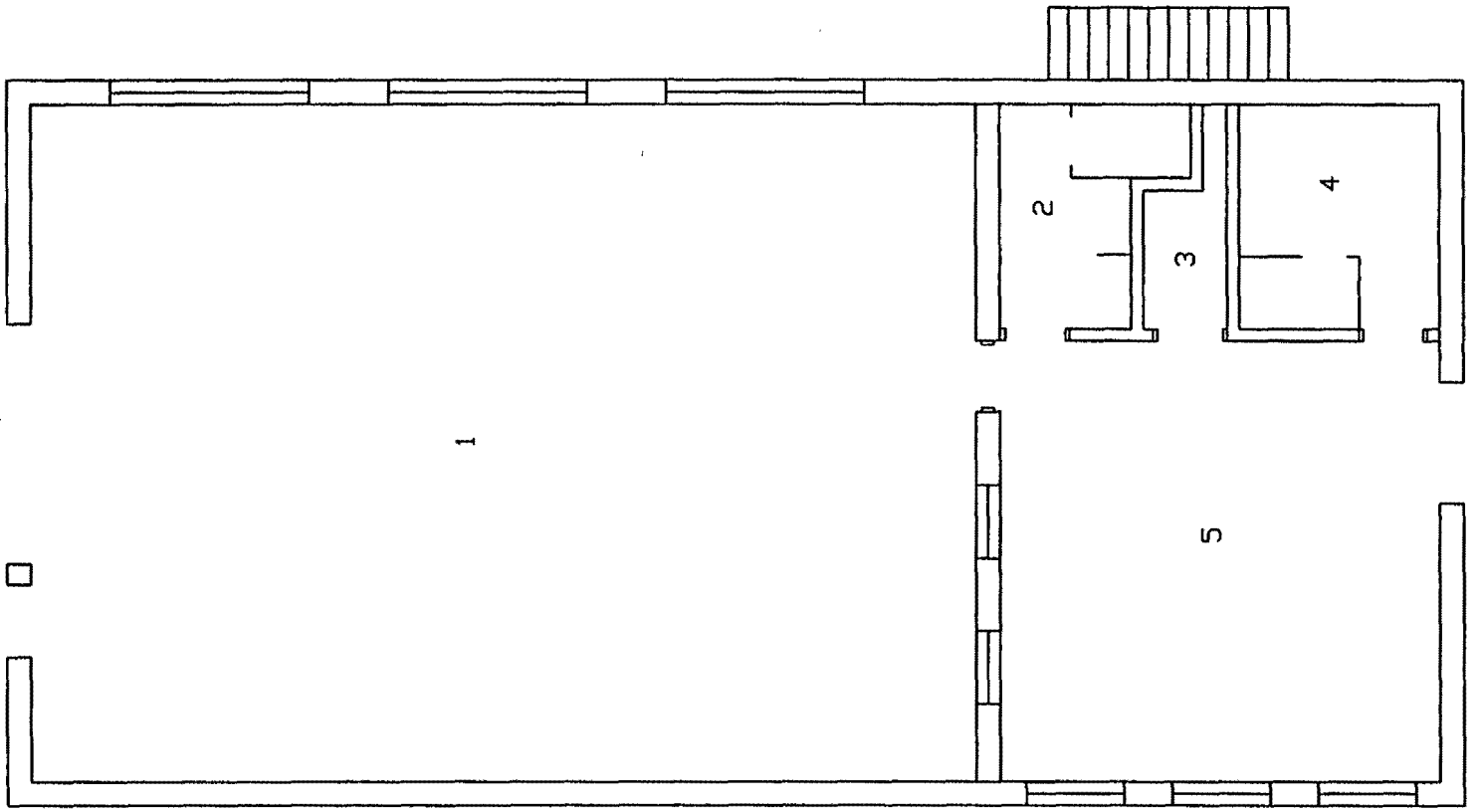


ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					
SHEET	1	2	3	4	5	6															
ISSUE	•																				

PART CLASSIFICATION

DRAWING CLASSIFICATION UNCLASSIFIED

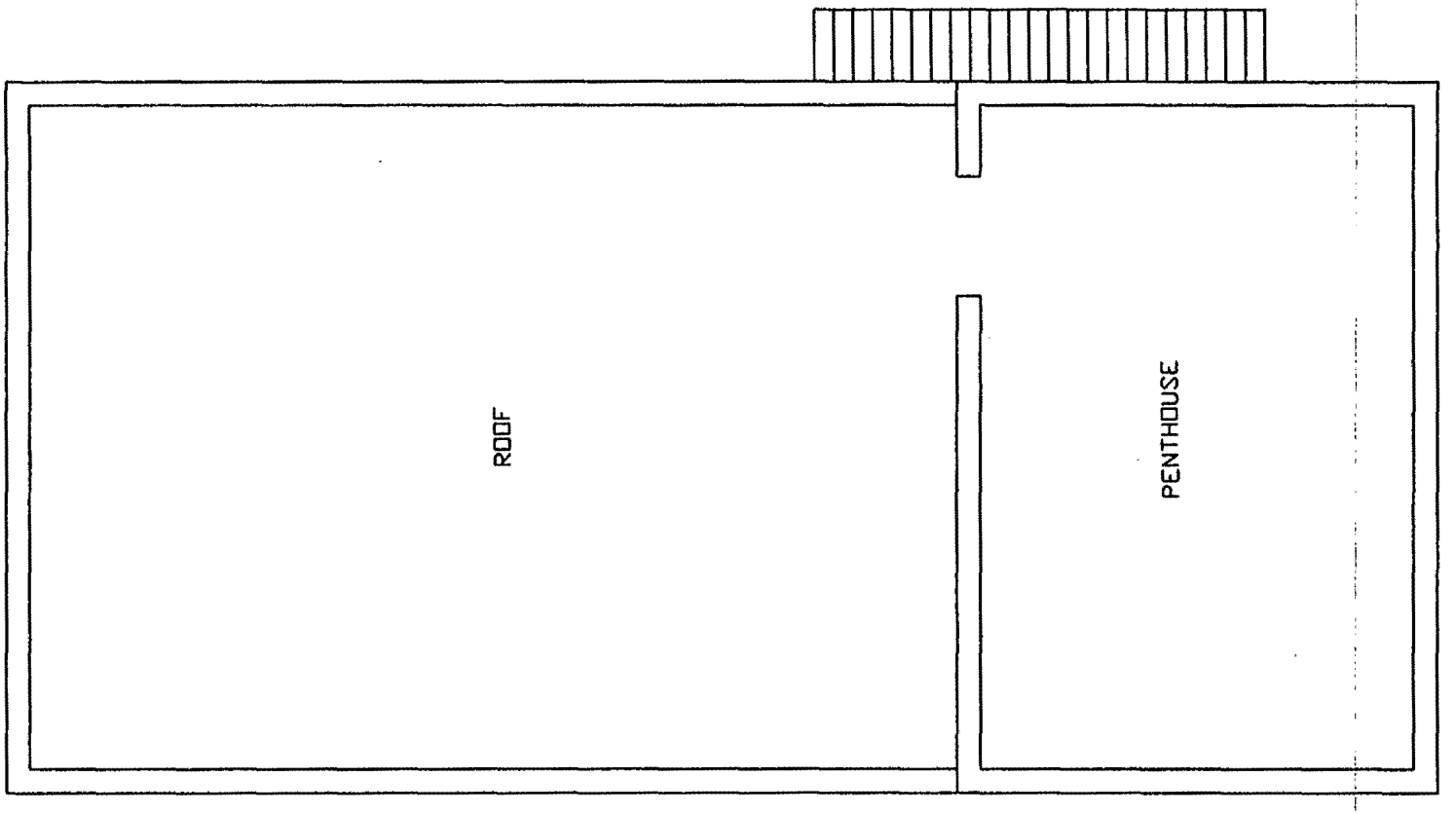
Building 46
Floor Plans
First Floor

SIZE | DRAWING NUMBER MAPS.DWG | JOB NUMBER

DWG TYPE STE | PRMG ER-GIS | CAGEC | SCALE | SHEET 1 OF

STATUS MD-REL-**/**/** | ORIGIN AUTOCAD

0 3 4 4



ISS	DATE	REVISION:	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					
SHEET	1	2	3	4	5	6															
ISSUE	•																				

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

Building 46 Floor Plans Penthouse

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

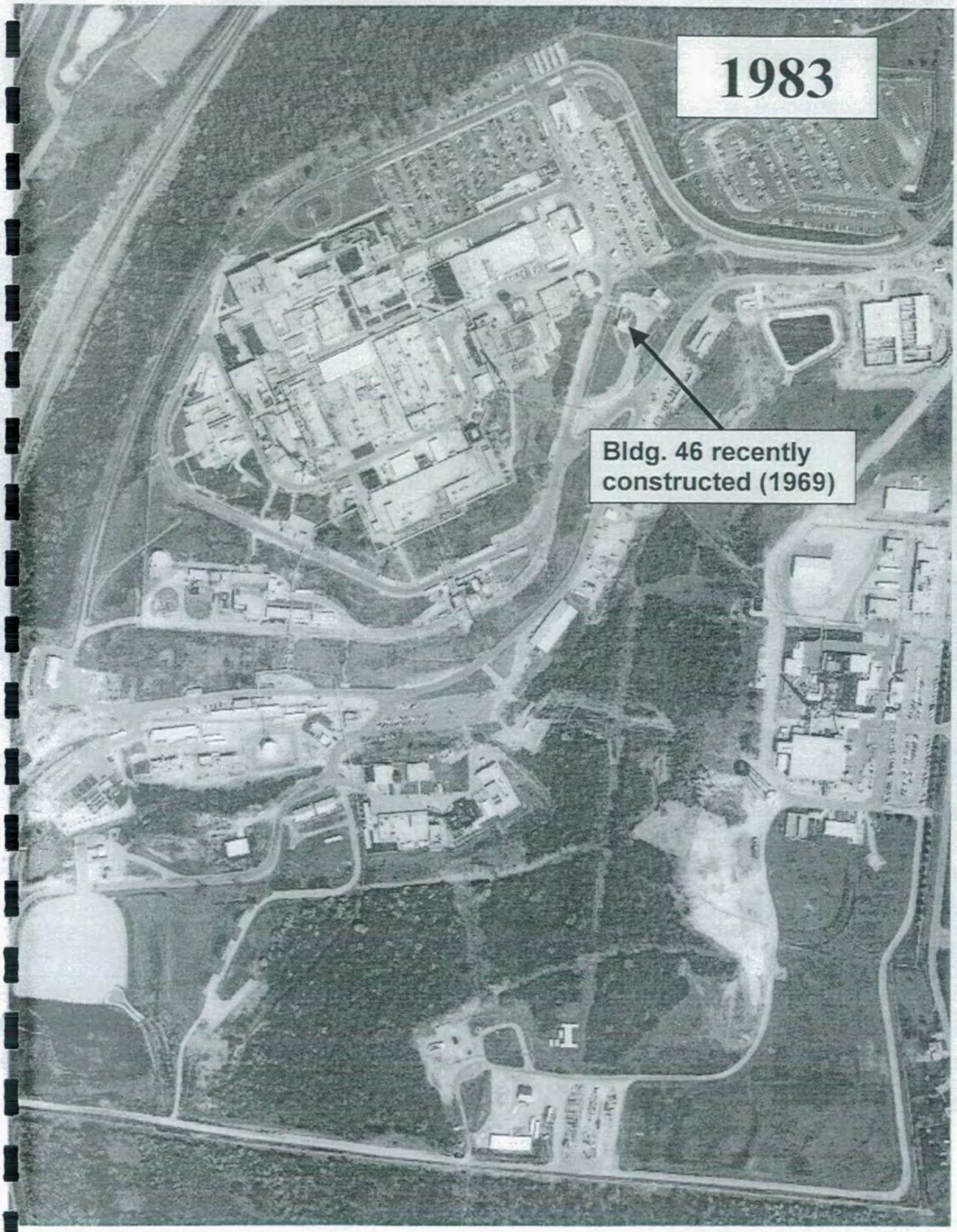
DWG TYPE: SITE | PRMG: ER-GIS | CAGEC | SCALE | SHEET 1 OF

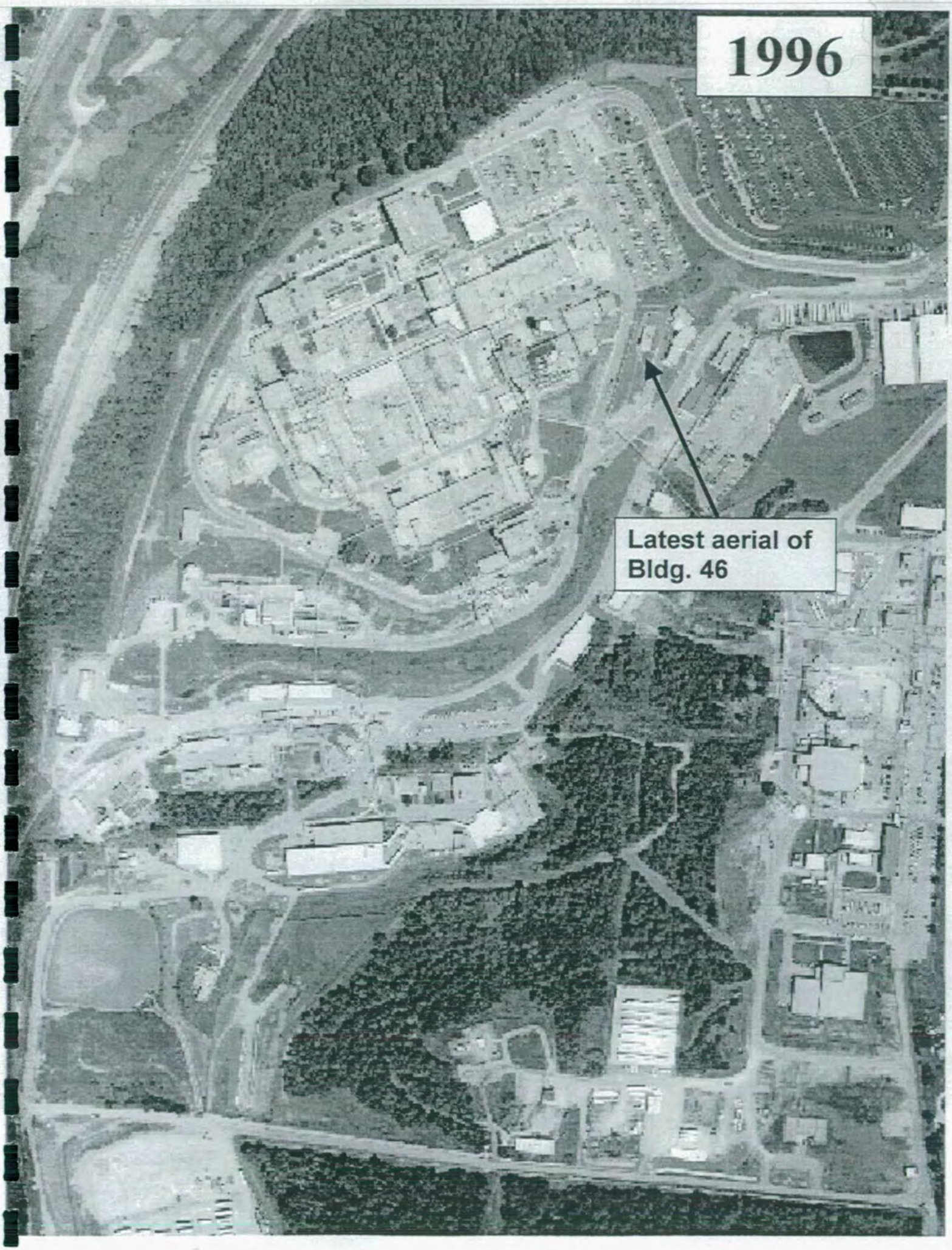
STATUS: MO-REL **/**/** | ORIGIN: AUTOCAD

Appendix E

Aerial Photographs

1968
Bldg. 46 prior to construction


1983
Bldg. 46 recently constructed (1969)


1996
Latest aerial of Bldg. 46

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

9.68 BUILDING 46

9.68.1 Scope of Building 46 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.

The appraisal team performed a walk-through of Building 46 on February 28, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.68.6.1). The appraisers were accompanied by the building manager and the technical personnel responsible for the operations in the building. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.68.6.2).

9.68.2 Description of Building 46

Building 46 is a one-story, concrete block slab-on-grade structure with a penthouse. The roof is metal and built-up membrane of asphalt. Building 46, whose location is shown in Attachment 3 (Section 9.68.6.3), was constructed in 1969. A parking lot is north of Building 46 and a roadway borders it on the west. Adjacent buildings are Building 45 to the east and Building 28 to the west. The penthouse on the roof houses utility services. The building is serviced by central steam for heat, chilled water, and electrical service of 480V (*Mound Facility Physical Characterization*, 12-1-93).

The building has been used for the same purpose since its construction. The total area of the structure is 2,439 square feet. The building contains specialized welding facilities that are used for welding development efforts in support of the heat source program. Welding development for energetic materials was also performed. Machine shop operations are also conducted in the building. Floor plans are shown in Attachment 4 (Section 9.68.6.4). No research, development, or production activities using radioactive materials have occurred in the building (*Mound Buildings*, 5-9-95).

9.68.3 Summary of Findings

Building 46 is well-maintained, with minor issues of environmental concern identified during the walk-through or during review of reference materials. Items that require some attention are a label on an oil transformer for the electron beam welder showing it to be free of polychlorinated biphenyls (PCB's) and preventive measures to preclude machinery from leaking oil to the floor drain. Oil stains leading to a drain shows evidence of a leak from four years ago. It is unknown whether the drain discharges to the storm or sanitary system. Two positive notes are the storage

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and labeling of gas cylinders and the Satellite Accumulation Area (SAA) setup for vacuum pump oil.

9.68.4 Observations

9.68.4.1 Air Emissions

A permit-to-operate (PTO) application was submitted to the Regional Air Pollution Control Agency (RAPCA) on February 11, 1993, however, no PTO has been received. The two operations used under the application are for a fumehood used for cleaning and etching of welded parts and a cutoff wheel. A potential emission source is a polisher used for the preparation of metallurgical samples. All three operations are serviced by one exhaust system. No particulate controls were observed on the exhaust system. Vacuum pumps associated with glovebox operations are vented directly outside on the west wall. The vacuum pumps and the polisher are not listed in Mound's air emission inventory database. There are no fuel-burning units in the building. There is no visual evidence of fugitive dust.

9.68.2 Water Emissions

The Mound Facility has three wastewater collection systems: a sanitary wastewater system; a storm water system; and a radioactively contaminated process wastewater system. Sanitary wastewater is treated at an onsite tertiary treatment plant and subsequently discharged by hard pipe to the Great Miami River. Storm water and any non-process wastewater, single pass cooling water, and softener backwash may be discharged directly to the Great Miami River, via the Miami-Erie Canal, or may be diverted to a 3.1-million-gallon holding pond for settling prior to discharge. Radioactively contaminated wastewater is treated in Building WD by physical-chemical treatment. If appropriate, wastewater may be discharged by hard pipe to the Great Miami River. If concentrations of radioactive contaminants cannot be reduced to acceptable levels, wastewater is solidified and shipped to the Nevada Test Site or Envirocare for disposal. All outfalls are permitted under an active NPDES permit. Routine monitoring activities are in place. Based on NPDES monitoring report data reviewed, it appears that the facility is in compliance with qualitative and quantitative conditions of the permit.

9.68.4.2.1 Sanitary Wastewater

The building has sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.68.6.5), the building is serviced by a sanitary line. Discharges to the sanitary system are by sinks, toilets, and floor drains. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort, therefore, neither dye tests nor smoke tests were conducted. There is no monitoring of building effluent. Based on current operations identified by the process owner, effluent from Building 46 should not deviate from that expected by the sanitary treatment plant manager. Only one of the two floor drains in laboratory is open. The fumehood, used to clean and etch welded parts, has a sink that can be a potential release point for chemicals to the sanitary system. Chemicals would not be expected to enter the sanitary system as the quantities are small and limited to the fumehood.

9.68.4.2.2 Storm Wastewater

The building is also serviced by storm drains according to Attachment 5 (Section 9.68.6.5). Discharges to the storm sewer are roof drains and single-pass cooling water from the electron beam welder. A floor drain in the penthouse shows visual evidence of an oil leak or spill. The team was unable to determine the discharge point for these drains based on in-field observations. Exterior grates and drains were not tested to confirm that they connect to the storm drainage system.

9.68.4.2.3 Chemicals

A list of chemicals stored and used in Building 46 is included in Attachment 2 (Section 9.68.6.2), the BMQ. This list was evaluated against Table V of Appendix D in 40 CFR 122 and none are considered Clean Water Act (CWA) pollutants. Chemical storage and handling procedures are in place for proper disposal of chemicals. There is no evidence that chemicals have entered the storm or sanitary drains. The only spill observed was an oil leak from a pump to a floor drain in the penthouse. Building personnel noted that the oil leak occurred four years ago. Whether the floor drain discharges to the sanitary or storm is undetermined.

9.68.4.3 Potable and Service Water

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross connection. Service water lines are identified and marked. The water fountain that supplies drinking water is not an Environmental Protection Agency (EPA) listed fountain suspected of lead contamination.

9.68.4.4 Chemical Storage and Hazardous Materials

Chemicals used in the welding development and associated processes are stored in Building 46. There was no visual evidence of chemical storage incompatibility. Material Safety Data Sheets (MSDS's) are available in the building and were reviewed for completeness. There is no flammable storage cabinet in the building. It is not required for small quantities of material.

The building is equipped with appropriate emergency response equipment such as a eyewash, safety shower, and fire extinguisher. Inspection tags were present and current. There is an Emergency Evacuation Plan, and signs were posted in work areas.

Compressed gas cylinders are properly stored inside and outside of the building. Labels were intact and legible except for one cylinder outside. Wiring for the tag was on the cylinder but the wind had blown the tag off. Personnel promptly replaced the tag when notified.

Although listed in the BMQ, there has never been any aboveground storage tanks in or around the building. This was visually verified during the inspection. There are no sumps, separators, or catch basins, in or around the building. There are no underground storage tanks associated with this building.

The building was tested and does contain asbestos-containing building material (MD-10391, *Asbestos Program Manual*, 9-14-95). There is no visual evidence of friable asbestos. Signs were posted indicating the presence of asbestos.

There are no capacitors or transformers containing PCB's located in the building. There is no record of past presence (1995 PCB Annual Document Log).

9.68.4.5 Solid, Hazardous and Radioactive Wastes

Solid wastes are generated in Building 46 and removed by janitorial personnel to a local collection point, then shipped offsite to a local landfill by a service contractor. The disposal contract is maintained by Waste Management. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

Small quantities of hazardous wastes are generated by welding development processes. Minute quantities of solvent are used in the cleaning process, thus they evaporate before disposal. A slurry of oxalic acid is used to etch metal parts. When the slurry is spent, it is placed in containers and characterized for Regional Conservation and Control Act (RCRA) metal contaminants. Mound policy is for generators to characterize their waste before it is collected and transported by representatives of Waste Management. Vacuum pump oil is collected and containerized and stored in a SAA. The pump oil is accumulated in a drum that is locked, labeled, and stored in a sheltered area outside of the building. The SAA procedures and appearance conform to RCRA requirements. Wastes are collected and transported by representatives of the Waste Management Group, and are stored in Building 72 for ultimate disposal. There is no onsite treatment of waste. Waste disposal manifests and Certificates of Disposal are maintained by Waste Management. They conform to RCRA requirements.

9.68.4.6 Waste Minimization and Pollution Prevention

At Mound there is an active program to minimize waste streams in accordance with state and federal requirements and Executive Order 12856. Paper and scrap metal are collected and recycled. Oxalic acid slurry is reused until the solution is spent.

9.68.5 Findings and Recommendations

Photographs were taken to document the environmental appraisal. They are included as Attachment 6 (Section 9.68.6.6). The environmental appraisal of Building 46 indicates that the following action items, in priority order, should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

46-1 Preventive measures should be evaluated to prevent machinery from leaking oil to the floor drain.

46-2 Determine whether the floor drain in the penthouse discharges to the storm or sanitary system.

46-3 There is a sink in the fumehood were chemicals are used to clean and etch welded parts, creating a potential release to the sanitary system. It is recommended that the use of the sink be investigated to determine whether it is necessary.

46-4 A PCB-free label should be attached to the oil transformer for the electron beam welder.

46-5 Update air emission database and air permit application for Building 46. RAPCA should be notified of this change in status (OAC 3745-31).

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ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 46 -

Appraisers:

Name _____ Discipline _____

Name _____ Discipline _____

Name _____ Discipline _____

Name _____ Discipline _____

Building Manager: _____

Process Manager: _____

Date: 2-28-96

9.68-9

ENVIRONMENTAL APPRAISAL CHECKLIST

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TSCA and NESHAP Requirements for Asbestos	13
TSCA—PCB	14
Low-level and Transuranic Waste	17
Waste Minimization/Pollution Prevention Activities	22

Environmental A ...sal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

Clean Water Act (CWA) Screening Checklist

Question	Response	Comments
Does the outside drain spouting of the building discharge directly to a storm sewer/sanitary system?	(Y) / N	If the answer to any of these questions is yes, proceed with the following checklist.
Are there sinks, toilets and floor drains in the building?	(Y) / N	
Are chemicals being used in the building?	(Y) / N	
Is there a process which discharges to the storm or sanitary system?	(Y) / N	

CWA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 122 Appendix D Table V	If chemicals are used/stored in the building, are they on the attached list? Are they properly contained?	Y / (N) Y / N	N/A
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	Bathroom to sanitary
	Do the floor drains, sinks & toilets appear to be draining properly?	(Y) / N	
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	(Sanitary) Storm	
	Is there a sump/pit in the building? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	Y / (N) _____ _____ Y / N Y / N	Not applicable
	Are there any manholes, catch basins, (drains) or fill pipes in or around the building? If so, are there any unusual appearances, colors, and/or odors? Describe in comment section. Can chemicals flow into the drain?	(Y) / N Y / (N) (Y) / N	Floor drain in penthouse has oil stain around it. Unsure whether it goes san./storm. 2 floor drains in lab 1 open, 1 closed.

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9.68-11

9.68-12

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Pavlick/Adkins/Parker Date: 2-28-96

Clean Air Act (CAA) Screening Checklist

Regulatory Guideline	Question	Response	Comments
	Are there any rooms that have air emissions sources that vent to the outside of the building, e.g., fumehoods, equipment? If so, note the rooms.	(Y)/N	46-001
OAC 3745-35	Using the air emissions inventory reference for this building, are there any sources in the building that are not documented?	(Y)/N	pump exhaust directly outside
	Is there evidence of fugitive dust emissions inside or outside of the building	Y/(N)	

CAA Checklist

Regulatory Guideline	Question	Response	Comments
	Are there existing air permits or applications applicable to the building?	(Y)/N	
OAC 3745-31,35	If yes, are the terms and conditions of the permit or the information included on the application (see air emissions database) being followed? Note any differences and update the air emissions database.	(Y)/N	
OAC 3745-31	Are there any sources that are not included in the air emissions database? If so, note the room, hood number, active or not, POC, and applicable air emission database information on Table B.	(Y)/N	Polisher & vac pumps
OAC 3745-31-03	Are there sources which are lab equipment of lab fumeheads used exclusively for chemical or physical analyses and bench scale lab equipment? These sources do not require a permit. However, the air emissions database should be updated.	Y/(N)	
	Has there been any release of air contaminants from this building?	Y/(N)	

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Environmental A. .raisal Checklist

Building Name: 46 **Appraisers:** Paulick/Adams/Parker **Date:** 2-28-96

CAA Checklist

Comments: Note the number of sources/hoods per room, the number that are active, and the POC on the reference document.

TABLE A

Process Source	Room Number	Hood Number	In Database	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Hours/Yr. Operation	Air Emissions
Machining Process	46-001	46-1-2	(Y)/N	(Y)/N	particulates				
Welding Develp.	46-001	46-1-1	(Y)/N	(Y)/N	Ethanol Trichloro-ethane	0.016 0.027		0.192 0.324	
Welding Develop. polisher	46-001		Y/(N)	(Y)/N	Aluminum oxide				
Vacuum pumps	46-001		Y/(N)	(Y)/N					
			Y/N	Y/N					

Source:_____

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9.68-13

9.68-14

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Pawlick/Adkins/Parker Date: 2-28-96

Hazardous Materials (HM) Screening Checklist

Question	Response	Comments
Are any chemicals used or stored in this building, now or in the past?	(Y)/N	If the answer is yes, proceed with the following checklist.

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.1200(b,f)	All containers of hazardous chemicals shall be labeled as to the identity of the chemical and the appropriate hazard warnings.	(Y)/N	
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	(Y)/N	
29 CFR 1910.22, 1910.106, 1910.176	All places of employment, passageways, storerooms and service areas shall be kept clean and orderly and in a sanitary manner. Aisles shall be unobstructed. Drums and containers are not leaking and are tightly sealed.	(Y)/N	
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	Y/(N)	No flammable cabinet, quantities less than 25 gal
29 CFR 1910.106(d)(7)	Incompatible chemicals are ~~not~~ stored together.	Y/(N)	
29 CFR 1910.106(d)(4)	Inside Flammable/combustible storage rooms must meet the following: 4 in. raised sill or trench that drains to a safe area, liquid tight wall/floor joints, self-closing doors, gravity or mechanical exhaust providing 6 room changes/hr., exhaust switch located outside room, at least one 3 ft. aisle; no cracks in secondary containment.	Y/N N/A	Not applicable

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Environmental A. ..ıısal Checklist

Building Name: 46 Appraisers: Pawlick/Adkins/Parker Date: 2-28-96

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.106(d)(7)	All flammable/combustible storage locations have at least one 12-B portable fire extinguisher located outside and within 10 ft. of a door opening into any room for storage. No smoking signs are posted.	(Y)/ N	
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	(Y)/ N	
CGA P-1 3.3 & 3.3.10	All gas cylinders (full or empty) shall carry a legible label or marking identifying the contents.	(Y)/ N	
CGA P-1 3.5.3	Full and empty containers should be stored separately with the storage layout planned so that containers comprising of old stock can be removed first with a minimum handling of other containers.	(Y)/ N	
CGA P-1 3.5.8	All compressed gas containers in service or in storage shall be stored standing upright and the container shall be secured.	(Y)/ N	
CGA P-1 4.2.2	Oxygen cylinders shall be separated from flammable gas containers or combustible materials a minimum of 20 ft. or a noncombustible barrier 5 ft. high.	(Y)/ N	No oxygen ~~etc~~ cylinders in sto Oxygen used with acetylene f weldi
29 CFR 1910.104(2)(10)	Oxygen stored as a liquid shall be on a noncombustible surface. Asphalt is considered combustible. Wood and long dry grass shall be cut back 15 ft. from the container.	Y / N	No oxygen cylinders as liquids
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	Not applicable
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	(Y)/ N	
	Is there an emergency response plan available?	(Y)/ N	

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9.68-15

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick / Parker / Adkins Date: 2-28-96

HM Checklist

Regulatory Guideline	Question	Response	Comments
	Is there a process area?	Y / N	
	Does it have proper containment?	Y / N	N/A
	Is there a liquid bulk transfer area?	Y / N	
	Is there proper containment?	Y / N	Not applicable
	Is there an above ground storage tank? If so, complete Table B.	Y / N	

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

Building	Capacity (Gal.)	Contents	Estimated Volume	In Service	Containment	Visual Stains/ Contamination	If Empty, Flushed
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N

Source: _____

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Pavlick, Hdkins, Parker Date: 2-28-96

Safe Drinking Water Act (SDWA) Screening Checklist

Does this facility have potable water?	(Y) / N	If yes, conduct the following survey.

SDWA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 95-02 (A)	Do actual or potential cross-connections exist between potable (light green) and service water (dark green)?	(Y) / N	
OAC 3745 95-04 (B)(C)	Are backflow prevention devices installed where cross connections (hoses connected to faucets, hot water tank vented directly to a drain) exist?	(Y) / N	BFP on janitorial sink. Sink fed by potable water
	Are sources of service water (janitorial and laboratory faucets, or outdoor spigots) posted as non-potable water sources?	(Y) / N	Fume hood & lab area marked
	Does the facility contain any water coolers or fountains? ~~that are not lead free?~~ Complete Table C.	(Y) / N	

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TABLE C—Water Fountain Survey.

Building	Location	Model #	Comments / Date of Analysis for Lead
46	46 - 5	SC8A	O.K. Halsey Taylor

Source: _____

9.68-17

9.68-18

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

RCRA Screening Checklist

Does this facility generate waste or use chemicals?	(Y) / N	If yes, conduct the following survey.

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 52-11	Has any material generated been characterized RCRA hazardous? Was characterization by analysis or by process knowledge? Are lab results or documentation of process knowledge readily available? Note any uncharacterized material in comment section. Is it waste? If yes, proceed with next section.	(Y) / N analysis / (process) (Y) / N Y / (N)	pump oil, cleaning process (alc etching (oxalic acid) Oxalic acid neutralization available, unsure of pump oi
OAC 3745 52-11	Are any of the materials noted RCRA hazardous waste? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed with the appropriate section below.	(Y) / N	

05-2917

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
I. HAZARDOUS WASTE STORED IN CONTAINERS			
	Is there an area in the building that could qualify as a Satellite Accumulation Area?	(Y) / N	collection of pump oil
	Is it treated as such?	(Y) / N	
OAC 3475-52-34 (C)	Has any of the RCRA hazardous waste in this building been managed in Satellite Accumulation Areas? If no, proceed to the next section. If yes, answer the following.	(Y) / N	
	Are the containers marked with the words hazardous waste, or other words denoting the hazard?	Y / (N)	
	Are the containers in good condition?	(Y) / N	
	Are the waste compatible with the containers?	(Y) / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the plant site boundary?	(Y) / N	
	Are containers kept closed and locked except during filling?	(Y) / N	
	Are containers moved within 3 days of being filled?	(Y) / N	

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9.68-19

9.68-20

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745-52-11 (A)	If a Satellite accumulation area has been abandoned and/or if waste left in place, and the containers may be subject to the 90-day-storage exclusion. If this exclusion does not apply, go to the next section. If the containers have been in storage under this exclusion, answer the following:		Not Applicable
	Are the containers in good condition?	Y / N	
	Are the waste compatible with the containers?	Y / N	
	Are the containers kept closed except during filling?	Y / N	
	Are the containers managed in such a way, that they are not ruptured, or leaks caused?	Y / N	
	Is the area inspected at least once weekly?	Y / N	
	Is the inspection recorded? Where is the log? Is it properly completed, dated, and signed?	Y / N Y / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the facility boundary?	Y / N	
	Are incompatible wastes managed in such a way that they will not react with another incompatible waste?	Y / N	
OAC 3745-52-34(B)	Has any of the waste (except in Building 23, Building 72 and the Burn Area) been managed in excess of 90-days?	Y / N	
	If no go to next section.		
	If yes, note.		May take more than 90 days to fill drum
	For Building 23, Building 72 & Burn Area use special checklist.		

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
II. HAZARDOUS WASTE STORED IN TANKS			
OAC 3745-52-32 (B)	Has any chemical waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / N	Not Applicable
	If the answer was no, then proceed with the following:	Y / N	
	Has the tank or piece of equipment had an integrity assessment?	Y / N	
	Is there a sump?	Y / N	
	Is it dry?	Y / N	
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Has any hazardous waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / N	
	If the answer was no, then proceed with the following:		
	Has the tank or piece of equipment had an integrity assessment?	Y / N	
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Is there a closure plan?	Y / N	
	If yes, then note.		
OAC 3745-67	Has any of the waste been managed in a surface impoundment? If yes, then note. Go to the next section.	Y / N	

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9.68-21

9.68-22

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Faulick / Adkins / Parker Date: 2-28-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745-68	Has any of the waste been managed in a Landfill? If yes, then note. Go to the next section.	Y / N	
OAC 3745-68	Has any of the waste been managed in an Incinerator (other than Burn area units)? If yes, then note. Go to the next section.	Y / N	
OAC 3745-68	Has any of the waste been managed in a Thermal treatment Unit (other than Burn area units)? If yes, then note. Go to the next section	Y / N	
OAC 3745-69	Has any of the waste been managed in a Miscellaneous Treatment Unit (other than Burn area units)? If yes, then not. Go to the next section.	Y / N	
OAC 3745-56	Has any of the waste been managed in a Waste Pile? If yes, then note. Go to the next section.	Y / N	

General Comments:

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

Asbestos Screening Checklist

Does this facility contain ACBM?	(Y) / N	If yes, conduct the following survey.

Asbestos Checklist

Note: Routinely, the asbestos standard for ACBM in schools has been applied to facilities for purpose of cleanup. In addition to AEHERA, there are additional standards in the NESHAPS that may be of importance.

Regulatory Guideline	Question	Response	Comments
ADAPTED FROM TSCA ACBM IN SCHOOLS:			
	Has this building been characterized either through process knowledge, by analyses, or by inspection to determine if it contains asbestos? If no for this building or area note this conclusion in the comment section.	(Y) / N	
	Is there any evidence of friable asbestos?	Y / (N)	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N	If there is no asbestos removal, do not complete the following section.
NESHAPS FOR ASBESTOS FOR ANY ONGOING ASBESTOS REMOVAL:			
40 CFR 61.156	There are no discharges of visible emissions to the outside air from collection, processing, packaging, transporting, or deposition of ACBM during the removal.	Y / N	
40 CFR 61.152(b) (1)	ACBM is treated with water in accordance with 40 CFR 152(b)?	Y / N	
40 CFR 61.154	Is friable asbestos adequately wetted during stripping? Or, has an adequate ventilation and collection system been installed?	Y / N	
40 CFR 61.152	Is wetting continued until the waste friable asbestos is collected for disposal?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Poulick/Adkins/Parker Date: 2-28-96

Toxic Substances and Control Act (TSCA) PCB's Screening Checklist

Does this facility potentially contain any PCB's or PCB contaminated equipment?	Y / N	If yes, are transformers labeled (Blue or Yellow stickers)? If yes, conduct the following survey.

TSCA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 761	Has any waste generated in, or from, this building been characterized either through process knowledge or by analyses to determine if it contains PCB's ? If the answer is no, note . If the answer is yes, proceed with next section.	Y / N	Oil transformer for E.B. Welder is non PCB But does not have a label.
	Based on an inspection, are any of the materials or equipment potentially PCB contaminated? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed.	Y / N	
40 CFR 761.65 (c) (5)	Are PCB articles or containers stored in this building checked for leaks at least once every 30 days?	Y / N	
	If yes, are auditable records maintained.	Y / N	
40 CFR.30 (a) (1) (ix)	Are any PCB transformers in use, or stored for possible reuse, that contain PCB's at concentrations of 500 ppm or greater?	Y / N	
	Are they visually inspected quarterly? If yes, are auditable records maintained?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46

Appraisers: Paulick / Adkins / Parker Date: 2-28-96

TSCA Checklist Intentionally left blank

Regulatory Guideline	Question	Response	Comments
40 CFR 761.30 (a) 1,viii	Are all combustible materials (i.e., paints, solvents, plastics, paper, sawn wood, etc.) cleared from areas containing PCB transformers to a distance of five meters?	Y / N	
40 CFR 761.65 (b) (8)	Are all PCB articles and containers labeled with the date they were placed in storage?	Y / N	
	Are labeled PCB articles and containers stored so that the labels can be referenced?	Y / N	
40 CFR 761.65 (a)	Are all PCB's and PCB contaminated items at concentrations above 50 PPM, that are stored for disposal, stored no longer than one year from the date they were placed in storage?	Y / N	
40 CFR 761.62 (b) (1) (i)	Do all PCB storage areas have an adequate roof and walls to prevent rainwater from reaching the stored items?	Y / N	
40 CFR 761.62 (b) (1) (iv)	Are storage are floors curbed and constructed of continuous smooth and impervious materials?	Y / N	
40 CFR 761.62 (b) (1) (i)	Are the curbs at least 6 inches high?	Y / N	
40 CFR 761.62 (b) (1) (iii)	No drains are allowed in storage areas. Are there drains in the storage areas?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

TSCA Checklist

Intentionally left blank

Regulatory Guideline	Question	Response	Comments
40 CFR 761.65 (c) (2)	Only non-leaking and undamaged large high voltage PCB's capacitators and PCB-containing electrical equipment are allowed to be stored outside of PCB storage areas, on pallets if stored outside, with containment for 10 percent of the volume of the equipment. Do all PCB's stored in this configuration conform with this requirement?	Y / N	
40 CFR 761.45 and .65	Are all PCB storage areas marked with a large PCB mark as described in 40 CFR 761.45 (a)?	Y / N	
40 CFR 761.65 (c) (5)	Have all leaking PCB articles and containers been transferred to non-leaking containers?	Y / N	
40 CFR 761.65 (c) (6)	Do all PCB storage containers for the storage of liquid and non-liquid PCB's comply with DOT shipping container specifications?	Y / N	

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GENERAL COMMENTS:

Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick / Adkins / Parker Date: 2-28-96

Low-Level Waste and Transuranic Waste Screening Checklist

Does this facility contain radioactive waste ?	Y (N)	If yes, conduct the following survey.

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
Low-Level Waste			
DOE Order 5820.2A Chapter III	Can any waste generated in, or from, this building be characterized either through process knowledge or by analyses to determine if it is LLW ? If the answer is no, note. If the answer is yes, proceed with next section.	Y / N	
DOE Order 5820.2A Chapter III.	Are any of the materials noted by inspection LLW? If no, The audit would stop here, because there are no LLW. If yes, note the location of the management unit, and the method of management, and proceed with the section below.	Y / N	
DOE Order 5820.2A Chapter III, 3.a.	Have the storage configurations in use in this area been taken into account for keeping external exposures to the general public below 25 mrem/yr?	Y / N	
	Is the waste stored in a configuration that protects ground-water resources?	Y / N	
DOE Order 5820.2A Chapter III, 3.b.	Has monitoring been conducted in this area in accordance with DOE Order 5820.2A in order to evaluate the area against the performance standard?	Y / N	
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Atkins/Parker Date: 2-28-96

Low-Level Waste and Transuranic Waste Checklist

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Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A Chapter III, 3.d.	Based on field data, is the characterization of the materials in this area sufficient to assure proper segregation to assure proper segregation, treatment, storage, and disposal?	Y / N	
	Based on field data does the characterization as documented at the time of generation of the waste ensure that the actual physical and chemical characteristics, and major radionuclide content of this material are recorded and known at all stages of the waste management process?	Y / N	
	Do characterization data include the following:		
	Physical and chemical characteristics of the waste?	Y / N	
	Volume of the waste (including solidification and absorbent material)?	Y / N	
	Weight of the waste (including solidification and absorbent material)?	Y / N	
	Major radionuclides and their concentrations?	Y / N	
	Packaging date, package weight, external volume?	Y / N	
	How were the concentration of radionuclides determined? Direct methods?	_____	
	How were the concentrations of radionuclides determined? Indirect methods?	_____	
DOE Order 5820.2A Chapter III, 3.h	Is the storage configuration in long term storage sufficient to meet the performance standard?	Y / N	
	Are records maintained at the facility enabling this waste to be traced from its origin?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Parker/Atkins Date: 2-28-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
TRU WASTE			
	Can any waste generated in, or from this building be characterized either through process knowledge or by analyses to determine if it is TRU waste? If no, note and stop. If yes, proceed with the next section.	Y / N	
	Are any of the materials noted as being TRU waste during an inspection? If no, note and stop. If the answer is yes, note the location of the management unit, and the method of management and proceed with the appropriate section below.	Y / N	
DOE Order 5820.2A, Chapter II, 3.a	Was this material evaluated as soon as possible in the generating process, to determine if it is TRU (>100nCi/g), if it is recoverable, or if it is waste? (Note if the activity level is less than 100nCi/g, the waste is not TRU, and can be managed as LLW.)	Y / N	
	Did the determination of TRU radionuclide concentration include the mass of the container, including shielding? These should be included in calculating the specific activity of the waste.	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Hetkins/Parker Date: 2-28-96

Low-Level Waste and Transuranic Waste Checklist Intentionally left blank

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A, Chapter II, 3.b	Has the TRU waste been assayed or otherwise evaluated to determine its radioactive content prior to storage?	Y / N	
	Has the TRU waste been characterized or otherwise evaluated to determine if hazardous waste is present?	Y / N	
	Has classified TRU waste been treated to destroy the classified characteristics?	Y / N	
DOE Order 5820.2A, Chapter II 3.d	Has all newly generated TRU waste been packaged in non-combustible packaging that meets DOT requirements?	Y / N	
	Have all Type A TRU waste packages been equipped with a method to prevent pressure buildup?	Y / N	
	Have all TRU packages been marked, labeled and sealed in accordance with 40 CFR 261 Subpart C and 49 CFR 172 Subparts D, E and 49 CFR 173 Subpart I?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

Low-Level Waste and Transuranic Waste Checklist Intentionally left blank

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A, Chapter II 3.e	Has the TRU waste been segregated in manner that will not permit commingling of TRU waste with LLW or high-level waste?	Y / N	
	Has the TRU waste been protected from unauthorized access?	Y / N	
	Has the TRU waste been monitored periodically to ensure that it is not releasing its radioactive and/or hazardous constituents?	Y / N	
	Has this TRU waste storage area been designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or accidental release of its radioactive and/or hazardous constituents?	Y / N	
	Does the facility have a contingency plan designed to minimize the adverse impacts of fire, explosion, or accidental release of its radioactive and/or hazardous constituents?	Y / N	

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Atkins/Parker Date: 2-28-96

Waste Minimization/Pollution Prevention Activities Screening Checklist

Does this facility generate waste or use chemicals?	(Y) / N	If yes, conduct the following survey.

Waste Minimiaztion/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Based on available information and a walk through, are there any apparent opportunities to curtail the consumption of raw materials (including but not limited to paper, chemicals, electricity, and etc.). If yes, list candidate areas in the comment section.	Y / N	collecting scrap metal for recycle
	Are there solvent wastes?	Y / (N)	solvents evaporate during clean
	Is vehicle maintenance performed?	Y / (N)	
	Are oils used ?	(Y) / N	pump oil collected.
	Are these corrosive wastes?	Y / (N)	
	Are there sludges?	Y / (N)	
	Are there halogenated organic (nonsolvent) wastes?	(Y) / N	1,1,1 trichloroethane
	Are metals recovered ~~from wastewater?~~	(Y) / (N)	~~metals recovered for recycle~~ Rf
	Is waste sludge generated?	Y / (N)	
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N	Not applicable
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

Environmental Appraisal Checklist

Building Name: 2/6 Appraisers: Pawlick/Adkins/Parker Date: 2-28-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES			
	Are halogenated organic wastes used as fuel in cement kilns?	Y / (N)	
	Are baghouse filters used to collect pesticides and pesticide intermediates?	Y / N	Not applicable
	Are solid wastes generated from the collection of baghouse dust?	Y / N	
	Wet instead of dry grinding used?	Y / N	
	The output spray dried?	Y / N	
	Has baghouse emptying and recycling of baghouse fines been scheduled?	Y / N	
	Have operations been evaluated to improve procedures such as handling, storage and spill prevention for increased efficiency?	(Y) / N	
METAL WASTES			
	Are any technologies for the recovering of metals from waste rinsewater used?	Y / N	Not applicable
	Evaporation of waste rinsewater?	Y / N	
	Reverse osmosis?	Y / N	
	Ion exchange?	Y / N	
	Electrolysis?	Y / N	
	Agglomeration?	Y / N	
CORROSIVE WASTES			
	Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals?	(Y) / N	Oxalic acid is neutralized before disposing into drain

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Atkins/Parker Date: 2-28-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are ion exchange resins used to remove heavy metals and cyanides from acid and base solutions?	Y / (N)	Not applicable
	Is crystallization used to remove corrosives from solution by cooling?	Y / (N)	
	Is the process of evaporation of liquid wastes by heating used to leave behind a more concentrated solution?	Y / (N)	
CYANIDE AND REACTIVE WASTES			
	Has non-cyanide or low concentration of cyanide process replaced zinc cyanide bath ?	Y / N	Not applicable
	Are any of these processes used to recycle cyanide wastes?	Y / N	
	Refrigeration/crystallization?	Y / N	
	Evaporation?	Y / N	
	Ion exchange?	Y / N	
	Membrane separation which includes reverse osmosis or electrodialysis?	Y / N	
VEHICLE MAINTENANCE			
	How are auto parts cleaned?	Y / N	Not applicable
	Solvent sink?	Y / N	
	Solvent dunk bucket?	Y / N	
	Solvent dip tank?	Y / N	
	Are parts cleaning solvents used for anything else besides cleaning parts?	Y / N	
	Are spills reduced by locating sinks or dunk buckets near auto service bays?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Rauhek/Adkins/Barker Date: 2-28-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are cleaned parts drained on the sink to minimize solvent spills?	Y / (N)	
	Are drip tanks used to capture losses?	Y / (N)	solvents evaporates, mL quantiti
	Is a solvent sink used for mineral solvents rather than a dunk bucket or dip tank?	Y / (N)	
	Does a waste hauler collect solvent waste for recycling or treatment?	Y / (N)	
OILS			
	What kind of oils are used?		Vac pump oil
	Hydraulic oil?	Y / (N)	
	Transformer oil?	(Y) / N	
	Metal working fluids?	(Y) / N	
	Spent lubricating oils?	Y / (N)	
	Can the process be modified or changed to use water-based fluids?	Y / (N)	
	Are these good housekeeping and operation practices used to minimize oil waste production?		
	Use oils not contaminated with other liquids?	(Y) / N	
	Oil spills prevented?	(Y) / N	
	Drip pans installed?	(Y) / N	
	Oil soaked rags laundered?	Y / (N)	
	Rags and absorbants used to their limit?	(Y) / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 2-28-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		NOT APPLICABLE
	Reclaiming process to remove water and solvents by heat?	Y / N	
	Gravity setting?	Y / N	
	Screening?	Y / N	
	Centrifugation?	Y / N	
	Filtration?	Y / N	
SOLVENT WASTES			
	Has there been an attempt to reduce volume or toxicity by:		
	Eliminating solvents?	(Y) / N	
	Reducing the use of solvents?	(Y) / N	
	Reducing the loss of solvents?	Y / (N)	
	Increasing recyclability?	Y / (N)	
	Are solvents segregated?	Y / N	Not collected / they evaporate
	Are waste solvents free from water and garbage?	(Y) / N	
	Are recycled solvent containers labeled as such?	Y / N	
	Are containers kept closed?	Y / N	
	Free and sheltered from the elements?	Y / N	
	Are solvent tanks kept as free from contaminations as possible so that the waste can be recycled?	Y / N	
	Is a method used to minimize the use of new materials such as a countercurrent process?	Y / N	

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Environmental Appraisal Checklist

Building Name: 46 Appraisers: Paulick/Adkins/Parker Date: 3-28-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	If there is a recycling program, what technique is used?	(Y) / N	
	Distillation?	Y / N	Not applicable
	Solids removal?	(Y) / N	
	Dispersion breaking?	Y / N	Not applicable
	Dissolved and emulsified organics recovery?	Y / N	
	Are any of these housekeeping procedures used to minimize the production of solvent wastes?		Not applicable
	Separators cleaned and checked?	Y / N	
	Parts not allowed to enter the degreaser while wet?	Y / N	
	Sludge from the bottom of the tank not allowed to accumulate?	Y / N	
	Lids kept on tanks?	Y / N	
	Freeboard space on tanks increased?	Y / N	
	Are better operating practices used to reduce waste?	Y / N	
	How long is solvent waste stored and where?	_____ _____	

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: 3867 Date: 12-07-95
Alternate: T.J GEESNER Phone: 5566

1. What are the access requirements (training, clearance. etc.)?

None

2. What protective equipment is required to enter the building?

Safety glasses in some areas,

3. Are there any restricted areas? Yes (No)
Where are they?

4. Provide a physical description of the building.

This one-story (with penthouse) concrete block building has a BUM roof (asphalt), and HVAC systems of central steam and chilled water. Total area is 2,439 ft^2. The building contains asbestos, but it is not contaminated with radiological or energetic materials.

Source: Mound Facility Physical Characterization, 12-1-93

5. Provide a drawing of the building.

Attached

6. What is the current building use?

The building is used for welding development efforts in support of the heat source program. Some welding development for energetic materials is also performed. The building contains specialized welding facilities.

Source: Mound Buildings, 5-9-95

7. What is the history of building use other than that described in #6?

Source: Mound Buildings, 5-9-95

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

8. What are ongoing operations or processes? What are the raw materials and waste streams from each process? Who is the best contact for each process?

Process(es) Housed: Welding process development

How Wastes Are Generated:

No hazardous wastes are generated in this building.

Note: Ethyl alcohol is used for wiping parts clean. The alcohol evaporates. In addition, oxalic acid is used in very small (mi) quantities for etching small parts. When the process is finished, the acid is neutralized, diluted and flushed down the drain to the sewer.

Contact:
Phone #:

Source: Characterization of Mound's Hazardous, Radioactive, and Mixed Waste, (8-15-90).

Vacuum pump oil is collected by W.M.

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

9. In the last six months, have any modifications been made to the building or to processes in the building? Yes (No)

10. Does the building have air emission sources? Yes

Process Source	Room Number	Hood Number	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Lbs./Yr. Operation	Air Emissions
Weld Develp.	001	4600 10001	(Y)	Ethanol 1,1,1,-TCA Trichloroethane	.016 .027		.192 .324	
Machining Tools	001	4600 1002	(Y) / N	particulates from cutting operations				
Polisher	001		(Y) / N					
Vac. Pumps	001		(Y) / N	Vapors				
			Y / N					

Source: Mound Air Emissions Database 11/30/95

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

11. Describe air pollution control equipment used to reduce emissions for each source. None Listed

Process Source	Emissions	Control Equipment	Functioning
			Y / N
			Y / N
			Y / N
			Y / N
			Y / N

Source: Air Permits 2/4/95

12. For existing permits are emissions monitored? At what frequency? Where are the records maintained? None Listed

Process Source	Permit	Log	Permit Conditions & Frequency of Monitoring
		Y / N	
		Y / N	
		Y / N	
		Y / N	
		Y / N	

Source: Air Permits 2/4/95

13. Does the building have domestic water services? Yes No
Is there bottled water? Yes No

14. Does the building discharge to the storm sewer? Yes No
Where? Roof Drains & Cooling water for electron beam welding

15. Does the building discharge to the sanitary sewer? Yes No
Where? Existing restroom.

16. Has an asbestos survey been conducted? Yes
What are the results? Yes

Source: Technical Manual MD-10391, Issue 3 Asbestos Program Manual 9/6/95

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

17. Does the building contain transformers or capacitors? ~~NO~~ YES

Source: PCB ANNUAL DOCUMENT LOG transformer for electron beam welde

18. Has the building been identified as containing PCBs? NO

Source: PCB ANNUAL DOCUMENT LOG Non PCB oil used in transformer

19. What chemicals are used or stored inside or outside of the building? Include compressed gasses not in large tanks.

Chemical Name	State	Amount (MAX)
ARGON	G	2680 CF
HE/N2 CAL GAS	G	300 CF
HE/O2 CAL GAS	G	600 CF
HELIUM	G	2400 CF
TRICHLOROETHANE	L	4 GA
ACETYLENE	G	30 CF
AR(75)/HE(25)	G	900 CF
CIMCLEAN	L	1 GA
ETHYL ALCOHOL	L	2 GA
~~NITRIC ACID~~	~~L~~	~~1 GA~~
OXALIC ACID	S	500 G
OXYGEN	G	30 CF
SODIUM BICARBONATE	S	2 KG
SODIUM HYDROXIDE	S	3 KG
~~SULFURIC ACID~~	~~L~~	~~1 GA~~
AR(75/CO2(25)	G	300 CF
AR(96)/H2(4)	G	1200 CF
AR/O2/CAL GAS	G	1500 CF
toluene	L	1 L

Source: Chemical Inventory ~~1994~~ 1995

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

20. Has there been a reported spill, leak, or other release of any chemical? Yes (No)
What, how much, and what clean-up measures were followed?

Chemical	Amount	Clean-up Measures

Source: _____

21. Where do waste chemicals go?

Excess materials transfer to Waste Mgmt.

22. What janitorial supplies are stored inside or outside of the building?

General normal janitorial cleaning supplies inside.

23. Where do excess janitorial supplies go?

Excess materials transferred to waste management.

Source: _____

24. Are pesticides or herbicides stored or used in or around the building? Yes (No)

Chemical	Amount	Chemical	Amount

Source: _____

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

25. Does the building contain active or inactive above ground storage tanks? Yes (No)
For each tank, list the content, quantity, last inspection, registration number.

Registration Number	Content	Quantity	Last Inspection Date	Preventive Maintenance Performed	Inside Or Outside
7697-37-2	Nitric Acid	01C		Y / N	
7440-37-1	Argon	01C		Y / N	
7664-93-9	Sulfuric Acid	01C		Y / N	
				Y / N	

Never had any tanks

There has never been any storage tanks at the bldg

Source: Emergency and Hazardous Chemical Inventory Form - Chemical Storage Tanks on EGG Mound Site Owned and Maintained by Outside Contractors 8/8/94

26. Is there a sump ~~or pit~~ or underground tank in or around the building?
Yes (No) Unknown
Is it double-walled? What does it contain? How many days per year is it filled?
Is there an emergency overflow tank? Have there been previous overflows?

Double-Walled	Contents	Days/Year in Use	Overflow Tank	Previous Overflow
Y / N			Y / N	Y / N

Source: _____

27. Does the building generate, store, or dispose of hazardous waste? (Yes) No

Materials	Amount
Very small amounts of oxalic acids	mL / month
Waste oil (vacuum pump types)	

Source: _____

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

28. Does the building have abandoned process equipment such as tanks, piping, containers, etc.? Yes **No**

29. Is waste material stored in or around the building for more than 90 days?
Yes ~~No~~ waste drum collection of pump oil

30. Has the building been identified as a 90-day waste accumulation area?
Yes **No**

31. Has any area in the building been identified as a satellite accumulation area?
Yes ~~No~~ Collection of pump oil, waste drum oil

32. Is mixed waste generated, stored, or disposed of from the building? Yes **No**
Where are logs found?

Process	Waste	Stored	Disposed	Logs
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N

Source: _____

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

33. Is TRU radioactive waste generated, stored, or disposed of from the building?
Yes No
Where are logs found?

Process	Waste	Stored	Disposed	Logs
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N

Source: _____

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

34. Is low-level radioactive waste generated, stored, or disposed of from the building? Yes No
Where are logs found?

Process	Waste	Stored	Disposed	Logs
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N

Source: _____

35. Identify all administrative orders, temporary or permanent injunctions, civil administrative penalties, or criminal activities issued against the building.

None

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Building Manager's Questionnaire

Building Name: 46 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

36. Is there a waste minimization program in the building? Yes No
Discuss your ideas about how to minimize waste.

Collect scrap metal for recycle

37. Has a pollution prevention program been developed for the building? Yes No

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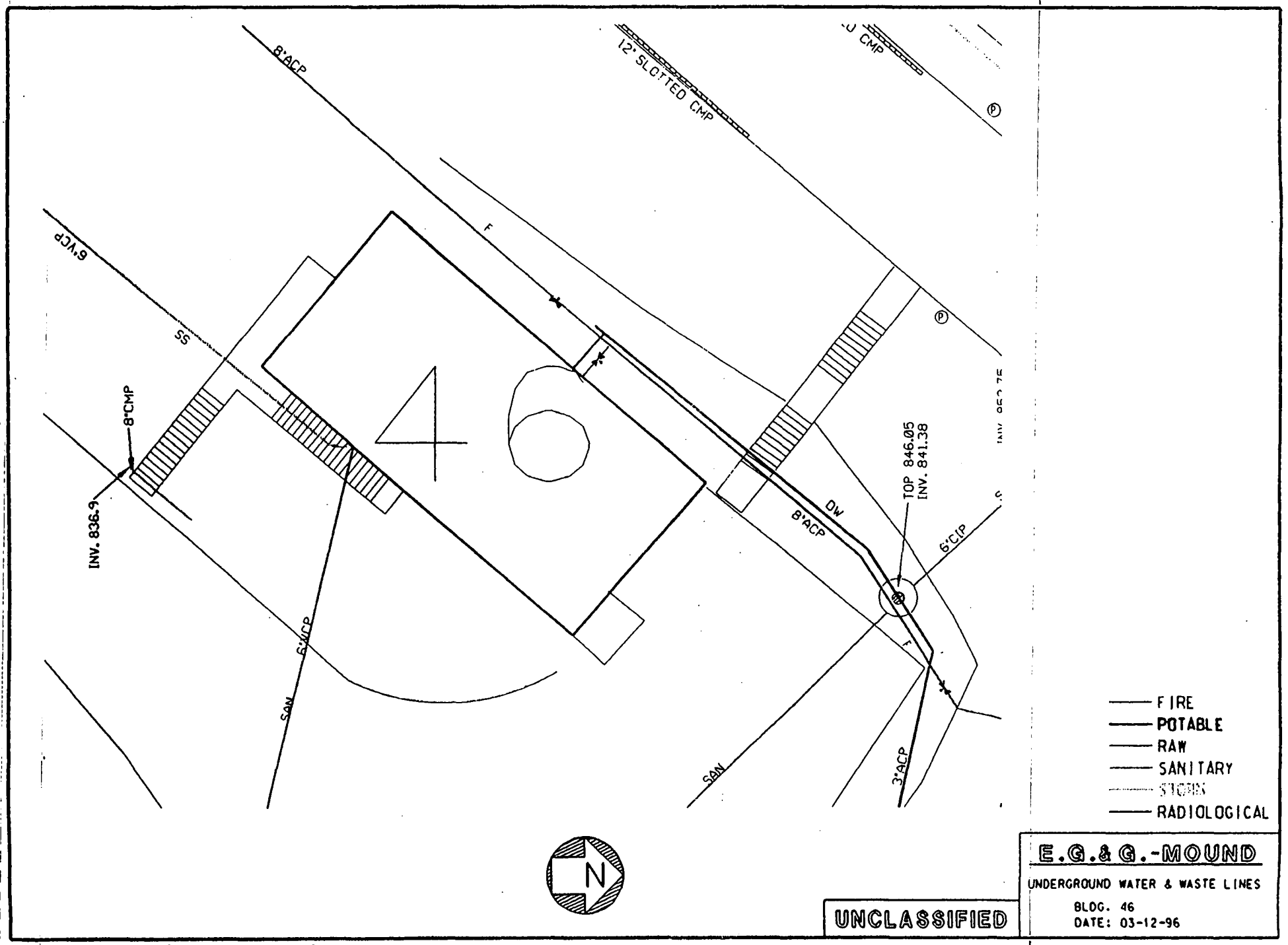
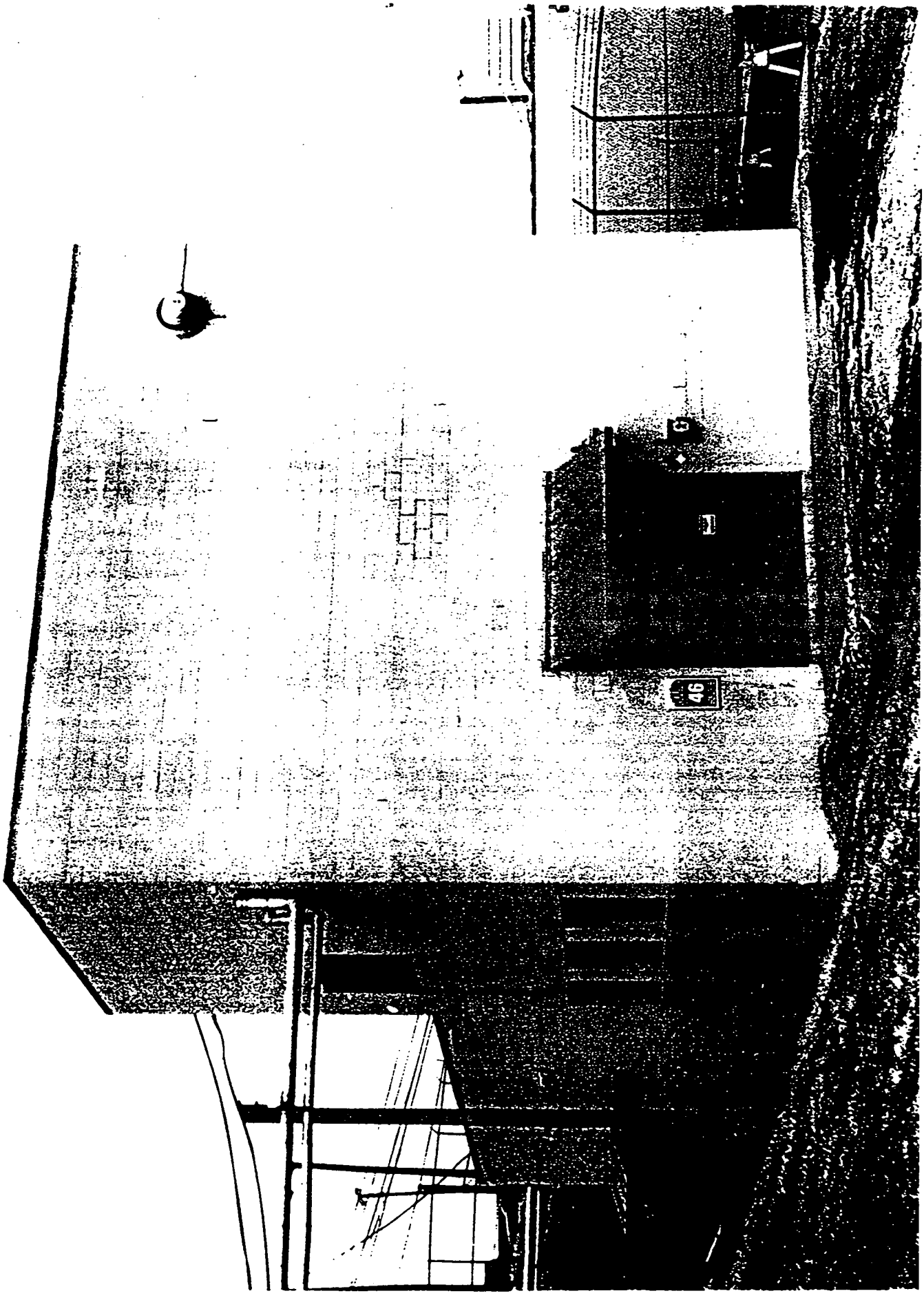
9.68-51

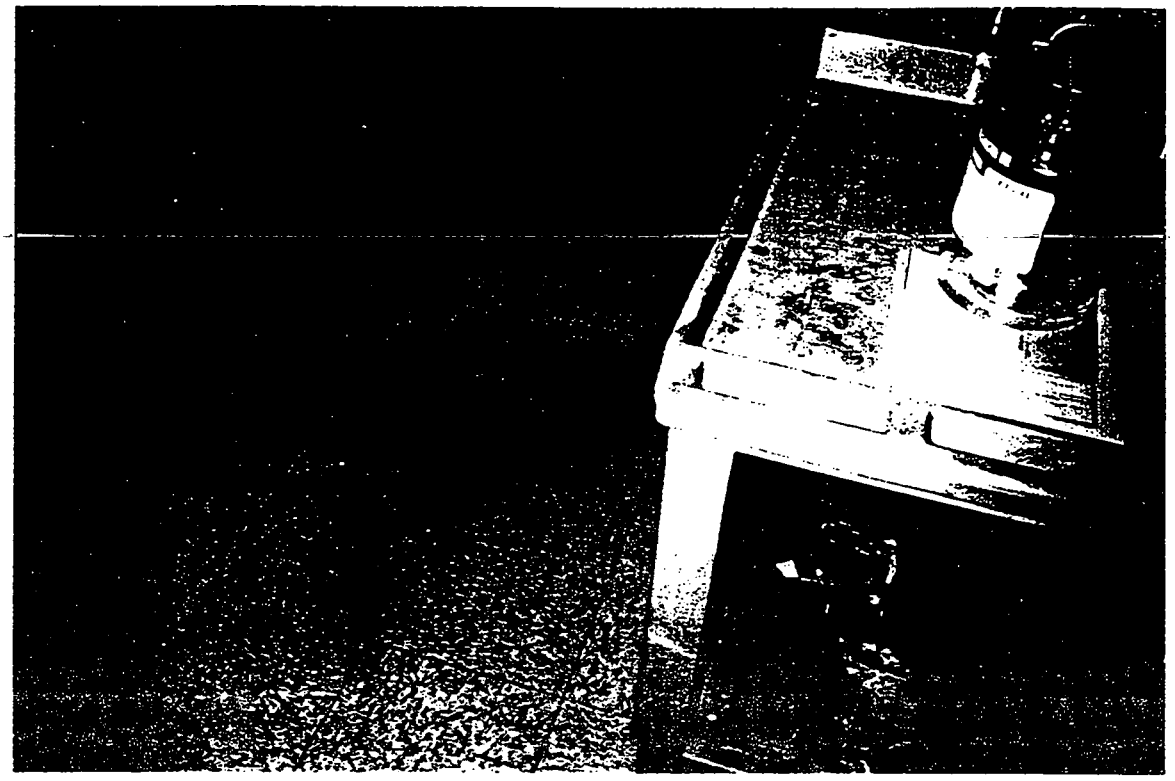

8"ACP
12" SLOTTED CMP
CMP
6"VCP
SS
8"CMP
INV. 836.9
F
46
6"UCP
SAN
DW
8"ACP
TOP 846.05
INV. 841.38
6"CIP
F
SAN
3"ACP
N
FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL
E.G.&G.-MOUND
UNDERGROUND WATER & WASTE LINES
BLDG. 46
DATE: 03-12-96
UNCLASSIFIED

9.63-65

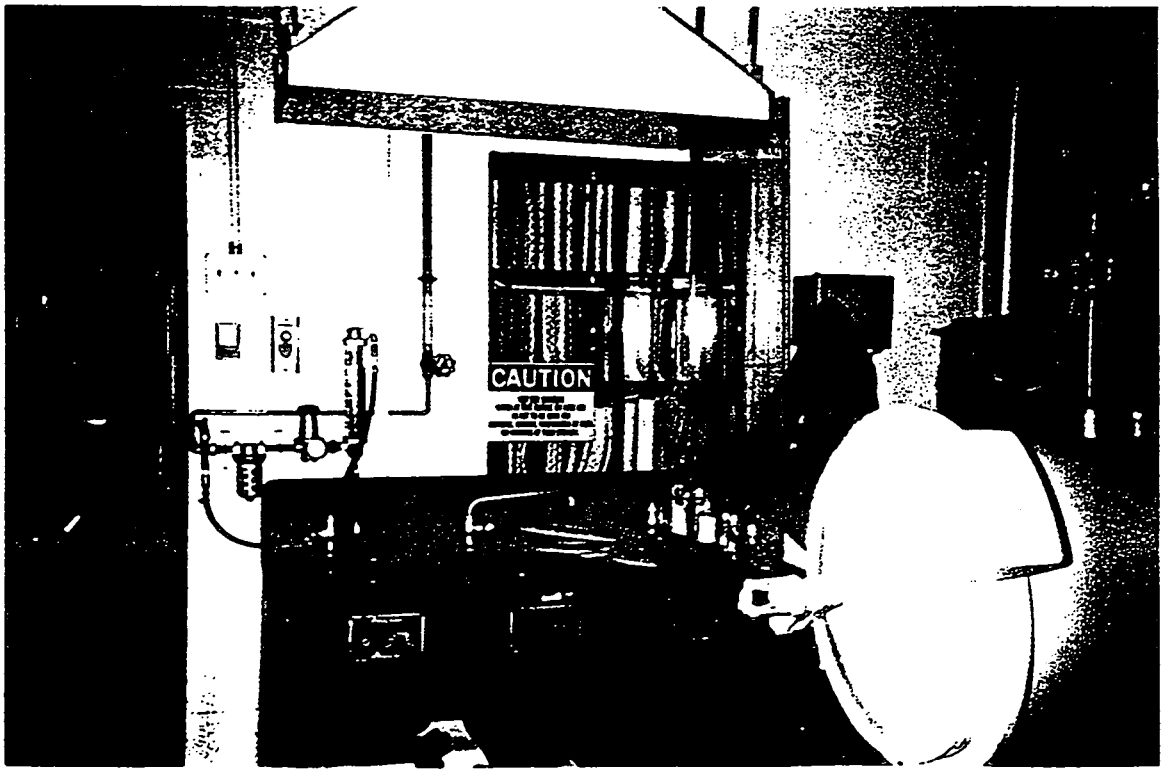


Mound Plant Building 46

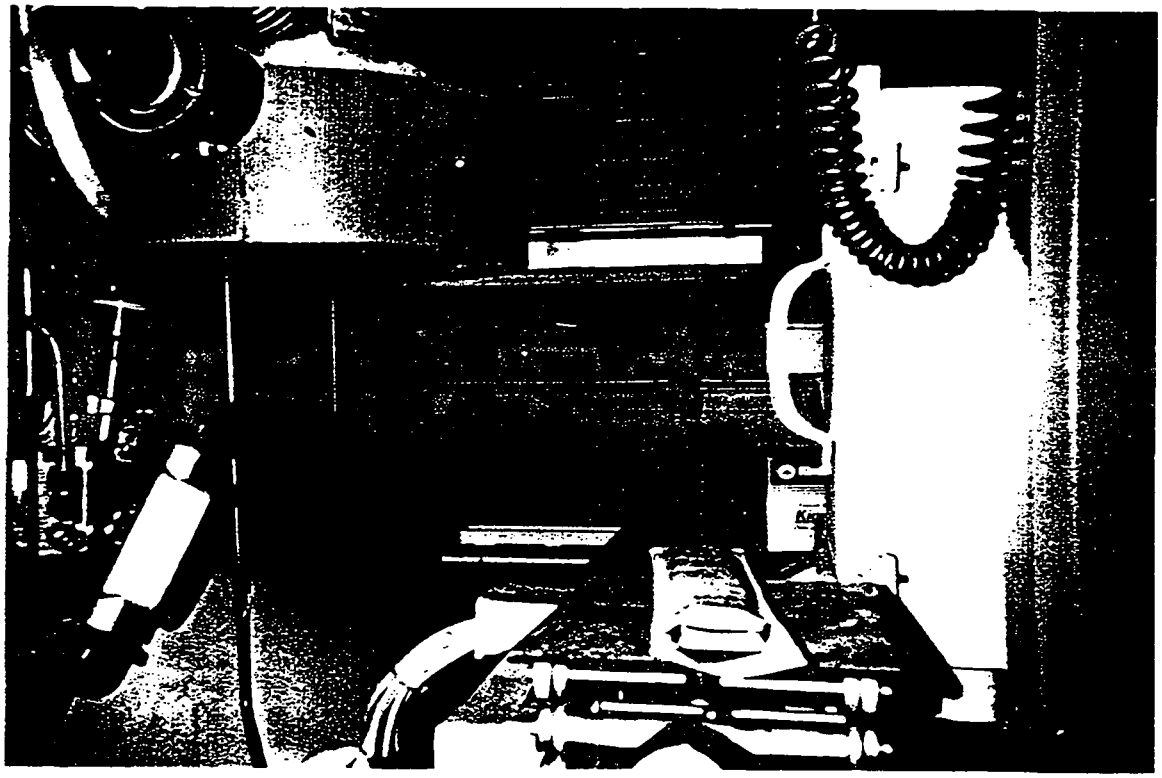
F 48 A 76 50



In Building 46 an open drain provides a pathway for oil leaks to surface water.



Sinks provide potential for release of used chemicals to sanitary system.

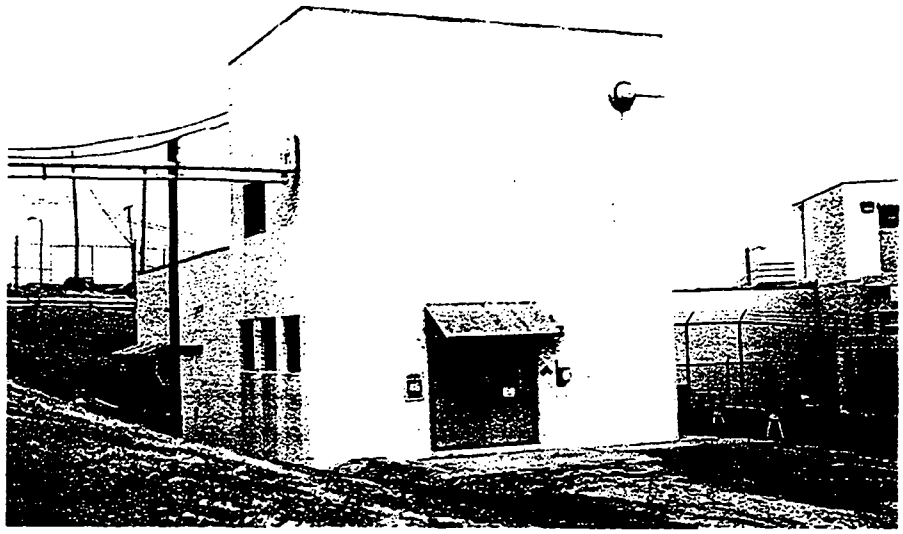


In Building 46 a PCB-free label needs to be affixed to high-voltage transformer.

Appendix G

Radiological Information

Final Status Report
For
Building 46



Prepared by: Roderick C. Case / Date: June 2, 2003

Reviewed by: Galen Tomlinson Date: 6-3-03

Approved by: Steve Collins / Date: 6/4/03

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1.0 Historical Review

Building 46 was constructed in 1969 as the Welding Development Facility. The current floor space as noted in contemporary documents is 2,439-ft^2. The main floor consists of the laboratory, machine shop area, office, and restroom facilities. A second floor penthouse contains the HVAC and building support equipment.

Building 46 housed specialized welding facilities that were used for welding development efforts in support of the heat source and energetic materials programs. Machine shop operations are also conducted in the building. The building has been used for the same purpose since its construction and no research, development, or production activities using radioactive materials have occurred in the building.

A complete history of Building 46 can be found in Reference 1.

2.0 Survey Objectives

The objective of this survey plan is to confirm the classification of Building 46 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/100cm^2)*				
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

The characterization survey was designed to evaluate the 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 Penthouse)

Since the variability is expected to be small within the survey unit, the Type I error chosen is $\alpha = 0.05$ and the Type II error is $\beta = 0.01$. 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 and the relative shift was calculated as 2.95. The required number of data points ($n = 20$) was obtained from Table 5.5, Reference 2.

Twenty (20) judgmental data points were placed throughout each survey unit and are broadly representative of the survey unit. Hallways and major walkways throughout the building were scanned for alpha contamination.

Ten (10) judgmental data points were placed on the roof area and ten (10) judgmental data points were located on exterior walls.

Direct measurements were obtained on any laboratory fixtures in the survey unit (fume hood, etc.).

Floor drains and ventilation units were evaluated for residual activity. If no sediment was available in these areas, smears were obtained for analysis. Direct alpha and beta readings were taken at each sediment sample location.

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 data logger with a 43-20 hand-held gas flow proportional (GFP) detector and a 43-37 GFP large area floor probe for alpha measurements. A Ludlum 2360 with an L 43-93 scintillation probe was used for beta measurements in accordance with Reference 4. 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 ~~was~~ were collected and compared directly to the $DCGL_w$. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1.

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	44	21.1	4.44	1175	609	141
Survey Unit 2	77	42.5	6.63	1650	907	123

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	± σ	Max	Average	± σ
Survey Unit 1	2.44	0.60	0.36	5.4	1.5	0.73
Survey Unit 2	4.37	1.42	0.78	6.85	2.59	0.84

The highest removable tritium activity was 45.2 dpm/100cm2 (RSDS# 03-TF-0116). The average removable tritium was 4.80 dpm/100cm2 (±2.61).

The floors and major walkways in Survey Units 1 & 2 were scanned for alpha activity. The highest activity measured was 21 dpm/100cm2 (RSDS# 03-TF-00116.

2.3 Sediment Sample Data

No sediment was observed in floor drains or ventilation units. 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-0117). No activity was observed in any sediment sample above the $DCGL_w$. Direct alpha and beta measurements were taken at each sample location. The highest activity observed was 70 dpm/100cm^2 alpha and 750 dpm/100cm^2 beta.

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Eight data points were selected at random from the sample group of 56 data points. The highest and lowest alpha measurements and corresponding beta measurements were selected from each survey unit. 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
QCU-1 08	6	4.90	11	400	40.0	410
QCU-1 09	33	11.50	22	425	41.2	455
QCU-1 11	6	4.90	17	365	38.2	230
QCU-1 17	44	13.27	33	1105	66.5	900
QCU-1 01	22	9.38	22	1060	65.1	1170
QCU-2 07	77	17.55	66	1650	81.2	1400
QCU-2 13	66	16.2	66	730	54.0	810
QCU-2 16	28	10.58	11	450	42.4	565
Variance (S^2)	673		516	213513		161686
Ratio			1.30			1.32
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

The objective of this survey plan is to confirm the classification of Building 46 as non-impacted. This is accomplished by comparing the survey data to the release criteria in accordance with the MARSSIM (Reference 2). The fixed point, scanning, and smear surveys found no elevated measurement areas above the $DCGL_w$. No activity was found above the $DCGL_w$ on sediment smear samples.

All of the DQO's for this survey plan have been met and no further surveys of building surfaces are required. Building 46 meets the surface release criteria established by DOE Order 5400.5.

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

Building 46 Survey Results

TYPE	RSDS (Radiological Survey Data Sheet)	Location	SURVEY RESULTS (dpm/100 cm^2) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 2)
Highest Alpha Smearable Activity	03-TF-0115	Roof	4.37	20
Highest Alpha Fixed Activity	03-TF-0115	Roof	77	100
Highest Beta Smearable Activity	03-TF-0115	Roof	6.85	1000
Highest Beta Fixed Activity	03-TF-0115	Roof	1650	5000
Highest Tritium Smearable Activity	03-TF-0116	Interior Floor	45.2	10,000

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.

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

3.0 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

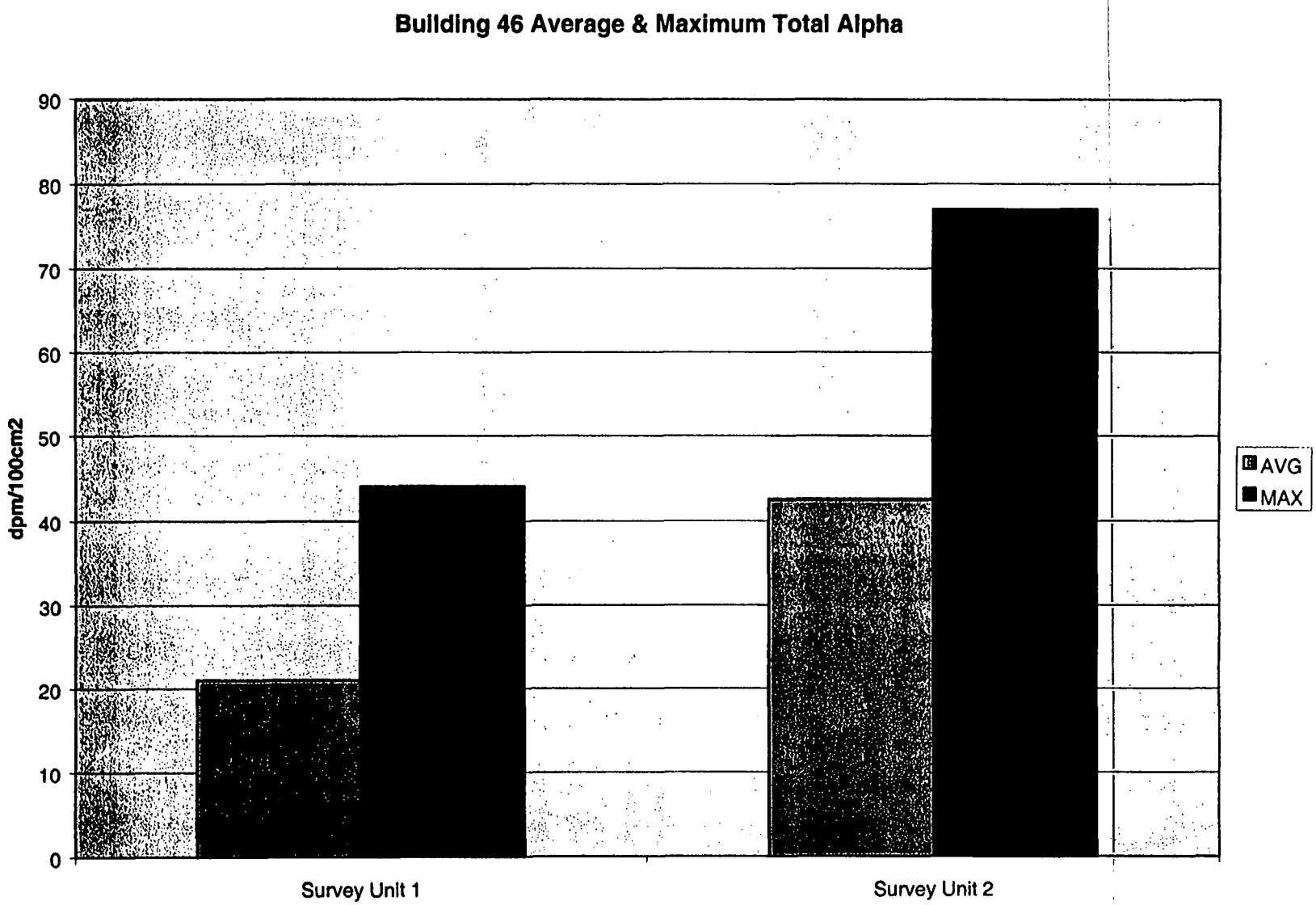
Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 40-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 46 Structural History and Process History Summary Background Document, January 2003
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. 30031,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator,* Section 6.3

Building 46 Final Status Report
Attachment 1



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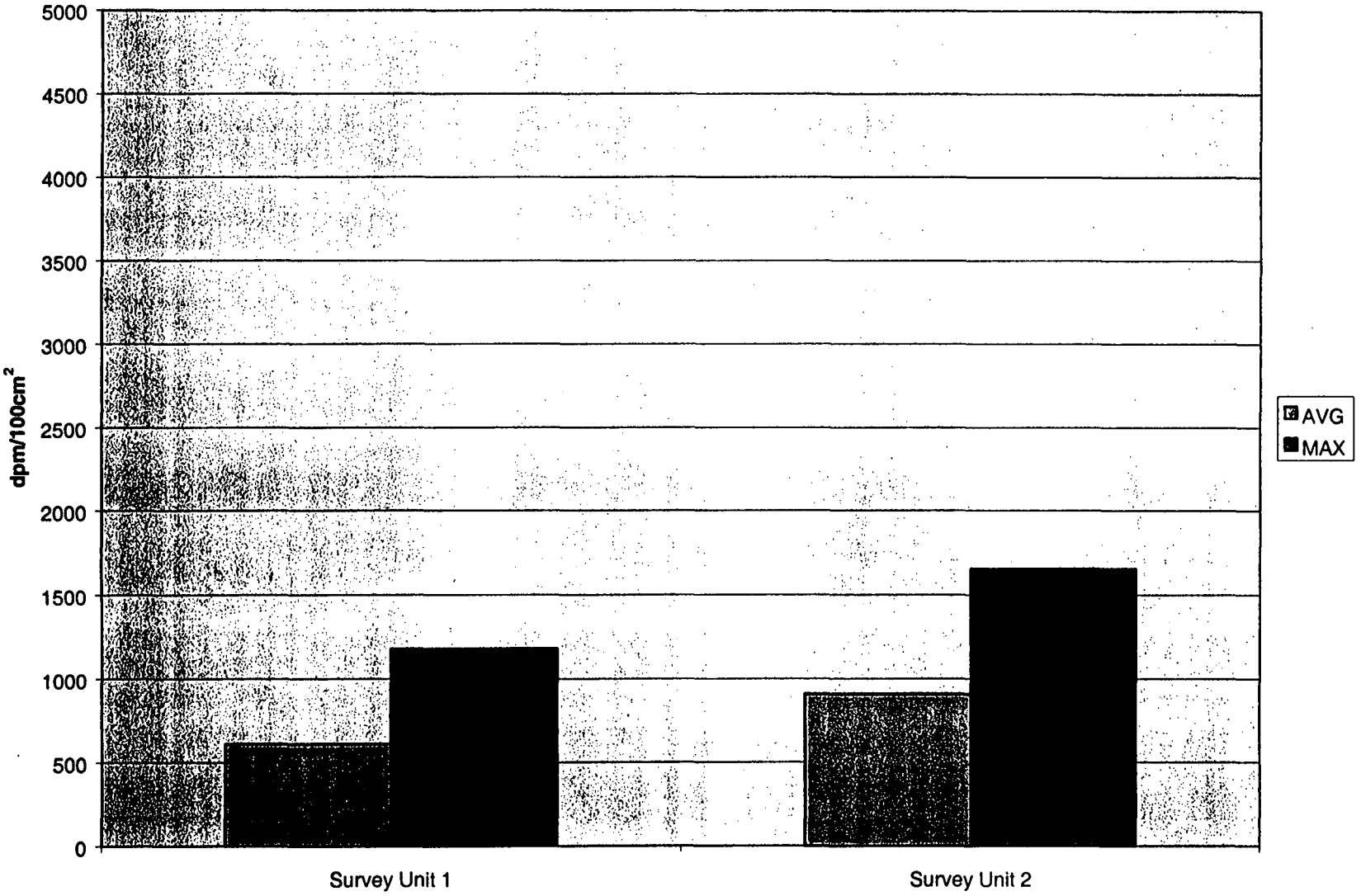
Building 46 Average and Maximum Total Beta Activity



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Building 46 Survey Data Collection Sheet

		Smearable			Fixed	
Location	RSDS#	α	β	H^3	α	β
SU1-01	0116	2.44	0	0.04	17	285
SU1-02	0116	1.59	1.57	0	11	210
SU1-03	0116	0	0	3.38	22	700
SU1-04	0116	1.65	2.12	0	28	680
SU1-05	0116	0	0	0	22	340
SU1-06	0116	0	0	0	22	485
SU1-07	0116	0	5.39	0	11	470
SU1-08	0116	0	1.57	45.18	6	400
SU1-09	0116	0	2.25	1.1	33	425
SU1-10	0116	0	0.24	0	22	380
SU1-11	0116	1.44	0	5.73	6	365
SU1-12	0116	1.36	4.84	7.76	11	460
SU1-13	0116	1.38	0	0	11	285
SU1-14	0116	0	2.46	1.92	22	575
SU1-15	0116	0	3.16	4.71	33	1150
SU1-16	0116	0	2.57	0	33	555
SU1-17	0116	0.49	0	0	44	1105
SU1-18	0116	1.59	1.57	8.37	28	1070
SU1-19	0116	0	2.28	0	22	1065
SU1-20	0116	0	0	5.45	17	1175
SU2-01	0115	2.18	5.32		22	1060
SU2-02	0115	0	1.37		39	1100
SU2-03	0115	0	1.37		39	1000
SU2-04	0115	0	1.37		33	930
SU2-05	0115	0	6.85		50	1230
SU2-06	0115	0	4.11		50	1120
SU2-07	0115	4.37	1.06		77	1650
SU2-08	0115	0	2.74		39	975
SU2-09	0115	2.19	0		44	845
SU2-10	0115	0	4.11		39	1080
SU2-11	0115	0	0		55	460
SU2-12	0115	0	4.11		50	715
SU2-13	0115	4.37	2.43		66	730
SU2-14	0115	0	4.11		28	735
SU2-15	0115	4.37	1.06		22	760
SU2-16	0115	2.19	0		28	450
SU2-17	0115	0	4.11		50	785
SU2-18	0115	2.19	1.21		39	585
SU2-19	0115	4.37	2.43		60	1100
SU2-20	0115	2.18	3.95		20	830
DV-01	0117	0	0	7.8	20	250
DV-02	0117	1.59	0	4.58	0	610
DV-03	0117	0.85	0	9.42	70	265
DV-04	0117	1.65	0	9.41	60	375
Location	RSDS#	α	β	H^3	α	β
DV-05	0117	1.92	0	0	50	400
DV-06	0117	1.1	0.83	9.26	10	240

DV-07	0117	1.15	0	0	30	255
DV-08	0117	0.5	0	10.07	0	325
DV-09	0117	0	1.04	1.63	40	605
DV-10	0117	1.51	0.1	0	10	260
DV-11	0117	0	2.03	15.83	10	750
DV-12	0117	0	4.97	3.4	10	565
DV-13	0117	0	2.14	3.05	20	500
DV-14	0117	0	4.86	0	20	375
DV-15	0117	0.84	1.7	8.58	0	280
DV-16	0117	0	0.14	8.48	-10	310
DV-17	0117	0	3.77	2.78	10	595

	α	β	H^3	α	β
Avg	0.902807	1.812456	4.808919	28.4386	654.0351
SD	1.261022	1.841747	7.976554	19.12648	333.8352
Max	4.37	6.85	45.18	77	1650
#	56	56	36	56	56
+/-	0.330275	0.482374	2.605622	5.009431	87.43504

Floor Scan	dpm/100cm2
U1-FS 01	21
U1-FS 02	14
U1-FS 03	7
U1-FS 04	14

U1-FS 05 14

Notes:
none

	Survey Unit 1				
	Smearable			Fixed	
	α	β	H^3	α	β
Number	20	20	20	20	20
Avg	0.597	1.501	4.182	21.05	609
SD	0.816663	1.658588	10.05973	10.1228	323.21005
Max	2.44	5.39	45.18	44	1175
+/-	0.36	0.73	4.41	4.44	141.65
	Survey Unit 2				
Number	20	20	0	20	20
Avg	1.4205	2.5855	N/A	42.5	907
SD	1.775925	1.922869	N/A	15.13275	280.9542
Max	4.37	6.85	0	77	1650
+/-	0.78	0.84		6.63	123.13
	Survey Unit 3 Drains-Vents				
Number	22	22	22	22	22
Avg	3.362459	4.025753	8.675504	24.3443	442.78661
SD	11.80053	11.77004	11.23043	24.42334	325.67653
Max	56	56	45.18	77	1650
+/-	4.93	4.92	4.69	10.21	136.09
	Scan				
Number	0	0	0	5	0
Avg	N/A	N/A	N/A	14	N/A
SD	N/A	N/A	N/A	4.949747	N/A
Max	0	0	0	21	0
+/-				4.34	

Graph Data Alpha			
	Survey Uni	Survey Uni	Survey Unit3
AVG	21.05	42.5	24.344296
MAX	44	77	77

Graph Data Beta			
	Survey Uni	Survey Uni	Survey Unit3
AVG	609	907	442.78661
MAX	1175	1650	1650

Instrument Data

Building 46 Survey and Sample Data

	Inst	SN	CDD	RSDS	α Bkg(cpm)	β Bkg(cpm)
1	L2350	5856/5148	5/12/04	0115	0.04	
2	L2360	5833/5847	3/13/04	0115		175
3	L2350	5856/5675	5/12/04	0116	0.08	
4	L2360	5833/5847	3/13/04	0116		170
5	L2360	5833/5847	3/13/04	0117	1	170

Sample Data
Liquid pCi/g

Location	H3	α	β
2			
7			
9			
12			
13			

Sediment Data pCi/g

4			
14			

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

Replicate Fixed Point QC

alpha (dpm/100cm2)	beta (dpm/100cm2)

Location #	initial	2σ	replicate	initial	2σ	replicate
QCU-1 08	6	4.90	11	400	40.00	410
QCU-1 09	33	11.49	22	425	41.23	455
QCU-1 11	6	4.90	17	365	38.21	230
QCU-1 17	44	13.27	33	1105	66.48	900
QCU-2 01	22	9.38	22	1060	65.12	1170
QCU-2 07	77	17.55	66	1650	81.24	1400
QCU-2 13	66	16.25	66	730	54.04	810
QCU-2 16	28	10.58	11	450	42.43	565
Variance (S2) =	672.7857		516.00	213513.84		161685.71
Ratio			1.303848			1.3205486
Agreement			YES			YES

QC Measurements	RSDS#	
Location	α	β
QCU-1 08	11	410
QCU-1 09	22	455
QCU-1 11	17	230
QCU-1 17	33	900
QCU-2 01	22	1170
QCU-2 07	66	1400
QCU-2 13	66	810
QCU-2 16	11	565

G1606 45

SURVEY PLAN FORM

SPF NUMBER	46-01	**DATE OF REQUEST**	April 21, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 46		
PURPOSE	The purpose of this SP is to characterize Building 46 to support decisions on final disposition.		
SURVEY UNIT # 1	Internal Surfaces	**SURVEY UNIT**	
SURVEY UNIT # 2	External Surfaces and Penthouse	**SURVEY UNIT**	
SURVEY UNIT		**SURVEY UNIT**	

SAMPLE TYPE

☐ **SURFACE SOIL SAMPLE:**

☐ **SUB-SURFACE SOIL SAMPLE:**

☒ **SEDIMENT SAMPLE:** See specific sediment sampling instructions on page 2.

☐ **Rubbelized Material:**

☐ **OTHER:**

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Scan surface at a rate of 1" per second at a distance of not more than ¼" from surface
		PROBE TYPE	43-37 Floor Probe or 43-20 Hand Probe		
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Perform 1 minute counts at specified locations not more than ¼" from surface
		PROBE TYPE	43-20 Hand Probe		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE**	L 2360	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Issue 29, Op. No. 30031, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	L 43-93		
DOSE RATE MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE**		**DETECTOR DISTANCE FROM SURFACE**	
		PROBE TYPE			
OTHER SURVEY TYPES OR COMMENTS	All surveys shall be performed and documented in accordance with Mound Radiological Control procedures. Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Survey Plan Continuation Sheet.				

SPF NUMBER	46-01	DATE OF REQUEST	April 21, 2003

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Safety Considerations

1. 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.
2. Ensure ventilation units are de-energized prior to attempting to collect a sample. Obtain approval and assistance from the responsible building custodian to dismantle any equipment for sample collection.

Floor Scan Measurements using a Ludlum 2350 with 43-37 alpha probe

1. Set the Ludlum 2350-1 datalogger to alarm at 75dpm/100cm^2 in the ratemeter mode.
2. Perform a floor scan of hallways and major walkways throughout the building.
3. Perform a 30 second integrated count at every location where an alarm is obtained. In addition, obtain a 30 second integrated count at any point where an audible or visual indication of elevated activity is observed at twice the background rate.
4. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

Static Measurements Using L 2350 with 43-20 (alpha) probe and L 2360 with 43-93* (beta) probe

1. Perform an alpha and beta count on at least twenty (20) data points in Survey Unit 1. Data points are selected by the surveyor and should be broadly representative of the entire survey unit.
2. Perform an alpha and beta measurement on at least ten (10) data points on the roof and penthouse areas. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit.
3. Perform an alpha and beta measurement on at least ten (10) data points on the building exterior walls and exposed foundations. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit.
4. Perform an integrated alpha and beta count at each sediment sample location.
5. Perform at least 5 integrated alpha and beta counts each in fume hood, on laboratory benches, horizontal structural surfaces, and remaining installed equipment at locations selected by the surveyor.
6. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
7. Document gross activity for each location (No "<" values). Record instrument background at survey location.

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 Samples

1. Collect approximately 250ml of debris from each accessible ventilation unit opening, floor drain, roof gutter and any other area where debris has accumulated.
2. If insufficient material is present at these sample locations, obtain a representative smear of the location.
3. Document sample information and description of material on Attachment 1.
4. Label sample container with sample number, date and time of collection, and location in accordance with Mound procedures.
5. Show sample location on the RSDS map.
6. Submit sediment samples to laboratory for gamma spectroscopy analysis. Submit smears for gross alpha and beta analysis.

Continued Next Page

7. Additional intrusive samples may be collected in areas of elevated activity as determined by the MARSSIM Engineer.

Quality Control

1. QC measurements will be performed by re-surveying 8 data points. Data points selected for resurvey should include the highest and lowest readings from the data set.
2. Sediment samples or smears with measured activity above the MDA may be resubmitted for replicate analysis. Ensure 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.

APPROVAL SIGNATURES			
MARISSM Engineer	R. Case	DATE	April 21, 2003
Technical Reviewer	RM Coblentz	DATE	04/28/03
Rad Con Manager	AS Collas	DATE	4-28-03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	DATE	6-2-03
Technical Reviewer	G. TOMLINSON	DATE	6-3-03
Rad Con Manager	S Collas	DATE	6/4/03

COMMENTS

* A L43-89 PROBE MAY BE SUBSTITUTED

Attachment 2

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
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									
46-01-									

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 46	SURVEY NO. 03-TF-0117
PURPOSE: MARISSM SURVEY PLAN 46-01 DRAINS AND VENTILATION SYSTEM	RWP NO. N/A
	DATE: 5-28-03
	TIME: 1530

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5833/5847	3-13-04
	N/A	

Completed by: (Signature)	HP# [redacted]	Date: 5-29-03
Completed by: (Print Name) DANIEL J. HARVEY		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 5-29-03
Reviewed/Approved by: (Print Name) R. CASE		

ML-9620 (2-98)

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03-TF-0117

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				FLOOR DRAIN
2				↓
3				ROOM VENTILATION
4				↓
5				
6				↓
7				FUME HOOD
8				↓
9				
10				ROOM VENTILATION
11				↓
12				
13				↓
14				FLOOR DRAINS
15				↓
16				
17	↓	↓	↓	↓
		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)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR006
Batch Ended: 5/28/03 15:05
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: 03-TF-0117 HARVEY-17 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.07		0.00	1.44	
A2	2	1.59	1.90		0.00	1.37	
A3	3	0.85	2.23		0.00	1.46	
A4	4	1.65	1.98		0.00	1.35	
B1	5	1.92	1.96		0.00	1.45	
B2	6	1.10	2.10		0.83	2.21	
B3	7	1.15	2.18		0.00	1.45	
B4	8	0.50	2.13		0.00	1.38	
C1	9	0.00	2.02		1.04	1.78	
C2	10	1.51	1.82		0.10	1.68	
C3	11	0.00	2.15		2.03	2.59	
C4	12	0.00	2.07		4.97	3.13	
D1	13	0.00	2.09		2.14	3.28	
D2	14	0.00	2.22		4.86	2.73	
D3	15	0.84	2.24		1.70	2.35	
D4	16	0.00	2.26		0.14	1.84	
A1	17	0.00	2.12		3.77	2.91	

DGH DGH

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DGH
5-29-03

B J Brown

28 May 2003 18:49 ALPHA/BETA - 1.09
Protocol #: 2 Pw H3 405828 User : 5268

DGH 5-29-03

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

	LL	UL	LCR	2SI	BKG
Region A:	0.5 -	18.6	0	0.0	5.65
Region B:	2.0 -	18.6	0	0.0	5.61
Region C:	40.0 -	2000	0	0.0	12.95

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0117 HARVEY-17 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	5.65	5.61	0	B	482.18		0.00	12.95
0	2.00	590.41	564.13	0		473.81	1329.67	127.55	7.62
1	2.00	3.85	3.40	0		583.46	7.80	9.36	0.00
2	2.00	2.35	1.56	0		629.06	4.58	8.34	3.55
3	2.00	4.24	2.71	0		482.91	9.42	10.46	4.03
4	2.00	4.35	4.39	0		508.07	9.41	10.23	0.00
5	2.00	0.00	0.00	0		345.69	0.00	0.00	0.00
6	2.00	4.35	4.10	0		526.44	9.26	10.07	0.00
7	2.00	0.00	0.00	0		396.91	0.00	0.00	0.00
8	2.00	4.85	4.20	0		554.47	10.07	10.04	0.00
9	2.00	0.85	0.89	0		652.22	1.63	7.47	0.00
10	2.00	0.00	0.00	0		567.84	0.00	0.00	0.00
11	2.00	7.90	6.90	0		595.54	15.83	10.93	0.00
12	2.00	1.46	1.50	0		448.59	3.40	9.48	0.00
13	2.00	1.35	1.39	0		473.08	3.05	9.09	0.00
14	2.00	0.00	0.00	0		391.85	0.00	0.00	0.00
15	2.00	4.35	3.79	0		614.40	8.58	9.33	0.00
16	2.00	3.85	3.89	0		490.01	8.48	10.18	0.00
17	2.00	1.35	1.39	0		566.09	2.78	8.29	0.55

DGH

BJBrown

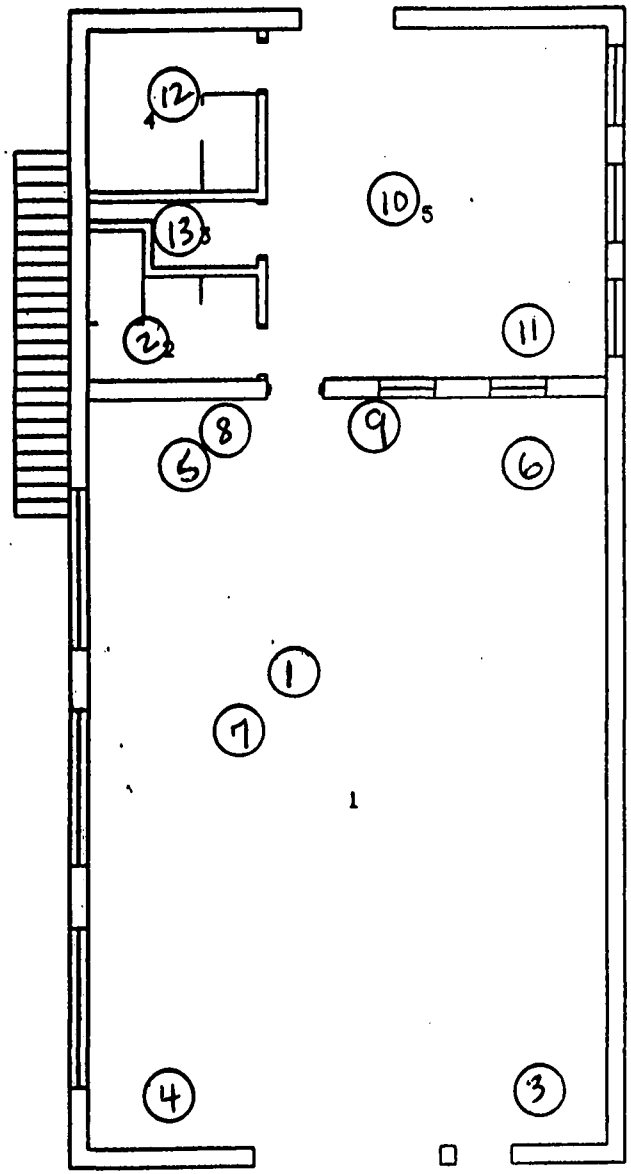
46-BLDG CHARACTERIZATION DRAINS AND VENTILATION ALPHA AND BETA

RSDS# 03-TF-0117 RCT: [illegible] RCT: N/A

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	[redacted]	5847	1	5/28/03	220	60	250	3	60	20
2	5833	[redacted]	5847	2	5/28/03	292	60	610	1	60	0
3	5833	[redacted]	5847	3	5/28/03	223	60	265	8	60	70
4	5833	[redacted]	5847	4	5/28/03	245	60	375	7	60	60
5	5833	[redacted]	5847	5	5/28/03	250	60	400	6	60	50
6	5833	[redacted]	5847	6	5/28/03	218	60	240	2	60	10
7	5833	[redacted]	5847	7	5/28/03	221	60	255	4	60	30
8	5833	[redacted]	5847	8	5/28/03	235	60	325	1	60	0
9	5833	[redacted]	5847	9	5/28/03	291	60	605	5	60	40
10	5833	[redacted]	5847	10	5/28/03	222	60	260	2	60	10
11	5833	[redacted]	5847	11	5/28/03	320	60	750	2	60	10
12	5833	[redacted]	5847	12	5/28/03	283	60	565	2	60	10
13	5833	[redacted]	5847	13	5/28/03	270	60	500	3	60	20
14	5833	[redacted]	5847	14	5/28/03	245	60	375	3	60	20
15	5833	[redacted]	5847	15	5/28/03	226	60	280	1	60	0
16	5833	[redacted]	5847	16	5/28/03	232	60	310	0	60	-10
17	5833	[redacted]	5847	17	5/28/03	289	60	595	2	60	10
BETA BACKGROUND FOR 5-28-2003 WAS---------->								170			
ALPHA BACKGROUND FOR 5-28-2003 WAS---------->								1			

G2526 45

ISS	DATE	REVISION	BY	CHKR	CHD	UNEC	APVD	R
B	12/12/91	ASBUILT ISSUE	DCW				DVD	



UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: JRBm

BLDG #46
FIRST FLOOR
BLDG CODE:3046

SHEET	1	2	3	4	5	6	TITLE	(U) TITLE CLASSIFICATION
ISSUE	B	B					BLDG #46 FLOOR PLANS	
PART CLASSIFICATION								
DRAWING CLASSIFICATION: UNCLASSIFIED							SIZE: C	DRAWING NUMBER: FSC911256
								JOB NUMBER: 12333
JOB TYPE: SFP							CODE: BLDG 46	CODE: 14046
MO[redacted]2/12/[redacted]								[redacted]R3-V3[redacted]

[redacted] 0 [redacted] TF-0117 [redacted] 4 of 7 [redacted]

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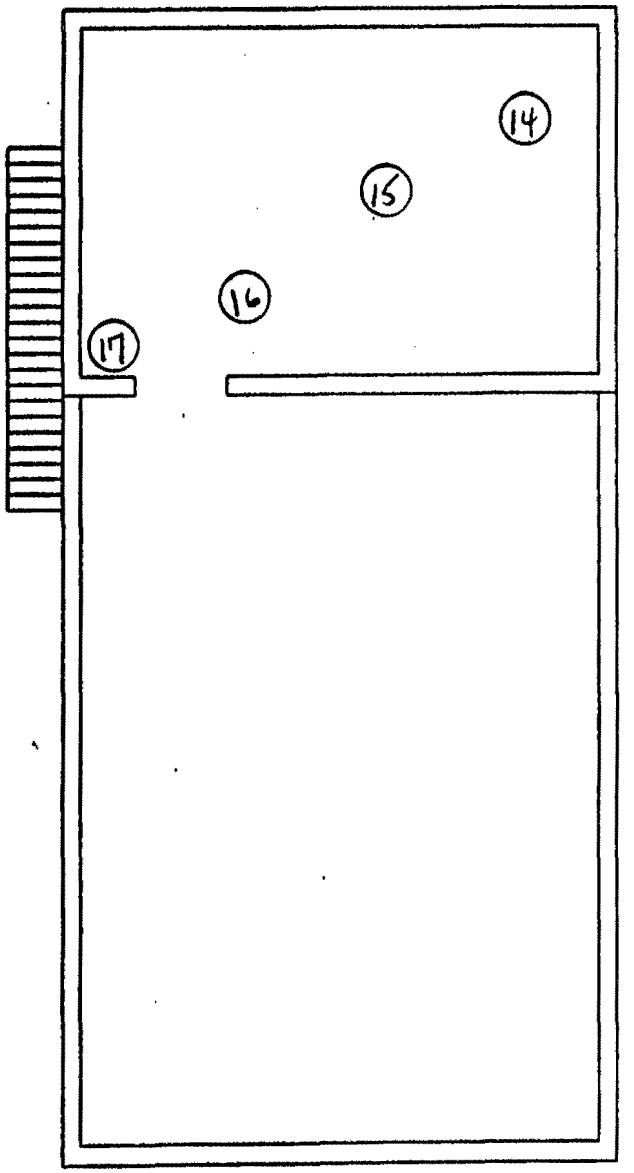

UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: GDM

0 1' 3' 5' 10'

N

BLDG #48
PENTHOUSE
BLDG CODE:3048

DRAWING NUMBER FSC911256	JOB NUMBER 12335
DRAWING CLASSIFICATION UNCLASSIFIED	
REV C	CODE 14865 / SCALE AS NOTED
	SHEET 8 / SHEET 2
STATUS MO-REL-12/12/91	

03-TF-0117 DGH 7 of 7

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 46	SURVEY NO. 03-TF-0115
PURPOSE: MARSSM SURVEY PLAN 46-01 SURVEY UNIT 2	RWP NO. N/A
	DATE: 5-27-03
	TIME: 1430

MAP/DRAWING

SEE ATTACHED

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5833/5847	3-13-04
2350	5856/5148	5-12-04
	N/A	

Completed by: (Signature)	HP# [redacted]	Date: 5-29-03
Completed by: (Print Name) DANIEL J. HARVEY		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 5-29-03
Reviewed/Approved by: (Print Name) LCASE		

ML-9620 (2-98)

03-TF-0115

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200305281443	**Count Date:**	5/28/2003
Group:	E	**Count Minutes:**	1.5
Serial Number:	~~78218-1~~	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0115 HARVEY-20 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

	Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13		**Alpha to Beta:**	11.39	±	0.00
Beta:	46.13	±	0.13		**Beta to Alpha:**	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	37	2.18	1.92	5.32	2.90
2	15	0.00	0.00	1.37	1.45
3	75	0.00	0.00	1.37	1.45
4	35	0.00	0.00	1.37	1.45
5	68	0.00	0.00	6.85	3.23
6	65	0.00	0.00	4.11	2.50
7	43	4.37	2.72	1.06	1.46
8	14	0.00	0.00	2.74	2.04
9	13	2.19	1.92	0.00	0.16
10	2	0.00	0.00	4.11	2.50
11	52	0.00	0.00	0.00	0.00
12	100	0.00	0.00	4.11	2.50
13	69	4.37	2.72	2.43	2.06
14	29	0.00	0.00	4.11	2.50
15	93	4.37	2.72	1.06	1.46
16	61	2.19	1.92	0.00	0.16
17	79	0.00	0.00	4.11	2.50
18	3	2.19	1.92	1.21	1.45
19	40	4.37	2.72	2.43	2.06
20	30	2.18	1.92	3.95	2.51

DJH DJH

B J Brown

Batch ID: 03-TF-0115 HARVEY-20 BSB

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~~Page 1 of 1~~

DJH 5-29-03

46 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 2

RSDS# 03-TF-0115 RCT: DJH RCT: N/A

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	[redacted]	5148	2		5/27/03	10:14	11	300	12	
SRC CHECK	5856	[redacted]	5148	2		5/27/03	10:17	2111	60	11663	
SRC CHECK	5856	[redacted]	5148	2		5/27/03	10:18	2098	60	11591	
SRC CHECK	5856	[redacted]	5148	2		5/27/03	10:20	1993	60	11011	
SRC CHECK	5856	[redacted]	5148	2		5/27/03	10:22	2117	60	11696	
U-2 01	5856	[redacted]	5148	2	1	5/27/03	10:36	4	60	22	
U-2 02	5856	[redacted]	5148	2	2	5/27/03	10:37	7	60	39	
U-2 03	5856	[redacted]	5148	2	3	5/27/03	10:42	7	60	39	
U-2 04	5856	[redacted]	5148	2	4	5/27/03	10:44	6	60	33	
U-2 05	5856	[redacted]	5148	2	5	5/27/03	10:45	9	60	50	
U-2 06	5856	[redacted]	5148	2	6	5/27/03	10:47	9	60	50	
U-2 07	5856	[redacted]	5148	2	7	5/27/03	10:49	14	60	77	
U-2 08	5856	[redacted]	5148	2	8	5/27/03	10:50	7	60	39	
U-2 09	5856	[redacted]	5148	2	9	5/27/03	10:52	8	60	44	
U-2 10	5856	[redacted]	5148	2	10	5/27/03	10:54	7	60	39	
U-2 11	5856	[redacted]	5148	2	11	5/27/03	12:26	10	60	55	
U-2 12	5856	[redacted]	5148	2	12	5/27/03	12:28	9	60	50	
U-2 13	5856	[redacted]	5148	2	13	5/27/03	12:30	12	60	66	
U-2 14	5856	[redacted]	5148	2	14	5/27/03	12:32	5	60	28	
U-2 15	5856	[redacted]	5148	2	15	5/27/03	12:36	4	60	22	
U-2 16	5856	[redacted]	5148	2	16	5/27/03	12:39	5	60	28	
U-2 17	5856	[redacted]	5148	2	17	5/27/03	12:42	9	60	50	
U-2 18	5856	[redacted]	5148	2	18	5/27/03	12:44	7	60	39	
QCU-2 13	5856	[redacted]	5148	2		5/27/03	12:47	12	60	66	
QCU-2 16	5856	[redacted]	5148	2		5/27/03	12:49	2	60	11	

46-BLDG CHARACTERIZATION BETA SURVEY UNIT 2

RSDS# 03-TF-0115 RCT: DJH RCT: N/A

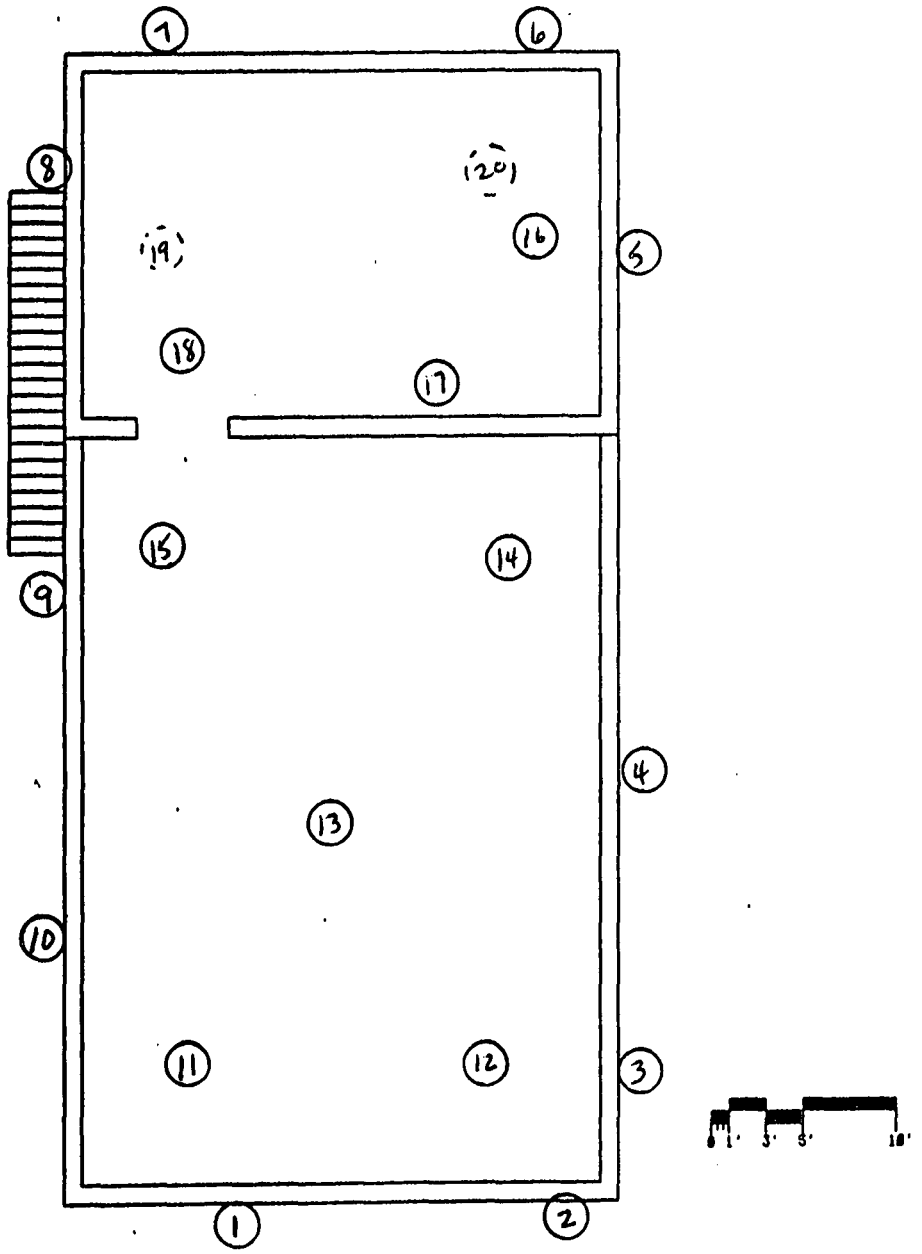
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
1	5833	[redacted]	5847	1	5/27/03	387	60	1060
2	5833	[redacted]	5847	2	5/27/03	395	60	1100
3	5833	[redacted]	5847	3	5/27/03	375	60	1000
4	5833	[redacted]	5847	4	5/27/03	361	60	930
5	5833	[redacted]	5847	5	5/27/03	421	60	1230
6	5833	[redacted]	5847	6	5/27/03	399	60	1120
7	5833	[redacted]	5847	7	5/27/03	505	60	1650
8	5833	[redacted]	5847	8	5/27/03	370	60	975
9	5833	[redacted]	5847	9	5/27/03	344	60	845
10	5833	[redacted]	5847	10	5/27/03	391	60	1080
11	5833	[redacted]	5847	11	5/27/03	267	60	460
12	5833	[redacted]	5847	12	5/27/03	318	60	715
13	5833	[redacted]	5847	13	5/27/03	321	60	730
14	5833	[redacted]	5847	14	5/27/03	322	60	735
15	5833	[redacted]	5847	15	5/27/03	327	60	760
16	5833	[redacted]	5847	16	5/27/03	265	60	450
17	5833	[redacted]	5847	17	5/27/03	332	60	785
18	5833	[redacted]	5847	18	5/27/03	292	60	585
QC-13	5833	[redacted]	5847		5/27/03	337	60	810
QC-16	5833	[redacted]	5847		5/27/03	288	60	565
BETA BACKGROUND FOR 5-27-2003 WAS---------->								175

46-BLDG CHARACTERIZATION ALPHA-BETA SURVEY UNIT 2

RSDS#03-TF-0115 RCT: ASH RCT: N/A

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	[redacted]	5847	1	5/27/03	395	60	1100	7	60	60
2	5833	[redacted]	5847	2	5/27/03	341	60	830	3	60	20
BETA BACKGROUND FOR 5-27-2003 WAS---------->								175			
ALPHA BACKGROUND FOR 5-27-2003 WAS---------->								1			

G-34 of 45



UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: QDM

BLDG #46
PENTHOUSE
BLDG CODE:3046

DRAWING NUMBER FSC911256	JOB NUMBER 12335
CLASSIFICATION UNCLASSIFIED	
SIZE C / CODE 14865	SCALE AS NOTED
ISSUE B	SHEET 2
STATUS NO-REL-12/12/91	

03-TF-0115 Doc 7 of 7

G35845

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 46	SURVEY NO. 03-TF-0116
PURPOSE: MARSSM SURVEY PLAN 46-01 FLOOR SCAN AND SURVEY UNIT 1	RWP NO. N/A
	DATE: 5-28-03
	TIME: 1100

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	5856/5875/5148	5-12-04
2360	5833/5847	3-13-04
	N/A	

Completed by: (Signature)	HP# [redacted]	Date: 5-29-03
Completed by: (Print Name) DANIEL J. HARVEY		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 5-29-03
Reviewed/Approved by: (Print Name) L CASE		

ML-9620 (2-98)

G3706 45

03-TF-0116

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	↓	↓	↓	↓
8	↓	↓	↓	↓
9	↓	↓	↓	↓
10	↓	↓	↓	↓
11	↓	↓	↓	↓
12	↓	↓	↓	↓
13	↓	↓	↓	↓
14	↓	↓	↓	↓
15	↓	↓	↓	WALL
16	↓	↓	↓	↓
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)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR007
Batch Ended: 5/28/03 15:11
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: 03-TF-0116 HARVEY-20 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	2.44	2.85		0.00	1.44	
A2	2	1.59	1.93		1.57	2.43	
A3	3	0.00	2.23		0.00	1.46	
A4	4	1.65	2.01		2.12	2.45	
B1	5	0.00	1.95		0.00	1.45	
B2	6	0.00	2.09		0.00	1.85	
B3	7	0.00	2.22		5.39	3.07	
B4	8	0.00	2.15		1.57	2.21	
C1	9	0.00	2.03		2.25	2.15	
C2	10	0.00	1.82		0.24	1.68	
C3	11	1.44	2.13		0.00	1.90	
C4	12	1.36	2.07		4.84	3.13	
D1	13	1.38	2.06		0.00	2.43	
D2	14	0.00	2.20		2.46	2.13	
D3	15	0.00	2.26		3.16	2.69	
D4	16	0.00	2.29		2.57	2.52	

DJH DJH

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BJBrown

3 of 9
~~Page 1 of 1~~
DJH 5-29-03

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR008
Batch Ended: 5/28/03 15:15
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: 03-TF-0116 HARVEY

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	17	0.49	2.07		0.00	1.45	
A2	18	1.59	1.93		1.57	2.43	
A3	19	0.00	2.26		2.28	2.62	
A4	20	0.00	1.98		0.00	1.35	

DJH DJH

Good 45

28 May 2003 19:51 ALPHA/BETA - 1.09
Protocol #: 3 Pw H3 405828
User : 5268
DJH
5-29-03

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

	LL	UL	LCR	2SI	BKG
Region A:	0.5	- 18.6	0	0.0	6.48
Region B:	2.0	- 18.6	0	0.0	6.36
Region C:	40.0	- 2000	0	0.0	11.00

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
~~03-TF-0115~~ HARVEY-20 BSB 03-TF-0116 Harvey 5/28/03 bb
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT3.DAT
Count Data Filename: c:\data\SDATA3.DAT
Spectrum Data Drive & Path: c:\data

LJBrown

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.48	6.36	0	B	514.02		0.00	11.00
0	2.00	238.98	228.00	0		462.74	546.58	65.63	2.50
1	2.00	0.02	0.14	0		448.65	0.04	9.21	0.00
2	2.00	0.00	0.00	0		380.96	0.00	0.00	5.50
3	2.00	1.52	1.08	0		481.42	3.38	9.61	0.00
4	2.00	0.00	0.00	0		563.02	0.00	0.00	0.50
5	2.00	0.00	0.00	0		605.82	0.00	0.00	0.00
6	2.00	0.00	0.00	0		445.03	0.00	0.00	0.00
7	2.00	0.00	0.00	0		461.33	0.00	0.00	0.00
8	2.00	19.52	19.12	0		454.22	45.18	17.44	0.50
9	2.00	0.52	0.64	0		530.78	1.10	8.64	0.00
10	2.00	0.00	0.00	0		613.57	0.00	0.00	0.00
11	2.00	2.52	2.11	0		466.39	5.73	10.34	0.50
12	2.00	3.96	3.58	0		622.03	7.76	9.52	0.00
13	2.00	0.00	0.00	0		408.29	0.00	0.00	1.00
14	2.00	0.89	1.02	0		515.67	1.92	8.95	0.00
15	2.00	2.02	2.14	0		447.84	4.71	10.35	1.52
16	2.00	0.00	0.00	0		453.03	0.00	0.00	0.00
17	2.00	0.00	0.00	0		596.24	0.00	0.00	0.00
18	2.00	4.02	4.14	0		550.38	8.37	10.14	0.00
19	2.00	0.00	0.00	0		613.86	0.00	0.00	0.00
20	2.00	2.46	2.52	0		486.55	5.45	10.03	0.11
~~21~~	~~2.00~~	~~0.00~~	~~0.00~~	~~0~~		~~416.45~~	~~0.00~~	~~0.00~~	~~4.00~~

5/29/03 bb
DJH

46 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1

RSDS#03-TF-0116 RCT: [illegible] RCT: N/A

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	[redacted]	5675	1		5/28/03	8:16	26	300	9	
SRC CHECK	5856	[redacted]	5675	1		5/28/03	8:18	2038	60	3490	
SRC CHECK	5856	[redacted]	5675	1		5/28/03	8:19	2136	60	3658	
SRC CHECK	5856	[redacted]	5675	1		5/28/03	8:21	2016	60	3452	
SRC CHECK	5856	[redacted]	5675	1		5/28/03	8:22	1998	60	3421	
SRC CHECK	5856	[redacted]	5675	1		5/28/03	8:24	1967	60	3368	
SRC CHECK	5856	[redacted]	5675	1		5/28/03	8:25	1897	60	3248	
SRC BKG	5856	[redacted]	5148	2		5/28/03	8:34	7	300	8	
SRC CHECK	5856	[redacted]	5148	2		5/28/03	8:38	2081	60	11497	
SRC CHECK	5856	[redacted]	5148	2		5/28/03	8:39	2129	60	11762	
SRC CHECK	5856	[redacted]	5148	2		5/28/03	8:41	1989	60	10989	
SRC CHECK	5856	[redacted]	5148	2		5/28/03	8:42	2145	60	11851	
U-1FS 01	5856	[redacted]	5675	1	1	5/28/03	8:50	6	30	21	
U-1FS 02	5856	[redacted]	5675	1	2	5/28/03	8:52	4	30	14	
U-1FS 03	5856	[redacted]	5675	1	3	5/28/03	8:57	2	30	7	
U-1FS 04	5856	[redacted]	5675	1	4	5/28/03	9:00	4	30	14	
U-1FS 05	5856	[redacted]	5675	1	5	5/28/03	9:02	4	30	14	
U-1 01	5856	[redacted]	5148	2	1	5/28/03	9:21	3	60	17	
U-1 02	5856	[redacted]	5148	2	2	5/28/03	9:23	2	60	11	
U-1 03	5856	[redacted]	5148	2	3	5/28/03	9:25	4	60	22	
U-1 04	5856	[redacted]	5148	2	4	5/28/03	9:27	5	60	28	
U-1 05	5856	[redacted]	5148	2	5	5/28/03	9:28	4	60	22	
U-1 06	5856	[redacted]	5148	2	6	5/28/03	9:30	4	60	22	
U-1 07	5856	[redacted]	5148	2	7	5/28/03	9:32	2	60	11	
U-1 08	5856	[redacted]	5148	2	8	5/28/03	9:33	1	60	6	
U-1 09	5856	[redacted]	5148	2	9	5/28/03	9:35	6	60	33	
U-1 10	5856	[redacted]	5148	2	10	5/28/03	9:40	4	60	22	
U-1 11	5856	[redacted]	5148	2	11	5/28/03	9:41	1	60	6	
U-1 12	5856	[redacted]	5148	2	12	5/28/03	9:43	2	60	11	
U-1 13	5856	[redacted]	5148	2	13	5/28/03	9:45	2	60	11	
U-1 14	5856	[redacted]	5148	2	14	5/28/03	9:46	4	60	22	

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46 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1

RSDS# 03-TF-0116 RCT: N/A RCT: N/A

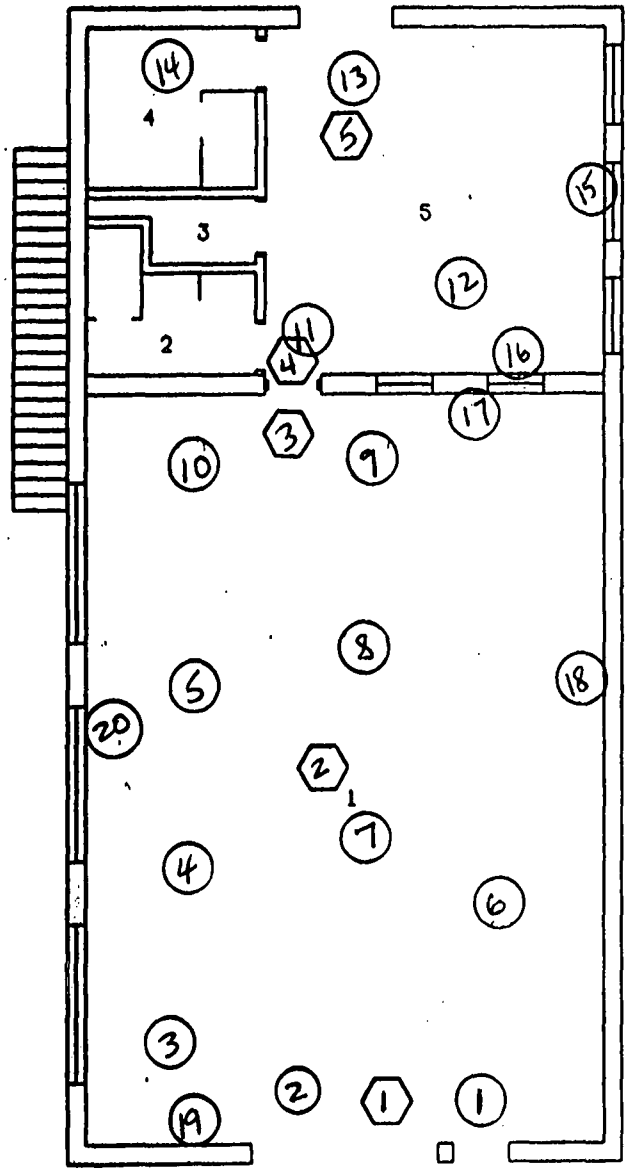
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-1 15	5856	[redacted]	5148	2	15	5/28/03	9:48	6	60	33
U-1 16	5856	[redacted]	5148	2	16	5/28/03	9:50	6	60	33
U-1 17	5856	[redacted]	5148	2	17	5/28/03	9:53	8	60	44
U-1 18	5856	[redacted]	5148	2	18	5/28/03	9:59	5	60	28
U-1 19	5856	[redacted]	5148	2	19	5/28/03	10:03	4	60	22
U-1 20	5856	[redacted]	5148	2	20	5/28/03	10:16	3	60	17
QCU-2 01	5856	[redacted]	5148	2		5/28/03	10:22	4	60	22
QCU-2 07	5856	[redacted]	5148	2		5/28/03	10:26	12	60	66
QCU-1 08	5856	[redacted]	5148	2		5/28/03	10:29	2	60	11
QCU-1 09	5856	[redacted]	5148	2		5/28/03	10:32	4	60	22
QCU-1 11	5856	[redacted]	5148	2		5/28/03	10:34	3	60	17
QCU-1 17	5856	[redacted]	5148	2		5/28/03	10:36	6	60	33

46-BLDG CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0116 RCT: DJH RCT: N/A

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
1	5833	[redacted]	5847	1	5/28/03	227	60	285
2	5833	[redacted]	5847	2	5/28/03	212	60	210
3	5833	[redacted]	5847	3	5/28/03	310	60	700
4	5833	[redacted]	5847	4	5/28/03	306	60	680
5	5833	[redacted]	5847	5	5/28/03	238	60	340
6	5833	[redacted]	5847	6	5/28/03	267	60	485
7	5833	[redacted]	5847	7	5/28/03	264	60	470
8	5833	[redacted]	5847	8	5/28/03	250	60	400
9	5833	[redacted]	5847	9	5/28/03	255	60	425
10	5833	[redacted]	5847	10	5/28/03	246	60	380
11	5833	[redacted]	5847	11	5/28/03	243	60	365
12	5833	[redacted]	5847	12	5/28/03	262	60	460
13	5833	[redacted]	5847	13	5/28/03	227	60	285
14	5833	[redacted]	5847	14	5/28/03	285	60	575
15	5833	[redacted]	5847	15	5/28/03	400	60	1150
16	5833	[redacted]	5847	16	5/28/03	281	60	555
17	5833	[redacted]	5847	17	5/28/03	391	60	1105
18	5833	[redacted]	5847	18	5/28/03	384	60	1070
19	5833	[redacted]	5847	19	5/28/03	383	60	1065
20	5833	[redacted]	5847	20	5/28/03	405	60	1175
QCU-1 08	5833	[redacted]	5847		5/28/03	252	60	410
QCU-1 09	5833	[redacted]	5847		5/28/03	261	60	455
QCU-1 11	5833	[redacted]	5847		5/28/03	216	60	230
QCU-1 17	5833	[redacted]	5847		5/28/03	350	60	900
~~DJH~~ 6-2-03								
QCU-2 ~~02~~ 01	5833	[redacted]	5847		5/28/03	404	60	1170
QCU-2 07	5833	[redacted]	5847		5/28/03	450	60	1400
BETA BACKGROUND FOR 5-28-2003 WAS---------->								170

ISS	DATE	REVISION	BY	CHKD	DWN	APVD	APVD	R
8	12/12/91	ASBUILT ISSUE	DCW				DVO	



⬡ = LOCATION OF READINGS TAKEN DURING FLOOR SCAN

UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: RBM

0' 1' 3' 5' 10'

BLDG #46
FIRST FLOOR
BLDG CODE:3046

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Gasgis

SHEET	1	2	3	4	5	6	TITLE	(U) TITLE CLASSIFICATION
TOTAL	8	8					BLDG #46 FLOOR PLANS	
PARTY CLASSIFICATION								
DRAWING CLASSIFICATION	UNCLASSIFIED		SIZE	C	DRAWING NUMBER	FSC911256	JOB NUMBER	12335
DWG TYPE	SFP	FROM	BLDG #46	CODE	14045	SCALE AS NOTED	SHEET	1 OF 2
STATUS	MO-REL-12/12/91				ORIGIN	MO-BR3-V3.8		

SECTION CHIEF | PROJ MGR | SPONSOR | DSN ENGRG | LP & EE | PEER REV | DSN MGR | APVD | DATE

APPROVALS: DATE:
SAFETY COMMITTEE REVIEWED:
___NRC ___RADIOIC ___TOXIC ___CHEMIC
TECH. DEVP. ___
ES. MGR. ___
RADIOIC ___
TOXIC ___
CHEMIC ___

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

H1 of 4

21		ABOVE AIR SAMPLER	161.1	125.0	1678055	1666782	12/14/89	2/16/90	WET - OLD THORIUM STORA
21		ABOVE AIR SAMPLERS	116.7		1668540		12/14/89	2/16/90	WET - OLD THORIUM STORA
	SM	19 NIO EAST WALL	4.0		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED READINGS
48		114 B CLOSET ON SPRINKLER PIPE	3.[illegible]		1671292		12/12/89	2/19/90	
19		ROOM 1	2.6		1678051		12/12/89	2/19/90	
	OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661595		12/14/89	2/19/90	
55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/12/89	2/19/90	
57		ROOM 1	1.9		1661565		12/12/89	2/19/90	
87		143	1.5		1661563		12/12/89	2/19/90	
990	FIRE STATION	ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654460		12/12/89	2/19/90	
24		ROOM 1 PLANT NORTH WALL	1.3		1672067		12/12/89	2/19/90	
	PAINT SHOP	PS 4	1.2		1661510		12/12/89	2/16/90	
30		ROOM 3 EAST	1.1		1671262		12/12/89	2/19/90	
100		103 MIDDLE OF NORTH WALL	1.0		1678060		12/12/89	2/19/90	
37		6 NORTH WALL	1.0		1678046		12/12/89	2/19/90	
34		34 A WEST WALL	.9	.0	1672062	1672042	12/12/89	2/19/90	WET
102		123	.9		1661577		12/14/89	2/19/90	
61		RM 221 MIDDLE OF NORTH WALL	.9		1661505		12/12/89	2/19/90	
67		101 N	.9		1678029		12/12/89	2/19/90	
G-13	LOG	G-514 WEST WALL	.9		1661544		12/12/89	2/16/90	
	T	CORRIDOR 28	.8		1678039		1/15/90	2/19/90	
	T	153	.8		1678067		1/15/90	2/19/90	
	T	74	.8		1678077		1/15/90	2/19/90	
	T	30	.8		1661586		1/15/90	2/19/90	
105	PARTS WACHINING BUILDING	STAIRWELL NEXT TO ROOM 127	.8		1661564		12/12/89	2/19/90	
25	ARAC	3 ON BOOK CASE MIDDLE	.8		1671314		12/16/89	2/19/90	
60		1 ON DOOR TO ROOM 3	.8		1678049		12/12/89	2/19/90	
	A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/89	2/16/90	
	C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL RM2	.8		1672052		12/12/89	2/16/90	
	R BUILDING	64 NORTH WALL	.8		1678068		12/12/89	2/16/90	
	SM	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
	MO BLDG	MO 8	.8		1678045		12/10/89	2/16/90	
87		124	.8		1678032		12/12/89	2/19/90	
68		ROOM 116 ON NORHT WALL RIGHT OF CEN	.7	.5	1661524	1661635	12/12/89	2/19/90	
81		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666703	1666522	12/15/89	2/19/90	
22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1678070		12/12/89	2/19/90	
56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1678066		12/12/89	2/19/90	
	E ANNEX	E 225 EAST WALL	.7		1661552		12/10/89	2/16/90	
	POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1678040		12/12/89	2/19/90	
	N BLDG	N-135	.7		1661553		12/12/89	2/16/90	
26		ROOM 84 SOUTH WEST WALL	.6	.5	1672048	1667155	12/13/89	2/16/90	
69		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/89	2/19/90	
26		ROOM 84 SOUTH WEST WALL	.6		1671279		12/12/89	2/16/90	
35		RM 7	.6		1654455		12/14/89	2/19/90	
38	PP BLDG	PP CORR 136	.6		1678016		12/14/89	2/19/90	
72		ON OVERHEAD DOOR BEAM	.6		1672069		1/03/90	2/19/90	
93		HALLWAY 107 (HIGHWAY)	.6		1661629		12/13/89	2/20/90	
98	FIRE STATION	ROOM 114 DORM	.6		1661507		12/12/89	2/19/90	
	COS	NW STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/89	2/19/90	
	OSM	120 C	.6		1661573		12/12/89	2/16/90	
	SM	150 WEST END GAS BOX	.6		1678043		12/11/89	2/16/90	
	A	34 EAST WALL	.5	.7	1672075	1672051	12/14/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5	.5	1658110	1666819	12/12/89	2/16/90	

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Area	Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monitor Id	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		1672070		12/12/89	2/19/90	
	49		WALL OUTSIDE RM 125	.4		1678020		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 18A	.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		1671285		12/12/89	2/19/90	
	95	SK/PP	95- BLD-ROOM41	.4		1661531		12/12/89	2/20/90	
		DS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/13/89	2/19/90	
		I	I HALLWAY	.4		1667154		12/12/89	2/19/90	
		N BUILDING	N 21 WEST WALL	.4		1678057		12/15/89	2/20/90	
		POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1678036		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

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Bldg	Bldg Description	Room	Radon pCi/l	Radon pCi/l	Monid	Dupid	Install Date	Retrieve Date	Comments
	R BUILDING	143 NEXT TO NORTH WALL	.5	.5	1666533	1666816	12/13/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671280		12/12/89	2/19/90	
	"B" 175	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
26		ELECTRICAL PANEL RM IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
40		100	.5		1654480		12/13/89	2/16/90	
43		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
44		ON BULLETTIN BOARD	.5		1678047		12/12/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5		1678050		12/12/89	2/16/90	
50		CELL 113	.5		1681582		12/13/89	2/19/90	
79		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1681605		12/18/89	2/16/90	
89		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
91		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1681593		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	.5		1681572		12/14/89	2/16/90	
	A	1080 WEST WALL	.5		1681540		12/14/89	2/16/90	
	COS	119 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	318 WALL CABINET TO RIGHT OF SINK	.5		1681510		12/12/89	2/19/90	
	E BUILDING	150 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.5		1678072		12/14/89	2/16/90	
	E ANNEX	E 212 NORTH WALL	.5		1681587		12/19/89	2/16/90	
	GH BUILDING	ROOM 2	.5		1678065		12/12/89	2/16/90	
	GP B1	1A MIDDLE OF WEST WALL	.5		1678054		12/12/89	2/19/90	
	H BLDG	ROOM 127	.5		1681571		12/12/89	2/16/90	
	HH	HH-8	.5		1671268		12/18/89	2/19/90	
	I BUILDING	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	K BUILDING	K 108	.5		1678056		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		1678028		12/12/89	2/16/90	
	OSE	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSM	319	.5		1678069		12/13/89	2/16/90	
	OSM	2ND FLOOR	.5		1681611		12/12/89	2/16/90	
	POWER HOUSE PH-1	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	R BUILDING	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	SK/R TRITIUM COMPLEX	128 OVER LARGE METAL FLOOR DISC	.5		1678019		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		1678027		12/15/89	2/16/90	
TF-2		114 EAST WALL CENTER OF ROOM	.4		1678064		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 B1	1A MIDDLE OF WEST WALL	.4	.6	1672135	1661542	12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	136 QC OFFICE	.4		1678017		12/12/89	2/16/90	
27		CELL 8 - WALL	.4		1681583		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		1681570		12/14/89	2/19/90	
39		BREAK RM	.4		1678050		12/14/89	2/19/90	
42		101 B EAST WALL	.4		1678031		12/13/89	2/19/90	

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Darnell, Val; Kramer, Donald
Date: 4/9/03 5:44PM
Subject: Building 46 Asbestos & Lead

Don & Val -

For Building 46 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

An asbestos survey was completed in August of 2002 by Helix Environmental, Inc. in accordance with EPA NESHAP requirements prior to demolition. Three types of materials were found to contain asbestos which must be removed prior to demolition; these materials included 70 linear feet of pipe insulation in the Penthouse, 30 square feet of laboratory hood cement board lining in Room 1, and 10 fire doors throughout. The roofing (approximately 2,500 square feet) is of a built-up asphalt variety and is assumed to contain asbestos as is the floor tile (approximately 1,440 square feet) within the building - being classified as EPA Nonfriable Category I types of materials, the removal of roofing and floor tile is not necessary prior to demolition by normal heavy-duty means. A copy of the survey report is being forwarded.

Lead

No previous lead surveys or sampling data could be found for Building 46. 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. Since the building is scheduled for demolition, these restrictions should be incorporated into any work plans for which disturbance of paint is a possibility.

In accordance with guidance from Mound Waste Management, paint coatings should not result in a hazardous waste issue during the course of normal demolition by heavy-duty means.

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: Koehmstedt, Lee

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HELIX ENVIRONMENTAL, INC.

PRE-DEMOLITION ASBESTOS INSPECTION BUILDING 46 MOUND FACILITY. MIAMISBURG, OHIO

Prepared for

Mr. Dave Pratt, Senior Buyer
BWXT of Ohio, Inc.
P.O. Box 3030, OSE 216
1 Mound Road
Miamisburg, Ohio 45343-3030

Prepared by

HELIX ENVIRONMENTAL, INC.
1 East Stewart Street
Dayton, Ohio 45409

Ralph A. Froehlich, CIH, CSP, QEP
Certified Industrial Hygienist No. AP-2631

Report Date: Aug., 2002

Helix Job No. 3200

THIS REPORT CONTAINS INFORMATION ON THE ASBESTOS CONTENT OF BUILDING MATERIALS WHICH IS REQUIRED TO BE MAINTAINED FOR THE LIFE OF THE BUILDING. THIS REPORT MUST BE PROVIDED TO SUBSEQUENT BUILDING OWNERS AS REQUIRED BY 29 CFR 1926.1101

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PRE-DEMOLITION ASBESTOS INSPECTION
BUILDING 46, MOUND, MIAMISBURG, OHIO
JULY, 2002

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1. EXECUTIVE SUMMARY

On July 10, 2002, Helix Environmental, Inc. contracted with BWXT of Ohio, Inc. to conduct an asbestos-containing building materials inspection of Building 46 and other buildings at the Mound Site for the U.S. Department of Energy in Miamisburg, Ohio. The asbestos inspection was necessary to identify, quantify and evaluate the condition of regulated asbestos-containing building materials (RACBM) prior to the start of building demolition, and to confirm negative suspect asbestos-containing building materials identified during previous inspections. This report summarizes the inspection procedures, sampling and analytical methods, and analytical results, with recommendations for consideration.

The following materials were identified as suspect asbestos building materials in Building 46:

- Hard Pipe Joint Thermal System Insulation
- Hard Pipe Thermal System Insulation
- White Condensate Wrap Thermal System Insulation
- 1′ x 1′ Ceiling Tile
- Mastic above 1′ x 1′ Ceiling Tile
- 4′ x 9′ Wall Panel
- Covebase and mastic (2 types)
- Black Lab counter tops
- Black Duct Vibration Cloth
- 12″ x 12″ Floor Tile (assumed)
- Transite Hood (assumed)
- Fire Doors (assumed)
- Roofing materials (assumed)

A total of fourteen bulk samples were collected to to confirm the negative results of suspect-asbestos containing materials from previous inspections. Roofing materials, fire doors, and flooring materials were assumed to contain asbestos, in accordance with current OSHA and EPA regulations and the scope of work for the project. Some of these materials are considered Category I Nonfriable Materials under current U. S. EPA regulations, and can remain in the building during demolition. Other assumed asbestos-containing materials and equipment will need to be removed prior to building demolition, and should be treated as asbestos-containing materials until sampling and analytical information is available to document that these materials do not contain more than 1% asbestos.

Suspect asbestos-containing materials that had been identified by sampling as asbestos-containing materials during previous inspections were not re-sampled. Where previous sampling results had documented that a suspect material contained no detectable asbestos, Helix Environmental, Inc. re-sampled the material to ensure that it contained no asbestos. The sampling results document the following confirmed and assumed asbestos-containing materials in Building 46:

- Hard Pipe Preformed Block Thermal System Insulation (Previous Inspection)
- 12" x 12" Floor Tile (assumed)
- Transite Hood (assumed)
- Fire Doors (assumed)
- Roofing materials (assumed)

Work which disturbs asbestos-containing materials could result in airborne fiber releases and exposures to workers and building occupants. OSHA regulations require air sampling to document worker exposures to asbestos whenever these materials are disturbed, as well as training for all workers who perform such work. State and federal environmental regulations also apply to work which damages the materials during demolition. In Ohio, if more than 50 SF or 50 LF of friable regulated asbestos-containing materials must be removed using methods which may damage them, a certified asbestos abatement contractor would be required for this work. Advance notification (ten working days) is also required prior to the start of removal.

Based on the results, Helix Environmental, Inc. recommends that:

1. **BWXT of Ohio, Inc. maintain copies of the information from this asbestos inspection and sampling with Building 46 records.** This information must be maintained for the duration of ownership of the building, and must be transferred to subsequent owners. This may most easily be accomplished by maintaining a copy of this report in a secure location with other building records.

2. **Identified asbestos-containing materials should not be disturbed or removed except by properly trained and equipped personnel.** Since the planned demolition will disturb more than 50 SF or 50 LF of these materials, the regulated materials must be removed by a licensed asbestos abatement contractor prior to the start of demolition, in accordance with all regulatory requirements, using specifications developed by an accredited Asbestos Project Designer. The specifications will permit abatement contractors to provide competitive fixed cost proposals for the abatement

work, ensuring the lowest reasonable cost for the work. Adherence to the specifications will also ensure that a "state of the art" abatement project occurs, which will minimize the potential for exposure outside of the abatement area.

3. **Air sampling should be performed during any work which disturbs the integrity of identified asbestos-containing materials, in accordance with OSHA regulations.** Air monitoring should be performed by experienced industrial hygienists under the direction of a Certified Industrial Hygienist to document airborne exposures to asbestos inside and outside of the work area, before, during and after the abatement work. Certified personnel and laboratories should be used to provide adequate documentation of airborne fiber levels. Records of the abatement operation should be maintained for a minimum of thirty years.

4. **Provide ten working-day advance notification to the Regional Air Pollution Control Agency prior to the start of demolition.** Notification is required by U. S. EPA regulations (40 CFR 61M) even if no asbestos-containing building materials have been identified in the building, in order to allow regulatory officials to reinspect the building.

2. BACKGROUND

On July 10, 2002, Helix Environmental, Inc. contracted with BWXT of Ohio, Inc. to conduct an asbestos-containing building materials inspection of Building 46 at the Mound Site for the U.S. Department of Energy in Miamisburg, Ohio. The asbestos inspection was necessary to identify, quantify and evaluate the condition of regulated asbestos-containing building materials (RACBM) prior to the start of building demolition, and to confirm negative suspect asbestos-containing building materials identified during previous inspections.

The inspection and sampling were performed on July 24, 2002 by Ralph Froehlich, CIH, CSP, QEP. and Mr. Cameron Day, Industrial Hygienist. Mr. Froehlich is a Certified Industrial Hygienist with more than twenty years experience in the fields of occupational and environmental health. Mr. Froehlich is certified by the Ohio Department of Health as an Asbestos Hazard Evaluation Specialist, Asbestos Hazard Abatement Specialist, and as an Asbestos Project Designer (Cert. Nos. 3074, 2112, and 60038, respectively). Mr. Day has over two years experience in the fields of occupational safety and health and is certified by the Ohio Department of Health as an Asbestos Hazard Evaluation Specialist (Cert. No. 33958).

Building 46 is a two-story 2500 SF concrete block with upper floor mechanical penthouse and builtup roof. The building was built in 1969. Currently, Building 46 is occupied and operational.

In 1989, Pedco Environmental, Inc. reported that the following asbestos-containing building materials were found in Building 46:

- Pipe wrapping on chilled water lines
- Preformed block insulation on steam and condensate lines
- Cementitious fittings on fiberglass pipe insulation
- Transite panels in lab hood
- Floor tile

In 1993, Barge, Waggoner, Sumner & Cannon, Miamisburg, Ohio, inspected selected buildings at the Mound facility, including Building 46. In the inspection report, the following suspect asbestos-containing materials were determined to contain more than 1% asbestos based on sampling and analysis:

- Pipe Insulation, Type II, Hard

The following suspect asbestos-containing materials were determined to contain no detectable asbestos based on sampling and analysis:

- Pipe Joint Insulation, Type I, Hard Joints w/Fiberglass Runs
- Pipe Joint Insulation, Type II, Hard
- Condensate Wrap (White)
- Ceiling Tile, CT1-F, (1′ x 1′) Pits w/Pinholes
- Drywall

Additional materials were assumed to contain asbestos as follows:

- Transite Lab Hood
- Floor Tile

Helix Environmental, Inc. was directed to inspect the building to identify all suspect regulated asbestos-containing materials, and to sample and verify the asbestos content of all previously-identified suspect asbestos-containing materials for which previous sample results were found to contain less than 1% asbestos. Regulated asbestos-containing materials that had been previously identified were assumed to contain asbestos. Materials that had not been previously identified as suspect asbestos-containing materials were also to be sampled if they were not assumed asbestos-containing Category I Nonfriable materials (resilient flooring materials, bituminous roofing materials, gaskets). were not sampled, in accordance with directions from Mr. Chris Alquist, BWXT of Ohio, Inc. In addition, Helix Environmental, Inc. was directed to assume that all fire doors contained asbestos.

3. INSPECTION AND SAMPLING PROCEDURES

The following materials were identified as suspect asbestos-containing building materials, based on a room-by-room inspection of the building:

- Hard Pipe Joint Thermal System Insulation
- Hard Pipe Thermal System Insulation
- White Condensate Wrap Thermal System Insulation
- 1′ x 1′ Ceiling Tile
- Mastic above 1′ x 1′ Ceiling Tile
- 4′ x 9′ Wall Panel
- Covebase and mastic (2 types)
- Black Lab counter tops
- Black Duct Vibration Cloth
- 12″ x 12″ Floor Tile (assumed)
- Transite Hood (assumed)
- Fire Doors (assumed)
- Roofing materials (assumed)

The results of the room-by-room inspection are contained in the appendices.

A total of fourteen bulk samples were collected to confirm the negative results of suspect-asbestos containing materials from two previous reports. Materials that met the definition of Category I Nonfriable asbestos-containing materials were assumed to contain asbestos, and were not sampled.

Representative samples of suspect asbestos-containing materials were collected by Helix Environmental, Inc. using appropriate hand sampling tools and random sampling techniques. Samples were placed in labeled resealable sampling bags. The outside of the sampling container, all sampling tools, and the immediate area were then wiped using new moist towelettes to minimize the possibility of cross contamination. The single-use towelettes were properly disposed off site by Helix Environmental, Inc. personnel. Sampling locations were sealed using labeled duct tape and then photographed for documentation purposes. Sampling personnel from Helix Environmental, Inc. used personal protective equipment where necessary, including half-face air-purifying respirators with HEPA cartridges during sampling, to minimize the possibility of personal exposure to asbestos.

Confirmed and suspect asbestos-containing materials were assessed as to the type of material, amount, condition and disturbance potential, and noted on physical

assessment records. Condition of materials were rated as to the extent of damage to the material. Undamaged material was given a condition assessment of "good". Materials having less than 25% localized or less than 10% distributed damage were given a "fair" (damaged) condition assessment. Materials having more than 25% localized or more than 10% distributed damage were given a "poor" (significantly damaged) condition assessment.

Side-by-side quality assurance/quality control samples were also collected at a minimum 5% QA/QC sampling rate. The sample locations and assessments are included on the sample logs attached in the appendices.

4. ANALYTICAL PROCEDURES

Bulk asbestos samples were sent to Schneider Laboratories, Inc., Richmond, Virginia, where they were analyzed via Polarized Light Microscopy with dispersion staining in accordance with the U.S. Environmental Protection Agency's Interim Methods for the Determination of Asbestos in Bulk Insulation Samples (EPA-600/R-93/116, June, 1993.) Under this method, the limit of detection for asbestos is about 1 percent by area. Samples containing smaller amounts of asbestos are not reliably detected by this technique. Polarized light microscopes equipped with 10X eyepieces, 10X and 40X objective lenses and dispersion staining lenses were used to identify fibers present in the samples.

The side-by-side QA/QC samples were delivered to Environmental Hazards Services, L.L.C. in Richmond, Virginia for independent analysis to determine asbestos content by PLM.

Both Environmental Hazard Services, L.L.C. and Schneider Laboratories, Inc. maintain accreditation from the American Industrial Hygiene Association and have received accreditation through successful participation in the NIST National Voluntary Laboratory Accreditation Program (NVLAP) for bulk asbestos. AIHA-accredited laboratories are scrutinized on a regular basis to ensure that personnel, equipment, facilities and data are maintained. In addition, AIHA-accredited laboratories have well-developed assurance/quality control programs to ensure that analytical results accurately reflect conditions present during the sampling periods. Analytical results are attached in the appendices.

5. APPLICABLE STANDARDS

Asbestos

The U.S. EPA has established regulations which apply to friable and potentially friable materials with asbestos content in excess of 1%, as determined by PLM. These regulations establish required notification, removal techniques, and disposal of regulated asbestos-containing materials. The Ohio EPA has established additional regulations paralleling those of the U.S. EPA. "Friable" means that a suspect material can be reduced to a powder by hand pressure when dry and denotes a material that is capable of releasing significant amounts of asbestos fibers to the air. Potentially-friable materials are those that may release asbestos fibers to the air if they are extensively damaged during demolition operations, and include Category I Nonfriable materials in poor condition and Category II Nonfriable materials. Category I Nonfriable materials include bituminous roofing materials, resilient flooring materials, and gaskets, where the asbestos is mixed in a resilient matrix. Category I Nonfriable materials may be left in buildings when they are demolished, if the materials are not in poor condition. Category II Nonfriable materials include all other non friable materials, and they must be removed from buildings prior to their demolition, since demolition activities may release significant amounts of asbestos into the air (40 CFR 61 Subpart M). The Ohio EPA has established equivalent regulations for Ohio.

Additionally, U. S. EPA has promulgated regulations governing the management of asbestos in public and non-profit private school buildings, grades K-12 (40 CFR 763.80 ff), which detail the sampling and analytical protocols followed during a school asbestos inspection, as well as additional requirements for the training and certification of professionals involved in the inspection and management of asbestos materials. The requirements for training and certification have been extended by congressional action to cover all persons involved in asbestos inspection, project design, supervision and abatement work, as part of the Asbestos School Hazard Abatement Reauthorization Act (ASHARA). U. S. EPA has also promulgated regulations for the protection of public sector workers (40 CFR 763.120)

The Occupational Safety and Health Administration (OSHA) revised its asbestos regulations to reduce the eight-hour Time-Weighted Average (TWA) Permissible Exposure Limit to 0.1 fibers/cc (29 CFR 1910.1001, 29 CFR 1926.1101). A 30-minute Excursion Limit of 1 fiber/cc is also included with the standards. Asbestos-containing materials are defined as those that contain more than 1% asbestos. These regulations include complex requirements for asbestos abatement, dividing the

work with and around asbestos into four classes, with varying requirements for each class. An additional requirement calls for building owners and managers to keep information on asbestos-containing materials with each building, until all asbestos-containing materials have been removed from the building.

The American Conference of Governmental Industrial Hygienists (ACGIH) has proposed an airborne eight-hour TWA Threshold Limit Value of 0.1 fibers/cc (2001 TLVs). ACGIH TLVs denote concentrations and conditions to which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect.

The National Institute for Occupational Safety and Health (NIOSH) identifies asbestos as an occupational carcinogen, and recommends that occupational exposures be "limited to the lowest feasible concentration."

The Ohio Department of Health has established additional regulations for asbestos abatement, including a certification program for asbestos supervisors, workers, inspectors and management planners, project designers, and air monitoring technicians. ODOH regulations also require contractors to be licensed, and require 10 working day advance notifications for asbestos abatement in amounts over 50 LF or 50 SF of friable asbestos-containing material (OAC 3701-34).

Montgomery County, Ohio has adopted local regulations which require advance notification when more than 50 SF or 50 LF of friable asbestos-containing building material is removed.

6. ANALYTICAL RESULTS

The sample results are as follows:

TABLE 1: SUMMARY OF ASSUMED AND CONFIRMED ASBESTOS-CONTAINING MATERIALS AT BUILDING 46, MOUND, MIAMISBURG, OHIO, JULY, 2002

Sample Number	Lab Number	Location	Amount	Condition	Result
Hard Pipe Thermal System Insulation in Penthouse			70 LF	Fair	Previously identified
Fire Doors		Rooms 1, 5, Penthouse	10 Doors	Fair	Assumed
Transite Lab Hood		Room 1	30 SF	Fair	Assumed
12" x 12" Floor Tile and Mastic		Rooms 1, 4, 5	1440 SF	Fair	Assumed
Roofing Materials		Roof	2500 SF	Fair	Assumed

TABLE 2: SUMMARY OF CONFIRMED NONASBESTOS MATERIALS AT BUILDING 46, MOUND, MIAMISBURG, OHIO, JULY, 2002

Sample Number	Lab Number	Sample Location	Result
Hard Pipe Joint Thermal System Insulation			
3200-7-24-32	2350325 Layer 1	Room 5 Mezzanine, Above Room 3	No Asbestos Detected
3200-7-24-33	2350326 Layer 1	Room 3, Southwest Area	No Asbestos Detected
3200-7-24-34	2350327 Layer 1	Room 1, North Wall Center at Ceiling on Cold Water Line	No Asbestos Detected
3200-7-24-35	2350328 Layer 1	Room 1, North Wall Center on Cold/Hot Water Return Lines	No Asbestos Detected
3200-7-24-36	2350329 Layer 21	Room 1 Southeast Corner, 10' Height on Cold/Hot Water Supply Lines	No Asbestos Detected
3200-7-24-37	2350330 Layer 1	Room 1 Northeast Corner above entrance door	No Asbestos Detected
3200-7-24-37	2350330 Layer 2	Room 1 Northeast Corner above entrance door	No Asbestos Detected
3200-7-25-43	2350336 Layer 1	Penthouse by door	No Asbestos Detected
3200-7-25-43	2350336 Layer 2	Penthouse by door	No Asbestos Detected
Cover on Hard Pipe Joint Thermal System Insulation			
3200-7-24-32	2350325 Layer 2	Room 5 Mezzanine, Above Room 3 Cover	No Asbestos Detected
3200-7-24-33	2350326 Layer 2	Room 3, Southwest Area	No Asbestos Detected
3200-7-24-34	2350327 Layer 2	Room 1, North Wall Center at Ceiling on Cold Water Line	No Asbestos Detected
3200-7-24-35	2350328 Layer 2	Room 1, North Wall Center on Cold/Hot Water Return Lines	No Asbestos Detected
3200-7-24-36	2350329 Layer 2	Room 1 Southeast Corner, 10' Height on Cold/Hot Water Supply Lines	No Asbestos Detected
3200-7-24-37	2350330 Layer 3	Room 1 Northeast Corner above entrance door	No Asbestos Detected
3200-7-25-43	2350336 Layer 3	Penthouse by door	No Asbestos Detected

TABLE 2: SUMMARY OF CONFIRMED NONASBESTOS MATERIALS AT BUILDING 46, MOUND, MIAMISBURG, OHIO, JULY, 2002 (Continued)

Sample Number	Lab Number	Sample Location	Result
White Condensate Wrap			
3200-7-24-38	2350331	Room 1 North Wall Center, 10' Height	No Asbestos Detected
Black Covebase			
3200-7-24-31	2350324 Layer 1	Room 5, Between doors to Room 2 and 3.	No Asbestos Detected
Mastic under Black Covebase			
3200-7-24-31	2350324 Layer 2	Room 5, Between doors to Room 2 and 3.	No Asbestos Detected
Black Lab Counter Top			
3200-7-24-39	2350332	Room 1 Center Work Area	No Asbestos Detected
1' x 1' White Ceiling Tile Random Fissures and Holes			
3200-7-24-40	2350333	Room 4 North Wall Above Door	No Asbestos Detected
3200-7-24-41	2350334 Layer 1	Room 4 Southwest Corner, Ceiling	No Asbestos Detected
Mastic above 1' x 1' White Ceiling Tile Random Fissures and Holes			
3200-7-24-41	2350334 Layer 2	Room 4 Southwest Corner, Ceiling	No Asbestos Detected
4' x 9' Wall Panel Coated			
3200-7-24-42	2350335	Room 4 South Center Wall 7' Height	No Asbestos Detected
Black Flexible Vibration Duct Isolator Cloth			
3200-7-24-43	2350336	Penthouse top of furnace	No Asbestos Detected

TABLE 3: QUALITY CONTROL/QUALITY ASSURANCE SAMPLES FROM BUILDING 46, MOUND, MIAMISBURG, OHIO, JULY, 2002

Sample Number	Lab Number	Sample Location	Primary Lab Result	QA Lab Result	Comparison
Hard Pipe Joint Thermal System Insulation					
3200-7-24-32	07023458-04	Room 5 Mezzanine above Room 3	No Asbestos Detected	No Asbestos Detected	Equivalent

7. DISCUSSION AND RECOMMENDATIONS

A total of fourteen bulk samples were collected to confirm the negative results of suspect-asbestos containing materials from two previous reports and to document the asbestos content of additional suspect materials identified in the building. Previously identified asbestos-containing materials were assumed to contain more than 1% asbestos, and Category I Nonfriable materials and fire doors were also assumed to contain asbestos.

The sampling results document the following confirmed and assumed asbestos-containing materials in Building 46:

- Hard Pipe Preformed Block Thermal System Insulation (Previous Inspection)
- 12" x 12" Floor Tile (assumed)
- Transite Hood (assumed)
- Fire Doors (assumed)
- Roofing materials (assumed)

The flooring and roofing materials are non-friable and in good to fair condition. Flooring and roofing materials are considered to be Category I Non-Friable materials and, under current U.S. EPA regulations, need not be removed from buildings prior to demolition if they are not in poor condition.

Other suspect materials were found to contain no detectable asbestos.

Quality assurance analysis of side-by-side samples found equivalent results for the analyses, with no detectable asbestos reported from both laboratories.

Costs for the removal of the asbestos-containing materials needed to demolish Building 46 are estimated to be as follows:

Material	Estimated Quantity	Est. Unit Cost	Est. Cost
Thermal System Pipe Insulation	70 LF	$15/LF	$1050
Fire Doors	10 Doors	$100/Door	$1000
ESTIMATED TOTAL			**$2050**

These estimated costs reflect asbestos removal and disposal costs in southwest Ohio,

but may vary significantly, due to scheduling, bidding procedures and other factors. They do not include costs for development of bid specifications or contractor surveillance and air monitoring expenses.

Work which disturbs asbestos-containing materials could result in airborne fiber releases and exposures to workers and building occupants. OSHA regulations require air sampling to document worker exposures to asbestos whenever these materials are disturbed, as well as training for all workers who perform such work. State and federal environmental regulations also apply to work which damages the materials during demolition. In Ohio, if more than 50 SF or 50 LF of friable regulated asbestos-containing materials must be removed using methods which may damage them, a certified asbestos abatement contractor would be required for this work. Advance notification (ten working days) is also required prior to the start of removal.

Based on the results, Helix Environmental, Inc. recommends that:

1. **BWXT of Ohio, Inc. maintain copies of the information from this asbestos inspection and sampling with Building 46 records.** This information must be maintained for the duration of ownership of the building, and must be transferred to subsequent owners. This may most easily be accomplished by maintaining a copy of this report in a secure location with other building records.

2. **Identified asbestos-containing materials should not be disturbed or removed except by properly trained and equipped personnel.** Since the planned demolition will disturb more than 50 SF or 50 LF of these materials, the regulated materials must be removed by a licensed asbestos abatement contractor prior to the start of demolition, in accordance with all regulatory requirements, using specifications developed by an accredited Asbestos Project Designer. The specifications will permit abatement contractors to provide competitive fixed cost proposals for the abatement work, ensuring the lowest reasonable cost for the work. Adherence to the specifications will also ensure that a "state of the art" abatement project occurs, which will minimize the potential for exposure outside of the abatement area.

3. **Air sampling should be performed during any work which disturbs the integrity of identified asbestos-containing materials, in accordance with OSHA regulations.** Air monitoring should be performed by experienced industrial hygienists under the direction of a Certified Industrial Hygienist to document airborne exposures to asbestos inside and outside of the work area, before, during and after the abatement work. Certified personnel and laboratories should be used to

provide adequate documentation of airborne fiber levels. Records of the abatement operation should be maintained for a minimum of thirty years.

4. **Provide ten working-day advance notification to the Regional Air Pollution Control Agency prior to the start of demolition.** Notification is required by U. S. EPA regulations (40 CFR 61M) even if no asbestos-containing building materials have been identified in the building, in order to allow regulatory officials to reinspect the building.

8. APPENDICES

APPENDIX A: ROOM-BY-ROOM INVENTORY OF ASSUMED ASBESTOS-CONTAINING MATERIALS

HELIX ENVIRONMENTAL, INC.

ASSUMED ACBM RECORD

PROJECT NO..	BUILDING NO/NAME	PAGE
3200	Mound Bldg 46	1
	SAMPLE AREA	DATE 7/24/02

TYPE OF MATERIAL: ☐ CEILING TILES ☐ FLOOR TILES/FLOORING ☒ THERMAL SYS. INSUL. ☐ SURFACING ☐ MISCELLANEOUS

INSPECTORS: [illegible] CE DAY

HSA CODE	CONDITION	DESCRIPTION / AMOUNT	LOCATION
	Good	Hard Pipe Joint Thermal System Insulation (Rem FG) HPJ	Mezz above 2, 3, 4 - 12 HPJ Rm 3 - 16 HPJ, ~~Rm~~
		on DW Lines (CW) 2-3" OD	Rm 1 - 14 HPJ
	Good	Hard Pipe Joint ~~TSI~~ on CHWS & CHWR 3-4" OD Rem FG 26 PJ	Room 1, ~~5, 4 (72) RF~~ (~~40 LF~~) ( ) RF
	Fair	White Condensate Wrap TSI 30 LF	Rm 1 (20 LF)
	Good	Hard Pipe TSI 70 LF	Penthouse

NOTES

HELIX ENVIRONMENTAL, INC.

ASSUMED ACBM RECORD

PROJECT NO.	BUILDING NO./NAME	PAGE
3200	Mound Bldg 46	2
	SAMPLE AREA	DATE 7/24/02

TYPE OF MATERIAL: [X] CEILING TILES [ ] FLOOR TILES/FLOORING [ ] THERMAL SYS. INSUL. [ ] SURFACING [ ] MISCELLANEOUS

INSPECTORS: R. Frankich, C. Day

HSA CODE	CONDITION	DESCRIPTION / AMOUNT	LOCATION
	Fair	1'x1' Ceiling Tiles, Random Fissures & Holes 110 SF	Room 4 (110 SF)

NOTES

HELIX ENVIRONMENTAL, INC.

ASSUMED ACBM RECORD

PROJECT NO..	BUILDING NO./NAME	PAGE
3200	Manual Bldg 410	3
	SAMPLE AREA	DATE 7/24/02

TYPE OF MATERIAL: ☐ CEILING TILES ☒ FLOOR TILES/FLOORING ☐ THERMAL SYS. INSUL. ☐ SURFACING ☐ MISCELLANEOUS

INSPECTORS: R. Froehlich, CE Day

HSA CODE	CONDITION	DESCRIPTION / AMOUNT	LOCATION
	Good	12"x12" Floor Tile, Ivory w/Tan Streaked & Mastic 1440 SF	Rm 1, 4, 5 (1020)+(72)+(342)

NOTES

(40'x17') + (23'x12') = 1020

4000
280
428

230
16
391
628
1019

7
19
18
190
152
342

1020
342
72
1434

I 280 50

HELIX ENVIRONMENTAL, INC.

ASSUMED ACBM RECORD

PROJECT NO..	BUILDING NO./NAME	PAGE
3200	Mound Bldg 46	4
	SAMPLE AREA	DATE 7/28/02

TYPE OF MATERIAL: ☐ CEILING TILES ☐ FLOOR TILES/FLOORING ☐ THERMAL SYS. INSUL. ☐ SURFACING ☒ MISCELLANEOUS

INSPECTORS: R. Froehlich, C. Day

HSA CODE	CONDITION	DESCRIPTION / AMOUNT	LOCATION
	Good	Lab Counter tops/Tabletops, Black Ceramic? 90 SF	Rm 1 (90 SF)
	Fair	Fume Hood 30 SF	Rm 1
	Good	Cove Base, Black & Mastic 150 LF	Rm 1 (80 LF), 5 (60 LF)
	Good	Roofing Materials 2500 SF	Roof
	Good	4'x9' Wall Panel 200 SF	Room 4

NOTES

APPENDIX B: SAMPLE DATA SHEETS

9-24-02-7484

HELIX ENVIRONMENTAL, INC.

1 East Stewart Street ♦ Dayton, Ohio 45409 ♦ (937) 226-0650 ♦ www.helixenv.com
FAX – (937) 226-0653 ♦ helix@helixenv.com

UPS 2E2899221019886 5

LABORATORY: Schneider
DATE SAMPLED: 7/24/02
RUSH – YES OR NO (NO) DATE REQUIRED: 7/26/02
LOCATION: Miamisburg, OH
CONTRACTOR/CLIENT: BWXTO
BUILDING: Mound Bldg 46
INSPECTOR: B. Pfefferlich, C. Day
JOB NUMBER: 3200

BULK SAMPLE DATA SHEET | ANALYSES REQUESTED: Asbestos PLM

AB SAMPLE NO.	HELIX SAMPLE ID NUMBER	AMOUNT	REPRESENTATIVE SAMPLE LOCATION	MATERIAL DESCRIPTION	FRIABLE/ NON	CONDITION	COMMENTS
	3200-7-24-31	LF	Rm 5, Between Doors to Rms 2 and 3	Cove Base, Black and Mastic	N	Fair	
	3200-7-24-32	HR	Rm 5 Mezzanine, Above Rm 3	Hard Pipe Joint TSI	F	Good	Rem. FG
	3200-7-24-33	—	Rm 3, South West Area	Hard Pipe Joint TSI	F	Good	"
	3200-7-24-34	—	Rm 1, North Wall Center at Ceiling on CW line	Hard Pipe Joint TSI	F	Good	"
	3200-7-24-35	26 PJ	Rm 1, North Wall Center on CHWR Line	Hard Pipe Joint TSI	F	Good	Rem. FG
	3200-7-24-36	—	Rm 1, SE Corner, 10' Ht. on CHWS/CHWR line	Hard Pipe Joint TSI	F	Good	"
	3200-7-24-37	—	Rm 1, NE Corner above Entrance Door	Hard Pipe Joint TSI	F	Good	"
	3200-7-24-38	LF	Rm 1, N. Wall Center, 10' Ht.	White Condensate Wrap TSI	N	Fair	Labelled ACM
	3200-7-24-39	90 SF	Rm 1, S. Center Work Area,	Black Lab Countertop	N	Good	
	3200-7-24-40	110 SF	Rm 4, N Wall Center Above Door	1'x1' Ceiling Tile, Random Fissures & Holes	F	Good	
	3200-7-24-41	—	Rm 4, SW Corner, Ceiling	1'x1' Ceiling Tile, Random Fissures & Holes	F	Good	and Brown Mastic
	3200-7-24-42	200 SF	Rm 4, S Center Wall 7' Ht	4'x9' Wall Panel Coated	N	Good	

THIS IS A CHAIN OF CUSTODY DOCUMENT. PLEASE COMPLETE, SIGN AND DATE. PLEASE RETURN ORIGINAL TO HELIX ENVIRONMENTAL, INC.

RECD	RELINQUISHED BY:	COMPANY:	DATE/TIME	RECD	RELINQUISHED BY:	COMPANY:	DATE/TIME
1	Cameron E Day	Helix Env	7-24-02 / 5:00pm	3			
	RECEIVED BY:	COMPANY:	DATE/TIME	RECD	RELINQUISHED BY:	COMPANY:	DATE/TIME

HELIX ENVIRONMENTAL, INC.

1 East Stewart Street ♦ Dayton, Ohio 45409 ♦ (937) 226-0650 ♦ www.helixenv.com
FAX – (937) 226-0653 ♦ helix@helixenv.com

LABORATORY: Schneider
DATE SAMPLED: 7/24/02
RUSH – YES OR NO DATE REQUIRED: 7/26/02
LOCATION: Miamisburg, Ohio
CONTRACTOR/CLIENT: BWXT
BUILDING: Mound Bldg 4h
INSPECTOR: ~~[illegible]~~ CE Day
JOB NUMBER: 3200

BULK SAMPLE DATA SHEET

ANALYSES REQUESTED: Asbestos PLM

AB SAMPLE NO.	HELIX SAMPLE ID NUMBER	AMOUNT	REPRESENTATIVE SAMPLE LOCATION	MATERIAL DESCRIPTION	FRIABLE/ NON	CONDITION	COMMENTS
	3200-7-24-43	HPJ	Penthouse, by Door	Hard Pipe Joint TSI	F	Good	Rem Fo
	3200-7-24-44	10 LF	Penthouse, top of Furnace	Black Flexible Vibration Duct Isolator	N	Good	

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RECD	RELINQUISHED BY:	COMPANY:	DATE/TIME	RECD	RELINQUISHED BY:	COMPANY:	DATE/TIME
[redacted]	[redacted]	[redacted]	7[redacted]02 [redacted]	[redacted]	[redacted]	[redacted]	[redacted]

4-PLM EHS 07-02-3458

SAMPLE C... TION

HELIX ENVIRONMENTAL, INC.

1 East Stewart Street ♦ Dayton, Ohio 45409 ♦ (937) 226-0650 ♦ www.helixenv.com
FAX – (937) 226-0653 ♦ helix@helixenv.com

LABORATORY: EHS LLC
DATE SAMPLED: 7/22/02
RUSH – YES OR (NO) DATE REQUIRED: 7/25/02
LOCATION: Miamisburg, Ohio
CONTRACTOR/CLIENT: BWXTO
BUILDING: Mound Bldg 98
INSPECTOR: R. Froehlich, CEDay
JOB NUMBER: 3200

BULK SAMPLE DATA SHEET | ANALYSES REQUESTED: Asbestos PLM

LAB SAMPLE NO.	HELIX SAMPLE ID NUMBER	AMOUNT	REPRESENTATIVE SAMPLE LOCATION	MATERIAL DESCRIPTION	FRIABLE/ NON	CONDITION	COMMENTS
	3200-7-22-150A	130 sf	Garage Rm 115, SE Corner	2'x4' Susp. Ceiling Tile, Textdrized	N	Good	
	3200-7-24-140A		BLD 31, SOUTH WALL WEST SIDE	SPRAYED ON FIRE PROOFING	F	POOR	
	3200-7-24-010A		BLD 80, RM 2 WEST WALL DRAIN PENETRATION	DRYWALL + JOINT COMPOUND	N	FAIR	
	3200-7-24-520A		BLD 46 RMS MEZZANINE ABOVE RM 3	HARD PIPE TSI	F	GOOD	
			Michael Clepper 7/25/02 9:30				

THIS IS A CHAIN OF CUSTODY DOCUMENT. PLEASE COMPLETE, SIGN AND DATE. PLEASE RETURN ORIGINAL TO HELIX ENVIRONMENTAL, INC.

RECD 1	RELINQUISHED BY:	COMPANY:	DATE/TIME	RECD 3	RELINQUISHED BY:	COMPANY:	DATE/TIME

I33 of 50

APPENDIX C: ANALYTICAL RESULTS

SCHNEIDER LABORATORIES

INCORPORATED
2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • (FAX) 804-353-6928
Excellence in Service and Technology
AIHA/ELLAP 100527, NVLAP 10150-0, NYELAP/NELAC 11413, CAELAP 2078, NC 593, SC 93003

LABORATORY ANALYSIS REPORT

Asbestos Identification by EPA Method 600/R-93/116

ACCOUNT: 904-02-1454
CLIENT: HELIX ENVIRONMENTAL
ADDRESS: 1 East Stewart Street Ste B
DAYTON, OH 45409-2624
PO NO.:
PROJECT NAME: Mound Bldg. 46
PROJECT NO.: 3200
JOB LOCATION: Miamisburg, OH

DATE COLLECTED: 07/24/2002
DATE RECEIVED: 07/25/2002
DATE ANALYZED: 07/25/2002
DATE REPORTED: 07/26/2002

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
3200-7-24-31	2350324	Rm 5 drs to rm 2/3		
	Layer 1:	Covebase	**No**	Homogenous, Black, Organically Bound
	100% Non-Asbestos	NON FIBROUS MATERIAL 100%		
	Layer 2:	Mastic	**No**	Brown, Brittle
	100% Non-Asbestos	NON FIBROUS MATERIAL 93%, WOLLASTONITE 7%		
3200-7-24-32	2350325	Rm 5 mezz. abv rm 3		
	Layer 1:	TSI	**No**	White, Granular, Fibrous
	100% Non-Asbestos	MINERAL/GLASS WOOL 35%, NON FIBROUS MATERIAL 65%		
	Layer 2:	Cover	**No**	Green, Fibrous
	100% Non-Asbestos	CELLULOSE FIBER 85%, NON FIBROUS MATERIAL 15%		
3200-7-24-33	2350326	Rm 3 SW		
	Layer 1:	TSI	**No**	White, Granular, Fibrous
	100% Non-Asbestos	MINERAL/GLASS WOOL 30%, NON FIBROUS MATERIAL 70%		
	Layer 2:	Cover	**No**	Tan, Fibrous
	100% Non-Asbestos	CELLULOSE FIBER 80%, NON FIBROUS MATERIAL 20%		
3200-7-24-34	2350327	Rm 1 N ctr		
	Layer 1:	TSI	**No**	White, Granular, Fibrous
	100% Non-Asbestos	MINERAL/GLASS WOOL 40%, NON FIBROUS MATERIAL 60%		

Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.

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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
	Layer 2:	Cover	No	Tan, Fibrous
	100% Non-Asbestos		CELLULOSE FIBER 90%, NON FIBROUS MATERIAL 10%	
3200-7-24-35	2350328	Rm 1 N ctr		
	Layer 1:	TSI	No	White, Granular, Fibrous
	100% Non-Asbestos		MINERAL/GLASS WOOL 35%, NON FIBROUS MATERIAL 65%	
	Layer 2:	Cover	No	Tan, Fibrous
	100% Non-Asbestos		CELLULOSE FIBER 80%, NON FIBROUS MATERIAL 20%	
3200-7-24-36	2350329	Rm 1 SE corner		
	Layer 1:	TSI	No	White, Granular, Fibrous
	100% Non-Asbestos		MINERAL/GLASS WOOL 30%, NON FIBROUS MATERIAL 70%	
	Layer 2:	Cover	No	Tan, Fibrous
	100% Non-Asbestos		CELLULOSE FIBER 85%, NON FIBROUS MATERIAL 15%	
3200-7-24-37	2350330	Rm 1 NE corner		
	Layer 1:	TSI	No	Homogenous, White, Granular, Fibrous
	100% Non-Asbestos		MINERAL/GLASS WOOL 30%, NON FIBROUS MATERIAL 70%	
	Layer 2:	TSI	No	Homogenous, Yellow, Fibrous
	100% Non-Asbestos		MINERAL/GLASS WOOL 95%, NON FIBROUS MATERIAL 5%	
	Layer 3:	Cover	No	White, Fibrous
	100% Non-Asbestos		CELLULOSE FIBER 85%, NON FIBROUS MATERIAL 15%	
3200-7-24-38	2350331	Rm 1 N wall ctr		
	Layer 1:	TSI	No	Homogenous, White, Granular, Soft
	100% Non-Asbestos		NON FIBROUS MATERIAL 75%, POLYETHYLENE 15%, WOLLASTONITE 10%	
3200-7-24-39	2350332	Rm 1 S centr		
	Layer 1:	Ceramic Lab Top Mtrl	No	Homogenous, Black, Hard
	100% Non-Asbestos		NON FIBROUS MATERIAL 100%	
3200-7-24-40	2350333	Rm 4 N wall		
	Layer 1:	Ceiling Tile	No	White, Fibrous
	100% Non-Asbestos		CELLULOSE FIBER 15%, MINERAL/GLASS WOOL 70%, NON FIBROUS MATERIAL 15%	
3200-7-24-41	2350334	Rm SW corner		
	Layer 1:	Ceiling Tile	No	White, Fibrous
	100% Non-Asbestos		CELLULOSE FIBER 15%, MINERAL/GLASS WOOL 75%, NON FIBROUS MATERIAL 10%	

Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
	Layer 2:	Mastic	No	Brown, Brittle
	100% Non-Asbestos	NON FIBROUS MATERIAL 100%		
3200-7-24-42	2350335	Rm S ctr Well		
	Layer 1:	Wall Panel	No	White, Hard
	100% Non-Asbestos	CELLULOSE FIBER 10%, NON FIBROUS MATERIAL 90%		
	Layer 2:	Wall Paper	No	White, Fibrous, Soft
	100% Non-Asbestos	CELLULOSE FIBER 80%, NON FIBROUS MATERIAL 20%		
3200-7-24-43	2350336	Penthouse by door		
	Layer 1:	TSI	No	White, Granular, Fibrous
	100% Non-Asbestos	MINERAL/GLASS WOOL 30%, NON FIBROUS MATERIAL 70%		
	Layer 2:	TSI	No	Homogenous, Yellow, Fibrous
	100% Non-Asbestos	MINERAL/GLASS WOOL 90%, NON FIBROUS MATERIAL 10%		
	Layer 3:	Cover	No	White, Fibrous
	100% Non-Asbestos	CELLULOSE FIBER 85%, NON FIBROUS MATERIAL 15%		
3200-7-24-44	2350337	Penthouse top furnce		
	Layer 1:	Vibration Isolator	No	Black, Rubbery, Fibrous
	100% Non-Asbestos	FIBERGLASS 40%, NON FIBROUS MATERIAL 60%		

ANALYST: MARK DELEONARDIS
Total no. of pages in report = 3

REVIEWED BY **Shannon Vescio, Dept. Head**

Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237
804-275-4788 FAX 804-275-4907

BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

CLIENT: Helix Environmental, Inc.
1 E. Stewart Street, Suite B
Dayton, OH 45409-2624

DATE OF RECEIPT: 25 JUL 2002
DATE OF ANALYSIS: 29 JUL 2002
DATE OF REPORT: 29 JUL 2002

CLIENT NUMBER: 36-2170 A
EHS PROJECT #: 07-02-3458
PROJECT: Miamisburg, Ohio; Mound Bldg 98; 3200

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
01	3200-7-22-15QA/ White Powder; Brown Fib.	NAD	10% Cellulose 90% Non-Fibrous
02	3200-7-24-14QA/ White Fib.	NAD	95% Fibrous Glass 5% Non-Fibrous
03	3200-7-24-01QA/ Brown Fib.; White Powder	NAD	10% Cellulose 90% Non-Fibrous
04	3200-7-24-32QA/ Gray Powder	NAD	10% Cellulose 15% Fibrous Glass 75% Non-Fibrous

QC SAMPLE: M11992-1

QC BLANK: SRM 1866 Fiberglass

REPORTING LIMIT: 1% Asbestos

METHOD: Polarized Light Microscopy, EPA Method 600/R-93/116 *

ANALYST: Laura Holder

Reviewed By Authorized Signatory:

Howard Varner, Laboratory Director
Irma Faszewski, Quality Assurance Coordinator
David Xu, MS, Senior Chemist
Feng Jiang, MS, Senior Geologist
Michael A. Mueller, Quality Assurance Manager

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 36-2170 A
EHS PROJECT #: 07-02-3458
PROJECT: Miamisburg, Ohio; Mound Bldg 98; 3200

Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. California Certification #2319 NY ELAP #11714. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), for enhanced detection capabilities) for materials regulated by the EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

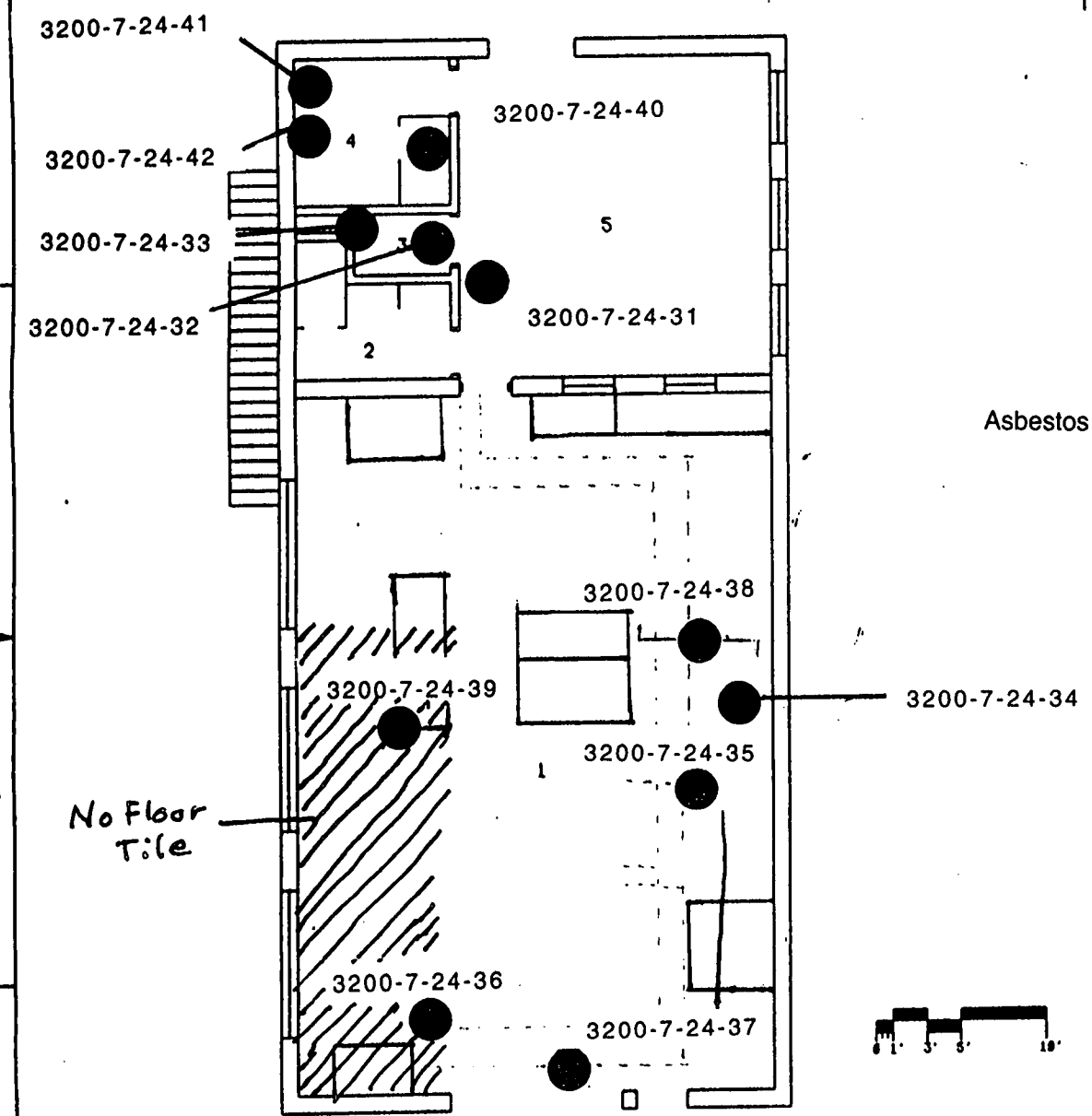
• All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

LEGEND NAD = no asbestos detected
SCF = suspected ceramic fibers

plm1.dot/07JAN2002/ pd

APPENDIX D: SAMPLE LOCATIONS

REV	DATE	REVISION	BY	CHKD	DES	APPD	APPD	D
B	12/12/91	ASBUILT ISSUE	DCW				DVD	



BLDG #46
FIRST FLOOR
BLDG CODE:3046

MOUND FACILITY
BUILDING 46
MIAMISBURG, OHIO

HELIX ENVIRONMENTAL, INC.
1 East Stewart Street, Suite B

Not to Scale

Aug 2002

First Floor

SHEET	1	2	3	4	5	6
ISSUE	B	B				

TITLE: BLDG #46 FLOOR PLANS

(U) TITLE CLASSIFICATION

UNCLASSIFIED

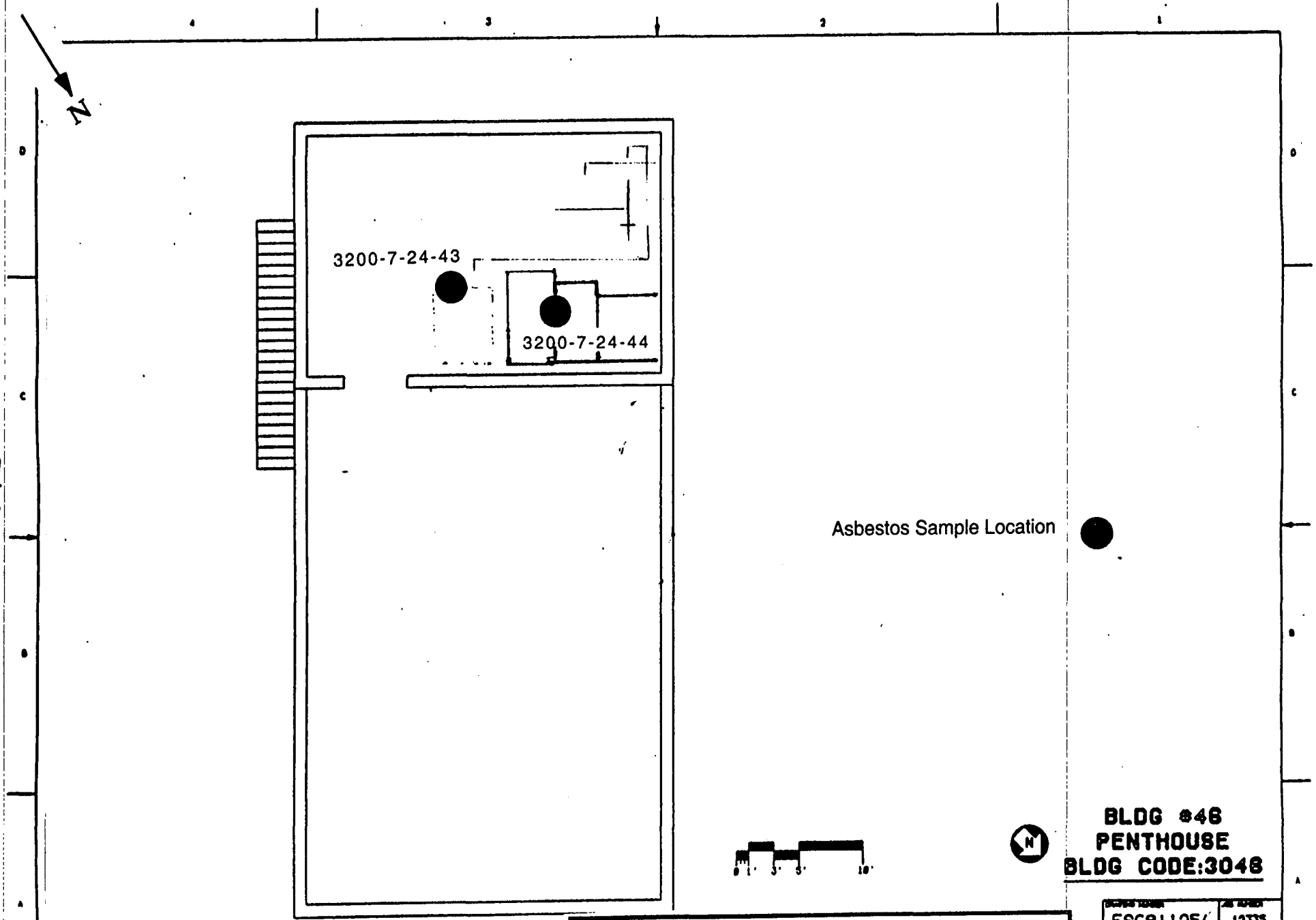
SIZE C | DRAWING NUMBER FSC911256 | JOB NUMBER 12339

CAD TYPE: SFP | BLDG #46 | 1:48 | SHEET 1 OF 2

STATUS: MO-REL.-12/12/91 | MO-BAS-V3.B

APPROVALS: SAFETY COMMITTEE REVIEWED: ___MBE ___ENGINE ___TEAM ___DOSE
TECH. REP. ___
CH. ENG. ___
TEAM ___
TEAM ___
OTHER ___
DATE: ___

14 of 50



MOUND FACILITY
BUILDING 46
MIAMISBURG, OHIO

HELIX ENVIRONMENTAL, INC.
1 East Stewart Street, Suite B

Not to Scale

Aug 2002

FSC911256 | 12335

UNCLASSIFIED

C | 14645 | SCALE AS NOTED | 8 | 2

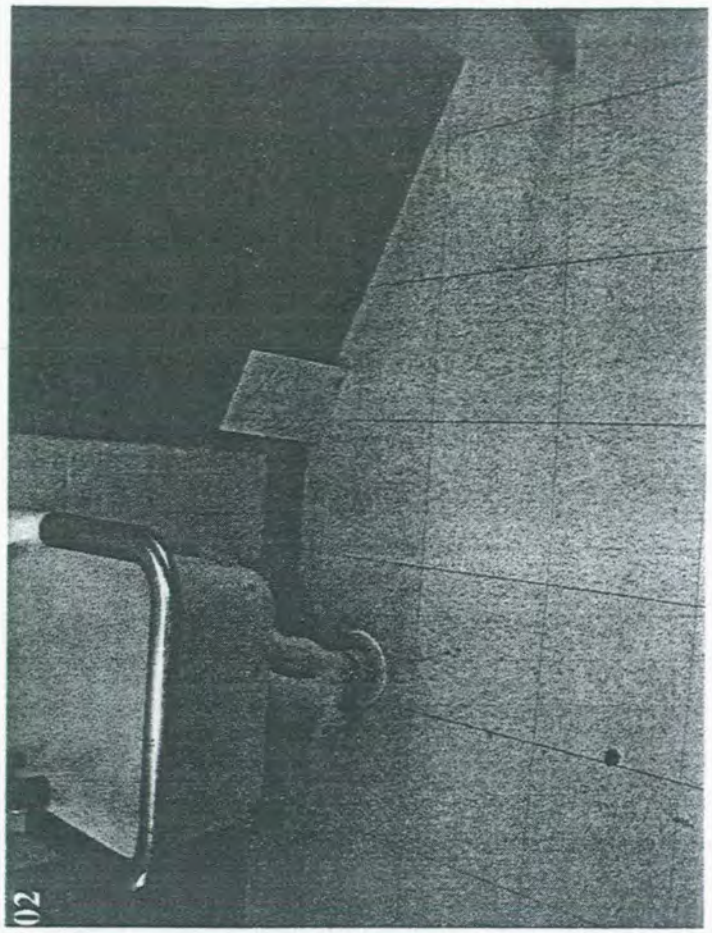
MO-FEL-12/12/91

I42 of 50

APPENDIX E: PHOTO LOG AND PHOTOGRAPHS

Photo Log Building 46

Photo	Description
01	Department of Energy Mound Facility, Miamisburg, Building 46, Room 5, showing hard pipe joint TSI sampling location in mezzanine above Room 3, Sample 3200-7-24-32.
02	Department of Energy Mound Facility, Miamisburg, Building 46, Room 5 , showing black cove base and mastic sampling location between doors to Rooms 2 and 3, Sample 3200-7-24-31.
03	Department of Energy Mound Facility, Miamisburg, Building 46, Room 3 , showing hard pipe joint TSI sampling location southwest area. Sample 3200-7-24-33.
04	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1, showing hard pipe joint TSI sampling location at north wall center near ceiling on CW line, Sample 3200-7-24-34
05	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1, showing hard pipe joint TSI sampling location at north wall center near ceiling on CW line, Sample 3200-7-24-34.
06	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1, showing hard pipe joint TSI sampling location at north wall center on CHWR line, Sample 3200-7-24-35.
07	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1 , showing White condensate wrap sampling location at North wall center, 10 foot high, Sample 3200-7-24-38.
08	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1, showing Hand pipe joint TSI sampling location in SE corner, 10' high on CHWS/CHWR line, Sample 3200-7-24-36.
09	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1, showing hard pipe joint TSI sampling location in northeast corner above entrance door, Sample 3200-7-24-37.
10	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1, showing black lab countertop sampling location at south center work area, Sample 3200-7-24-39.
11	Department of Energy Mound Facility, Miamisburg, Building 46, Room 4, showing 1' x 1' ceiling tile with random fissures and holes sampling location at north wall center above door, Sample 3200-7-24-40.
12	Department of Energy Mound Facility, Miamisburg, Building 46, Room 4 , showing 1' x 1' ceiling tile with random fissures and holes sampling location at south center wall, 7 foot high, Sample 3200-7-24-41.
13	Department of Energy Mound Facility, Miamisburg, Building 46, Room 1, showing Hard pipe joint TSI sampling location in SE corner, 10' high on CHWS/CHWR line, Sample 3200-7-24-36.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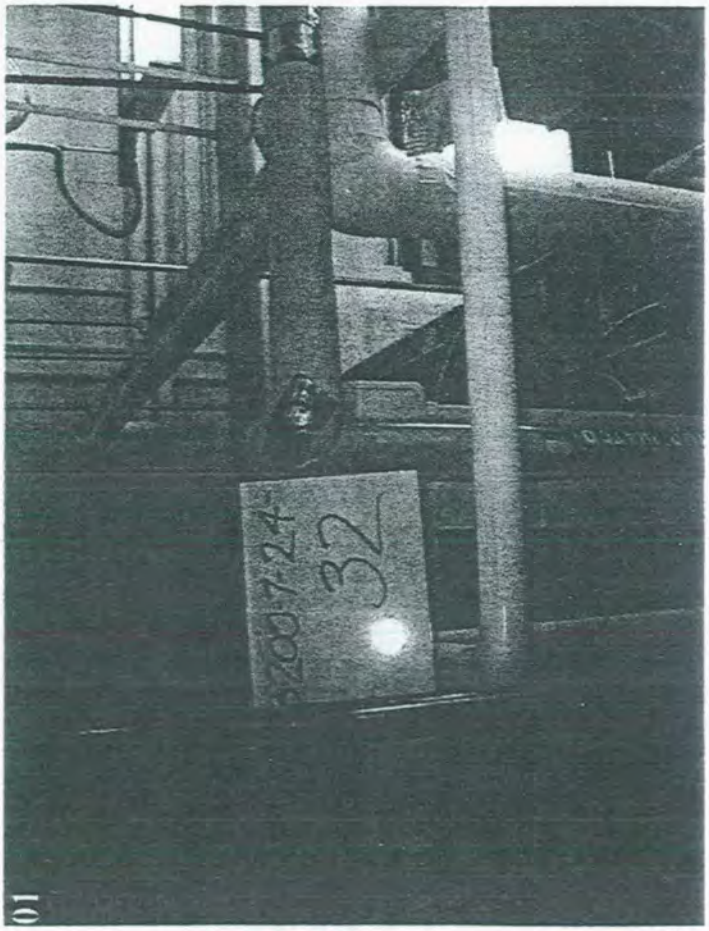
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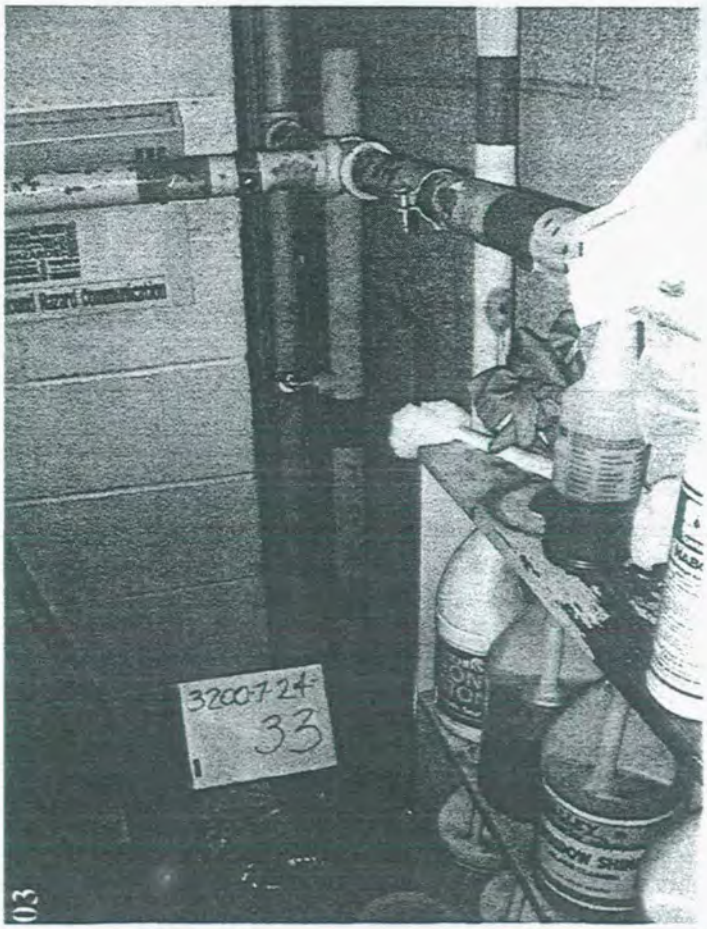
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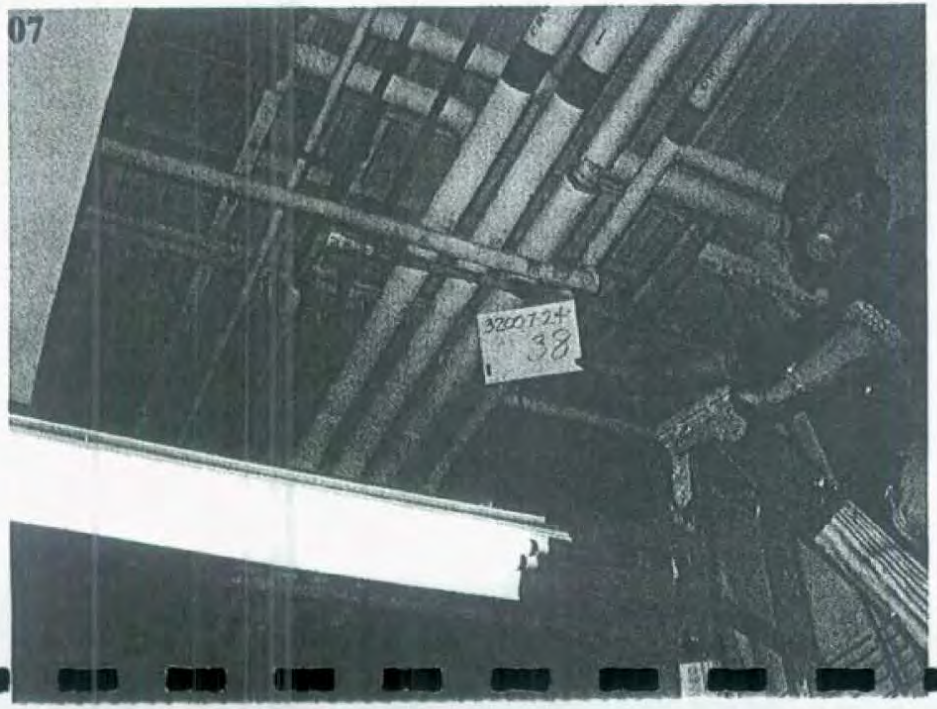
06

07



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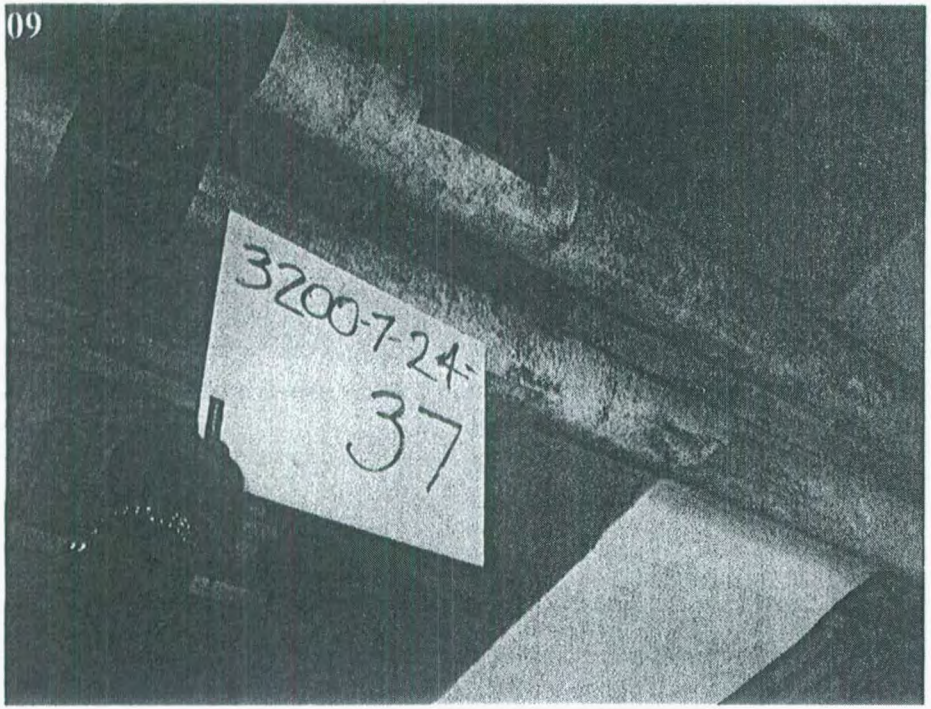

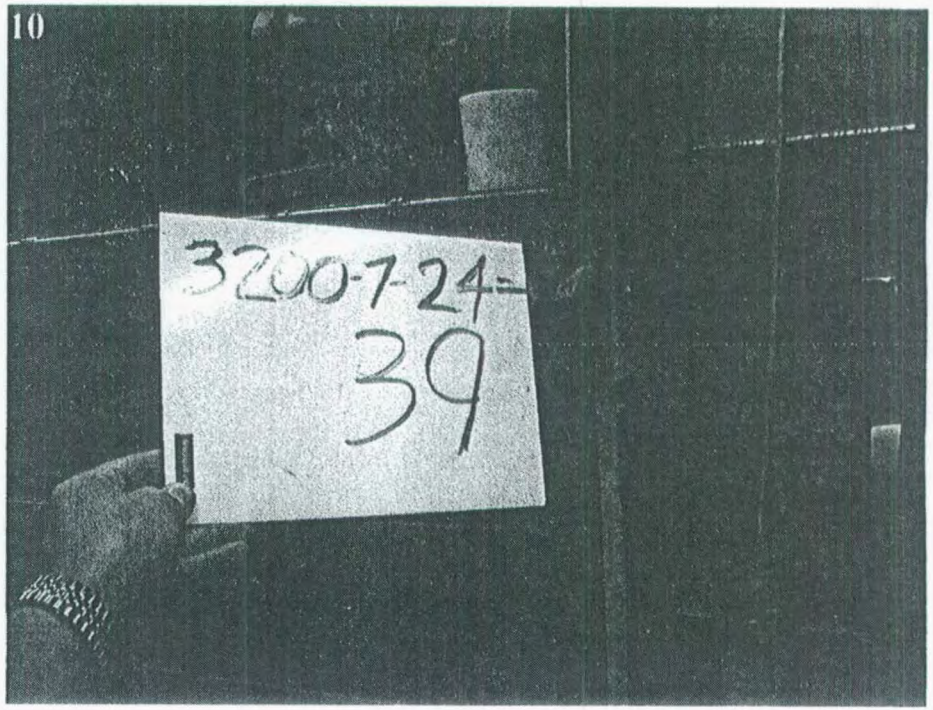

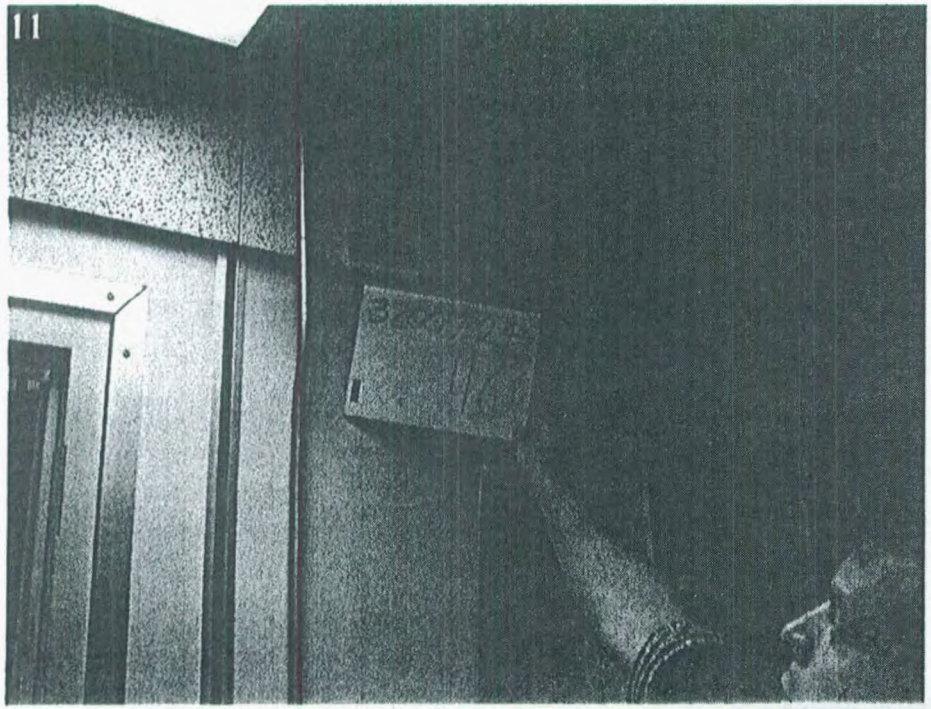

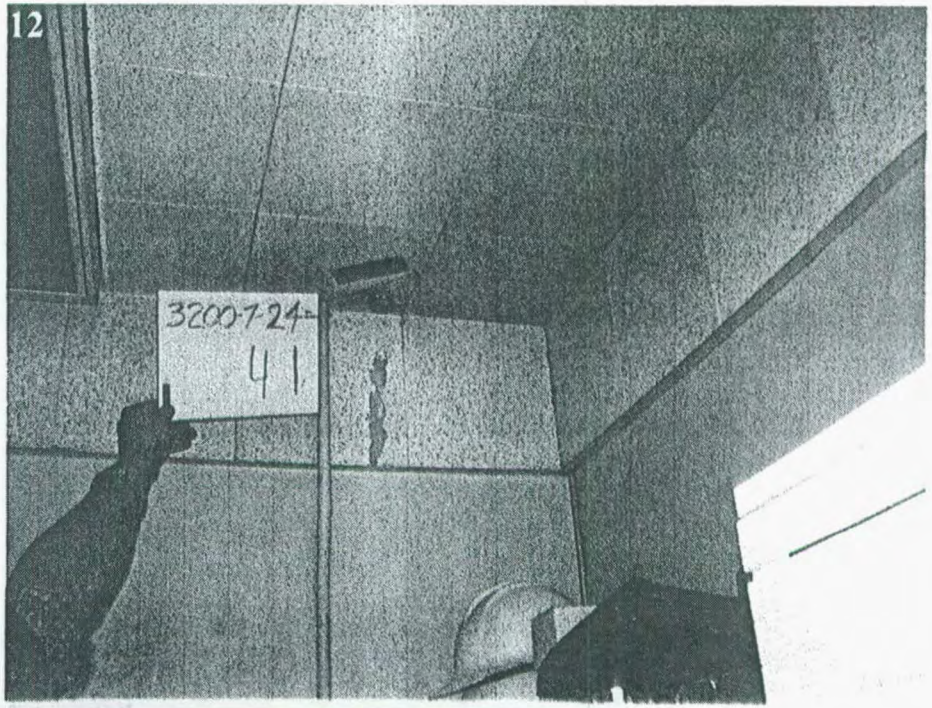

Page 50 of 48

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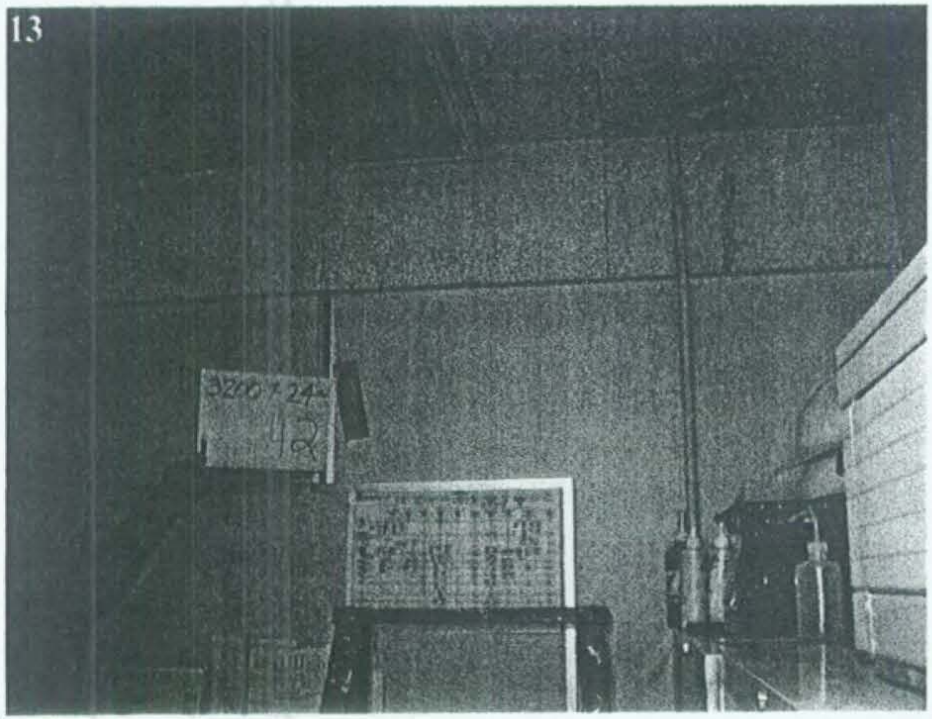
13



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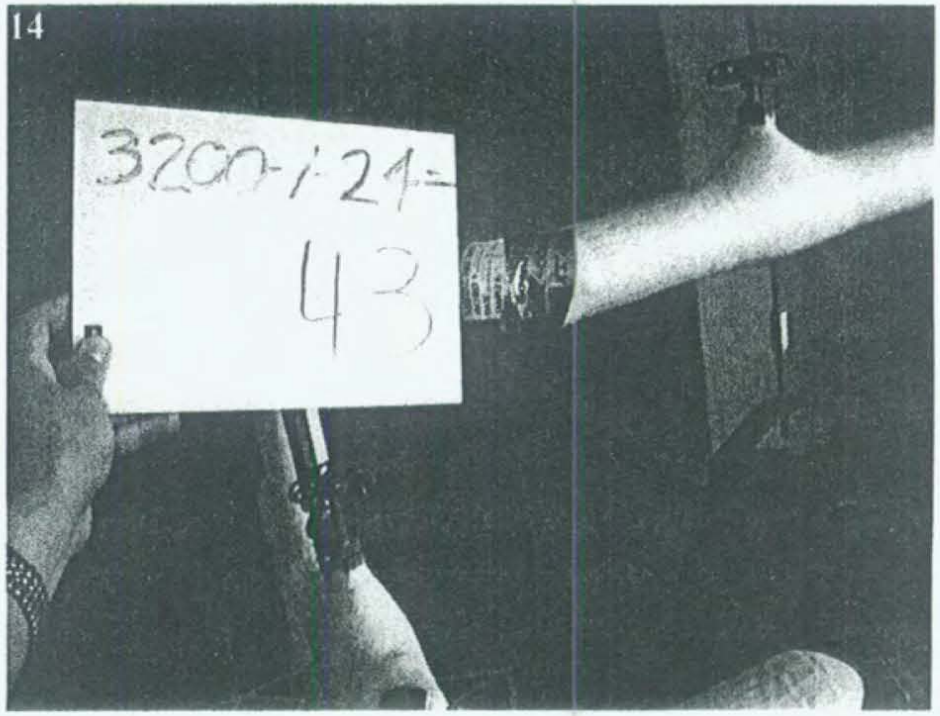

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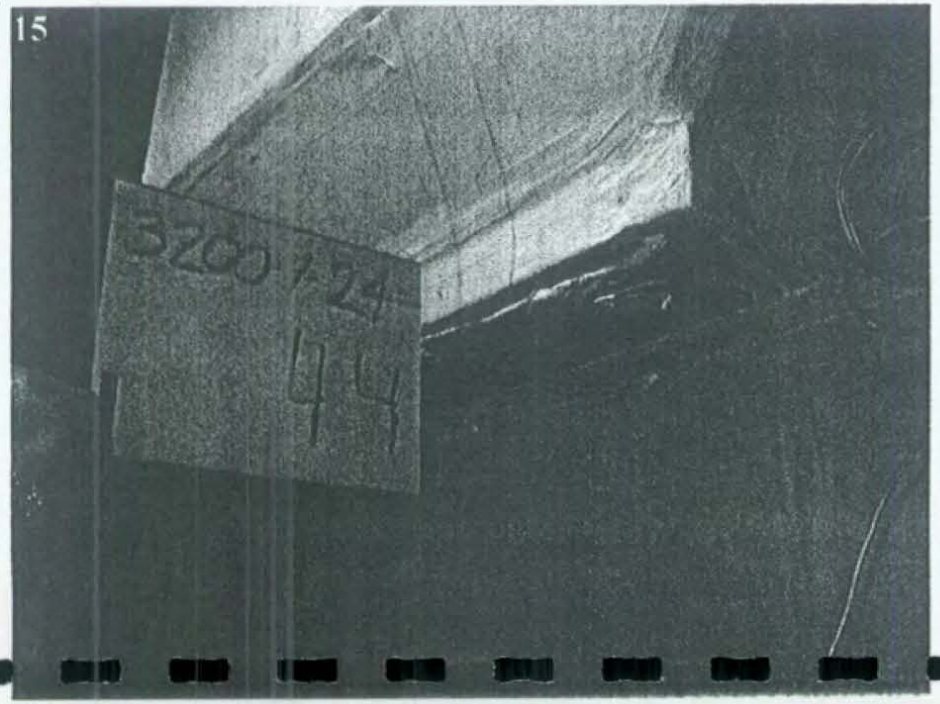

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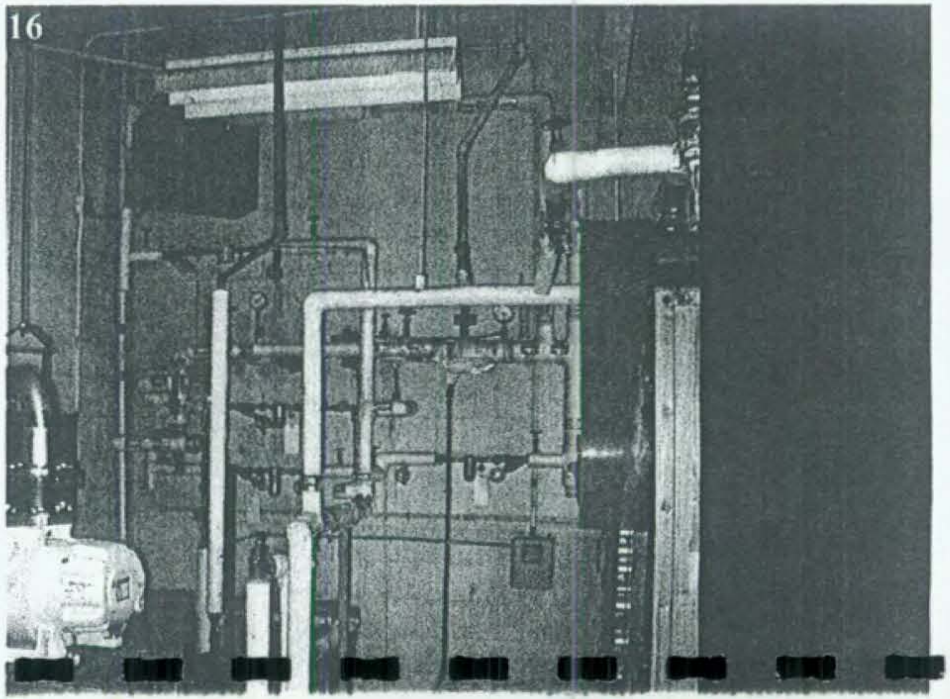

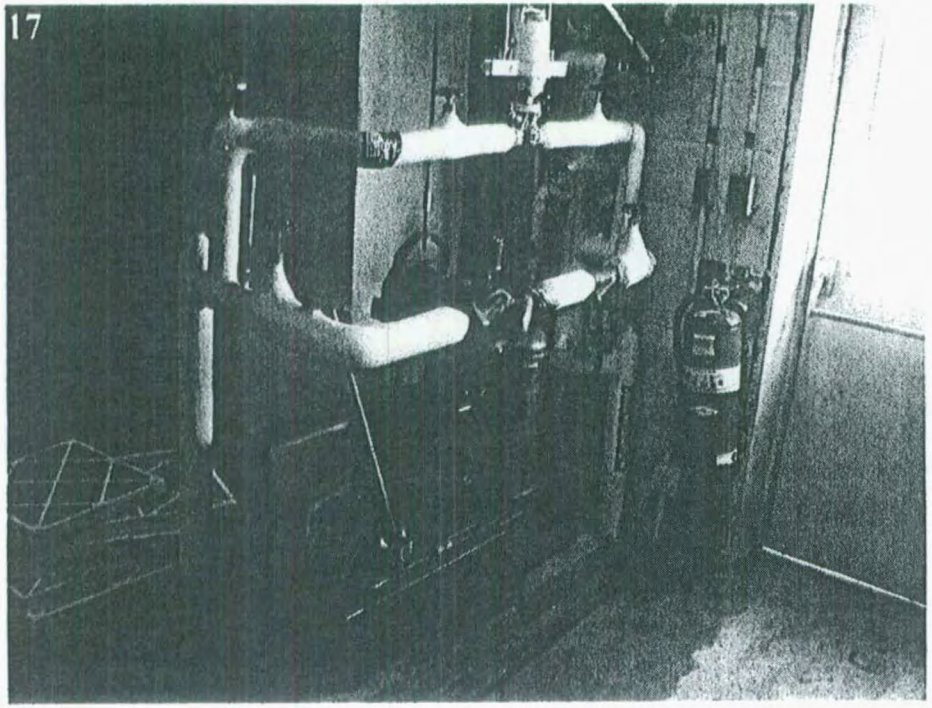

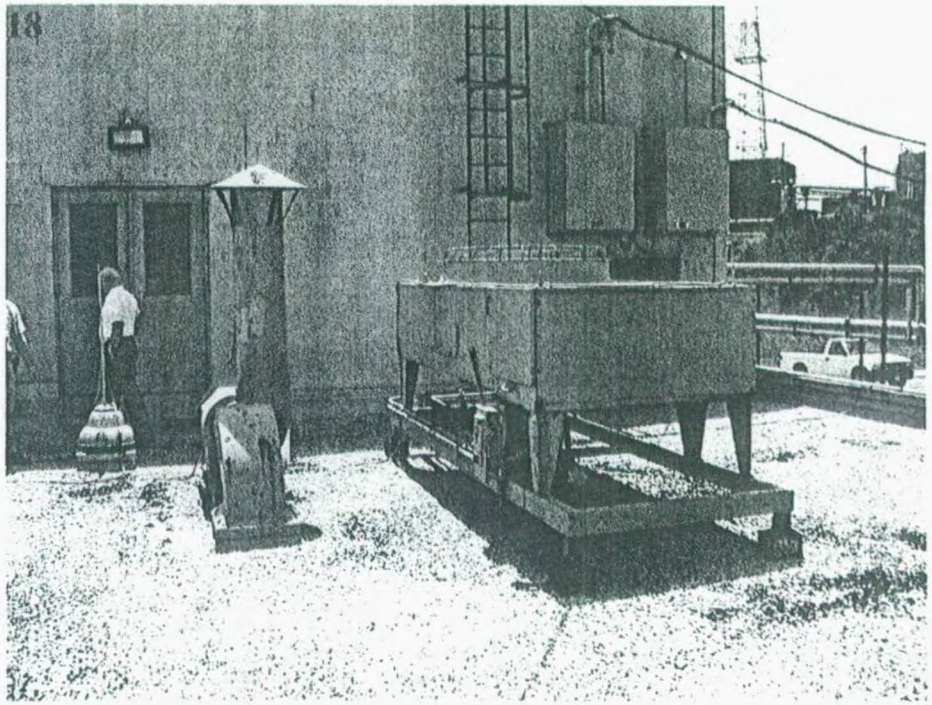

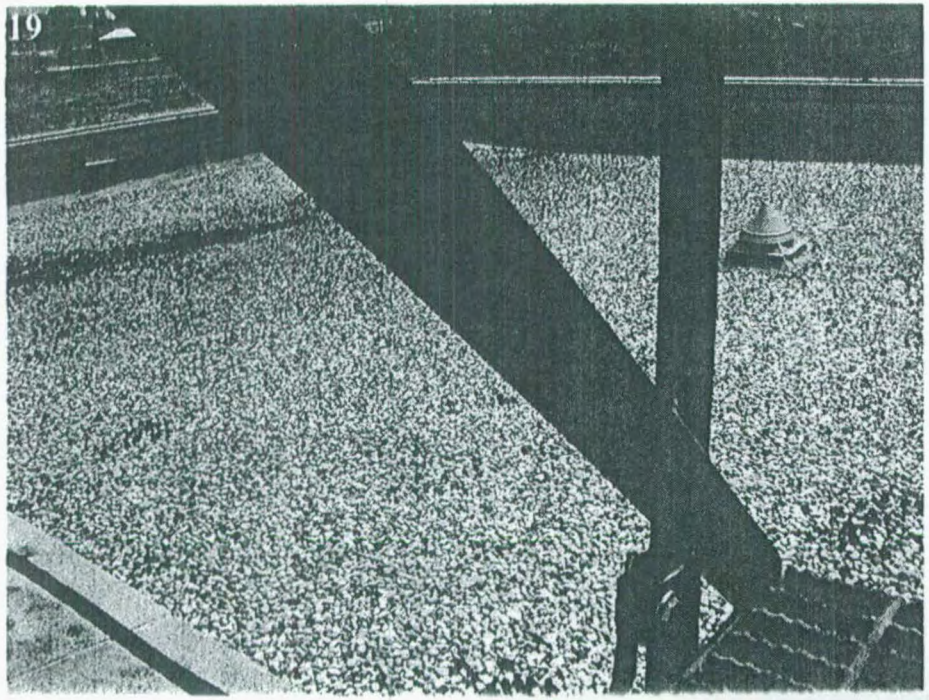

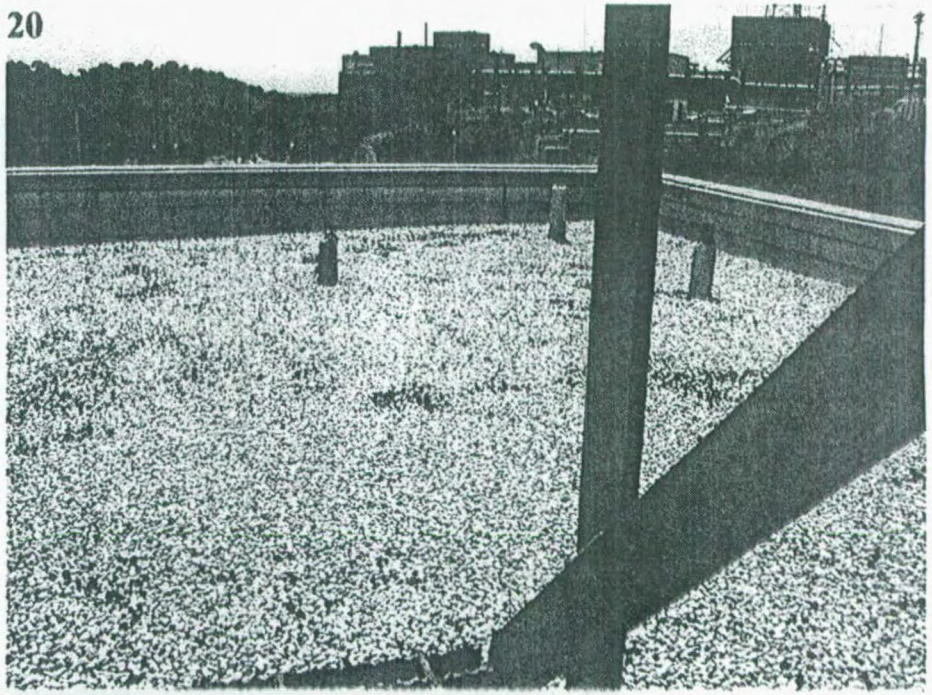

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Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val; Kramer, Donald
Date: 4/9/03 5:44PM
Subject: Building 46 Asbestos & Lead

Don & Val -

For Building 46 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

An asbestos survey was completed in August of 2002 by Helix Environmental, Inc. in accordance with EPA NESHAP requirements prior to demolition. Three types of materials were found to contain asbestos which must be removed prior to demolition; these materials included 70 linear feet of pipe insulation in the Penthouse, 30 square feet of laboratory hood cement board lining in Room 1, and 10 fire doors throughout. The roofing (approximately 2,500 square feet) is of a built-up asphalt variety and is assumed to contain asbestos as is the floor tile (approximately 1,440 square feet) within the building - being classified as EPA Nonfriable Category I types of materials, the removal of roofing and floor tile is not necessary prior to demolition by normal heavy-duty means. A copy of the survey report is being forwarded.

Lead

No previous lead surveys or sampling data could be found for Building 46. 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. Since the building is scheduled for demolition, these restrictions should be incorporated into any work plans for which disturbance of paint is a possibility.

In accordance with guidance from Mound Waste Management, paint coatings should not result in a hazardous waste issue during the course of normal demolition by heavy-duty means.

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: Koehmstedt, Lee

J 1061

Appendix K

Chemical Information

Applicable pages of *CY2001 Emergency and Hazardous Chemical Inventory Report* (dated March 2002) are provided.

Also provided is a list of chemicals known to have been in this Building.

Chemicals Previously Used or Stored in Building 46

3 in 1 household oil
Acetone
acetylene
Air Vol 21-205
Ajax bleach cleanser
Alumina Powder
Aluminum Fluoride
Aluminum Oxide/H20
Argon
Barium Oxide
Blue Max 2000 Flux
Boron Oxide
Bruning Paint
Butchers Acrylic Sol
Calcium Chloride
Calcium Fluoride
Calcium Oxide
Cardinal Paint
Carters Rubber Cement
Cerium Chloride
Chesterton Cutting Oil
Chromium Oxide
Chromium Selenide
Chromium Silicide
Chromium Sulfide
Cim Clean 40
Cling Brite Cleaner
Clover Lapping Comp.
Cobalt Sulfide
ConQuest Cleaner
Crown Spray Adhesive
Diamond Comp. Spray
Diamond Compound
DMQ Cleaner
Dow Corning 200 Fluid
Dow Corning Toy Fluid
ethanol
Ethyl Acetate
Festival Furn. Polish
Florco Absorbent
Gamima Alumina Powd
garnet blasting media
Gas Leak Detector
Gerium Fluoride
handy flux B-1
Harris stay-silv flux
HB-1 spray tap
HE-150 pump oil
HE-200 pump oil
Heavy Mineral Oil
Helium
Inmar CRT cleaner
Iron Oxide
Iron Sulfide
J/O Plus 50 motor oil
John Bowl Cleaner
Kindestkare Cleanser
Krylon spray paint
Lava Hand Soap
Lithium chloride
Lithium Fluoride
Lock ease fluid
Lucite Powder
Magnesium Chloride
Magnesium Fluoride
Magnesium Oxide
Manganese Oxide
Mark resistor flr finish
Marker Board Cleaner
Moly Disulfide Dry Lube
Molybdenum Oxide
Naval
Nichel Oxide
Nichel Sulfide
nitrogen
nokorode soldering paste
oil, pump
Orelube G-1/3 grease
Oxalic Acid
oxygen
Parus 827 pump oil
Penetrating Oil
Potassium Chloride
Potassium Fluoride
Sample Kwick Liquid
Sample-Kwick Powder
Selenium Oxide
silicon carbide pwpr
Silicon Oxide
Silicone Spray
Silver Plating Powder
snoop leak detector
Sodium Bicarbonate
Sodium Hydroxide
Spartan Ringe free strip
Stay Clean
Titanium Fluoride
Titanium Oxide
Titanium sponge
Titrium Oxide
Toluene
Transoptic Powder
Trichloroethane
trichloroethane
Tungsten Sulfide
Valvoline Grease
walnut shell blast media
WD-40
Window shine cleaner
Z moly-powder
Zinc Chloride
Zirconium Oxide
Zirconium Telleride

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K 2 06 6

BWXT of Ohio, Inc.

CY2001 Emergency and Hazardous Chemical Inventory Report
(excludes Appendix A containing Official Use Only building maps*)

March 2002

MOUND
is operated for the
U.S. Department of Energy
under contract No. DE-AC24-97OH20044

**Contact the Department of Energy Miamisburg Environmental Management Project for a copy of Appendix A if needed for the performance of official duties.*

K3 of 6

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here: _____
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

Page 6

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7440-37-1	argon	X						X		X				X	B-36	4	1	L	2,4		01	01	C	365
2	7440-37-1	argon		X					X		X				X	B-36	4	1	L	2,4		01	01	C	365
3	7440-37-1	argon	X						X		X				X	B-36	5	1	L	2,4		01	01	C	365
4	7440-37-1	argon	X						X		X				X	B-36	dock	1	L	2,4		02	02	C	365
5	7440-37-1	argon		X					X		X				X	B-46	1	1	L	2,4		02	02	C	365

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN PAGES ONE THROUGH 27, AND THAT BASED ON MY INQUIRY OF THOSE RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Richard Provencher, Director, USDOE, MEMP — NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

Richard B. Provencher — SIGNATURE

2/27/02 — DATE SIGNED

EPA 0317 Revised 5/3/89

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

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City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here: _____
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7440-37-1	argon	X						X		X				X	B-46	dock	1	L	2,4		02	02	C	365
2	7440-37-1	argon		X					X		X				X	B-46	dock	1	L	2,4		02	02	C	365
3	7440-37-1	argon		X					X		X				X	B-48	211	2	L	2,4		02	02	C	365
4	7440-37-1	argon	X						X		X				X	B-50	115	1	L	2,4		02	01	C	365
5	7440-37-1	argon	X						X		X				X	B-50	116	1	L	2,4		01	01	C	365

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

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Richard Provencher, Director, USDOE, MEMP
NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/89

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

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5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7440-37-1	nitrogen	X						X		X				X	B-46	dock	1	L	2,4		01	01	C	365
2	7782-37-9	nitrogen		X					X		X				X	B-50	115	1	L	2,4		01	01	C	365
3	7782-37-9	nitrogen		X					X		X				X	B-50	116	1	L	2,4		01	01	C	365
4	7782-37-9	nitrogen		X					X		X				X	B-50	204	2	L	2,4		01	01	C	365
5	7782-37-9	nitrogen	X						X		X				X	B-124		1	L	2,4		01	01	C	365

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

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Richard Provencher, Director, USDOE, MEMP
NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

2/27/02
DATE SIGNED

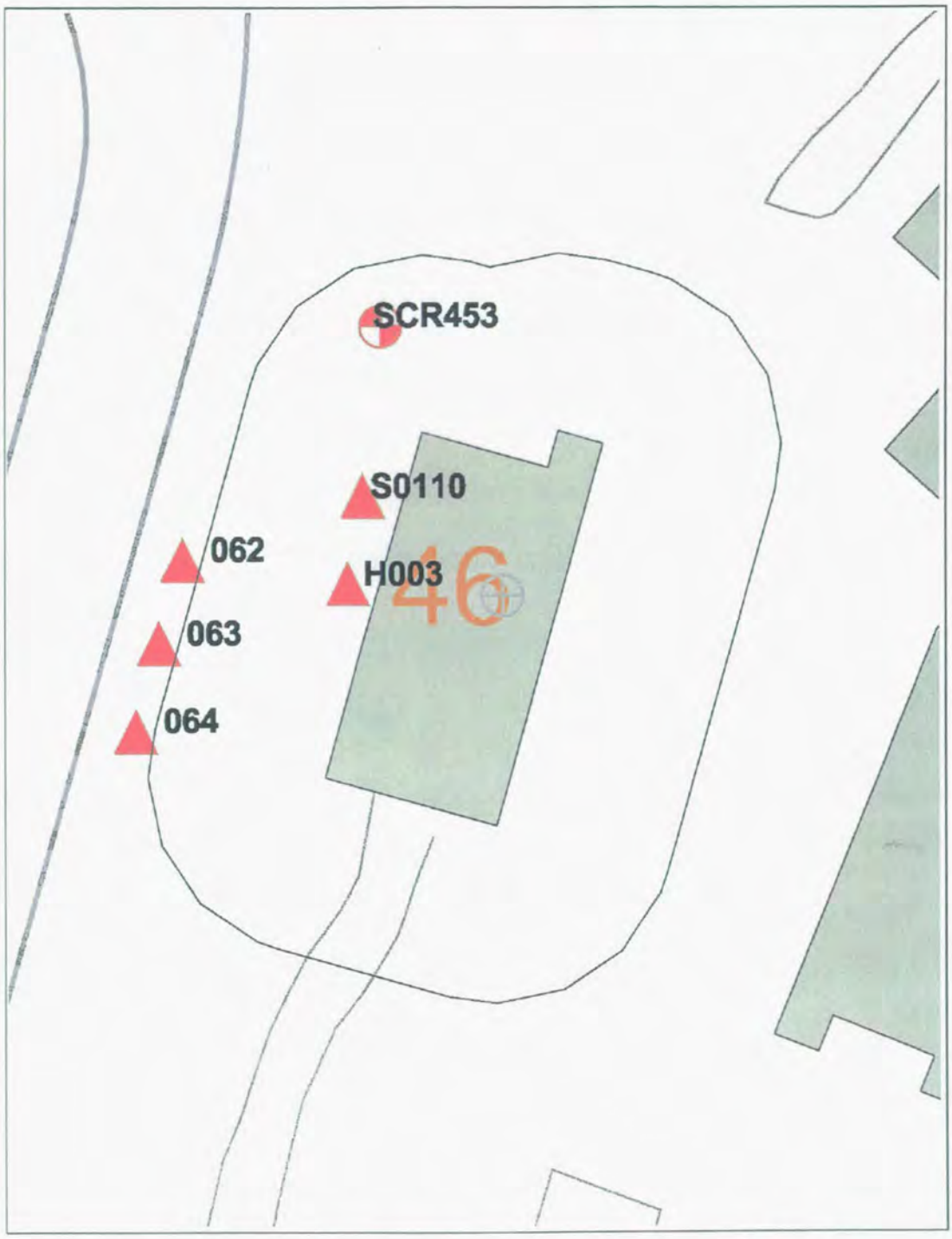
EPA 0317 Revised 5/3/89

1 of 6

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 30 feet of Building 46



25 0 25 50 75 100 Feet

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W
S

MOUND
Environmental Restoration Geographic Information System

Sample Detect
Sample Nondetect

s:\cad_proj\bldg_46\esri\bldg46_30ft_048703.apr

04/07/03

L 1 of 15

Building 46 Detects

LOCATIO	SAMPLE_I	COLLECTI	VALUE_NAME	MEASURED_V	VALUE_	DETECTI	CHEM_	STAR	END_	LAB	DA	PROJECT	MEDIA	Comments
064	064	20001104	Cesium-137	0.0200	PCI/G	0.0100	RAD	0.0	0.0			GASLINE	Soil	
064	064	20001104	Lead-210	0.6100	PCI/G	0.2900	RAD	0.0	0.0			GASLINE	Soil	
062	062	20001103	Lead-210	0.3800	PCI/G	0.1700	RAD	0.0	0.0			GASLINE	Soil	
063	063	20001103	Lead-210	0.2800	PCI/G	0.2100	RAD	0.0	0.0			GASLINE	Soil	
SCR453	93090315	19930903	Plutonium-238	35.0000	PCI/G		RAD	4.0	4.0			SCRDATA	Soil	12
SCR453	93090313	19930903	Plutonium-238	33.0000	PCI/G		RAD	2.0	2.0			SCRDATA	Soil	12
SCR453	93083025	19930830	Plutonium-238	26.0000	PCI/G		RAD	0.0	0.0			SCRDATA	Soil	12
SCR453	93090310	19930903	Plutonium-238	25.0000	PCI/G		RAD	3.0	3.0			SCRDATA	Soil	12
S0110	6203	19840801	Plutonium-238	0.4100	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
064	064	20001104	Radium-226	1.4300	PCI/G	0.3400	RAD	0.0	0.0			GASLINE	Soil	1
063	063	20001103	Radium-226	1.1400	PCI/G	0.2400	RAD	0.0	0.0			GASLINE	Soil	1
062	062	20001103	Radium-226	0.9200	PCI/G	0.1900	RAD	0.0	0.0			GASLINE	Soil	1
H003	H003	20001026	Radium-226	0.3000	PCI/G	0.2600	RAD	0.0	3.0			FIREREP	Soil	1
064	064	20001104	Thorium-232	0.7600	PCI/G	0.0500	RAD	0.0	0.0			GASLINE	Soil	1
062	062	20001103	Thorium-232	0.5200	PCI/G	0.0300	RAD	0.0	0.0			GASLINE	Soil	1
063	063	20001103	Thorium-232	0.5100	PCI/G	0.0400	RAD	0.0	0.0			GASLINE	Soil	1
H003	H003	20001026	Thorium-232	0.1600	PCI/G	0.0500	RAD	0.0	3.0			FIREREP	Soil	1

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

Common nutrients (such as sodium, potassium, and magnesium) and common anions (such as nitrate, nitrite, sulfate, sulfide, phosphate, flouride iodide, nitrogen, and bromide) are not considered in site risk assessments and therefore not evaluated herein.

There are no risk-based or hazard comparison values for rubidium, strontium, titanium, and zirconium.

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Building 46 Non-Detects

LOCATIO	SAMPLE_I	COLLECTIO	VALUE_NAME	MEASURED_	VALUE_	DETECTIO	CHEM	START_	END_	LAB	DAT	PROJECT_CO	MEDIA
064	064	20001104	Actinium-227	0.1500	PCI/G	0.1500	RAD	0.0	0.0	U		GASLINE	Soil
063	063	20001103	Actinium-227	0.1000	PCI/G	0.1000	RAD	0.0	0.0	U		GASLINE	Soil
H003	H003	20001026	Actinium-227	0.0800	PCI/G	0.0800	RAD	0.0	3.0	U		FIREREPAIR	Soil
062	062	20001103	Actinium-227	0.0800	PCI/G	0.0800	RAD	0.0	0.0	U		GASLINE	Soil
064	064	20001104	Americium-241	0.0300	PCI/G	0.0300	RAD	0.0	0.0	U		GASLINE	Soil
H003	H003	20001026	Americium-241	0.0200	PCI/G	0.0200	RAD	0.0	3.0	U		FIREREPAIR	Soil
063	063	20001103	Americium-241	0.0200	PCI/G	0.0200	RAD	0.0	0.0	U		GASLINE	Soil
062	062	20001103	Americium-241	0.0200	PCI/G	0.0200	RAD	0.0	0.0	U		GASLINE	Soil
H003	H003	20001026	Cesium-137	0.0100	PCI/G	0.0100	RAD	0.0	3.0	U		FIREREPAIR	Soil
063	063	20001103	Cesium-137	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		GASLINE	Soil
062	062	20001103	Cesium-137	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		GASLINE	Soil
064	064	20001104	Cobalt-60	0.0200	PCI/G	0.0200	RAD	0.0	0.0	U		GASLINE	Soil
H003	H003	20001026	Cobalt-60	0.0100	PCI/G	0.0100	RAD	0.0	3.0	U		FIREREPAIR	Soil
063	063	20001103	Cobalt-60	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		GASLINE	Soil
062	062	20001103	Cobalt-60	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		GASLINE	Soil
H003	H003	20001026	Lead-210	0.2200	PCI/G	0.2200	RAD	0.0	3.0	U		FIREREPAIR	Soil
SCR453	93090311	19930903	Plutonium-238	22.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	93082644	19930826	Plutonium-238	22.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR458	9308112	19930811	Plutonium-238	21.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR458	93081115	19930811	Plutonium-238	20.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93082645	19930826	Plutonium-238	15.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR458	9208047	19920804	Plutonium-238	15.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	9309144	19930914	Plutonium-238	14.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR453	93081630	19930816	Plutonium-238	14.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR453	93090312	19930903	Plutonium-238	12.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93090314	19930903	Plutonium-238	12.0000	PCI/G		RAD	4.0	4.0	U		SCRDATA	Soil
SCR453	9308194	19930819	Plutonium-238	12.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	9309145	19930914	Plutonium-238	10.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
H003	H003	20001026	Plutonium-238	9.0300	PCI/G	9.0300	RAD	0.0	3.0	U		FIREREPAIR	Soil
SCR453	93090318	19930903	Plutonium-238	9.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93082646	19930826	Plutonium-238	9.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR453	93082647	19930826	Plutonium-238	9.0000	PCI/G		RAD	6.0	6.0	U		SCRDATA	Soil

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LOCATIO	SAMPLE_I	COLLECTIO	VALUE_NAME	MEASURED_	VALUE_	DETECTIO	CHEM	START_	END_	LAB	DAT	PROJECT_CO	MEDIA
SCR458	92080411	19920804	Plutonium-238	9.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
064	064	20001104	Plutonium-238	8.1300	PCI/G	8.1300	RAD	0.0	0.0	U		GASLINE	Soil
063	063	20001103	Plutonium-238	6.5200	PCI/G	6.5200	RAD	0.0	0.0	U		GASLINE	Soil
SCR458	9308111	19930811	Plutonium-238	6.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
062	062	20001103	Plutonium-238	4.6300	PCI/G	4.6300	RAD	0.0	0.0	U		GASLINE	Soil
064	064	20001104	Thorium-230	3.1000	PCI/G	3.1000	RAD	0.0	0.0	U		GASLINE	Soil
063	063	20001103	Thorium-230	2.2800	PCI/G	2.2800	RAD	0.0	0.0	U		GASLINE	Soil
H003	H003	20001026	Thorium-230	2.1600	PCI/G	2.1600	RAD	0.0	3.0	U		FIREREPAIR	Soil
062	062	20001103	Thorium-230	1.8300	PCI/G	1.8300	RAD	0.0	0.0	U		GASLINE	Soil
S0110	6203	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
SCR453	93090311	19930903	Thorium-232	1.2000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	93090312	19930903	Thorium-232	1.1000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93082645	19930826	Thorium-232	1.1000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR458	9308112	19930811	Thorium-232	1.1000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR453	9309145	19930914	Thorium-232	1.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93090315	19930903	Thorium-232	1.0000	PCI/G		RAD	4.0	4.0	U		SCRDATA	Soil
SCR453	9308194	19930819	Thorium-232	1.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	93082647	19930826	Thorium-232	1.0000	PCI/G		RAD	6.0	6.0	U		SCRDATA	Soil
SCR458	93081115	19930811	Thorium-232	1.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93090313	19930903	Thorium-232	0.9000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR453	93083025	19930830	Thorium-232	0.9000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	93090318	19930903	Thorium-232	0.9000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93081630	19930816	Thorium-232	0.9000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR453	93082644	19930826	Thorium-232	0.9000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR458	9308111	19930811	Thorium-232	0.8000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR458	9208047	19920804	Thorium-232	0.7000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	93090310	19930903	Thorium-232	0.6000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR453	93082646	19930826	Thorium-232	0.6000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR458	92080411	19920804	Thorium-232	0.6000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR453	9309144	19930914	Thorium-232	0.5000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR453	93090314	19930903	Thorium-232	0.5000	PCI/G		RAD	4.0	4.0	U		SCRDATA	Soil

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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.

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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.

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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
13981-16-3	Plutonium-238	6.10E+00	PCI/G
15117-48-3	Plutonium-239	5.50E+00	PCI/G

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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

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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

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	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
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

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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
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

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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

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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

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Appendix M

Occurrence Reports

No occurrences for Building 46 have been reported to DOE since the reporting system was initiated at MCP in 1991.

Appendix N

PRS Information

There are no PRSs in the vicinity of Building 46;
therefore, there are no recommendation sheets included herein.

Appendix O

Work Plan

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

☒ ~ Office Master Copy (Original Approval Signatures) ☐ ~ Field Working Copy (Original Field Sign -Offs) ☐ ~ Review Copy [Note: Mark this section in color] ☐ ~ Other Copy

Note: The Project Engineer is responsible for completing Sections 1 through 10.

1. WORK PACKAGE TITLE: **Building 46 Demolition**

2. WORK PACKAGE NUMBER: SMPP/TFV- **36052**

Requestors: Lee Koehmstedt x 3659/ Mark Tibbs x 4734

3. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Building 46. Using heavy equipment to demolish the facility (including pipe stanchions, slab and foundation), remove and dispose of the debris, provide site restoration, grading, and erosion protection with seeding and mulch.

This is a non-radiological demolition project and no RWP is required.

Asbestos abatement, safe shutdown, and utilities isolation activities will have already been completed prior to demolition.

4. WORK LOCATION: **Building 46**

5. WORK PACKAGE PHASES:

1. Site information.
2. Site preparation & mobilization.
3. Building, stanchions, slab and footings demolition.
4. Site restoration & demobilization.

List of Appendixes

A – PHA/JSHA

B – Pre-Job Briefings/Job Status Log

C – Drawings/Sketches

D – Miscellaneous (RWP, USQ, etc.)

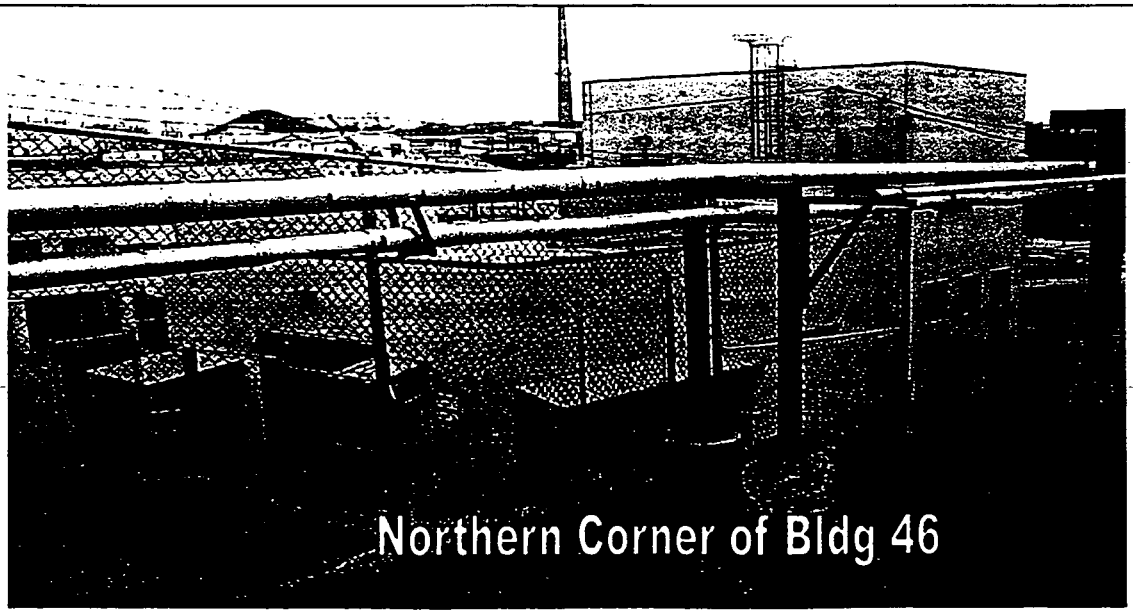
E – Post-Job Conference/Lessons Learned

Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.

6. SPECIAL MATERIALS AND EQUIPMENT:

1. Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment.
2. Rock crusher.
3. Aerial man lifts.
4. Rubber tired and tracked front-end loaders.
5. Transport equipment for debris.
6. Fog Cannon

Note: Insert any materials that require long lead procurement or special order. Don't list common items such as PPE.



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7. DETAILED WORK STEPS:

7.1 SITE INFORMATION:

Building 46 was constructed in 1969, as the "Welding Development Facility." At the time of construction, the building contained 2,439-ft^2.

This building is atypical of Mound buildings as it has not had any additions constructed on it, and today remains at the "as constructed" square footage.

The foundation consists of standard reinforced concrete "footers" and "stem foundation walls."

Exposed exterior wall construction generally consists of reinforced concrete block. Reinforcing rebar consists of #5 @ 48" for vertical wall reinforcement and continuous bond beam with a two reinforcing rebar (#4). Masonry block has a vermiculite fill.

The floor slab is 6" thick reinforced concrete, bearing a vapor barrier at its base, underlain by 6" of compacted gravel.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 46 is not listed as a historic structure with the Ohio Historic Preservation Office (OHPO). No mitigative documentation package is required.

IMPORTANT: However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at extension 3691. Work will be temporarily suspended until which time the items or artifacts have been recovered.

7.3 SITE PREPARATION & MOBILIZATION

7.3.1 Site Access Control

Work zone boundary will be established during Safe Shutdown , using fencing and/or with barricade tape as directed by the Project Foreman. Proper signage will be placed at all access points to the site.

This zone is not to be entered by anyone not directly involved with the demolition unless they have obtained permission from the Project Construction Manager/Foreman first.

Emergency egress for Bldg. 45 occupants shall be maintained.

7.3.2 Site Erosion Control

Install sediment/storm water control fence, straw bales and sandbags around designated construction area. See Underground utilities and Erosion Control Sketch in Appendix C. Coordinate with Environmental Compliance PoC. The effectiveness of storm water controls will be evaluated as the project progresses.

7.3.3 Clear Area and Mark/Protect Utility Equipment and Monitoring wells

The area around the building will be mowed or otherwise cleared of obstacles as appropriate.

Mark and/or protect fire prevention PIV's, monitoring wells and other utility equipment with visible stakes. Cover field grates for protection.

7.3.4 Temporary Utilities

The only temporary utility that may be required is water. Ensure backflow prevention is present, if applicable. Water will be used to control dust emissions.

7.3.5 Temporary Facilities

This project will use the existing SMPP/TFV project trailer complex located in the existing Mound "C" parking lot.

7.3.6 Temporary Communications

Temporary communications are required (cell phone, radios) due to the functions and equipment for hearing plant announcements and emergency notifications will have been removed prior to demolition.

7.3.7 Staging Areas

The project site is of sufficient size to also be used as a staging area.

7.4 PRELIMINARY ACTIVITIES AND VERIFICATIONS

7.4.1 Verify all Building Safe Shutdown Activities have been completed per SMPP/TFV-36050

verified by _____ date: _____
Bill Wahler or designee

7.4.2 Verify all Building Utility Isolation Activities have been completed per UA-36053, FTS –36119-00

verified by _____ date: _____
Allen Upshaw or designee

7.4.3 Verify the Radiological Final Status Survey Complete, by contacting Steve Collas @ 4522.

verified by _____ date: _____
Bill Wahler or designee

7.4.4 The *Pre-Job Briefing Record* must be completed and signed.

7.4.5 The *Job Specific Hazards Analysis (JSHA) must be reviewed.*

7.4.6 Notify Ron Daily X 4872 - PoC Building 45 occupants of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

Verified by _____ date: _____
Mike Stromberg or designee

7.4.7 Notification of Demolition and Renovation form must be filed with the Regional Air Pollution Control Agency (RAPCA) at least **10 business days before planned building demolition.**

HOLD POINT: RAPCA Notification verification

Environmental Compliance PoC_____ Date to Proceed with Demo_____

IMPORTANT NOTE: All workers have Stop Work Authority. Situations where stop work authority is to be exercised are:

- To stop unsafe work.
- To stop unauthorized work, for example, work outside the scope of this work package.

7.5 BUILDING DEMOLITION SEQUENCE OF WORK

HOLD POINT: 'COLD & DARK' Review Team Walk-down Completed & Project Manager Authorizes Work to Start:

Project Manager:_____ Date and Time:_____

7.5.1 Structural Demolition

Demolish the northern section of the structure's block walls using heavy equipment. Use the building debris to build a ramp in order to reach the penthouse section of the building.

Use the existing slab for load out surface for loading debris and placing into appropriate hauling containers or trucks.

Demolish the associated piping stanchions located northwest of Building 46, excavation permit required.

Note: The progression of the building demolition will ultimately be determined in the

field.

IMPORTANT: Ensure structure collapse is directed away from Building 45 and roadway to the west of Bldg.46.

CAUTION HAZARD: Vehicle traffic hazard. Control traffic flow during stanchion removal with sufficient number of flagmen when necessary.

WARNING HAZARD: Dust Control – Utilize misting & fogging during demolition & road wetting during waste hauling. The Goal is no visible dust emissions. The effectiveness of dust controls will be evaluated as the project progresses.

CAUTION HAZARD: Contact overhead power lines with heavy-duty equipment. If any part of heavy-duty equipment has the potential to come within 10' of street lighting circuit, perform LOTO to de-energize electrical power source. This circuit must be re-energized each evening when demolition is complete for that day.

CAUTION HAZARD: Struck by flying debris. Establish construction boundary. Wear hardhat safety glasses, safety shoes, and reflective vest inside construction area. Steep and uneven terrain hazard use caution when walking around structure.

CAUTION HAZARD: Struck by moving equipment.

- Maintain the following distances from operating equipment:
  - Shear – 75 feet
  - Hoe Ram – 50 feet
  - Other heavy duty equipment – 30 feet
  - Bobcat – 15 feet

WARNING NOISE HAZARD: Wear hearing protection while running heavy-duty equipment. Follow the requirements of MD-10286 D9.

CAUTION HAZARD: Burns from torch cutting. Obtain and follow Hot Work permit per MD-10286 O2

CAUTION HAZARD: Heat/Cold Stress. Follow the requirements of MD-10286 D13/D16

7.5.2 Slab and Foundation Demolition

Using heavy equipment, break apart the concrete slab, foundation, and footers to 3 feet below grade, torch cut the rebar if required (Hot Work Permit is required) to support demolition and downsizing.

During concrete demolition, use heavy equipment to assist radiological control personnel to perform radiological screening of ground contact concrete surfaces. Based on radiological screening results, transport to Mound's spoils area (contact project engineering to prepare clean waste form), offsite disposal, or rail spur as directed by Waste Management PoC.

Note: The progressions of the slab & foundation demolition will ultimately be determined in the field.

CAUTION HAZARD: Strike underground utilities. Obtain Excavation permit and follow its requirements per MD-10286 O5

CAUTION HAZARD: Burns/fire. Utilize Burn Permit , fire protection, and wear appropriate PPE.

7.6 SITE REMEDIATION & DEMOBILIZATION

7.6.1 Grading, Seeding, & Mulching

Restore the area by grading and filling with appropriate amount of gravel/soil to grade to drain.

Apply appropriate amounts of grass seed and mulch to maintain erosion control/protection in accordance with Environmental Compliance PoC instructions.

Remove any unnecessary remaining sediment/storm water control fences, straw bales and sand bags.

CAUTION FALLING HAZARD: Utilize fall protection, barricades, or man-lifts

7.6.2 Remove Temporary Protection Structures
Remove wooden boxes from fire hydrants, fire prevention water lines, steel sheeting from field grates.

7.6.3 Demobilize Construction Equipment
Remove dust control water distribution system, temporary power, fencing and any traffic control. Scan equipment for radiological contamination prior to leaving area as required dependent upon in-process Rad surveys.

Note: Insert the activities to be performed during the job. Describe the specific methods of accomplishing these activities and appropriate level of detail based on the complexity, hazard, and skill of the craft. Activities listed must be grouped under the Work Package phases listed in item 5.

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8. *Note: Comments, to identify activities/hazards that are common to multiple phases of the project. Identification of these items will facilitate the option of addressing the items once in the pre-job briefing, as opposed to redundantly listing them in the JSHAs for different phases.*

COMMENTS:

Enter any review comment or issues in this section and/or information generated as a result of completing detailed work steps.

9. REVIEW SIGNATURES:

Written by: _____ Date: 5/30/03 Phone: 3659

Job Foreman: _____ Date: 6/3/03 Phone: 3663

Superintendent/Constr. Mgr: _____ Date: 6/2/03 Phone: 3866

Project Eng. Mgr: _____ Date: 6/1/03 Phone: 4920

Industrial Safety & Hygiene: _____ Date: 6/4/03 Phone: 3769

Rad. Controls: _____ Date: 6/2/03 Phone: 4522

Environmental Compliance: _____ Date: 6/4/03 Phone: 4080

Waste Mgmt: _____ Date: 6/5/03 Phone: 4617

Bldg. Mgr: _____ Date: 06/06/03 Phone: 3241

Craft Review: _____ Trade _____ Date: / / Phone:

Craft Review: _____ Trade HD Date: / / Phone:

Craft Review: _____ Trade HD Date: / / Phone:

Craft Review: _____ Trade _____ Date: / / Phone:

10. USQ SCREEN / DETERMINATION REQUIRED? ☐ YES ☒ NO

Brief Explanation: This work effort will have no affect upon a Nuclear or Radiological Bldg.

USQ Trained Person: _____ Date: 06/06/03 Phone: 3241

10. AUTHORIZATION SIGNATURE:

Project Manager: _____ Date: 06/09/03 Phone: 4169

11. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: / / Phone:

Project Manager: _____ Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

Work Package Revision Form

Work Package Revision Form	
Work Package No. SMPP/TFV- 36052	Revision No.
Revision Description: (attach page revisions to form)	

	Name	Signature	Date
PREPARED BY:			
Revision Preparer:			
REVIEWED BY:			
Project Engr. Manager:			
Project Foreman:			
Project Superintendent/ Constr. Mgr.:			
Industrial Safety & Hygiene P o C:			
Radiological Point of Contact:			
Environmental Safeguards & Compliance P o C:			
Waste Management PoC:			
Building Manager:			
Other:			
Other:			
USQ Trained Person			

USQ SCREEN / DETERMINATION REQUIRED? ❑YES ❑NO

Brief Explaination_____

APPROVED BY:			
Project Manager:			

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Work Package Revision History Form

WORK PACKAGE REVISION HISTORY FORM			
REV. NO.	REASON	SIGNATURE	DATE

Appendix A

PHA/JSHA

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PRELIMINARY HAZARD ANALYSIS (PHA)
FOR WORK PACKAGE ACTIVITIES

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE INDUSTRIAL SAFETY AND HEALTH REPRESENTATIVE
Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Hazard Analyses. Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards, that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Blockage of exits or means of egress	Yes	2	[EGRESS] Building 45 needs to be protected and alternative parking access / provided.
Blockages/obstructions (Identify)	N/A	N/A	
Burning, welding, hot-work (Fire Watch)	Yes	3	[BURN] Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286 ops. no. H-1.
Chemical compatibility of corrosives/flammables	No	N/A	
Chemical process safety	N/A	N/A	
Compressed gas cylinders	YES	All	Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286 ops. no. H-1.
Confined space entry	N/A	N/A	[CONFINE]
Crane operations, overhead or mobile	N/A	N/A	
Critical lifts (heavy or high value loads)	N/A	N/A	[CLIFT]
Electrical hazards	YES	ALL	[LIVEL] Electrical Isolation of facility is accomplished during Utilities Isolation activities. Street light circuit will be LOTO when within 10'.
Elevated work/fall protection	YES	All	[ELEV]
Emergency eyewash/shower available	N/A	N/A	[EWASH]
Emergency alarms or evacuation plans required	Yes	All	[EMERG] Plant Public Address system will be used to announce any plant emergency over the plant radio channel, cell phones will be used also, no specific added hazards exist in the demolition of this building.
Explosive/flammable atmosphere	N/A	N/A	
Explosives	N/A	N/A	
Fire protection system/equipment outage	Yes	All	[FIRE/EFIRE] FAS & fire protection system isolated during Utilities Isolation activities.
Fire Hazards Analysis Required of Demolition	Yes	N/A	[FHA/ADJA] FHA walkthrough of facility is accomplished during Utilities Isolation activities.
Flammable liquids/gases	YES	ALL	[Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286 ops. no. H-1.
Forklifts, aerial lifts or material handling equipment	YES	All	
Grounding of electrical equipment	N/A	N/A	
Hazards due to condition of facility or terrain (Identify)	Yes	3 & 4	Proximity to BD-45 and west roadway of Bldg.46 heavy traffic patterns. Increase awareness of adjacent structures & roadway and utilize traffic control. Also on the west side of structure steep slope exists.
Hoisting and rigging	N/A	N/A	[HOIST]
Lighting/illumination/adequacy	N/A	N/A	[MLITE]
Excavation and Soil disturbance	Yes	3 & 4	Excavation Permit is required for stanchion, slab and foundation removal.

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE SAFETY AND HEALTH REPRESENTATIVE

Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.), Including any notations for future Job Safety and Health Analysis(JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout of hazardous sources:	No	N/A	[LOTO/ISO]
• Electrical	Yes	2, 3, & 4	Electrical Isolation of facility is accomplished during Utilities Isolation activities. Street light circuit to be LOTO as needed, follow MD-10286 ops. No. M3
• Mechanical (steam, hydraulic, pneumatic)	N/A	N/A	
• Interlocks	N/A	N/A	[ILOCK]
• Chemical	N/A	N/A	
• Radiological	No	N/A	Building 46 is not a radiological area, no RWP is required.
Machine guards	N/A	N/A	
Modification to Fire Wall/Door	N/A	N/A	[FIREWAL]
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	Yes	All	Fire hydrant available for emergency use.
Off-shift work	Yes	All	Potential for 2nd Shift due to traffic/Building 45 access coordination
Outages of the plant public announcement (PA) system or the emergency notification system	N/A	N/A	[OUTAGE]
Overhead or underground utilities (Identify)	Yes	2, 3, & 4	[UITL] See attached drawings Appendix C.
Penetrations into walls, floors, etc.	N/A	N/A	[PENETR]
Plastic sheeting or wood framing/enclosures	N/A	N/A	
Powder-actuated tools	N/A	N/A	
Plant utilities (Identify)	N/A	N/A	[WATER]
Repetitive work	YES	ALL	[ERGO] Dust control and flagging
Structural Modification	Yes	2 & 3	[STRUCT] Building & slab are being demolished.
Special Fire Protection Equipment Required	N/A	N/A	[FIREQU]
Trenching/Shoring	N/A	N/A	[DIG]
Temporary heating facilities	N/A	N/A	
Temporary/portable buildings or structures	N/A	N/A	[FACIL]
Temporary service hook-ups (Identify)	Yes	All	Temp. electrical and water service (for dust control).
Traffic control/flagman	Yes	All	[TRAFIC] as needed basis, during equipment movement & demolition activities
Work in attics, ceilings, chases, or crawlspaces	N/A	N/A	
Work impacting adjacent normally occupied areas	Yes	2 & 3	[ADJAC/BMAPP/SIGNS/NOTIF] Coordination with Building 45 tenants during demolition activities.
Work Requiring Scaffolding, construction and inspection	N/A	N/A	[SCAFF]
Other (Specify) Building Structural Engineering Survey per OSHA 29 CFR 1926.850	Yes	2	Survey Completed by W. Johanan letter in Appendix D.

SECTION B, INDUSTRIAL HYGIENE - TO BE COMPLETED BY INDUSTRIAL HYGIENE REPRESENTATIVE

Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Job Safety and Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Abrasive blast (☐ MSDS available)*	N/A	N/A	
Asbestos	Yes	3	[ASBEST] Asphalt roof may contain asbestos, don't conduct activities which may cause ACM materials to become friable and involving close worker contact. Asbestos abatement activities of regulated materials will be completed prior to demolition.
Beryllium	N/A	N/A	
Blood-borne pathogens*	N/A	N/A	
Cadmium	N/A	N/A	
Carcinogens (☐ MSDS available)*	N/A	N/A	[CARC]
Chemicals/solvents (☐ MSDS available)*	N/A	N/A	[CHEM/MSDS]
Chlorofluorocarbon (CFC)	N/A	N/A	[CFC]
Coal, tar or asphalt products	Yes	2	Roofing material contains tar and asphalt products; to be disposed of as construction debris.
Coating/painting (☐ MSDS available)*	N/A	N/A	
Corrosives/acids/caustics (☐ MSDS available)*	NA	N/A	
Dusty operations	Yes	2 & 3	[POWDER] Potential dust generation controlled via water misting during demolition and road wetting during waste hauling.
Hazardous Waste Operations (HAZWOPER)*	N/A	N/A	
High Pressure systems	N/A	N/A	[HIPRES]
Insulation/man-made mineral fibers (☐ MSDS available)*	N/A	N/A	
Lasers	NA	N/A	
Lead	Yes	2 & 3	Paint may contain lead, do not torch cut painted surfaces without verification by IH.
Foam in Place Operations	N/A	N/A	
Mercury	N/A	N/A	
Noise in excess of 85 dBA	Yes	2 & 3	[NOISE] Hearing protection required
Polychlorinated biphenyls (PCBs)	N/A	N/A	
Removal of ceiling tiles*	N/A	N/A	
Spraying/generation of mists*	Yes	2 & 3	Demolition dust control via water mist and road wetting during waste hauling.
Temperature extremes (heat or cold stress)	Yes	All	[CRYRO/COLD/HEAT]] discuss in Pre-job/daily briefings & monitor work.
Ventilation or Air Monitoring requirements	Yes	2 & 3	[VENTIL/IH] Air monitoring for potential silica during demolition activities will be performed as needed for annual site assessment.
Welding, brazing, or thermal cutting operations	Yes	2 & 3	[BURN] Hot Work Permit required
Other (specify)	N/A	N/A	

***NOTE:** Requires a description of the materials involved which present a hazard. Identify the physical location of the MSDS.

SECTION C, RADIOLOGICAL PROTECTION - TO BE COMPLETED BY RADIOLOGICAL CONTROLS REPRESENTATIVE

Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. RWP, ALARA Plan, etc.). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Location:	Controlled Area	N/A	N/A	
	Contamination Area	N/A	N/A	[STP]
	High Contamination Area	N/A	N/A	[STP]
	Radioactive Materials Storage Area	N/A	N/A	
	Airborne Radioactivity Area (STP or OBT)	N/A	N/A	
	Radiation Area	N/A	N/A	
	High Radiation Area	N/A	N/A	
	Very High Radiation Area	N/A	N/A	
	Other (Specify)	N/A	N/A	
Activities:	Criticality Safety Concerns	N/A	N/A	
	Digging/Soil Removal	Yes	3 & 4	[DIG] Excavation Permit required. Flip slab sections to survey before release.
	Surface destruction of radioactively contaminated materials or equipment?	N/A	N/A	[SURFAC]
	Welding, burning, or grinding?	N/A	N/A	[SURFAC]
	Hammering, chipping or scraping?	N/A	N/A	[SURFAC]
	Abrasive blasting?	N/A	N/A	[SURFAC]
	Dust-collecting equipment or systems?	N/A	N/A	
	Decontamination and clean-up?	N/A	N/A	
	Rad Waste Storage and Disposal Required	N/A	N/A	[RWSTOR/WASTE/CHAR]
	Other (Specify)	N/A	N/A	
Sources:	X-Ray machine/generator	N/A	N/A	[XRAY]
	Sealed radioactive sources	N/A	N/A	
	Unsealed radioactive sources	N/A	N/A	
Controls:	Radiological Work Permit	N/A	N/A	[RWP/RWP=JS/RWP=N/R/RPGEN]
	ALARA Plan	N/A	N/A	[ALARA]
	Air Flow Studies	N/A	N/A	[AIRFLOW/CAM]
	Urinalysis program	N/A	N/A	
	Preliminary or in-process characterization	N/A	N/A	[SURVPS/SURVIP]
	Anti-contamination clothing	N/A	N/A	
	Respiratory protection	N/A	N/A	[RESP]
	Needs Analysis Evaluation	N/A	N/A	
	Hazards Analysis	N/A	N/A	
	Engineering Controls	N/A	N/A	
	Administrative Controls	N/A	N/A	
	Supplemental dosimetry	N/A	N/A	
	Shielding	N/A	N/A	
	Personnel monitoring (frisking)	N/A	N/A	

SECTION D, ENVIRONMENTAL COMPLIANCE - TO BE COMPLETED BY ENVIRONMENTAL COMPLIANCE REPRESENTATIVE
Identify engineering/administrative controls as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard Additionally, identify any activities which are DOE or EPA prescribed protective requirements (Use Section F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Conditions			
Fugitive Dust OPA980014	Yes	3	Use water misting during demolition & road wetting during waste hauling.
Storm Water Runoff	Yes	3	Install silt fence, straw bales and sandbags per attached sketch Appendix C.
Erosion Control	Yes	4	Grading, seeding, & mulching.
NESHAPS Calculation	Yes	N/A	Emission Levels determined to be below requirement. No US EPA approval required for this building.
Safe Drinking Water Act	Yes	2 & 3	Ensure backflow prevention for water misting source.
Emergency Spill Response	Yes	3	Ensure glycol spill kit is available.
Notifications			
RAPCA Notification for Asbestos	N/A	N/A	Asbestos abatement completed prior to demolition.
RAPCA Notification for Demolition	Yes	3	Required 10 business before beginning demolition activity
Emergency Spill Response	Yes	3	Call 911 or 854-4040, have spill kit at job site.
other			

SECTION E, WASTE MANAGEMENT- TO BE COMPLETED BY WASTE MANAGEMENT REPRESENTATIVE *Include any required and/or other special actions to be taken because of the particular hazard. Additionally, identify any activities which are required by DOE, Nevada Test Site, Envirocare or other waste site.*
(Use Section F
If additional space is needed.)

	Quantity Expected	Work Package Phase	Radiological Characterization	Packaging Requirements	Mode of Disposal
Types: Solid Waste (list types):	Total 478 cyds	3	No elevated radioacitivity levels	30 Cu. Yd. Roll-Off/End Dumps	Offsite disposal via Waste Management Operations/Journey LTD
Concrete					
Steel & Copper Piping					
Metal Roofing					
PVC					
Electrical Wiring					
Fiberglass Insulation					
Wood					
RCRA Hazardous Waste (list types)	Non-hazardous				
Asbestos Waste	None				All non-regulated asbestos disposed with construction debris
Low Level Waste	N/A				
TRU Waste	N/A				
NOTE: 1. Sealed pressure vessels will need to be at <1.5 atmosphere if present. 2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal.					
Other:					

SECTION F - OTHER CONDITIONS, CONCERNS, OR SUPPLEMENTAL INFORMATION FROM SECTIONS A THROUGH C INCLUDING APPLICABLE LESSONS LEARNED

EMERGENCY PREPAREDNESS

- Site Notification Procedures

Use **911** for all emergency services onsite. This is the first response for any emergency, spill, or release. If using a cell phone, dial **865-4040**. This number will ring into the plant 911 system. Any injury, no matter how minor, shall be reported immediately to the Medical Department for evaluation and treatment. The injured employee shall report any injury to the supervisor in charge or designee.

Employees will be notified of emergency or abnormal conditions by the project two-way radios. Additionally, unique sheltering and evacuation signals are available should site-wide protective actions be necessary.

- Evacuation Route/Assembly Areas

Assembly area is east of 46 Building . See map in Appendix C.

- Take Shelter Area

Be aware of threatening weather and take shelter when life-threatening storms are imminent.

The take shelter area is in Building 45. See map per Appendix C.

APPLICABLE LESSONS LEARNED – See Appendix E

ATTACHMENT 1 – Request To Stage Clean Hard Fill Debris At Construction Spoils Area

Work Location/ BLDG 46 / SLAB Approximate Volume 478 cyds
Source of material
Requestor Project Group SMPP-TFV Project Point of Contact L. KOEHMSTEDT

Name/Phone Ext LEE KOEHMSTEDT Extension 3659

PWRE # _____ MSR # 36052 Charge # _____

Process Knowledge (attach documentation, if more space needed):

BUILDING WAS A NON-RAD BUILDING

PRS # N/A PRS Binning Status: NFA RA FA NFA Pending Stakeholder Review
Binning remarks _____
Clean up criteria for soils _____

Identify how point of origination /area is posted: (e.g. non-RMMA, URMA, SCA, CA, HCA, RMA, RMMA, FCA, etc.) Note: NON-RMMA

Radionuclides of Concern for verification sampling: N/A

Radiological Surface Contamination Not Applicable – never exposed to radionuclides circle if applicable

Survey Results: X <PP-1059F, Table 2-2 criteria ___ > PP-1059F, Table 2-2 criteria
SEE MARSSIM SURVEY PLAN 46-01

In Process monitoring of excavating equipment: X <PP-1059F, Table 2-2 criteria ___ > PP-1059F, Table 2-2 criteria
SLAB ONGOING AT POINT WHERE IN CONTACT WITH SOIL

Activation Concerns: (No) Yes If yes, explain

Material is released for recycle /reuse (Yes) No

Sending Rad POC Signature	Date
[signature]	6-2-03
Sending Project ~~Manager~~ Engineer Signature	**Date**
[signature]	6/4/03

Composite sample results (list highest values for all radionuclides of concern and associated MDA value in pCi/g): Copies of each verification sample results attached

ATTACHMENT 1 – Request To Stage Clean Hard Fill Debris At Construction Spoils Area (Continued)

Page 2

Work Location/ Source of material _____

Final material use:
On-site Unrestricted Removed as LLW to disposal

Waste Management Rad POC Signature	Cline	Date 6-5-03
Spoils Area Foreman Signature		Date

ATTACHMENT 2 — ML-9987 - D & D Solid Waste Free Release Declaration

The SMPD/TFV Project has determined that all solid waste streams resulting from safe shutdown, decontamination, and/or demolition of Building(s) 46 have been free released in accordance with DOE Order 5400.5, Mound procedural manuals MD-80036 and MD-80043, and direction from the DOE Miamisburg Environmental Management Project (MEMP) office (letter from Provencher to Baker, MB)423-99, dated April 27, 1999). Data supporting this free release determination may be found by contacting LEE KOEHMSTEDT Project Manager, at 3659. These data may include radiological surveys and data sheets and/or process knowledge utilized according to the above procedures.

Waste Coordinator

6/5/03
Date

Project/Activity: Building 46 Demolition
Name: Lee Koehmstedt

JSHA CRITERIA CHECKLIST	YES	NO	N/A
1. Work performed with a 6 ft. or greater fall hazard, excluding portable ladders. See Item 14 for further requirements.		X	
2. Roof work requiring the use of fall protection (within 6 ft of an unprotected edge) or special fall protection procedures.		X	
3. Potential hazardous chemical exposure above action levels or permissible exposure limits (PELs), or ACGIH Threshold Limit Values (TLVs).		X	
4. Work activity in an immediately dangerous to life or health (IDLH) breathing hazard environment.		X	
5. Fire or explosion hazards. Are fire hazards beyond a Hot Work Permit? (Reference O2, MD-10286)		X	
6. Work within close proximity of live electrical greater than 50 volts, conductors, and/or work that requires multiple locks, multiple hazard sources, or complicated lockout/tagout circumstances. (Reference MD-10444, *Lockout/Tagout Procedure Manual*, for multiple energy lockout/tagout.)		X	
7. Any maintenance or repair of equipment under pressure where the pressure cannot be shut off and de-energized.		X	
8. Work with high or extreme exposure to ionizing or nonionizing radiation (reference MD-80036, Op 10002), noise, or heat or cold stress (reference D9, D13 & D16, MD-10286).		X	
9. Determined by an appropriate core team, building manager, member of general or executive management, or the IS&H manager to require a JSHA.	X		
10. Any onsite construction or service project directed to have JSHAs based on this procedure and/or instruction from project personnel or IS&H staff.	X		
11. Near-miss event with the potential for loss of life or limb or disabling injury/illness if repeated.		X	
12. Excessive trauma/motion/vibration work situations or manual lifting involving heavy, large, and/or awkward-to-handle objects (reference MD-10407, *Ergonomics Program.*		X	
13. Unguarded, unmarked close clearance, pinch point, exposed moving machinery parts.		X	
14. Known potential falling object hazards (e.g., employees working above other employees, potential for dropping tools, falling equipment or material) or working in areas with the potential for flying objects (flying chips, sandblasting, etc.), exposure to sharp or protruding objects (e.g., working inside plenums, air mover ducts, etc.).	X		

MANDATORY JSHA REQUIRED TO ADDRESS ANY/ALL (YES) RESPONSES

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV - 46 -36052

DATE: 5/29/2003	_X_ NEW ___ REV	BUILDING: 46	JOB: Demolish Building 46
DEPARTMENT/COMPANY: SMPP-TFV Project/CH2M Hill Mound, Inc.			SECTION: N/A

OCCUPATIONS: : Heavy Duty Operators, Demolition Tech's, Demolition Crafts, & Electricians.
Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety

SIGNATURES

ORIGINATOR: Lee Kuehnstedt
REVIEW/REV:
REVIEW/REV:
REVIEW/REV: 6/04/03
APPROVED: 6/4/03

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:
Hard Hat, Safety Glasses with side shields, safety shoes, safety vest

MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:
None

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary
Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily.	N/A	-This project engages in Enhanced Work Planning(EWP), a ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed.
Site Preparation & Mobilization	Standard construction hazards.	-Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel.
Site Access Control Emergency egress/access	Struck by equipment, debris Blocked access	-Once the work area is defined, only authorized personnel are permitted in the construction perimeter. -Unescorted, Non-project and Non-emergency personnel, must have acceptance of the SMPP/TFV Project Manager for entry -Emergency access to the work zone will be maintained to the extent possible. Bldg 45 emergency egress will be maintained for occupants.
Work zone access	Slip – Trip – Falls Lifting /twisting strain .	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices.

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
1c. Clear Area and Mark/Protect Utility Equipment	Running into fire PIV's, manhole covers, or grates over field drains.	-Mark/protect fire prevention water line in BD –46 & 45 and other utility equipment with wooden boxes, visible stakes, and/or colored flags. -Cover field grates to protect
2 Building & Slab Demolition	Vehicle Traffic Hazard	-Control traffic with flagmen as necessary -Excavation permit
2a. Operation of heavy equipment near electric overhead lines	Shock Hazard	-All utilities to the building including electrical have been disconnected by project electricians at a point away from the building. -Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit.
2c. Demolish building, pipe stanchions, and slab using excavator mounted shear, hoe ram, grapple, loader, and bobcat	Struck by flying debris Struck by moving equipment Noise Hazard	-Establish construction boundary. -Wear hard hat safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Install traffic control with sufficient flagmen -Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9
2d. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286 ops. no. H-1. -Test for lead paint; do not torch cut lead paint.
2e. Working in excessive heat/cold	Heat Stress/Cold Stress	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings
2f. Slab removal	Strike underground utilities Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5 -Coordinate in-process Rad Surveys with Rad Techs
3 Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure

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		-Utilize STOP WORK Authority as necessary

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

3a Rough grading	Equipment/ personnel mixture	-Stay clear of operating heavy equipment -Excavation permit
3b. Seeding & Mulching	Slip – Trip – Fall Lifting /twisting strain	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices
3e Remove Temporary Protection Structures Remove wooden boxes from fire hydrants & fire prevention water lines Remove steel sheeting from field grates	Lifting /twisting strain Cuts and abrasions Slip trips and falls	-2 man rule follow standard practice lifting -Wear appropriate PPE -Be cognizant of your own safe work practices as well as those of your co-workers
3d. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture Cuts and abrasions Lifting /twisting strain Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary -Coordinate in-process Rad Surveys with Rad Techs

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SIGN-OFF SHEET

I have read and understand the attached Job Specific Work Plan and JSHA:

SIGNATURE	**Date**	**Department**

Appendix B

PRE-JOB BRIEFING/JOB STATUS LOG

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PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

A.	Time, Date and Location of PJB:
B.	Applicable Procedure Number:
C.	Job Description:
D.	Personnel Attending:

HP#	SIGNATURE	HP#	SIGNATURE

JOB SUPERVISOR – This is a reminder checklist for the update. The supervisor need only discuss and note changes from the previous day's briefing or update. (Use NC for No Change).

1.	Any changes/revisions to safety envelope for work: a. New/added assignments and responsibilities of any individual b. Changes in facility conditions, tagouts, valve lineups c. New or changed precautions/hazards d. Valid RWP or other required work permits still in effect
2.	Adequate supply of PPE
3.	New training, any training coming up on expiration
4.	New changes to relevant Category "A" or Category "B" procedures.
5.	Equipment and tools calibrations in effect
6.	Relevant lessons learned, critique reports
7.	RWP revisions: a. Changes to radiological conditions of the workplace, particularly with respect to postings. b. Change in scope, especially if it is a reduction in scope or Stop Work Levels.
8.	Changes to radiological and/or health monitoring.
9.	Open the floor to questions.

The above minimum requirements have been met; this PJB has been conducted in sufficient detail to maximize continued safe conduct of the job, and all personnel have been through a previous Pre-Job Brief.

Job Supervisor/Foreman _____ Date _____

NOTE: Completed pre-job update sheet must be retained with the work package or maintained in your record file.

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Daily Toolbox Safety Meeting

Project:	Date:
Safety Topic of Meeting:	
Work Description of Meeting:	

Review the following to determine if conditions have changed since the last Pre-Job Meeting
If this is the 1st meeting with a subcontractor, has Safe Work Authorization been done?
Check off each item that applies or mark N/A if it doesn't apply.

Hot Work Permit (torch cutting, spark producing grinding, open flame heaters, welding)		Signage and Barricades (construction area, hazard notification, rad postings, etc).	
Penetration Permit (penetrating walls, ceilings, or floors in a building)		Air Monitoring (as required by Environmental Compliance and/or Industrial Hygiene)	
Excavation Permit (digging in soil)		Dust Suppression (misting, etc.)	
Trench Plan (shoring, soil layback, etc. if over 4 feet below grade)		Water Runoff Prevention (silt fence, straw bales, collection pond, etc.)	
Confined Space Entry Permit (manhole, tank, or other confined space entry)		Radiation Work Permit (as required by Rad Controls)	
Fall Protection (person's feet over 6 feet above ground)		TLDs (as required by RWP and rad postings)	
Lockout/Tagout (all energy sources to equipment being worked on)		Waste Containers (rolloffs, sealands, dumpsters, LSA boxes, drums, etc.)	
PPE (respirators, Tyveks, safety shoes, safety glasses, hard hats, gloves, reflective vests, etc.)		Utility review especially for asbestos abatement contractor (label live utilities e.g. FAS, phone, electric)	
Personnel Training up-to-date for assigned work (Radworker II, Asbestos, Lead, etc.)		Hoisting and Rigging Review	

PRE-JOB UPDATE

Continuation Sheet for _____/_____/_____

HP#	SIGNATURE	HP#	SIGNATURE

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PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

A.	Time, Date and Location of PJB:
B.	Applicable Procedure Number:
C.	Job Description:
D.	Personnel Attending:

HP#	SIGNATURE	HP#	SIGNATURE

JOB SUPERVISOR – This is a reminder checklist for the update. The supervisor need only discuss and note changes from the previous day's briefing or update. (Use NC for No Change).

2. Any changes/revisions to safety envelop for work: e. New/added assignments and responsibilities of any individual f. Changes in facility conditions, tagouts, valve lineups g. New or changed precautions/hazards h. Valid RWP or other required work permits still in effect
2. Adequate supply of PPE
3. New training, any training coming up on expiration
4. New changes to relevant Category "A" or Category "B" procedures.
5. Equipment and tools calibrations in effect
6. Relevant lessons learned, critique reports
8. RWP revisions: c. Changes to radiological conditions of the workplace, particularly with respect to postings. d. Change in scope, especially if it is a reduction in scope or Stop Work Levels.
8. Changes to radiological and/or health monitoring.
9. Open the floor to questions.

The above minimum requirements have been met; this PJB has been conducted in sufficient detail to maximize continued safe conduct of the job, and all personnel have been through a previous Pre-Job Brief.

Job Supervisor/Foreman Date

JOB STATUS LOG

Work Package Title: Building 46 Demolition

Work Package No: SMPP/TFV - 36052

DATE	TIME	WORK PKG. SECTION	% Complete	BY	STATUS

TS 20150

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Appendix C

DRAWINGS/SKETCHES

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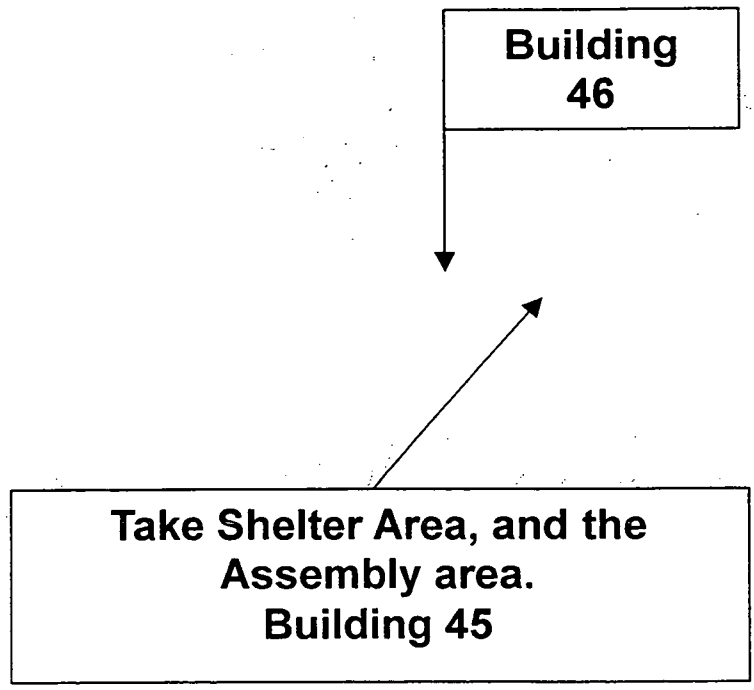

Appendix C
Building 46 Demolition Emergency Preparedness

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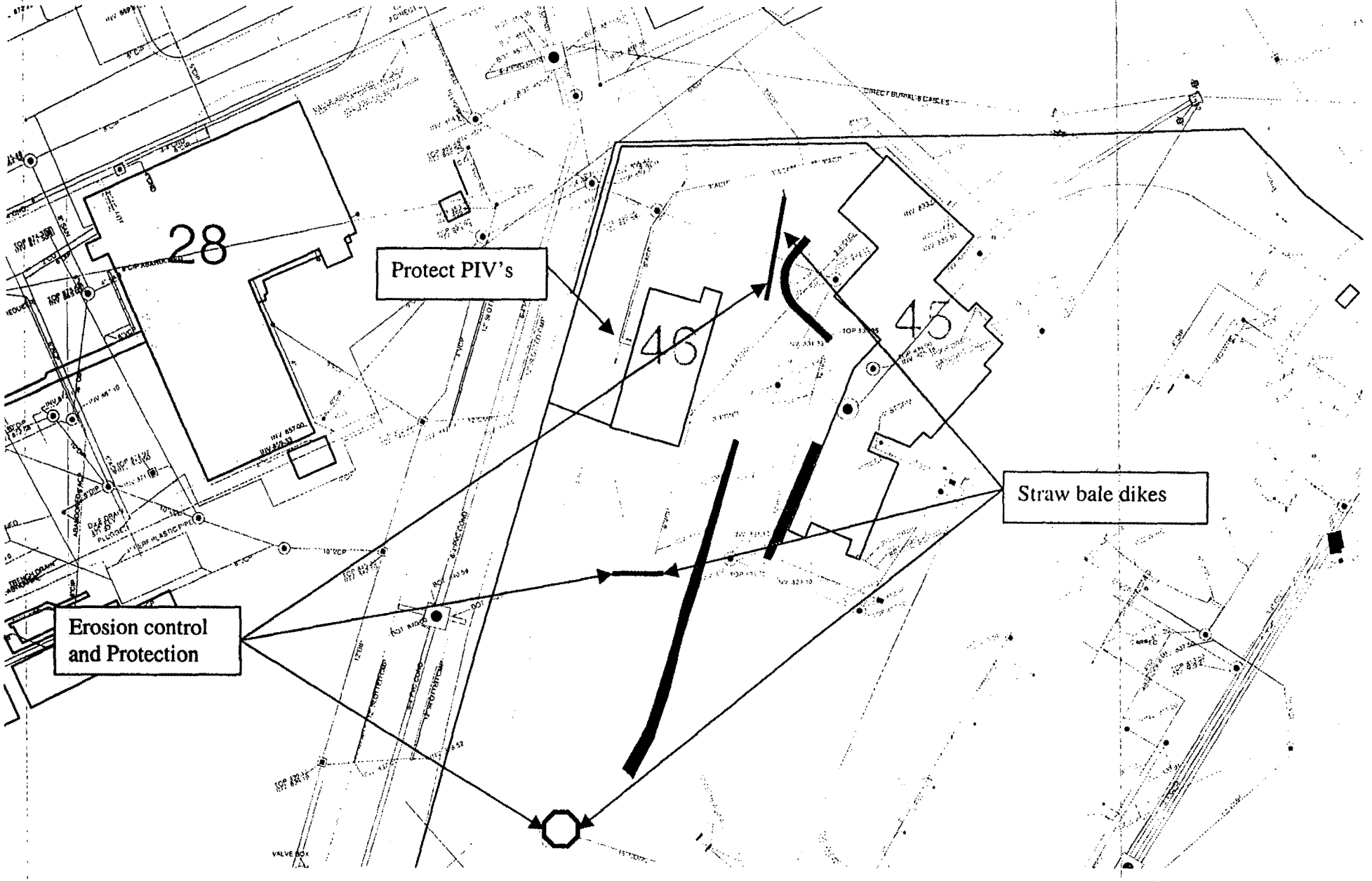

Underground Utilities and Erosion Control

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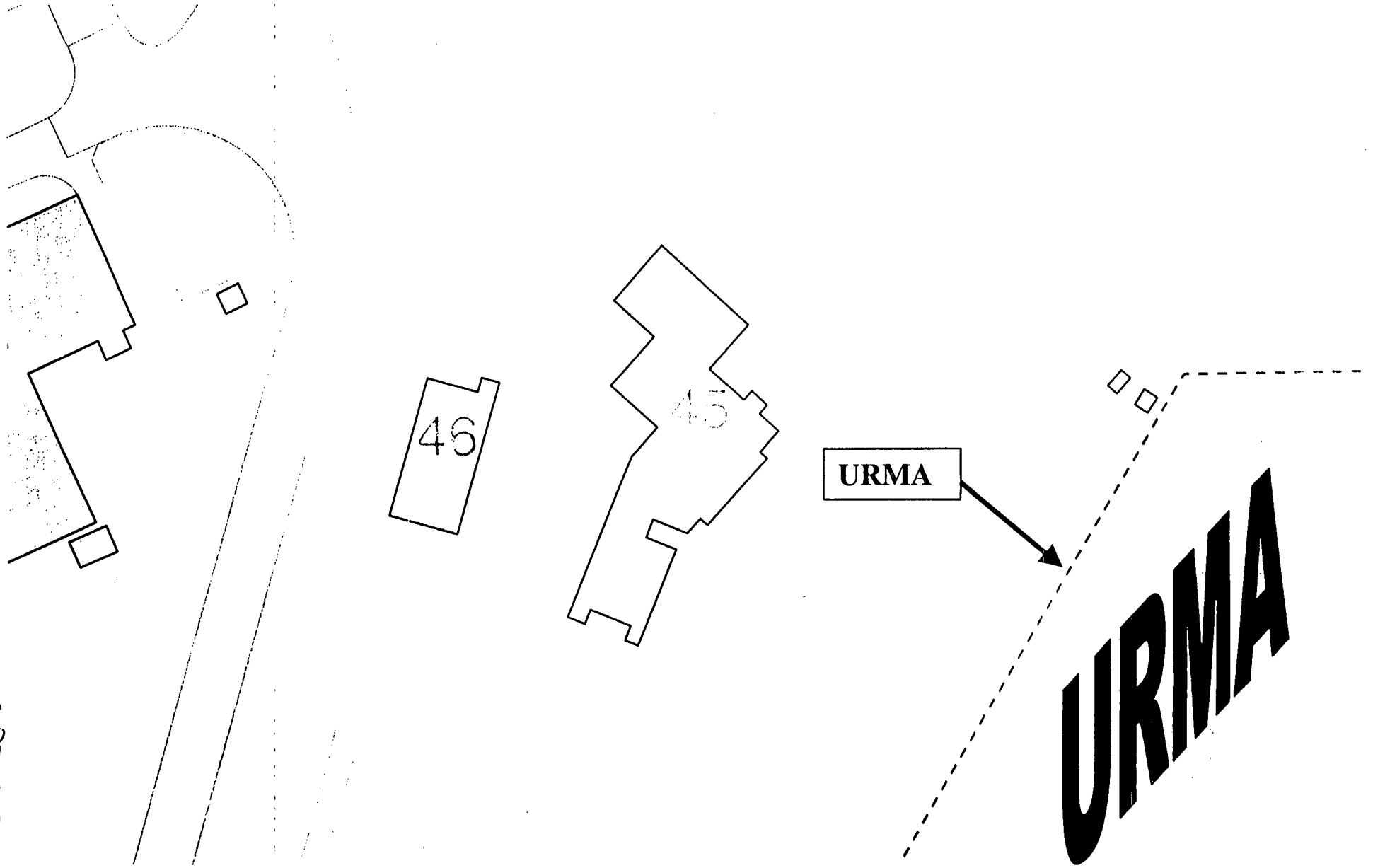
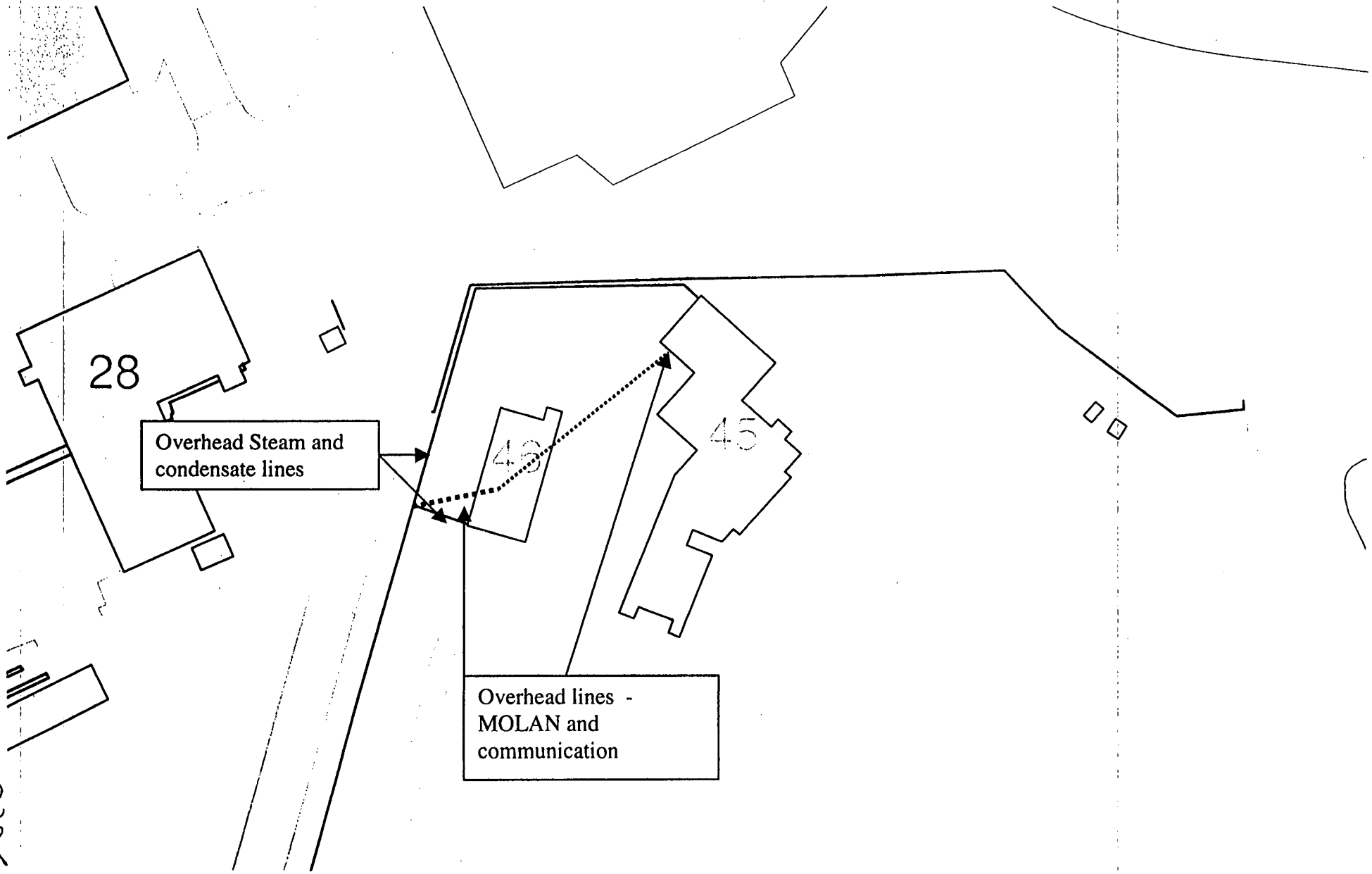
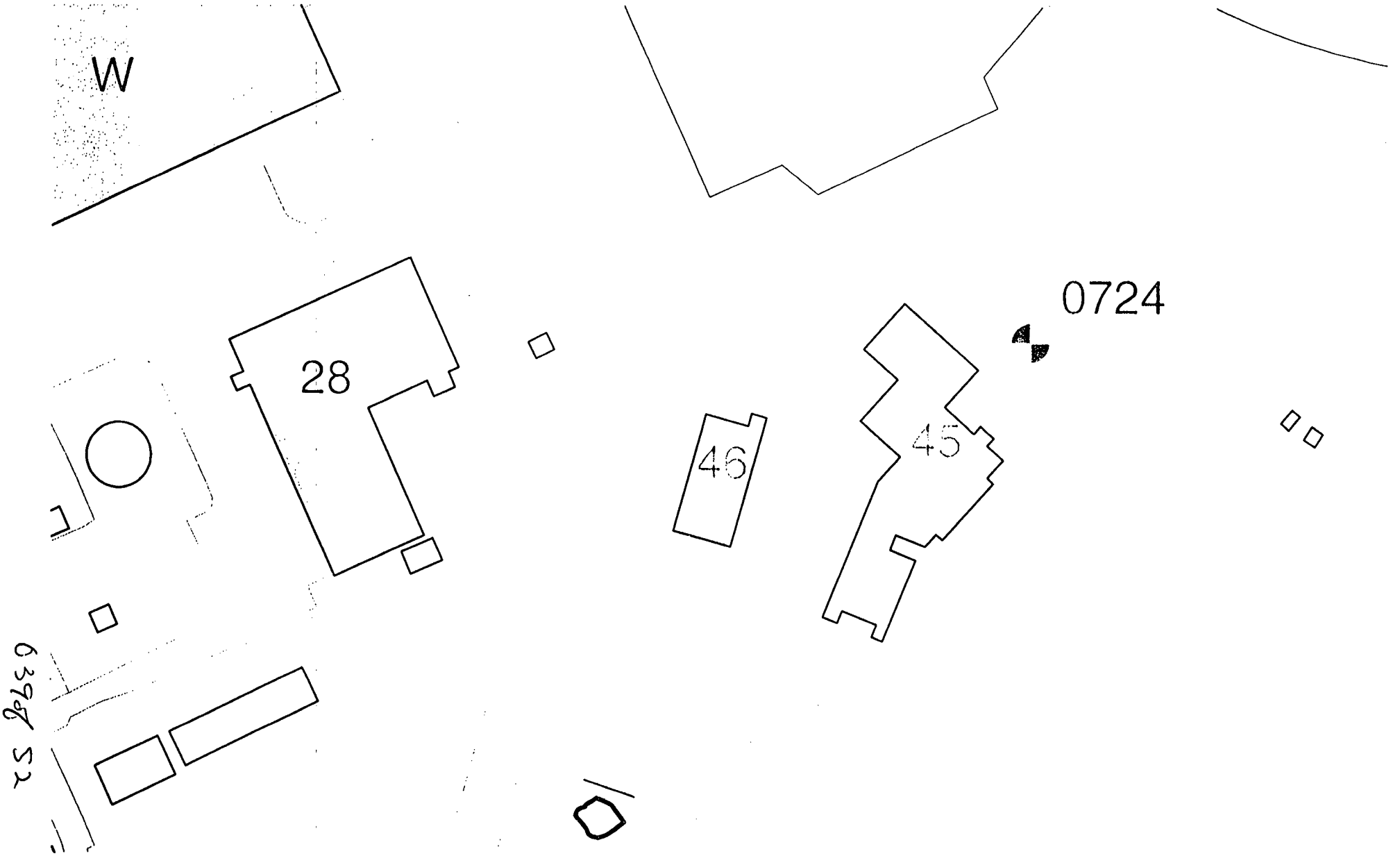


URMAs



Aboveground Lines

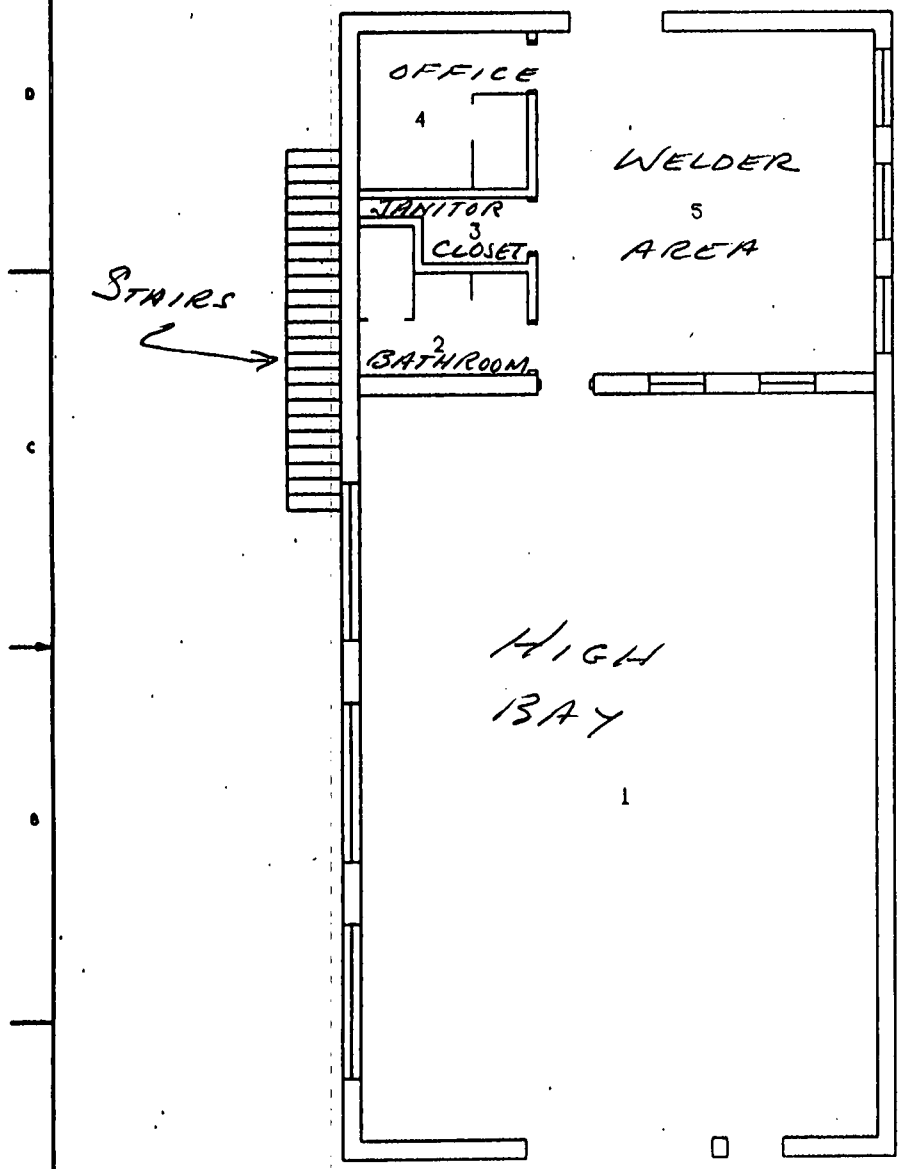


Monitoring Wells

Contours

Chart 52

ISS	DATE	REVISION	BY	CHKR	DHR	UPKEE	APVD	M
0	12/12/91	ASBUILT ISSUE	DCW				DVD	



0 1' 3' 5' 10'

N

BLDG #46
FIRST FLOOR
BLDG CODE:3046

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED:
NONE TRUEDOC TEDOC EDOC
TECH. REP.
SR. MGR.
TRUEDOC
TEDOC
EDOC

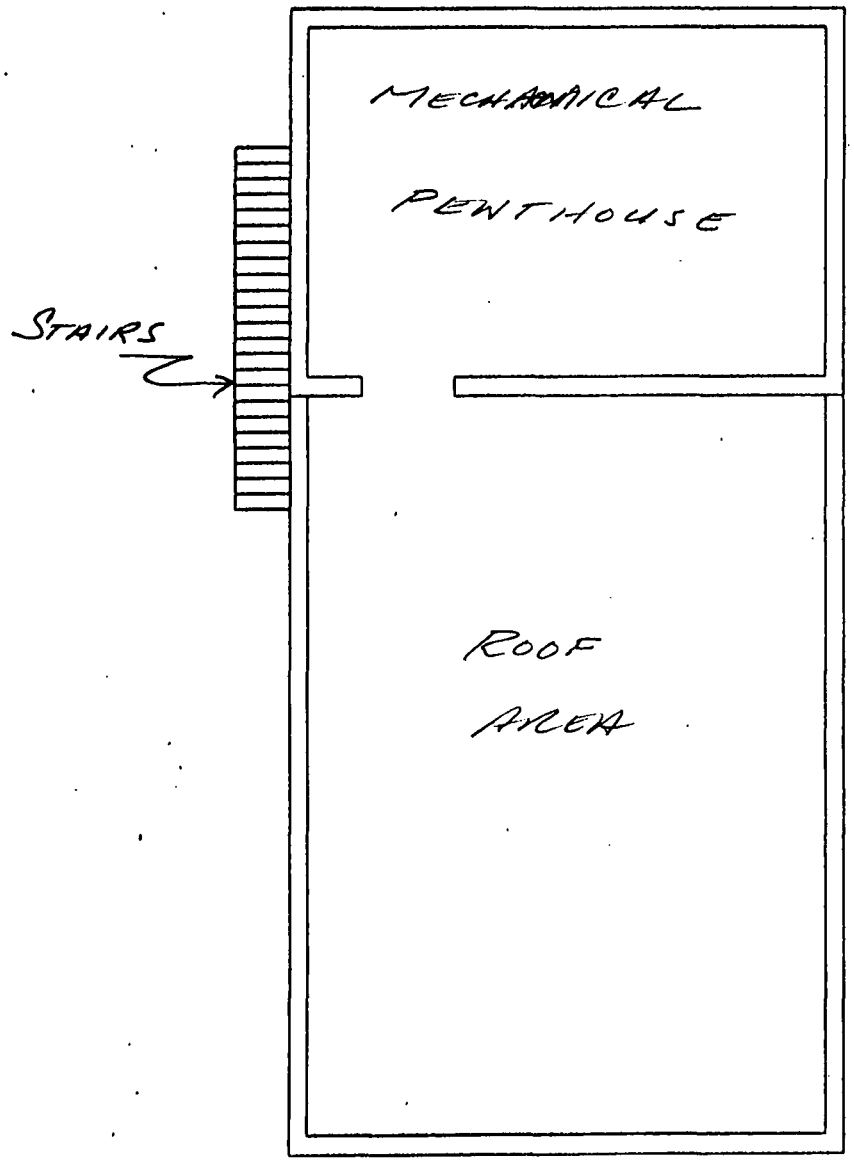
DESIGN CHK	PROJ MGR
DRSGN	DWG SUPV
LP & EE	FLOOR REV
DWG MGR	
APVD	DATE

SHEET	1	2	3	4	5	6
TOTAL	0	0				

FINAL CLASSIFICATION

TITLE (U) TITLE CLASSIFICATION
BLDG #46
FLOOR PLANS

DRAWING CLASSIFICATION: UNCLASSIFIED
SIZE: C
DRAWING NUMBER: FSC911256
JOB NUMBER: 12335
DWG TYPE: SFP
FROM: BLDG #46
CAGE: 14865
SCALE AS NOTED
SHEET 1 OF 2
STATUS: MD-REL-12/12/91
ORIGIN: MD-BR3-V3.0



BLDG #48
PENTHOUSE
BLDG CODE:3048

DRAWING NUMBER FSC911256	JOB NUMBER 12335
DRAWING CLASSIFICATION UNCLASSIFIED	
SIZE C	CODE 14865 / SCALE AS NOTED
	ISSUE B / SHEET 2
STA[redacted]EL.-1[redacted]	

Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

- No RWP required for this Work Package
- Structural Engineering Survey letter, per OSHA CFR1926.

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INTER OFFICE MEMO CH2MHILL MOUND, INC.

Date: May 14, 2003 cc. L. Koehmstedt

From: W. L. Johanan – OSW-430

Subject: Structural Survey of Building 46, RE: 29 CFR 1926.850 (a)

To: Kurt Kehler-Project Manager

Please be advised that we have performed a structural review and walk down of the subject building and found them to be satisfactory based on the demolition process and work plan.

Please call me if you have any further questions.

W. L. Johanan P.E.
Site Structural Engineer

STATE OF OHIO
WILLIAM L. JOHANAN
E-44883
REGISTERED
PROFESSIONAL ENGINEER

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Appendix E

POST-JOB CONFERENCE/LESSONS LEARNED

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Work Package Revisions Must Be Carefully Controlled (Lessons Learned L01-080)

Lessons Learned Statement:

Work packages tend to be living documents requiring change as errors are discovered, conditions change, methods improve, and other reasons. It's important that these changes receive proper reviews, including a peer review, which look at not only technical issues, but also work sequencing and format.

Discussion:

Recently a Mound Contractor Readiness Assessment (CRA) team completed a review of the SW19 Vertical Lathe work package. The CRA Team noted a significant amount of inconsistencies, do-loops and other errors associated with the SW19 Vertical Lathe work package. These inconsistencies, do-loops, and other errors were present even after peer reviews and a Line Management Self-Assessment (LMSA). The result was a work package that seemed confusing in some areas and in others could not be implemented as written. The purpose of this lessons learned is to discuss the causes and educate other personnel.

Analysis:

As a result of the reviews by peers, the LMSA, the CRA and DOE surveillance's, the SW19 work package underwent multiple revisions even after the first revision was published. As comments were resolved and additions and deletions were completed, numbering and work steps were not reviewed to assure that the sequencing could be followed.

Changes were made to the work package without a formal revision. Although the changes were not considered significant, they should have triggered a revision to the work package and further review in accordance with PP1059A. Subsequent reviews should have caught the errors.

The LMSA discovered many of the errors, but they were not corrected prior to the CRA. The LMSA team used an informal process to communicate needed changes to the work package. As a result, some changes were missed or not communicated and an opportunity to correct the errors was missed.

Recommended Actions:

1) Following changes to the work package, numbering and sequencing should be reviewed and verified by a peer reviewer.

2) A formal revision to the work package is triggered by changes other than minor editorial revisions. Based on the type of change, further reviews must be performed.

3) Editorial changes, comments, and other suggested changes should be documented during the LMSA and discussed at closing to assure that they have been incorporated.

Excavator Damaged During Demolition Work

Lesson Learned Statement:

Heavy powered equipment involved demolition activities should be inspected daily for damage that may result to that equipment during demolition activities.

Discussion of Activities:

On 9 February 2000, during the demolition of a concrete tank, an excavator shear was damaged. The initial estimated cost to repair is $20,000, and in addition to the damaged equipment, approximately 62 gallons of hydraulic fluid were spilled on the ground.

A trackhoe with a 360-degree rotating excavator shear attachment was being used to demolish a tank dome and sides at the 20H Site Water Tank, part of the Fernald Water Treatment Plant. When the crew returned from break, the operator started up the trackhoe and proceeded to raise the boom. The jaw section of the shear broke off from the head, where the slew ring was attached to the back plate. When the jaw section fell to the ground it pulled out a a hydraulic fluid line and the fluid poured out.

Analysis

The shear was found to have approximately 500 hours of use on it at the time of the incident. A full preventative maintenance check of the trackhoe and the shear had been performed two days prior to the incident that conformed with the manufacturer's recommended maintenance schedule. Photographs of the damaged shear and video of the previous day's operations were reviewed and indicated that the shear was probably damaged at some time prior to the day of the incident.

POST JOB CONFERENCE

5. WHAT WENT WELL?

What could be improved?

Other Comments:

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

LESSONS LEARNED INPUT FORM

What Happened? (Describe in as little or as much detail as necessary the situation and what occurred. Do not mention any names, only job functions and activities)

What did you learn? (Describe how the job could have been done better, how a hazard could have been eliminated, etc.)

Submitted by: _____ **Date:** _____

OPTIONAL

Mail to: Lessons Learned Program Manager, W-219 or appropriate Project or Functional Manager

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