3006-0810210004

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

3006-0810210004

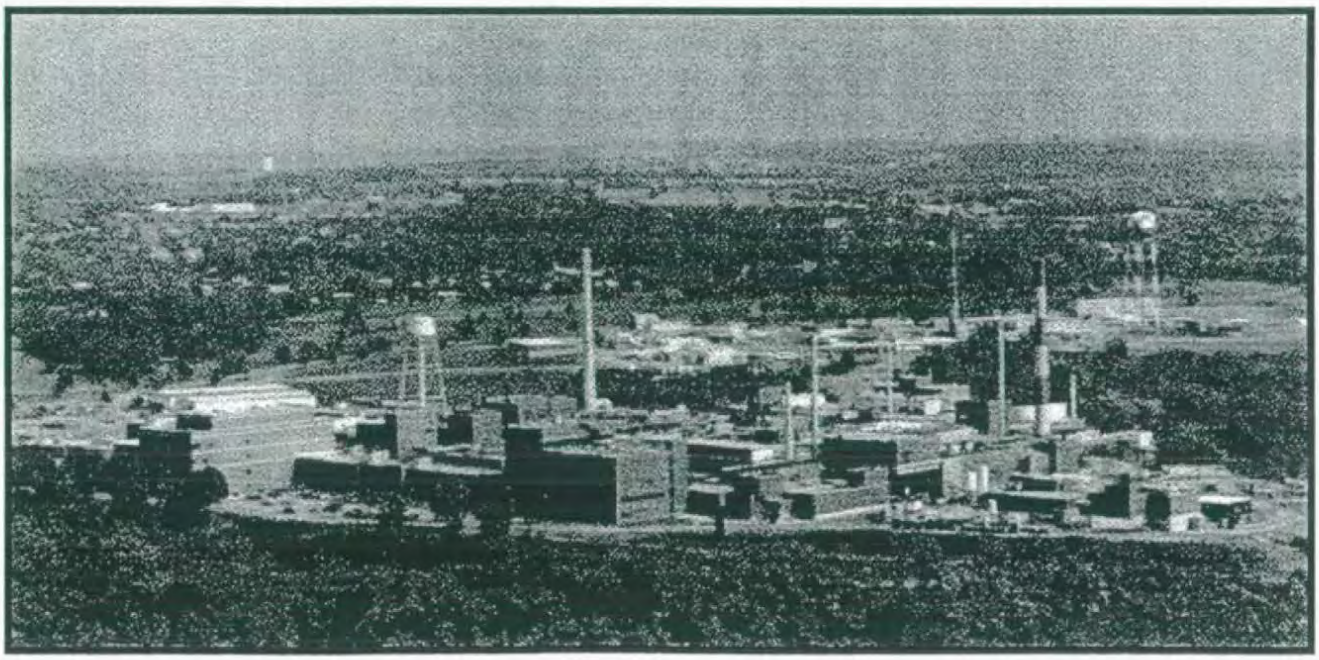
Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Building 47

(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 47 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 47 Data Package Public Review Draft May 2003

Substantive Comments

Comment 1. From our review of the Building 47 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 originally used as a Fire Station, then as the Security Facility for Mound's protective force, and most recently as the Fire Station. The document also states that any chemicals will be removed prior to demolition. The building also had two areas that were radiologically controlled areas due to sealed sources used for checking monitors. MMCIC understand that all radiological sources will be removed and a survey will confirm that there is no contamination prior to demolition. 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 will be complete prior to commencement of demolition activities. Your understanding is correct that Building 47 was used as a Fire Station, then Security Facility, and then a Fire Station. All chemicals were removed from the building. All radiological sources were removed from the building, and the Final Status Report (Appendix G of the final BDP) includes copies of the radiological surveys performed on the building. The building meets radiological surface release criteria, which allows for the building debris to be disposed of as standard construction debris. The building demolition will be 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)		**May 2003**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
DRAFT PROPOSED WORKING DRAFT (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	The public review period will commence on May 19, 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 47 (Central Fire Station, previously Security 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 47 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 47, the soil beneath and a 15-foot wide perimeter border around the building. The investigation of Building 47 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 47 OVERVIEW

Constructed in 1969, Building 47 is located on the north central portion of the site (Figures 1 and 3), immediately east of W Building. The facility is a single-story, slab-on-grade structure with access stairs and loading dock. It is constructed of concrete block with brick facing and has a built-up membrane roof. Building 47 contains 3,611 square feet of floor space, including a mezzanine for HVAC equipment.

Potable water is supplied to the building, where it is separated with a backflow preventer into potable and service water and then distributed throughout the building. Sanitary service is provided by the site wastewater treatment facility. There are floor drains in the lavatories and janitorial closet. There are no storm drains in the immediate vicinity of Building 47; stormwater is either absorbed in the ground or flows downhill as surface water until it reaches a storm drain. Electrical service is 480 volts. The building is serviced with central steam for heating and chilled glycol for cooling. Based upon available process information, Building 47 has never been used as a processing facility or as a manufacturing facility, and is not contaminated with any radioactive or energetic materials.

2.1 Past Uses of Building 47

Building 47 was built in 1969 to serve as the Central Fire Station. The building included areas for fire equipment storage, offices, and living quarters for Fire Department personnel.

In 1989, when Building 98 was constructed and became the Central Fire Station, Building 47 was converted to serve as the Security Facility for Mound's protective force. Interior areas were remodeled to provide an administrative area, a weapons storage area, and a classified waste storage area. Waste storage was limited to classified paper that was collected onsite and stored in Building 47 prior to being transferred to an offsite facility for incineration.

2.2 Current Uses of Building 47

In late 2002, the building was renovated again to serve as the Central Fire Station (allowing Building 98 to be demolished in support of the PRS 66 removal action). The Fire Department currently uses Building 47 for fire equipment storage, offices, and living quarters for Fire Department personnel. Floor plans of the current space configuration are provided in Appendix D.

2.3 Summary of Environmental Concerns and Findings - Building 47

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	A March 2002 lead paint survey of selected areas of Building 47 indicated that some damaged coatings did contain lead. Damaged paint coatings were stabilized by trained personnel during the Building 47 renovation project. During the March 2003 inspection, observed coatings were intact. Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building. (Appendix J).	No further action 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.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Chemicals	Only one chemical (dichlorodifluoromethane) was listed as being stored in Building 47 during the 2002 site chemical inventory conducted while the building housed the administrative function for Mound's protective force. However, since Building 47 functioned as the Central Fire Station from 1969 until 1989, and again from 2002 to 2003, it is assumed to have contained chemicals similar to those listed for Building 98. Chemicals that were believed to be stored or used in Building 47 (based on Building 98 inventory) are listed in Appendix K.	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.
Air Emissions	N/A	N/A
Asbestos	Friable cementitious pipe insulation on roof drain line fittings was determined to be asbestos containing material (ACM). A copy of the asbestos survey is provided in Appendix I. 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.	The asbestos pipe insulation will be removed prior to demolition, and disposed of by Waste Management. All work will be performed in accordance with current state and federal regulations.
Drainage Sumps	N/A	N/A
Lead	N/A	N/A
Mercury	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Radiological	Rooms 112/113 were posted as a radiological "controlled area" because there were two sealed sources in the area: a button source mounted on the wall, and a plastic vial in a lead sleeve. These sources were used to check hand held monitors used by security personnel. It is believed that both of these sources were disposed of in 1998 in support of the Mound Orphaned Source Program. The Final Status Report is provided in Appendix G. Additional information provided in Section 2.4.	RadCon verified that the sources are no longer present in the building. 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 MCP wastewater treatment 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	N/A	N/A
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 30 feet of the Building 47 perimeter, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). All results are below applicable screening levels. (Note: a 30-foot perimeter was used instead of the standard 15-foot perimeter due to only one soil sample location within the 15-foot perimeter.)	Based on the historic soil analytical data, post-demolition soil sampling is not planned.

N/A: Not applicable

2.4 Radiological Summary for Building 47

A radiological assessment of Building 47 was performed by reviewing historic and operational records and performing radiological surveys. Building 47 housed the Mound Fire Department, Mound Security Office, and various site administrative offices during its history. No radiological process systems were part of these functions and, except for two radioactive instrument check sources, 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 is contained in Appendix G.

Table 2: Radiological Summary

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm²) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm²) (Note 2)
Highest Alpha Smearable Activity	03-TF-0130	Floor	2.9	20
Highest Alpha Fixed Activity	03-TF-0126	Exterior Wall	83	100
Highest Beta Smearable Activity	03-TF-0130	Interior Wall	6.1	1,000
Highest Beta Fixed Activity	03-TF-0126	Exterior Wall	1,468	5,000
Highest Tritium Smearable Activity	03-TF-0126	Exterior Wall	13.41	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 47 is located at the DOE MCP site, formerly known as the Mound Plant. The MPC 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 lie 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 47

Building 47 is bordered on the west by W Building; concrete pavement separates Building 47 from the dock on W Building. An asphalt roadway is on the north and east sides of the building. A small grassy area and a sidewalk separate Building 47 from the roadway on the east. Building GP-1 is across the street to the north of Building 47, and the GH parking lot is across the street to the east. Concrete pavement stretches from the south side of the building to another roadway. Trailer 8 and two temperature-controlled SeaLands are located to the south of Building 47.

3.3 Current and Past Uses of Buildings in Proximity to Building 47

W Building (Warehouse Building), located west of Building 47, is a 32,484 square-foot building that currently houses the trades' fabrication shops and offices. Initially, W Building functioned as a warehouse facility. Later, it also housed the plastic molding shop. A section of W Building was also used for the interim storage of thorium process source materials. W Building is currently undergoing Safe Shutdown activities in preparation for demolition.

Building GP-1 (Guard Post 1), located north of (and across the street from) Building 47, is an 8,000 square-foot building used for the training of security personnel and for office space. GP-1 has been transferred to the Miamisburg Mound Community Improvement Corporation (MMCIC).

Trailer 8, which is used as a break room for firefighting personnel, is a single-wide trailer located south of Building 47. The trailer and the two SeaLands will be relocated onsite prior to commencement of demolition activities.

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), Mound Plant 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 2001 version of this report indicated that no reportable chemicals are stored in Building 47.

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 operable unit (OU) system to define and characterize cleanup areas. As the cleanup effort went forward, it became apparent that the Mound 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 Mound site into geographical parcels containing over 400 PRS's with approximately equal numbers of PRS's 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 47

4.2.1 Occurrence Reports

- None

4.2.2 Spills and Releases

- None

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and site contractor tabulated all the PRS's identified under the various regulatory programs in effect at the site. Of these 440 PRS's, three are near Building 47 (Table 3). The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N. None of the PRSs are associated with Building 47, and all three have been binned No Further Assessment (NFA).

Table 3: PRSs in Proximity to Building 47

PRS	CERCLA or Bldg. Related	Binning Status	Comments
99	CERCLA	NFA	Area 6, WD Building Filter-Cleaning Waste
100	CERCLA	NFA	Area F, Chromium Trench
241	CERCLA	NFA	Northwest Parking Lots

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), 1973 (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, J.L. Boston, was interviewed via a building manager questionnaire (included in Appendix F). The current Building Manager, Gary Weidenbach, was also interviewed regarding past facility operations and current conditions. No significant items in the building were identified based on the questionnaire or interviews.

Appendix A

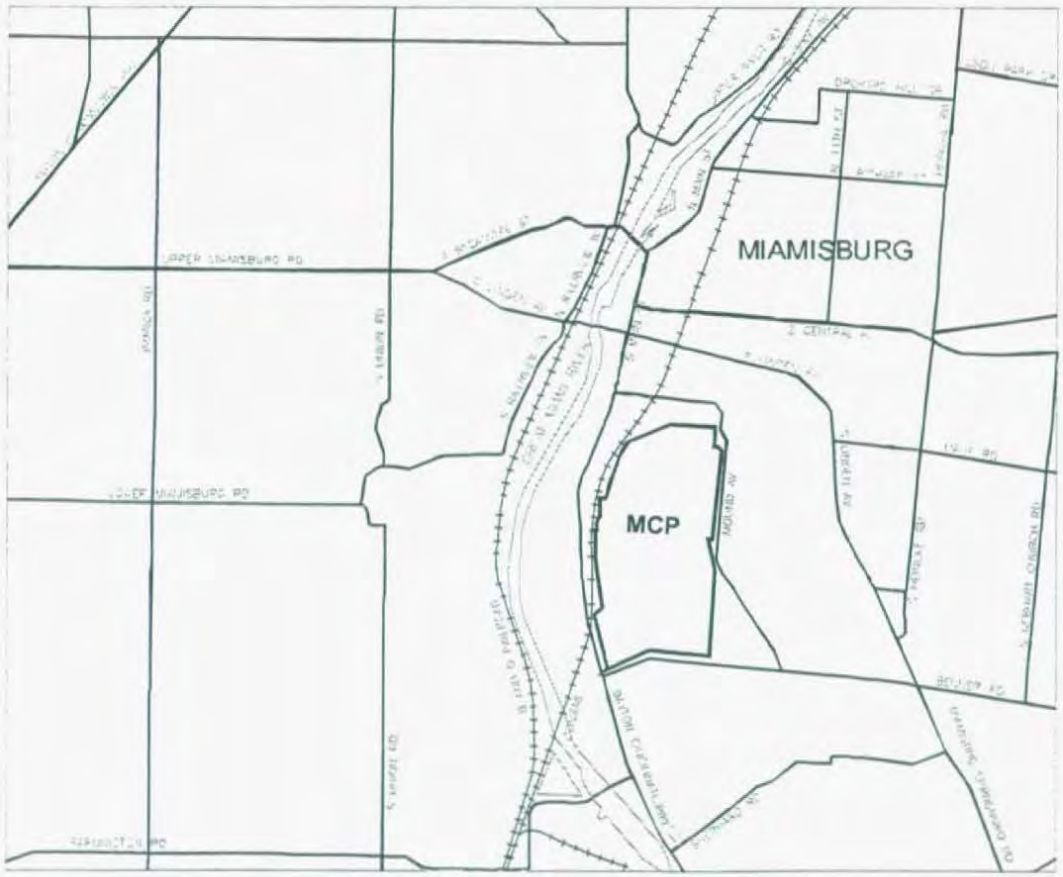
General Listing of Acronyms

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

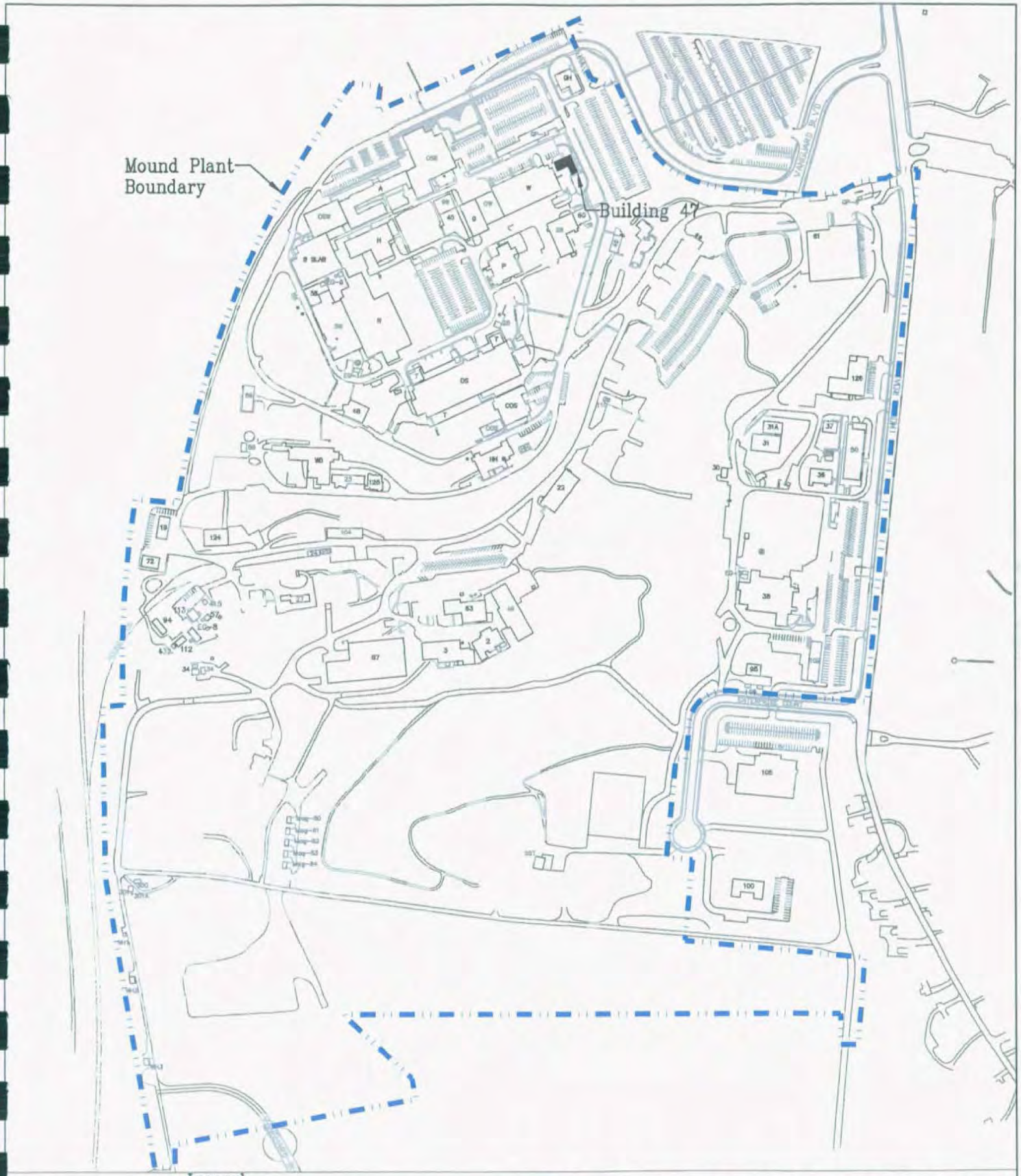
Toledo
Cleveland
OHIO
Columbus
Cincinnati
Vandalia
Brookville
Dayton
MONTGOMERY
West Carrollton
Miamisburg


MIAMISBURG
MCP
UPPER MIAMISBURG RD
LOWER MIAMISBURG RD
S CENTRAL AV
BOLTON RD

B 1 of 1

Appendix C

Figures



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	*					

Figure 1
Location of Building 47

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

Legend

45	Structures
●	PRS Point
▭	PRS Area
⌒	PRS Line

SS	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																					
SHEET	1	2	3	4	5	6															
ISSUE	•																				

Figure 2
Building 47
and Vicinity

PART CLASSIFICATION

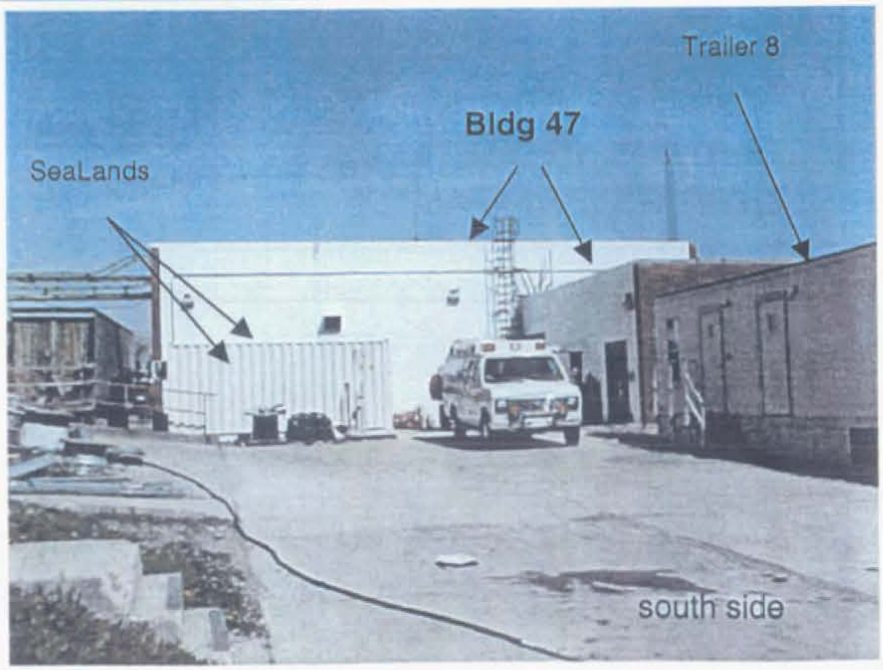
DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: bldg 47 figure 2.dwg | JOB NUMBER

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

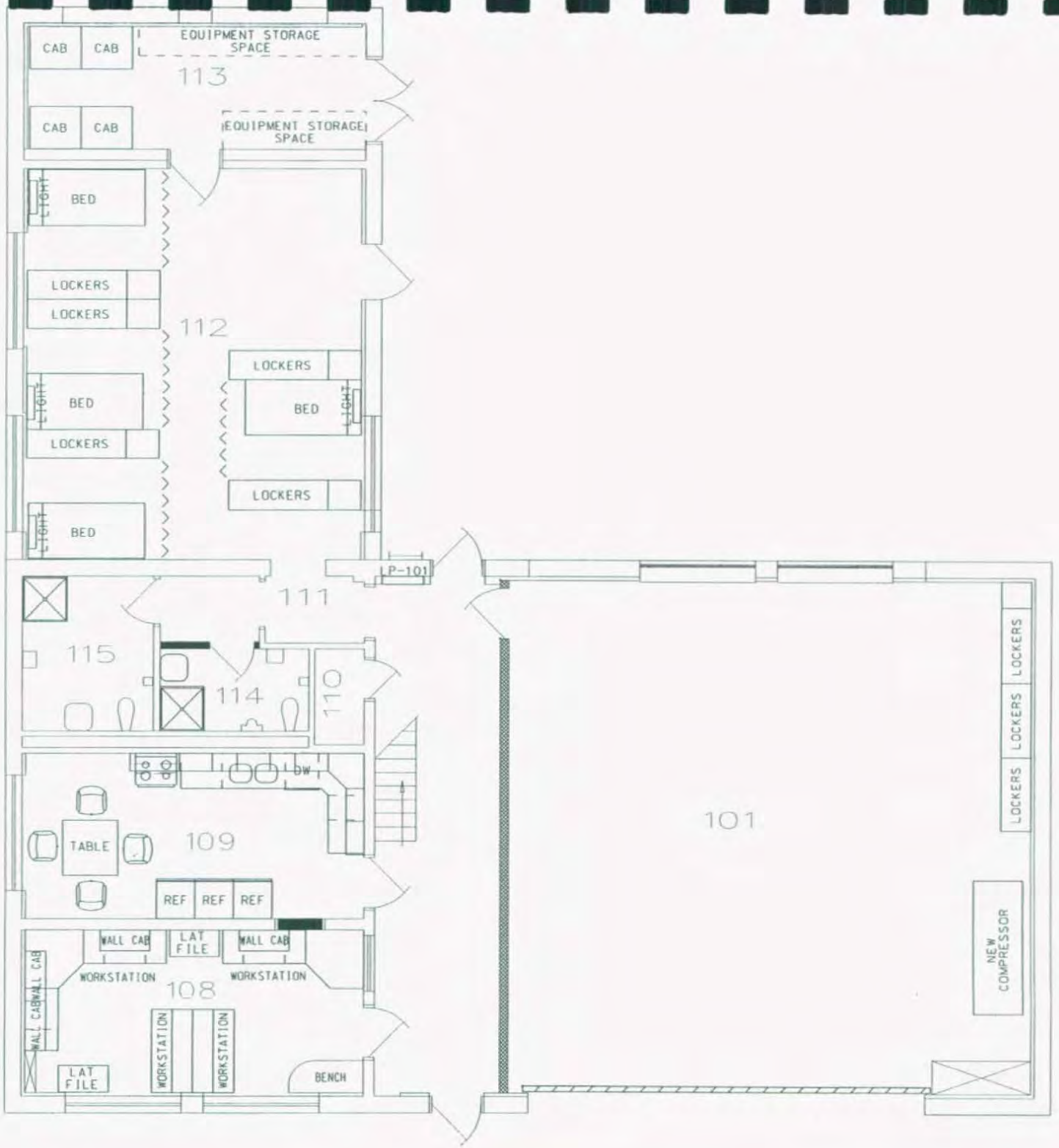
STATUS MD-REL-**/**/** | ORIGIN AUTOCAD

Figure 3: Building 47 Exterior Photos



Appendix D

Floor Plans


CAB
CAB
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113
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BED
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112
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LOCKERS
LOCKERS
LIGHT
BED
P-101
111
115
114
110
DW
TABLE
109
REF
REF
REF
WALL CAB
LAT FILE
WALL CAB
WALL CAB
WALL CAB
WORKSTATION
WORKSTATION
108
WORKSTATION
WORKSTATION
LAT FILE
BENCH
101
LOCKERS
LOCKERS
LOCKERS
NEW COMPRESSOR

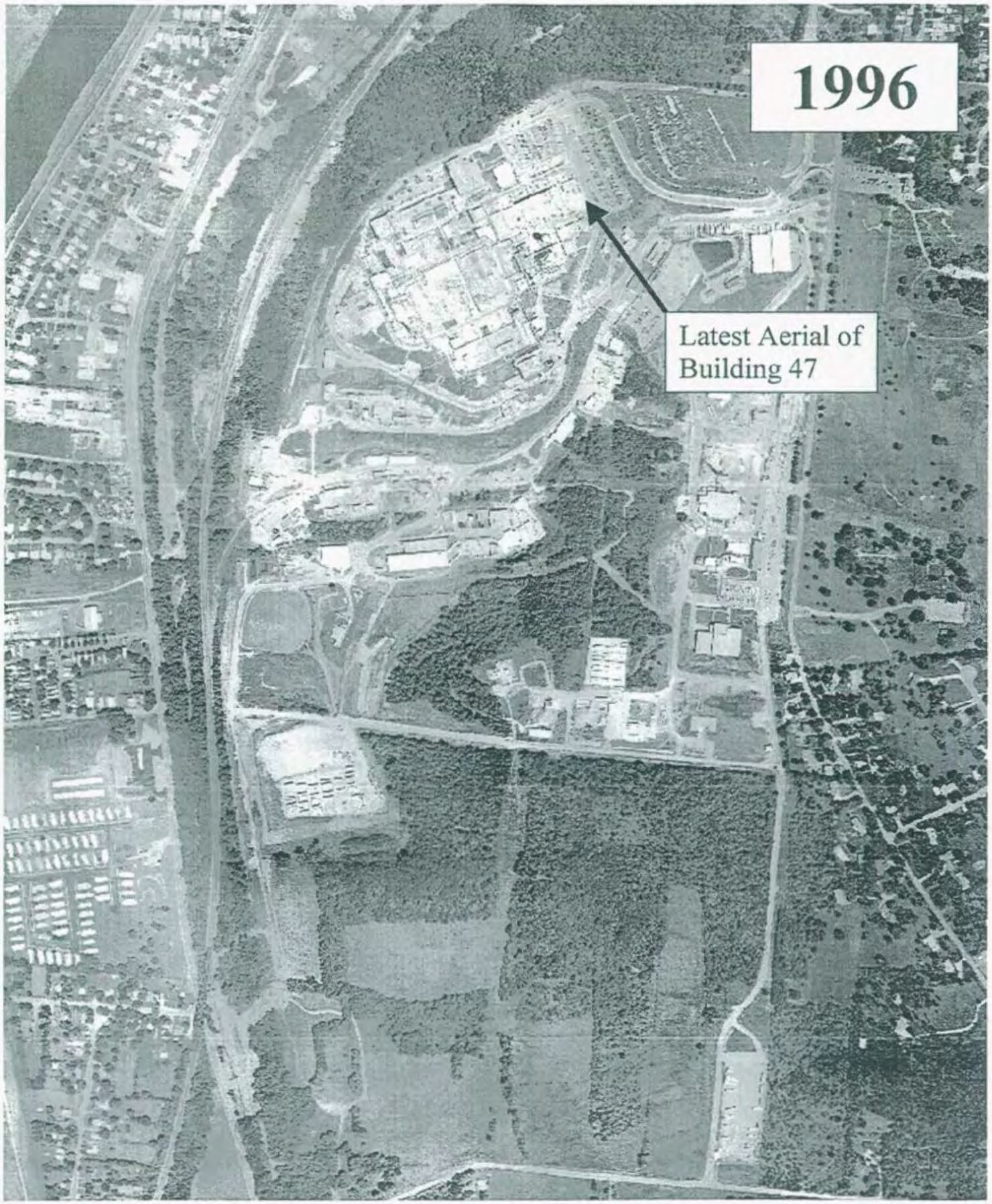
D 1 of 1

Appendix E

Aerial Photographs

1968
Prior to Construction
of Building 47

1973
Building 47 Recently Constructed


1996
Latest Aerial of
Building 47

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

9.69 BUILDING 47

9.69.1 Scope of Building 47 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 47 on February 26, 1996. The EAC (Attachment 1—Section 9.69.6.1) was used to record findings. Escorting the appraisers were knowledgeable personnel such as process owners. Other information was supplied by the building manager and recorded on the BMQ, included as Attachment 2 (Section 9.69.6.2).

9.69.2 Description of Building 47

block BCK 4-8-03

Building 47 is a one-story, 3,611-square-foot reinforced concrete building with brick facing and a built-up membrane roof. The building contains a magazine. The location is shown in Attachment 3 (Section 9.69.6.3). The building is bordered by Building 28 to the south, Building W to the west, a parking lot to the west and Building GP-1 to the north. Floor plans for the building are presented in Attachment 4 (Section 9.69.6.4). The building is serviced by central steam for heat, chilled water and electrical service. The building has a fire sprinkler system (Mound Facility Physical Characterization, 12-1-93).

Building 47 was constructed in 1969. According to the Mound Facility Physical Characterization report (12-1-93), the building is not contaminated with radioactive or energetic materials.

9.69.3 Summary of Findings

serve as the site Firehouse. In 1989 it was renovated to

VKO 4-8-03

Building 47 was originally built to house administrative offices for protective security personnel, weapons storage, and classified waste storage areas. These areas are still in use.* The building is well-maintained. Some issues of environmental concern were identified during the walk-through and review of reference materials.

* In 2002, Bldg 47 was again renovated and returned to services the site Firehouse. VKO 4-8-03

9.69.4 Observations

9.69.4.1 Air Emissions

There are no processes that create air emissions located in the building. There are no fuel-burning units in the building. There is no evidence of fugitive dust.

9.69.4.2 Wastewater 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.

9.69.4.2.1 Sanitary Wastewater

The building does have sanitary services. According to a diagram of underground lines, presented as Attachment 5 (Section 9.69.6.5), the building is serviced by a sanitary line. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort, therefore, dye tests or smoke tests were not conducted.

Sanitary effluent is conveyed to the onsite tertiary wastewater treatment facility, and subsequently discharged to the Great Miami River. There is no monitoring of building effluent. Based on operations data, supplied by the process owner, effluent from Building 47 does not deviate from that expected by the sanitary treatment plant manager.

9.69.4.2.2 Storm Wastewater

The building is not serviced by storm drains, according to the underground lines diagram in Attachment 5 (Section 9.69.6.5). Storm water is either absorbed into the ground or flows downhill as surface water until it reaches a storm drain. There are floor drains in the lavatories and janitorial closet. Inspection of the surrounding area showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water has entered the storm drainage system.

9.69.4.2.3 Chemicals

There are janitorial and office supply chemicals used in Building 47. A list of chemicals residing in Building 47 is included in the BMQ. The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994. Confirmation of the 1994 inventory was not attempted as 1995 data were being compiled at the time of the appraisal.

Storage, handling, and disposal of chemicals listed in the BMQ were reviewed to assure conformance to regulations related to 40 CFR 122, 40 CFR 261-265, 40 CFR 268, and 29 CFR 1910. Chemical storage and handling procedures are in place for proper disposal of chemicals.

There is asbestos in the building. Asbestos is identified as a Clean Water Act (CWA) toxic pollutant in 40 CFR Part 122, Appendix D, Table V. There is no evidence that chemicals or asbestos enter the storm or sanitary drains. There have been no reported spills from Building 47.

9.69.4.3 Potable and Service Water

Potable water is supplied to the building. There is one water fountain (Halsey-Taylor) located on the first floor. Fountains which supply drinking water have not been tested for lead. According to EPA protocol, annual sampling criteria do not require testing of each fountain. Potable water is supplied to the building where it is separated with a backflow preventer into potable and service water and then distributed throughout the building.

9.69.4.4 Chemical Storage and Hazardous Materials

Chemicals used in janitorial services are stored in Building 47. Chemicals are stored in the building in accordance with applicable standards. MSDSs were not readily available in the building.

The building is equipped with appropriate emergency response equipment such as fire extinguishers and sprinklers. Emergency evacuation plans and signs were posted in the areas.

There are no aboveground storage tanks in or around the building and no underground storage tanks are associated with this building. There are no sumps, separators, or catch basins, in or around the building.

The building has been tested and does contain asbestos-containing building materials (MD-10391, *Asbestos Program Manual*, 9-14-95). There was no visual evidence of friable asbestos. Pipe lagging is intact. Pipe content is identified.

There are no capacitors or transformers containing PCBs located in the building. (1995 PCB Annual Document Log).

9.69.4.5 Solid, Hazardous, and Radioactive Waste

Solid wastes generated are primarily paper. There is paper and aluminum can recycling to minimize solid waste. Solid wastes, i.e., trash, paper, glass, and cardboard are removed by janitorial personnel to a site collection point, then shipped offsite to a local landfill or recycling center by a contractor. Scrap metal is collected at specific sites, then sent offsite for recycling by a contractor. Lead-acid batteries are recycled by a contractor. All these service contracts are maintained by Waste Management. Classified paper is collected by Security and incinerated at

the Montgomery South Incinerator. This contract is maintained by Security. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

9.69.4.6 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. Programs for waste minimization in place include aluminum can and white paper recycling.

9.69.5 Findings and Recommendations

The environmental appraisal of Building 47 indicates that the following action items in order of priority should be planned and scheduled for accomplishment thus assuring the best management and operating practices are in place. Photographs were taken in connection with the appraisal process. They are included as Attachment 5 (9.69.6.6).

47-1. Determine if water fountain is suspect for lead contamination.

47-2. In accordance with 29 CFR 1910.1200, MSDSs should be prominently displayed, clearly labeled, and readily available. A visitor to the area should be able to walk into the room and find them immediately.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 47

Appraisers:

Mary E. Sizemore
Name Discipline

Name Discipline

H Pulliet
Name Discipline

Terry L Glander
Name Discipline

Building Manager: JEFFREY L. BOSTON

Process Manager: RONALD L. PARR

Date: 2/26/96

ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental A, aisal Checklist

Building Name: 47 **Appraisers:** Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore **Date:** 2/26/96

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	
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	GUARD FORCE Offices
	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	 N/A N/A
	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	JANITOR'S Closet HAS A SINK

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Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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	
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	
	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	
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 . ,raisal Checklist

Building Name: 47

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/26/96

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
			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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Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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	Janitorial Supply Chemicals
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	(Y) N	MSDS / Janitorial supply
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~~ NA	No flammable storage containers or cabinets
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~~ NA	

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Environmental Appraisal Checklist

Building Name: 47

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/26/96

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	NA
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	Y / N N/A	
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	
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	
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	
	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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Environmental Appraisal Checklist

Building Name: 47

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/26/96

HM Checklist

Regulatory Guideline	Question	Response	Comments
	Is there a process area?	Y / (N)	
	Does it have proper containment?	Y / (N)	
	Is there a liquid bulk transfer area?	Y / (N)	
	Is there proper containment?	Y / (N)	
	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: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	
	Are sources of service water (janitorial and laboratory faucets, or outdoor spigots) posted as non-potable water sources?	Y / N	N/A
	Does the facility contain any water coolers or fountains that are not lead free? Complete Table C.	Y / N	SEE BELOW

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
47	101	WT-14-A	HALSEY-TAYLOR

Source: _____

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Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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?	(Y) / N	
	Was charactarization by analysis or by process knowledge?	analysis / process	PROCESS KNOWLEDGE
	Are lab results or documentation of process knowledge readily available?	Y / (N)	
	Note any uncharacterized material in comment section. Is it waste?	Y / N	N/A
	If yes, proceed with next section.		
OAC 3745 52-11	Are any of the materials noted RCRA hazardous waste?	(Y) N	NICKEL-CADMIUM BATTERIES FOR RADIOS AND 6 VOLT BATTERIES
	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.		MOVED TO GUARD POST 1 AND THEN PICKED UP BY WASTE MANAGEMENT

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Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	
	Is it treated as such?	Y / N	N/A
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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Environmental Appraisal Checklist

Building Name: 47

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/26/96

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:		
	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.		
	For Building 23, Building 72 & Burn Area use special checklist.		

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Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	
	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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Environmental Appraisal Checklist

Building Name: 47

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/26/96

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	

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General Comments:

Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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?	Y / N	INSPECTION AND ANALYSIS
	If no for this building or area note this conclusion in the comment section.		
	Is there any evidence of friable asbestos?	Y N	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N N/A	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: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	
	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	

Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

TSCA Checklist

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: 47

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/26/96

TSCA Checklist

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	

GENERAL COMMENTS:

Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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: 47

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/26/96

Low-Level Waste and Transuranic Waste Checklist

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 . . praisal Checklist

Building Name: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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: 47 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

Low-Level Waste and Transuranic Waste Checklist

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 . . praisal Checklist

Building Name: 47

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/26/96

Low-Level Waste and Transuranic Waste Checklist

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: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	Excess of janitorial supplies. Supplies should be limited to need.
	Are there solvent wastes?	Y / N	
	Is vehicle maintenance performed?	Y / N	
	Are oils used ?	Y / N	
	Are these corrosive wastes?	Y / N	
	Are there sludges?	Y / N	
	Are there halogenated organic (nonsolvent) wastes?	Y / N	
	Are metals recovered from wastewater?	Y / N	
	Is waste sludge generated?	Y / N	
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N	
	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	

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Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	
	Are solid wastes generated from the collection of baghouse dust?	Y / N	N A
	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	
	Evaporation of waste rinsewater?	Y / N	
	Reverse osmosis?	Y / N	
	Ion exchange?	Y / N	N A
	Electrolysis?	Y / N	
	Agglomeration?	Y / N	
CORROSIVE WASTES			
	Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals?	Y / N	

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Environmental Appraisal Checklist

Building Name: 47 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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	
	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	
	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	
	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: 47 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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	
	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?		
	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: 47

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/26/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		
	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	
	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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Environmen. .ppraisal Checklist

Building Name: 47

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/26/96

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	
	Solids removal?	Y / N	
	Dispersion breaking?	Y / N	
	Dissolved and emulsified organics recovery?	Y / N	
	Are any of these housekeeping procedures used to minimize the production of solvent wastes?		
	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: 47 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

1. What are the access requirements (training, clearance, etc.)?
   NONE REQUIRED EXCEPT AFTERHOURS WHEN A PROPERLY CODED MAGNETIC STRIPE ON THE BADGE IS REQUIRED FOR ENTRY

2. What protective equipment is required to enter the building?
   NONE REQUIRED

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

4. Provide a physical description of the building.

Building is a 3,611-ft² structure. It is one story with a magazine. Construction is of concrete block with a brick face and has a BUM roof (asphalt). Building is operational 24 hours per day. Building is not contaminated with any radioactive 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?

Protective force administrative; weapons storage; classified waste storage.

Source: Mound Buildings, 5-9-95

7. What is the history of building use other than that described in #6?
   IT WAS THE FIRESTATION (SLEEPING AREA, EQUIPMENT MAINTENANCE, KITCHEN, OFFICE, AND FIRE ENGINE & AMBULANCE BAYS) PRIOR TO THE MODIFICATION TO CURRENT CONFIGURATION

Source: Mound Buildings, 5-9-95

Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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: Offices for security personnel

How Wastes Are Generated:

No hazardous wastes are generated in this building.

Contact: Ronald L. Parr
Phone #: 3957

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

Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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? No

Process Source	Room Number	Hood Number	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Lbs./Yr. Operation	Air Emissic
			Y / N					
			Y / N					
			Y / N					
			Y / N					
			Y / N					

Source: Mound Air Emissions Database 11/30/95

Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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?

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

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: 47 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

17. Does the building contain transformers or capacitors? No

Source: PCB Annual Document Log

18. Has the building been identified as containing PCBs? Yes (No)

Source: PCB Annual Document Log

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)
None		

Source: Chemical Inventory 1994

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Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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? N/A

22. What janitorial supplies are stored inside or outside of the building?
PLASTIC BAGS, NABC, TOILET TISSUE, KINDEST KARE SKIN CLEANSER, WINDOW SHINE GLASS CLEANER, BUTCHERS MAJOR MAX SPRAY BUFF, SPARTAN DAMP MOP NEUTRAL DISINFECTANT CLEANER, SPARTAN RINSE FREE STRIP, BUTCHER'S HEAD START CARPET PRESPRAY, BUTCHERS SPIN OUT SPIN BONNET CARPET CLEANER, TAMPAX TAMPONS

23. Where do excess janitorial supplies go? NONE ARE EXCESS

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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.

NONE

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

Source: _____

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Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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)

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)

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: _____

Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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: 47 Building Manager: J.L. Boston 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

Building Manager's Questionnaire

Building Name: 47 Building Manager: J.L. Boston 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.

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

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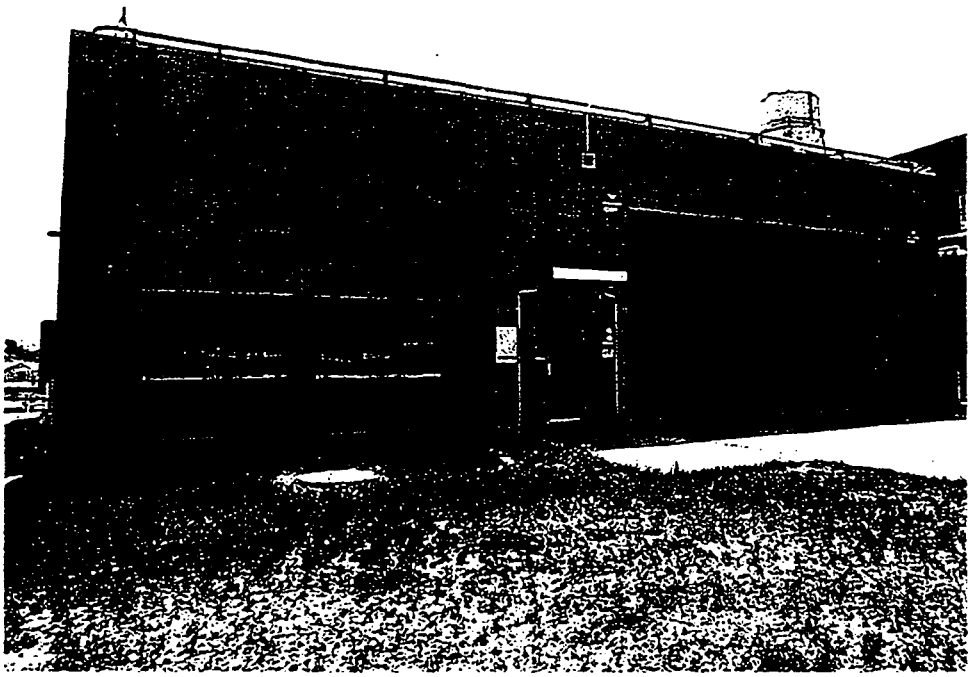
Appendix G

Radiological Information

Final Status Report
For
Building 47



Prepared by:	**Roderick C. Case** /	**Date:**	**June 18, 2003**
Reviewed by:	**Galen Tomlinson**	**Date:**	6-19-03
Approved by:	**A. Stephen Collas** /	**Date:**	6-19-03

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1.0 Historical Review

Building 47 was constructed in 1969, to provide a building from which the Mound on-site fire department would operate. Building 47 was constructed as an "L"-shaped structure, having overhead doors on both the front (northern side), and on the southern side. As constructed, the building included 10 rooms. The rooms shown on the design drawings are typical of those found in a firehouse (i.e., an Apparatus Room with overhead doors, kitchen, office, shower and toilet, dormitory, and shop). There was also a mezzanine room above the northern part of the building. The current square footage is 3,611 square feet, including the mezzanine area.

In 1988, the Fire Department was relocated to Building 98. A remodeling effort was begun on Building 47, to convert the building into an area to house administrative offices for Mounds protective security personnel, provide an area for weapons storage, and provide a facility for classified waste storage. The Apparatus Room was converted to office space and floor drains were sealed.

In 1997, a report prepared by Waste Management notes that, Rooms 112/113 were posted as a radiological "Controlled Area". The reported reason for the area posting was that there were two sealed sources in the area (Reference 1). These sources were used to check hand held monitors used by security. One of the sources was a button source mounted on the wall. The other source was reported to be in a plastic vial in a lead shield. It is believed that both these sources were Cs137 and were disposed of as part of the Mound Orphaned Source program in 1998 according to individuals with first hand knowledge of the use of these sources (Reference 5). Documentation of leak tests or disposition was not found regarding these sources.

In 2002, surveys were performed in Building 47 in anticipation of the remodeling necessary to relocate the fire brigade to this building. No postings were noted at this time and no radioactive material was found in or on the building. In May 2002 the building was occupied again by the Fire Department in anticipation of Building 98 demolition. The previously constructed office rooms in the apparatus area were removed and the floor drains re-installed.

Building 47 has again been vacated by the Fire Department and is scheduled for demolition in accordance with Miamisburg Closure Project goals. A complete history of Building 47 can be found in Reference 1.

2.0 Survey Objectives

The objective of this survey plan is to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 47 satisfy the site release criteria. This is 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 to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined in each 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. Since no process activities were ever associated with Building 47, it is assumed that Pu-238 is the contaminant of concern and the Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta/gamma measurements (Cs-137).

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 Number	Survey Unit Room Designation	Area (ft^2)	Class	Data Points	Surface Scan
1	Rooms 112, 113 floor and Walls to 6'	976	3	20	10%
2	Interior Surfaces	N/A	N	20	Walkways
3	Exterior Surfaces	N/A	N	20	Judgmental

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 17 dpm/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) data points were randomly placed in Survey Unit 1. Twenty (20) judgmental data points were placed throughout the remaining survey units. 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.

Sediment samples were collected from floor drains and ventilation units. If no sediment was available in these areas, smears were obtained for isotopic 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 Survey Unit 1 were averaged and compared to the $DCGL_w$. Since all measurements were less than the $DCGL_w$, the Sign Test was not utilized. The alpha and beta fixed point measurements from the remaining survey units were collected and compared directly to the $DCGL_w$. One data point on a roof drain metal flashing was initially found to be 106 dpm/100cm^2 alpha. A subsequent survey showed 111 dpm/100cm^2. This location was sampled by acid etching and found to be 70 dpm/100cm^2 Po-210. An area on a second roof drain that measured 96 dpm/100cm^2 alpha was also sampled and found to be 49 dpm/100cm^2 Po-210. No other isotopes were identified in the samples (RSDS# 03-TF-0134). Po-210, a U-238 daughter, is observed to be present in the background on roofs and external surfaces. All of the remaining data points were found to be below 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.

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Total Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	26	7.00	1.22	415	175.3	25.1
Survey Unit 2	33	13.5	1.41	380	60.5	20.4
Survey Unit 3	83	55.9	2.68	1468	728.5	71.9

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

Removable Alpha & Beta Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	2.9	0.38	0.12	6.1	0.87	0.23
Survey Unit 2	1.8	0.08	0.06	4.2	0.80	0.18
Survey Unit 3	2.5	0.52	0.13	3.8	0.76	0.18

The highest removable tritium activity was 13.41 dpm/100cm2 (RSDS# 03-TF-0126). The average removable tritium was 0.41 dpm/100cm2 (±0.22).

The floors and major walkways were scanned for alpha activity. The highest activity measured was 13 dpm/100cm^2 (RSDS# 03-TF-0131).

2.3 Sediment Sample Data

Sediment (or liquid) samples were obtained from floor drains and sink traps. A smear was obtained if no material was present at the sample location. Sediment and smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan (See RSDS # 03-TF-0121). No activity was observed in any sediment sample above the screening levels (Screening level for tritium = 1000 nCi/L; Screening level for gross alpha/beta = 4 dpm/ml). Direct alpha and beta measurements were taken at each sample location. No alpha or beta activity was observed above background at any sample location.

2.4 Quality Control

Quality control measurements were taken to evaluate the measurement precision. Eight data points were selected at random from the sample group of 62 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

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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	$\pm 2\sigma$	Replicate	Initial	$\pm 2\sigma$	Replicate
QCU1-01	26	10.20	6	220	29.66	155
QCU1-07	0	0.00	6	200	28.28	260
QCU2-10	33	11.49	28	-23	9.59	295
QCU2-19	0	0.00	11	55	14.83	53
QCU3-06	83	18.22	50	755	54.95	795
QCU3-07	22	9.38	50	953	61.74	753
QCU3-11	96	19.60	111	403	40.15	405
QCU3-15	106	20.59	106	258	32.12	153
Variance (S^2)	1835.07		1800.86	114915		77004
Ratio			1.02			1.5
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 $\pm$ 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 determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 47 satisfy the site release criteria established by DOE Order 5400.5. This is accomplished by comparing the survey data to the release criteria in accordance with the MARSSIM (Reference 2). The scanning survey found no elevated measurement areas above the $DCGL_w$. No activity was found above screening levels in sediment samples.

All of the DQO's for this survey plan have been met and no further surveys are required. Building 47 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 47 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-0130	Floor	2.9	20
Highest Alpha Fixed Activity	03-TF-0126	Exterior Wall	83	100
Highest Beta Smearable Activity	03-TF-0130	Interior Wall	6.1	1000
Highest Beta Fixed Activity	03-TF-0126	Exterior Wall	1468	5000
Highest Tritium Smearable Activity	03-TF-0126	Exterior Wall	13.41	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 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

Attachment 2 – Retrospective Power Curve

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 40-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 47 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-80047, 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
5. Group Wise e-mail responses to R. Case *Building 47 Source Query* from; R. Parr (2/10/03). L. Marion-Moss (2/11/03). C. Anderson (2/11/03)

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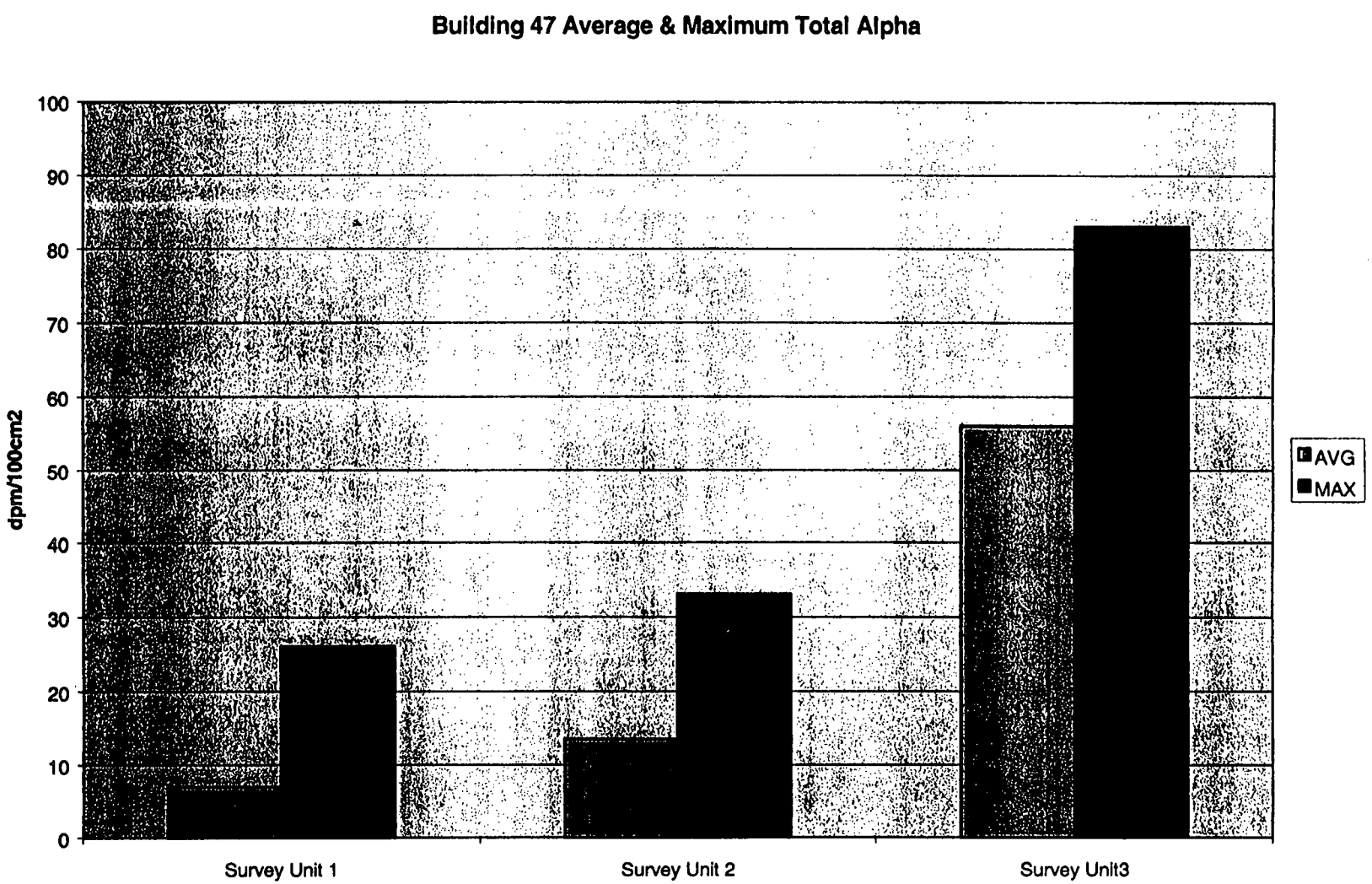
Building 47 Average & Maximum Total Alpha
dpm/100cm2
100
90
80
70
60
50
40
30
20
10
0
Survey Unit 1
Survey Unit 2
Survey Unit3
AVG
MAX

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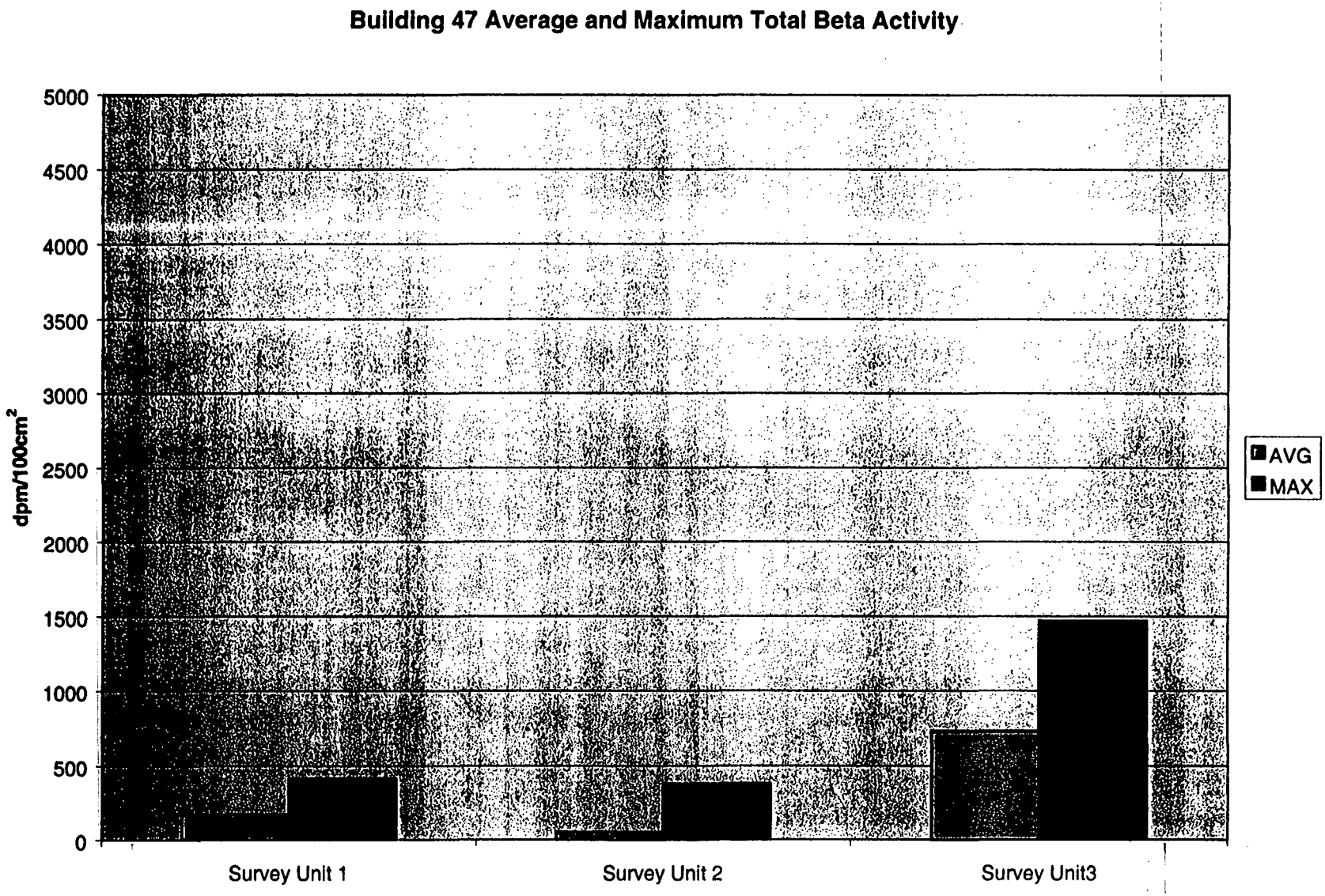
Building 47 Average and Maximum Total Beta Activity
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
dpm/100cm²
Survey Unit 1
Survey Unit 2
Survey Unit3
AVG
MAX

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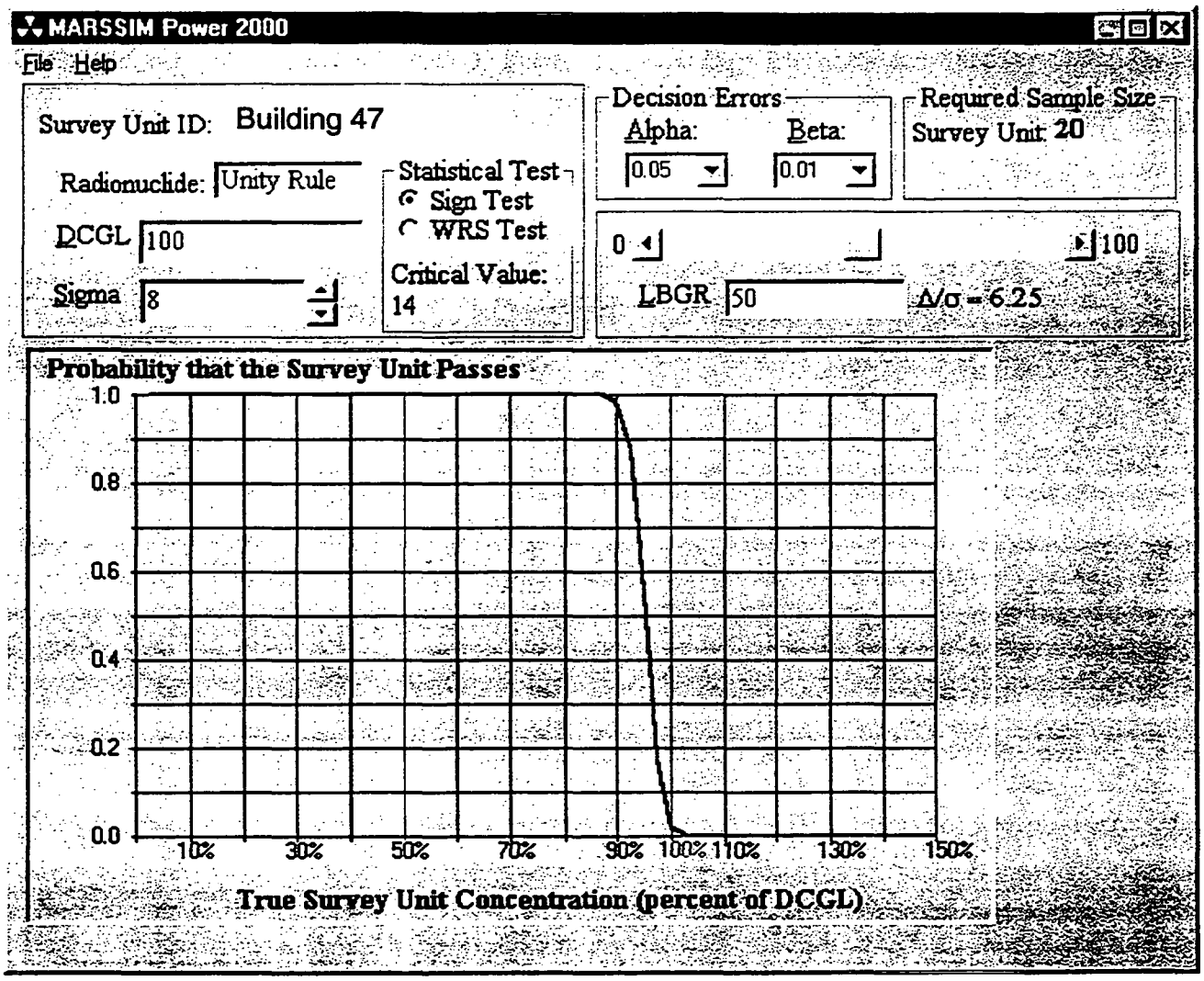

MARSSIM Power 2000 software developed by Dr. Carl Gogolak, DOE/EML is provided on the Health Physics Society Decommissioning website (http://www.serversolutions.com/decomm_sec/index.htm) and endorsed by the Oak Ridge Institute for Science and Education (ORISE).

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Building 47 Survey Data Collection Sheet

		Smearable			Fixed	
Location	RSDS#	α	β	H^3	α	β
SU1-01	0130	0	0	0	26	220
SU1-02	0130	1.7	0	0	13	45
SU1-03	0130	0	0	0	0	-10
SU1-04	0130	1.4	0	0	6	15
SU1-05	0130	0	0.5	0	0	25
SU1-06	0130	0	2.1	0	13	120
SU1-07	0130	2.9	1	0	0	200
SU1-08	0130	0	0	0	6	-100
SU1-09	0130	0	2.5	0	13	195
SU1-10	0130	1.6	0	0	0	90
SU1-11	0130	0	6.1	0	19	-5
SU1-12	0130	0	0.6	0	6	-50
SU1-13	0130	0	2	0	0	255
SU1-14	0130	0	0	0	0	355
SU1-15	0130	0	0	0	19	345
SU1-16	0130	0	2.6	0	6	395
SU1-17	0130	0	0	0	0	415
SU1-18	0130	0	0	0	0	395
SU1-19	0130	0	0	0	13	270
SU1-20	0130	0	0	0	0	330
SU2-01	0123	0	0.8	0	28	353
SU2-02	0123	0	0.9	0	6	-83
SU2-03	0123	0	0	0	28	40
SU2-04	0123	0	0	0	28	225
SU2-05	0123	0	0.3	0	0	-85
SU2-06	0123	0	0.5	0	6	-118
SU2-07	0123	0	0	0	6	243
SU2-08	0123	0	1.4	0	6	-25
SU2-09	0123	0	0	0	11	-80
SU2-10	0123	1.8	0.4	0	33	-23
SU2-11	0123	0	2.9	0	11	380
SU2-12	0123	0	0	0	11	33
SU2-13	0123	0	0	0	11	133
SU2-14	0123	0	0	0	6	78
SU2-15	0123	0	1.1	0	11	-10
SU2-16	0123	0	0	0	22	-10
SU2-17	0123	0	0	0	22	-135
SU2-18	0123	0	3.3	0	6	20
SU2-19	0123	0	0	0	0	55
SU2-20	0123	0	2	0	22	73
SU2-21	0123	0	4.2	0	17	110
SU2-22	0123	0	0	0	6	158
SU3-01	0126	0	0	0	77	1260
SU3-02	0126	0	2.1	0	50	1308
Location	RSDS#	α	β	H^3	α	β
SU3-03	0126	0	0	0	77	1468
SU3-04	0126	0	0	13.41	55	233

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SU3-05	0126	0	0.5	0	83	1360
SU3-06	0126	1.5	0.6	0	83	755
SU3-07	0126	0	0.1	0	22	953
SU3-08	0126	0	1.9	0	55	1353
SU3-09	0126	0	0	0	72	1215
SU3-10	0126	0	0.6	3.93	50	1270
SU3-11	0126	1.2	0	0	47	403
SU3-12	0126	0	0	0	36	333
SU3-13	0126	1.9	0.5	0	76	398
SU3-14	0126	1.6	3.8	0	46	288
SU3-15	0126	2.5	3.7	0	70	258
SU3-16	0126	0	0	0	51	343
SU3-17	0126	1.7	0.5	0	46	430
SU3-18	0126	0	0.8	0	31	305
SU3-19	0126	0	0	0	41	288
SU3-20	0126	0	0.1	0	51	348

	α	β	H^3	α	β
Avg	0.319355	0.812903	0.279677	25.09677	313
SD	0.721301	1.303273	1.766832	24.89895	415.0381
Max	2.9	6.1	13.41	83	1468
#	62	62	62	62	62
Conf.	0.061787	0.111639	0.151347	2.132853	35.55231

IntDrains 1	0121	0	0	0	-10	204
IntDrains 2	0121	0	3.4	0	-10	244
IntDrains 3	0121	0	0	0	-5	211
IntDrains 4	0121	0	0	0	0	203
IntDrains 5	0121	1.7	1.6	0	-5	247
IntDrains 6	0121	1.5	0	0	-5	240
IntDrains 7	0121	0	1.2	0	-5	153
Vent01	0131	0	3.6	0	70	645
Vent02	0131	1.6	8	0	40	230
Vent03	0131	0	0.5	0	40	530
Vent04	0131	0	0	0	60	475
Vent05	0131	0	0	0	-10	100
Vent06	0131	0	0	0	40	200

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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

	Smearable			Fixed	
	α	β	H^3	α	β
Survey Unit 1					
Number	20	20	20	20	20
Avg	0.38	0.87	0	7	175.25
SD	0.825004	1.540711	0	8.072044	166.43692
Max	2.9	6.1	0	26	415
Conf	0.124428	0.232371	0	1.217431	25.102122
Survey Unit 2					
Number	22	22	22	22	22
Avg	0.081818	0.809091	0	13.5	60.545455
SD	0.383761	1.227816	0	9.83071	142.14906
Max	1.8	4.2	0	33	380
Conf	0.055186	0.176562	0	1.413674	20.441295
Survey Unit 3					
Number	20	20	20	20	20
Avg	0.52	0.76	0.867	55.95	728.45
SD	0.845795	1.186059	3.07998	17.77483	477.01864
Max	2.5	3.8	13.41	83	1468
Conf	0.127563	0.178882	0.464524	2.680812	71.944253
Drains					
Number	7	7	7	7	7
Avg	0.457143	0.885714	0	-5.714286	214.57143
SD	0.782852	1.295413	0	3.450328	33.200688
Max	1.7	3.4	0	0	247
Conf	0.199575	0.330244	0	0.879604	8.4639642
Vents					
Number	6	6	6	6	6
Avg	0.266667	2.016667	0	40	363.33333
SD	0.653197	3.249872	0	27.5681	216.04783
Max	1.6	8	0	70	645
Conf	0.179864	0.894883	0	7.591139	59.490832

Graph Data Alpha			
	Survey Uni	Survey Uni	Survey Unit3
AVG	7	13.5	55.95
MAX	26	33	83

Graph Data Beta			
	Survey Uni	Survey Uni	Survey Unit3
AVG	175.25	60.54545	728.45
MAX	415	380	1468

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Building 60 Survey and Sample Data

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg(cpm)	β Bkg(cpm)	
1	L2350	5856/5148	5/12/04	0126	0.02		
2	L2360	5695/5844	4/17/04	0126	1.4	108	
3	L2360	5833/5847	3/13/04	0121	1	173	Drains
4	L2350	5856	5/12/04	0123	0.14		
5	L2360	5695/5844	4/17/04	0123		116	
6	L2350	5673/5143	8/13/03	0130	0.02		
7	L2360	5833/5847	3/13/04	0130		181	
8	L2360	5833/5847	3/13/04	0131	1	181	Vents
9	L2360						
10	L2360						

Sample Data RSDS# 0120

Liquid pCi/g

Location	H3nCi/L	αdpm/ml
3	<0.6	<0.6
6	<0.6	<0.6
7	<0.6	<0.6

Acid Etch Po-210

SU3 -11 70 pm/100cm: initial by direct = 106 dpm/100cm2

SU3-15 49 pm/100cm: initial by direct = 96dpm/100cm3

Scan Data 13dpm/100cm2 max

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Replicate Fixed Point QC

		alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #		initial	2σ	replicate	initial	2σ	replicate
QC U1-01	SU1-01	26	10.20	6	220	29.66	155
QC U1-07	SU1-07	0	0.00	6	200	28.28	260
QC U2-10	SU2-10	33	11.49	28	-23	9.59	295
QC U2-19	SU2-19	0	0.00	11	55	14.83	53
QC U3-6	SU3-06	83	18.22	50	755	54.95	795
QC U3-7	SU3-07	22	9.38	50	953	61.74	753
QC U3-11	SU3-11	47	13.71	111	403	40.15	405
QC U3-15	SU3-15	70	16.73	106	258	32.12	153
Variance (S2) =		910.9821		1800.857	114915.13		77004.554
Ratio				0.50586			1.492316
Agreement				YES			YES

QC Measurements

Location	RSDS	α	β
QC U1-01	0130	6	155
QC U1-07	0130	6	260
QC U2-10	0123	28	295
QC U2-19	0123	11	53
QC U3-6	0126	50	795
QC U3-7	0126	50	753
QC U3-11	0126	111	405
QC U3-15	0126	106	153

G180672

SURVEY PLAN FORM

SP NUMBER	47-01	**DATE OF REQUEST**	February 19, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 47		
PURPOSE	The purpose of this SP is to characterize Building 47 to support decisions on final disposition.		
SURVEY UNIT # 1	Room 112 & 113 floor, Room 113 Walls to 6'	**SURVEY UNIT**	
SURVEY UNIT # 2	Remaining Interior Surfaces	**SURVEY UNIT**	
SURVEY UNIT # 3	Roof and Exterior Surfaces	**SURVEY UNIT**	

SAMPLE TYPE

☐ **SURFACE SOIL SAMPLE:**

☐ **SUB-SURFACE SOIL SAMPLE:**

☒ **SEDIMENT SAMPLE:** See specific sediment sampling instructions on page 3.

☐ **Rubbelized Material:**

☐ **OTHER:**

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE** **PROBE TYPE**	L-2350 43-37 Floor Probe or 43-20 Hand Probe	**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
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE** **PROBE TYPE**	L-2350 43-20 Hand Probe	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Perform 1 minute counts at specified locations not more than ¼" from surface
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE** **PROBE TYPE**	L 2360 L 43-89	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
SURFACE SCAN	☒ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE** **PROBE TYPE**	L 2360 L 43-89	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3

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.

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SP NUMBER	47-01	DATE OF REQUEST	February 19, 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.

Scan Measurements using a Ludlum 2350 with 43-37 alpha probe and Ludlum 2360 with 43-89 beta 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 including at least 10% of the floors in Rooms 112 & 113.
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.
1. Perform a surface scan of at least 10% of Survey Unit 1 using Ludlum 2360 with 43-89 beta probe. Scan area locations are selected by the surveyor and should be broadly representative of the entire survey unit.
4. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

Data Point Location

1. Locate the data points in Survey Unit 1 using the coordinates shown in Attachment 2.
2. Mark each data point with tape or other non-permanent marking.
3. Document locations on the appropriate RSDS Map.

Static Measurements Using L 2350 with 43-20 (alpha) probe and L 2360 with 43-89 (beta) probe

2. Perform an alpha and beta measurement on twenty (20) data points in Survey Unit 1.
3. Perform an alpha and beta measurement on twenty (20) data points in Survey Unit 2. Data points are selected by the surveyor and should be broadly representative of the entire survey unit.
4. Perform an alpha and beta measurement on at least ten (10) data points on the roof areas. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit.
5. 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
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.

Continued Next Page

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Specific Survey and Sampling Instructions (continued)

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 isotopic analysis. Submit smears for gross alpha and beta analysis.
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 2 data points in each survey unit. Data points selected for resurvey should include the highest and lowest readings in the survey unit.
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	February 19, 2003
Technical Reviewer	R M Coblentz	DATE	02/20/03
Rad Con Manager	Danny K Riley	DATE	02/20/03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	DATE	6/18/03
Technical Reviewer	[illegible]	DATE	6-19-03
Rad Con Manager	[illegible]	DATE	6-19-03
COMMENTS			

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Attachment 1

Field Sample Data Collection Sheet

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
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									

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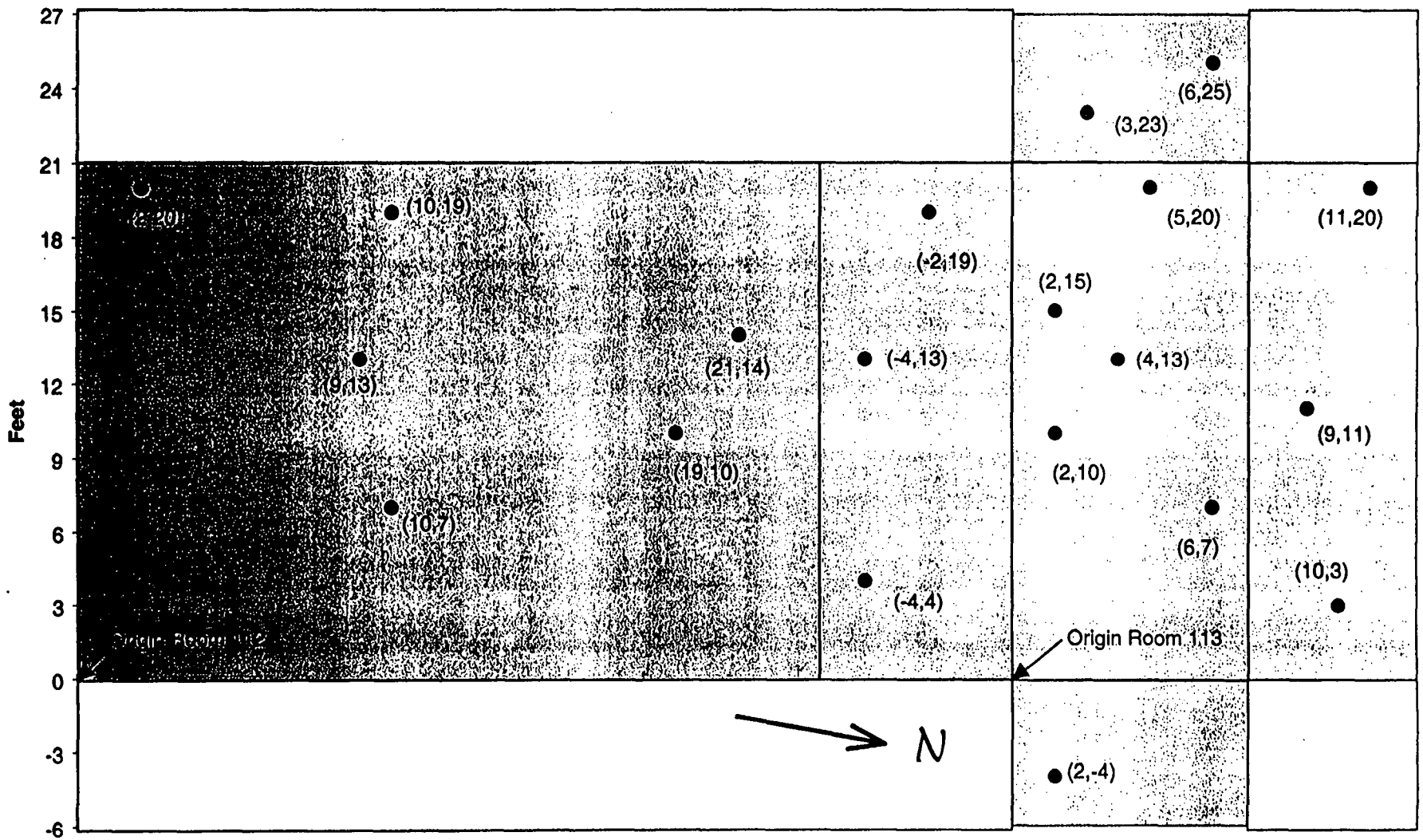
Building 47 Survey Unit 1 Data Points



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION (BLDG /AREA/ROOM) BUILDING 47	SURVEY NO 03-TF-0121
PURPOSE MARSSIM SURVEY BUILDING 47 DRAINS PER SURVEY PLAN 47-01	RWP NO N/A
	DATE 06-04-03
	TIME 1530

MAP / DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
— · — · · = radiological boundary

△# = mrem/hr neutron
= air sample number
(#) = swipe number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/4393	5833/5847	03-13-04
	N/A	

Completed by: (Signature)	HP# [redacted]	Date: 6-11-0
Completed by: (Print Name) D. HARVEY, D. RILEY		
Counted by: (Signature)	HP#	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 6-11-0
Reviewed/Approved by: (Print Name) R. CASE		

Survey No.
03-TF-0121

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTACHED		110 SLOPSING
2	↓	↓	↓	115 DRAIN
3				114 DRAIN
4				113 DRAIN
5				201 DRAIN
6				GARAGE DRAIN
7	↓	↓	↓	GARAGE DRAIN
SDH 6-11-03				

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

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 needed, mark N/A.

ML-8620A (4-98)

G2608 72

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR000
Batch Ended: 6/5/03 8:34

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0121 (7) CYR

Recalibration Date: 4/2/05
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.3	
A2	2	0.0	2.2		3.4	2.6	
A3	3	0.0	2.0		0.0	1.2	
A4	4	0.0	1.9		0.0	1.2	
B1	5	1.7	2.0		1.6	2.6	
B2	6	1.5	2.1		0.0	1.3	
B3	7	0.0	2.0		1.2	1.7	

SR CR

Carol Ann Robinson

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~~Page 1 of 1~~ CR 06-11-03

PS OF

Time: 2.00
Data Mode: DPM Nuclide: SMGL02 Quench Set: SMGL02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	10.42
Region B:	2.0 -	18.6	0	0.0	9.62
Region C:	40.0 -	2000	0	0.0	5.70

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
HARVEY 03-TF-0121 (11-17) CYR
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA7.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	10.42	1	B	615.82		0.00	5.70
0	2.00	861.92	0		556.33	1776.84	137.20	0.30
1	2.00	0.00	0		648.32	0.00	0.00	0.00
2	2.00	0.00	0		624.36	0.00	0.00	0.00
3	2.00	0.00	0		644.35	0.00	0.00	0.80
4	2.00	0.00	0		681.55	0.00	0.00	1.30
5	2.00	0.00	0		495.67	0.00	0.00	0.00
6	2.00	0.00	0		602.67	0.00	0.00	0.00
7	2.00	0.00	0		540.90	0.00	0.00	0.30

Carol G. Robinson

47-BLDG CHARACTERIZATION ALPHA-BETA DRAINS

RSDS# 03-TF-0121 RCT: DJH RCT: SR

						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	6/4/03	204	120	-355	0	120	-10
2	5833	[redacted]	5847	2	6/4/03	244	120	-255	0	120	-10
3	5833	[redacted]	5847	3	6/4/03	211	120	-338	1	120	-5
4	5833	[redacted]	5847	4	6/4/03	203	120	-358	2	120	0
5	5833	[redacted]	5847	5	6/4/03	247	120	-248	1	120	-5
6	5833	[redacted]	5847	6	6/4/03	240	120	-265	1	120	-5
7	5833	[redacted]	5847	7	6/4/03	153	120	-483	1	120	-5
BETA BACKGROUND FOR 4-16-2003 WAS---------->								173			
ALPHA BACKGROUND FOR 4-16-2003 WAS---------->								1			

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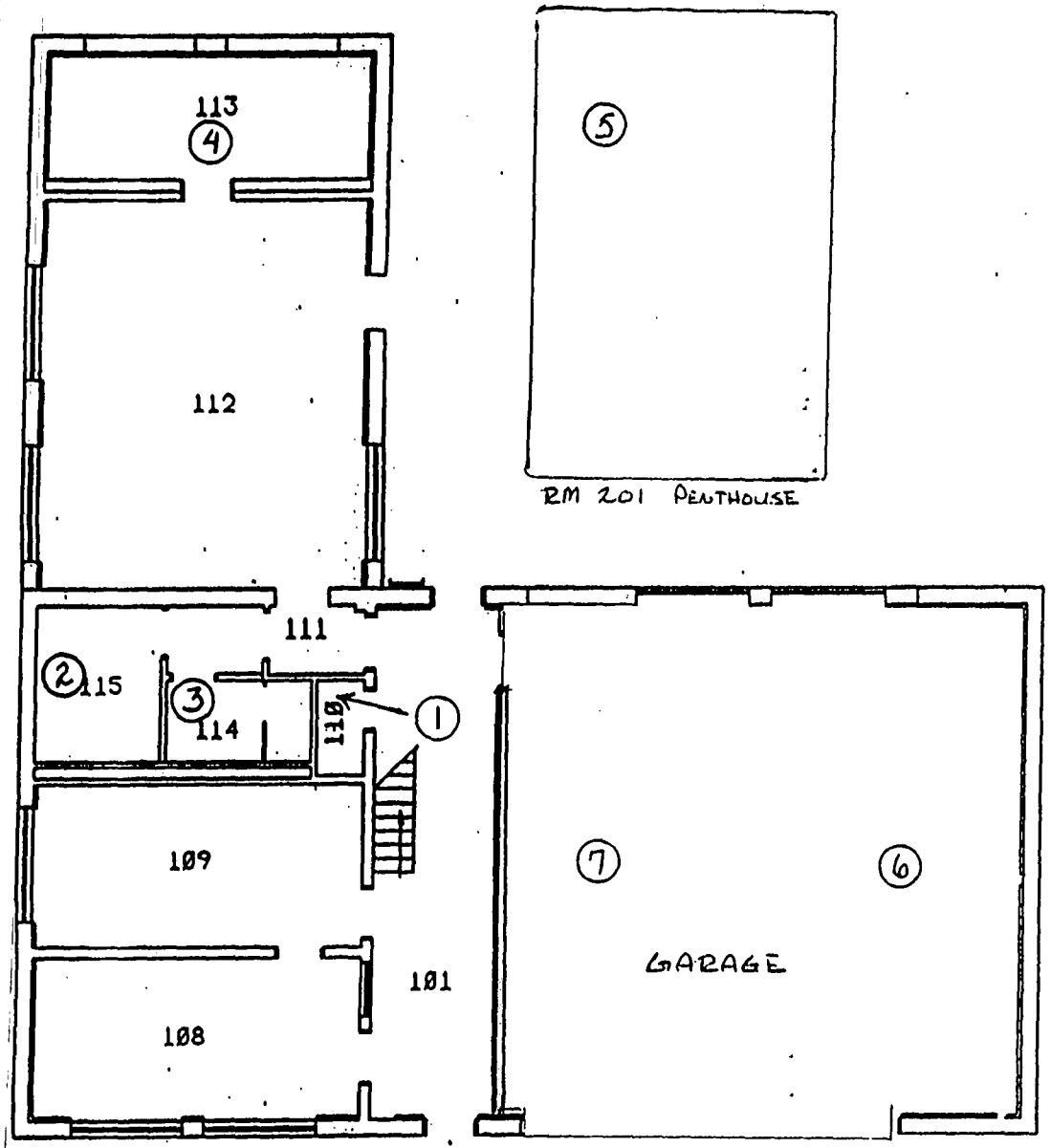
REV	DATE	REVISION	BY	CHKD	ENG	APVD	APVD	A
B	12/12/91	ASBUILT ISSUE	DCW				DVD	



UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office, Reviewer Initials

BLDG #47
FIRST FLOOR
BLDG CODE:3047

INTERIOR DRAIN SURVEY
RSDS 03-TF-0121

SHEET	1	2	3	4	5	6	(U) TITLE CLASSIFICATION
TOTAL	8	8					BLDG #47 FLOOR PLANS
UNCLASSIFIED							C / FSC911257
DWG TYPE SFP							BLDG #47 / 4045 / NONE / 1 OF 2
MO-RE 12/12/91							MO-BRJ-V3.8

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BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
6-4-03	WATER	HARLEY	3

PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:	MAIL STOP:
SMPP/TFU	DAN HARLEY 3163	OSW-417D

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
	6-4-03	03-TF-0121	

ANALYSES REQUESTED (check):

- [x] ^3H
- [ ] Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- [x] Gross Alpha
- [ ] Air Filter – Isotopic Analysis
- [ ] Characterization per MD-80036, Operation #10015
- [ ] Isotopic Analysis: Pu____ U_____ Th____ Am____ Other____
- [ ] Other _____

ADDITIONAL INFORMATION:

NOTE: Attach additional information (e.g. RSDS, screening results, collection data, and gamma spec. results) if applicable

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS ^3H	RESULTS α
0306266	47	3	<0.6 nCi/L	<0.6 DPM/mL
6267	47	6	<0.6 nCi/L	<0.6 DPM/mL
6268	47	7	<0.6 nCi/L	<0.6 DPM/mL
	DRAINS			

COMMENTS:

ANALYZED BY:	DATE:
Martha Anderson	06/05/03

ML-5222 (1-01)

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Attachment 1

Field Sample Data Collection Sheet

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
47-01- 3	06-04-03			DRAIN WATER	SGH	06-04-03	1320	DR	LCH
47-01- 6	06-04-03			DRAIN WATER	SGH	06-04-03	1320	DR	LCH
47-01- 7	06-04-03			DRAIN WATER	SGH	06-04-03	1320	DR	LCH
47-01-									
47-01-									
47-01-									
47-01-									
47-01-				NFE					
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 47	SURVEY NO. - 03 - TF - 0123
PURPOSE: MARSSIM SURVEY BUILDING 47 INTERIOR PER SURVEY PLAN 47-01 UNIT 2	RWP NO. N/A
	DATE: 06-05-03
	TIME:

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

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
2350	5856	03-12-04
2360/4393	5695/5844	04-17-04
	NA	

Completed by: (Signature)	HP# [redacted]	Date: 06-11-03
Completed by: (Print Name) D. HARVEY, D. RILEY		
Counted by: (Signature)	HP#	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Approved by: (Signature)	[redacted]	Date: 6-11-03
Reviewed/Approved by: (Print Name) R. CASE		

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				47-108
2				47-108
3				47-108
4				47-108
5				47 HALL
6				47-109
7				47-109
8				47-109
9				47-109
10				47 HALL
11				47 HALL
12				47-111
13				47-114
14				47-115
15				47 GARAGE
16				47 GARAGE
17				47 GARAGE
18				47 GARAGE
19				47 GARAGE
20				47 201
21				47 201
22				47 201

SEE ATTACHED RESULTS

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

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

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR008
Batch Ended: 6/5/2003 14:59
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF 0123 A/B (22) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	1.9		0.8	1.7	
A2	2	0.0	1.9		0.9	2.1	
A3	3	0.0	1.8		0.0	1.2	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.0		0.3	2.6	
B2	6	0.0	2.1		0.5	1.8	
B3	7	0.0	2.0		0.0	1.3	
B4	8	0.0	2.0		1.4	2.2	
C1	9	0.0	2.0		0.0	1.2	
C2	10	1.8	2.0		0.4	1.7	
C3	11	0.0	1.9		2.9	2.4	
C4	12	0.0	1.8		0.0	1.2	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		1.1	1.7	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	1.9		3.3	2.7	
A3	19	0.0	1.8		0.0	1.2	
A4	20	0.0	1.9		2.0	2.0	
B1	21	0.0	2.0		4.2	3.4	
B2	22	0.0	2.1		0.0	1.3	

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Albert Hibow
6/9/03

Protocol #: 1 Name:PW H3 #401388 09-Jun-2003 05:49
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
RILEY 03-TF 0123 1-22 JC
Conventional DPM
Nuclide 1 = 207149
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	7.18	6.87	5.48	B	4	597.		23.60
0	2.00	202.65	196.64	0.02		0	514.	451.33	10.14
1	2.00	0.00	0.00	0.00		0	656.	0.00	0.00
2	2.00	0.00	0.00	1.02		27	623.	0.00	0.00
3	2.00	0.00	0.00	0.00		0	618.	0.00	0.00
4	2.00	0.00	0.00	0.00		0	657.	0.00	0.00
5	2.00	0.00	0.00	0.00		11	608.	0.00	0.00
6	2.00	0.00	0.00	0.02		0	566.	0.00	0.00
7	2.00	0.00	0.00	0.00		16	659.	0.00	0.00
8	2.00	0.00	0.00	0.00		14	594.	0.00	0.00
9	2.00	0.00	0.00	0.02		0	653.	0.00	0.00
10	2.00	0.00	0.00	0.02		0	651.	0.00	0.00
11	2.00	0.00	0.00	0.00		16	557.	0.00	0.00
12	2.00	0.00	0.00	0.00		0	577.	0.00	0.00
13	2.00	0.00	0.00	0.00		0	585.	0.00	0.00
14	2.00	0.00	0.00	0.00		0	628.	0.00	0.00
15	2.00	0.00	0.00	0.02		0	586.	0.00	0.00
16	2.00	0.00	0.00	0.00		0	647.	0.00	0.00
17	2.00	0.00	0.00	0.00		0	613.	0.00	0.00
18	2.00	0.00	0.00	0.00		36	629.	0.00	0.00
19	2.00	0.00	0.00	0.00		54	635.	0.00	0.00
20	2.00	0.00	0.00	0.00		18	562.	0.00	0.00
21	2.00	0.00	0.00	0.00		0	581.	0.00	0.00
22	2.00	0.00	0.00	0.52		0	529.	0.00	0.00

DR

6/9/03

47 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 2

RSDS#03-TF-0123 RCT: DJH RCT: DLR

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		6/5/03	8:54	41	300	14	
SRC CHECK	5856	[redacted]	5675	1		6/5/03	9:01	2098	60	3592	
SRC CHECK	5856	[redacted]	5675	1		6/5/03	9:03	2037	60	3488	
SRC CHECK	5856	[redacted]	5675	1		6/5/03	9:05	2129	60	3646	
SRC CHECK	5856	[redacted]	5675	1		6/5/03	9:06	2000	60	3425	
SRC CHECK	5856	[redacted]	5675	1		6/5/03	9:08	2231	60	3820	
SRC CHECK	5856	[redacted]	5675	1		6/5/03	9:10	2102	60	3599	
SRC BKG	5856	[redacted]	5148	2		6/5/03	9:17	12	300	13	
SRC BKG	5856	[redacted]	5148	2		6/5/03	9:19	2086	60	11525	
SRC BKG	5856	[redacted]	5148	2		6/5/03	9:21	2000	60	11050	
SRC BKG	5856	[redacted]	5148	2		6/5/03	9:23	2027	60	11199	
SRC BKG	5856	[redacted]	5148	2		6/5/03	9:25	2135	60	11796	
U-2 01	5856	[redacted]	5148	2	1	6/5/03	10:22	5	60	28	
U-2 02	5856	[redacted]	5148	2	2	6/5/03	10:24	1	60	6	
U-2 03	5856	[redacted]	5148	2	3	6/5/03	10:25	5	60	28	
U-2 04	5856	[redacted]	5148	2	4	6/5/03	10:26	5	60	28	
U-2 05	5856	[redacted]	5148	2	5	6/5/03	10:28	0	60	0	
U-2 06	5856	[redacted]	5148	2	6	6/5/03	10:29	1	60	6	
U-2 07	5856	[redacted]	5148	2	7	6/5/03	10:32	1	60	6	
U-2 08	5856	[redacted]	5148	2	8	6/5/03	10:33	1	60	6	
U-2 09	5856	[redacted]	5148	2	9	6/5/03	10:35	2	60	11	
U-2 10	5856	[redacted]	5148	2	10	6/5/03	13:29	6	60	33	
U-2 11	5856	[redacted]	5148	2	11	6/5/03	13:30	2	60	11	
U-2 12	5856	[redacted]	5148	2	12	6/5/03	13:31	2	60	11	
U-2 13	5856	[redacted]	5148	2	13	6/5/03	13:33	2	60	11	
U-2 14	5856	[redacted]	5148	2	14	6/5/03	13:35	1	60	6	
U-2 15	5856	[redacted]	5148	2	15	6/5/03	13:37	2	60	11	
U-2 16	5856	[redacted]	5148	2	16	6/5/03	13:38	4	60	22	
U-2 17	5856	[redacted]	5148	2	17	6/5/03	13:41	4	60	22	
U-2 18	5856	[redacted]	5148	2	18	6/5/03	13:43	1	60	6	
U-2 19	5856	[redacted]	5148	2	19	6/5/03	13:44	0	60	0	
U-2 20	5856	[redacted]	5148	2	20	6/5/03	13:48	4	60	22	

47 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 2

RSDS# 03-TF-0123 RCT: DJH RCT: SLR

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-2 21	5856	[redacted]	5148	2	21	6/5/03	13:50	3	60	17
U-2 22	5856	[redacted]	5148	2	22	6/5/03	13:51	1	60	6
U-2QC 10	5856	[redacted]	5148	2		6/5/03	13:56	5	60	28
U-2QC 19	5856	[redacted]	5148	2		6/5/03	13:58	2	60	11

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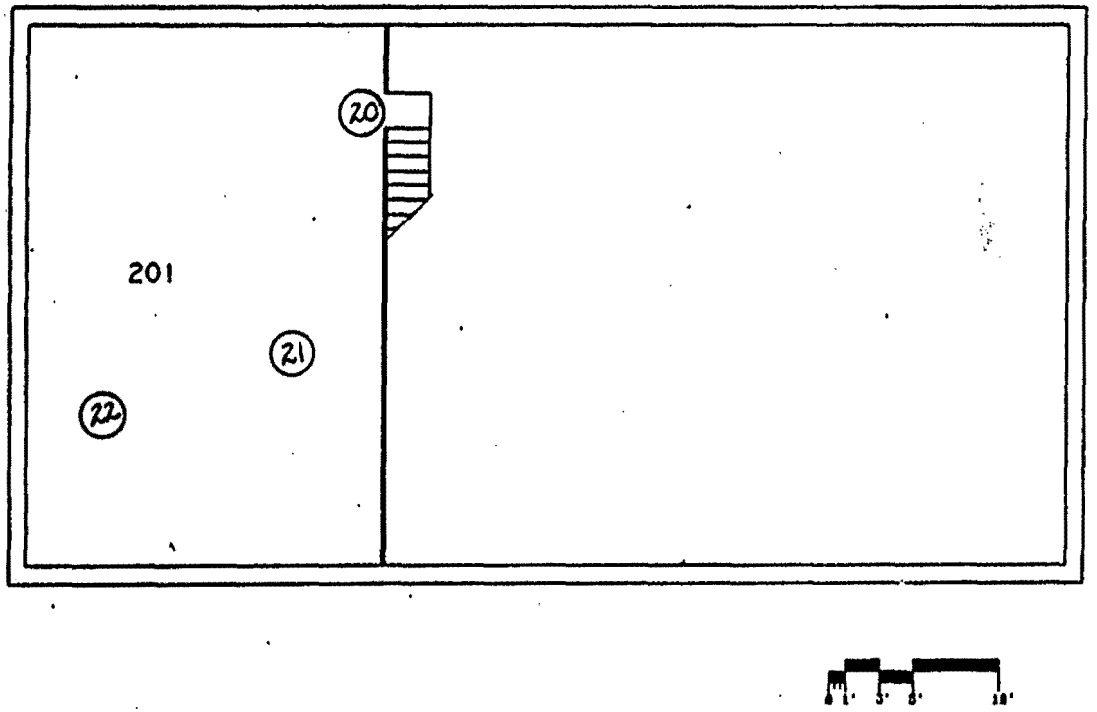
47-BLDG MARSSIM BETA SURVEY UNIT 2

RSDS# 03-TF-0123 RCT: AGH RCT: SK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
47-108	5695	[redacted]	5844	1	6/9/03	373	120	353
47-108	5695	[redacted]	5844	2	6/9/03	199	120	-83
47-108	5695	[redacted]	5844	3	6/9/03	248	120	40
47-108	5695	[redacted]	5844	4	6/9/03	322	120	225
47 hall	5695	[redacted]	5844	5	6/9/03	198	120	-85
47-109	5695	[redacted]	5844	6	6/9/03	185	120	-118
47-109	5695	[redacted]	5844	7	6/9/03	329	120	243
47-109	5695	[redacted]	5844	8	6/9/03	222	120	-25
47-109	5695	[redacted]	5844	9	6/9/03	200	120	-80
47 hall	5695	[redacted]	5844	10	6/9/03	223	120	-23
47 hall	5695	[redacted]	5844	11	6/9/03	384	120	380
47-111	5695	[redacted]	5844	12	6/9/03	245	120	33
47-114	5695	[redacted]	5844	13	6/9/03	285	120	133
47-115	5695	[redacted]	5844	14	6/9/03	263	120	78
47 garage	5695	[redacted]	5844	15	6/9/03	228	120	-10
47 garage	5695	[redacted]	5844	16	6/9/03	228	120	-10
47 garage	5695	[redacted]	5844	17	6/9/03	178	120	-135
47 garage	5695	[redacted]	5844	18	6/9/03	240	120	20
47 garage	5695	[redacted]	5844	19	6/9/03	254	120	55
47-201	5695	[redacted]	5844	20	6/9/03	261	120	73
47-201	5695	[redacted]	5844	21	6/9/03	276	120	110
47-201	5695	[redacted]	5844	22	6/9/03	295	120	158
QC 10	5695	[redacted]	5844		6/9/03	350	120	295
QC 19	5695	[redacted]	5844		6/9/03	253	120	53
BETA BACKGROUND FOR 6-05-2003 WAS---------->								116

G-390672



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

INTERIOR SURVEY UNIT 2
RSDS 03-TF-0123.

BLDG #47
SECOND FLOOR
BLDG CODE:3047

FSC911257	12335
UNCLASSIFIED	
14865	AS NOTED
[redacted]	2

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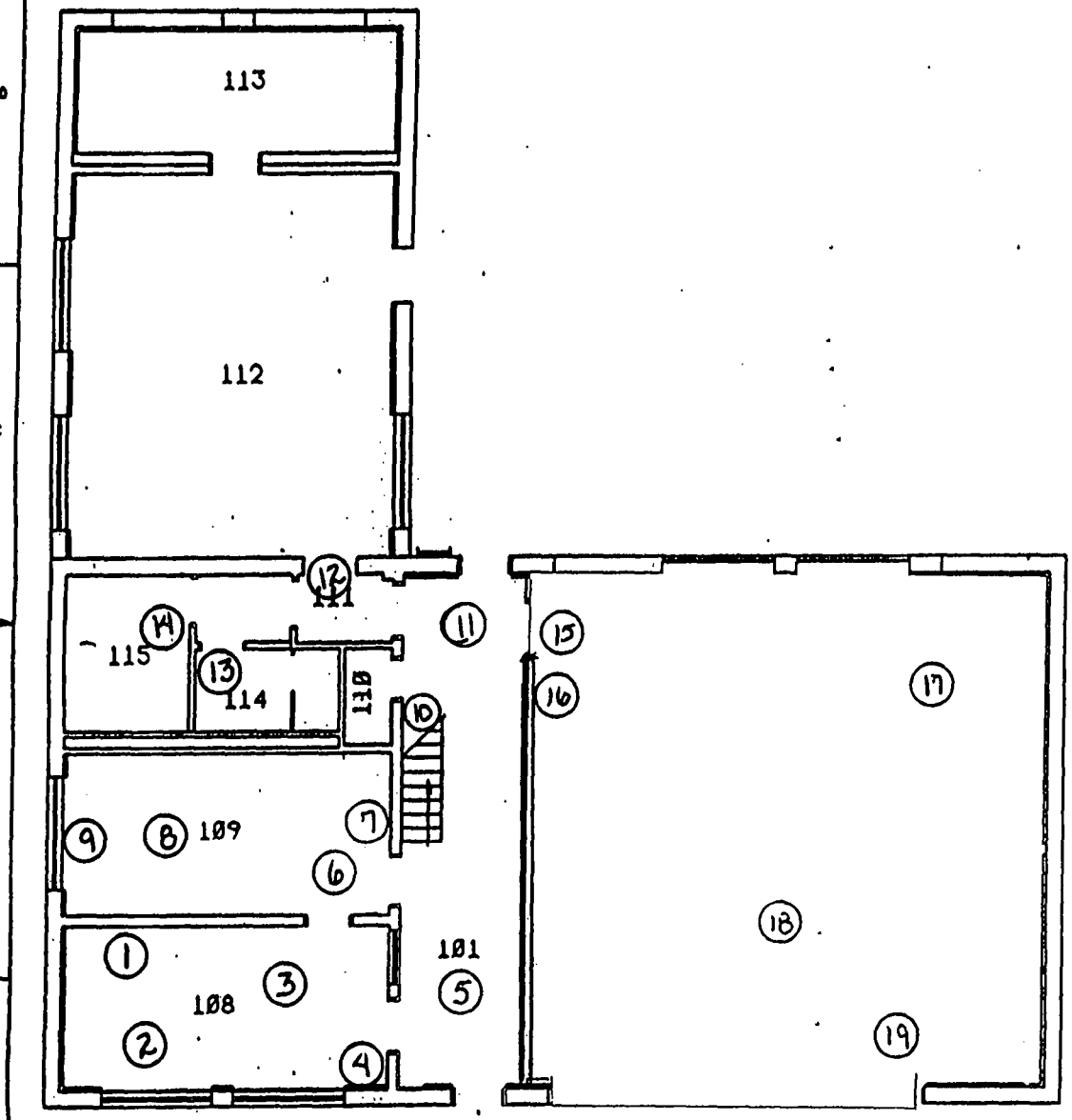
REV	DATE	REVISION	BY	CHKD	DWN	APVD	APVD
B	12/12/91	ASBUILT ISSUE	DCW			DVD	



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

BLDG #47
FIRST FLOOR
BLDG CODE:3047

INTERIOR SURVEY UNIT 2
RSDS 03-TF-0123

SHEET	1	2	3	4	5	6	TITLE BLDG #47 FLOOR PLANS	(U) TITLE CLASSIFICATION
ISSUE	B	B						
PART CLASSIFICATION								
CONTENT CLASSIFICATION UNCLASSIFIED					SIZE C	DRAWING NUMBER FSC911257		JOB NUMBER 12335
DWG TYPE SFP			PROJ BLDG #47		CODE 4015	SCALE(S) NOTED		SHEET 1 OF 2
STATUS MO-REL-12/12/91						ORIGIN MO-ORS-V3.0		

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R9 of 9

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) BUILDING 47	SURVEY NO. 03-TF-0126
PURPOSE: MARSSIM SURVEY BUILDING 47 EXTERIOR PER SURVEY PLAN 47-01 UNIT 3	RWP NO. N/A
	DATE: 06-09-03
	TIME:

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

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
2350	5856	05-12-04
2360/43-93	5695/5844	04-17-04
	N/A	

Completed by: (Signature)	HPs [redacted]	Date: 06-11-03
Completed by: (Print Name) D. RILEY		
Counted by: (Signature)	HPs	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Approved by: (Signature)	HPs [redacted]	Date: 6-11-03
Reviewed/Approved by: (Print Name) DANIEL J. HARVEY		

ML-9620 (2-98)

Survey No. 03-TF-0126

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination					Removable Contamination				
Swipes (dpm/100cm²)					Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments	Sample #	β/γ	Alpha	Tritium	Comments
1				NORTH WALL					
2				EAST WALL					
3				EAST WALL					
4				EAST WALL					
5				SOUTH WALL					
6				WEST WALL					
7				SOUTH WALL					
8				WEST WALL					
9				WEST WALL					
10				NORTH WALL					
11				ROOF DRAIN					
12				ROOF					
13				ROOF					
14				ROOF					
15				ROOF DRAIN					
16				ROOF					
17				ROOF					
18				ROOF					
19				ROOF					
20				ROOF					

SEE ATTACHED RESULTS

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)

G4406 72

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR006
Batch Ended: 6/9/03 14:39

Crosstalk correction performed.

Batch ID: RILEY 03-TF-0126 (20) CYR

Recalibration Date: 4/2/05
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.3	
A2	2	0.0	2.2		2.1	2.3	
A3	3	0.0	2.0		0.0	1.2	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	1.9		0.5	2.3	
B2	6	1.5	2.1		0.6	1.9	
B3	7	0.0	2.0		0.1	1.2	
B4	8	0.0	2.0		1.9	2.3	
C1	9	0.0	1.9		0.0	1.2	
C2	10	0.0	2.0		0.6	1.8	
C3	11	1.2	1.9		0.0	1.1	
C4	12	0.0	1.9		0.0	1.2	
D1	13	1.9	2.3		0.5	1.9	
D2	14	1.6	2.1		3.8	2.9	
D3	15	2.5	2.8		3.7	2.6	
D4	16	0.0	2.0		0.0	1.2	
A1	17	1.7	2.1		0.5	1.8	
A2	18	0.0	2.2		0.8	1.8	
A3	19	0.0	2.0		0.0	1.2	
A4	20	0.0	2.0		0.1	1.7	

SLR SLR

Carol G. Robinson

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~~Page 1 of 1~~ SLR 06-11-03

Protocol #: 6 Name:PW H3 #87267 09-Jun-2003 19:23
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
RILEY 03-TF-0126 (Q1-Q20) CYR
Conventional DPM
Nuclide 1 = 208682
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	2	B	22.40	13.80	6.60	606.		0.00
0	2.00	1		665.10	634.70	0.00	530.	1424.21	137.77
1	2.00	4		0.00	0.00	0.00	657.	0.00	0.00
2	2.00	0		0.00	0.00	0.00	686.	0.00	0.00
3	2.00	0		0.00	0.00	0.00	676.	0.00	0.00
4	2.00	0		7.10	0.00	0.00	664.	13.41	15.59
5	2.00	0		0.00	0.00	0.00	676.	0.00	0.00
6	2.00	0		0.00	0.00	0.00	653.	0.00	0.00
7	2.00	0		0.00	0.00	0.00	674.	0.00	0.00
8	2.00	0		0.00	0.00	0.00	671.	0.00	0.00
9	2.00	4		0.00	0.00	0.00	683.	0.00	0.00
10	2.00	0		2.10	0.00	1.40	675.	3.93	14.26
11	2.00	11		0.00	0.00	0.00	460.	0.00	0.00
12	2.00	0		0.00	0.00	0.00	560.	0.00	0.00
13	2.00	5		0.00	0.00	0.00	496.	0.00	0.00
14	2.00	0		0.00	0.00	0.00	584.	0.00	0.00
15	2.00	0		0.00	0.00	0.00	250.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	489.	0.00	0.00
17	2.00	0		0.00	0.00	0.00	518.	0.00	0.00
18	2.00	0		0.00	0.00	0.00	505.	0.00	0.00
19	2.00	0		0.00	0.00	0.00	555.	0.00	0.00
20	2.00	6		0.00	0.00	0.00	456.	0.00	0.00

Carol G. Robinson

47 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 3

RSDS# 03-TF-0126 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	
BKG CHECK	5856	[redacted]	5148	2		6/9/03	9:41	6	300	7	
SRC CHECK	5856	[redacted]	5148	2		6/9/03	9:44	1982	60	10950	
SRC CHECK	5856	[redacted]	5148	2		6/9/03	9:46	2008	60	11094	
SRC CHECK	5856	[redacted]	5148	2		6/9/03	9:50	2154	60	11901	
SRC CHECK	5856	[redacted]	5148	2		6/9/03	9:52	2156	60	11912	
47-U3 1	5856	[redacted]	5148	2	1	6/9/03	9:59	14	60	77	
47-U3 2	5856	[redacted]	5148	2	2	6/9/03	10:06	9	60	50	
47-U3 3	5856	[redacted]	5148	2	3	6/9/03	10:09	14	60	77	
47-U3 4	5856	[redacted]	5148	2	4	6/9/03	10:11	10	60	55	
47-U3 5	5856	[redacted]	5148	2	5	6/9/03	10:15	15	60	83	
47-U3 6	5856	[redacted]	5148	2	6	6/9/03	10:19	15	60	83	
47-U3 7	5856	[redacted]	5148	2	7	6/9/03	10:23	4	60	22	
47-U3 8	5856	[redacted]	5148	2	8	6/9/03	10:26	10	60	55	
47-U3 9	5856	[redacted]	5148	2	9	6/9/03	10:28	13	60	72	
47-U3 10	5856	[redacted]	5148	2	10	6/9/03	10:31	9	60	50	
QC 6	5856	[redacted]	5148	2		6/9/03	10:34	9	60	50	
QC 7	5856	[redacted]	5148	2		6/9/03	10:37	9	60	50	

047072

47-BLDG MARSSIM BETA EXTERIOR SURVEY UNIT 3

RSDS# 03-TF-0126 RCT: SJR RCT: N/A

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
wall	5695	[redacted]	5844	1	6/9/03	720	120	1260
wall	5695	[redacted]	5844	2	6/9/03	739	120	1308
wall	5695	[redacted]	5844	3	6/9/03	803	120	1468
wall	5695	[redacted]	5844	4	6/9/03	309	120	233
wall	5695	[redacted]	5844	5	6/9/03	760	120	1360
wall	5695	[redacted]	5844	6	6/9/03	518	120	755
wall	5695	[redacted]	5844	7	6/9/03	597	120	953
wall	5695	[redacted]	5844	8	6/9/03	757	120	1353
wall	5695	[redacted]	5844	9	6/9/03	702	120	1215
wall	5695	[redacted]	5844	10	6/9/03	724	120	1270
QC 6	5695	[redacted]	5844		6/9/03	534	120	795
QC 7	5695	[redacted]	5844		6/9/03	517	120	753
BETA BACKGROUND FOR 6-09-2003 WAS---------->								108

G4806 72

47-BLDG MARSSIM ALPHA BETA ROOF SURVEY UNIT 3

RSDS# 03-TF-0126 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
drain	5695	[redacted]	5844	11	6/9/03	377	120	403	22	120	96
roof	5695	[redacted]	5844	12	6/9/03	349	120	333	10	120	36
roof	5695	[redacted]	5844	13	6/9/03	375	120	398	18	120	76
roof	5695	[redacted]	5844	14	6/9/03	331	120	288	12	120	46
drain	5695	[redacted]	5844	15	6/9/03	319	120	258	24	120	106
roof	5695	[redacted]	5844	16	6/9/03	353	120	343	13	120	51
roof	5695	[redacted]	5844	17	6/9/03	388	120	430	12	120	46
roof	5695	[redacted]	5844	18	6/9/03	338	120	305	9	120	31
roof	5695	[redacted]	5844	19	6/9/03	331	120	288	11	120	41
roof	5695	[redacted]	5844	20	6/9/03	355	120	348	13	120	51
QC 11	5695	[redacted]	5844		6/9/03	378	120	405	25	120	111
QC 15	5695	[redacted]	5844		6/9/03	277	120	153	24	120	106
BETA BACKGROUND FOR 6-09-2003 WAS---------->								108			
ALPHA BACKGROUND FOR 6-09-2003 WAS---------->								1.4			

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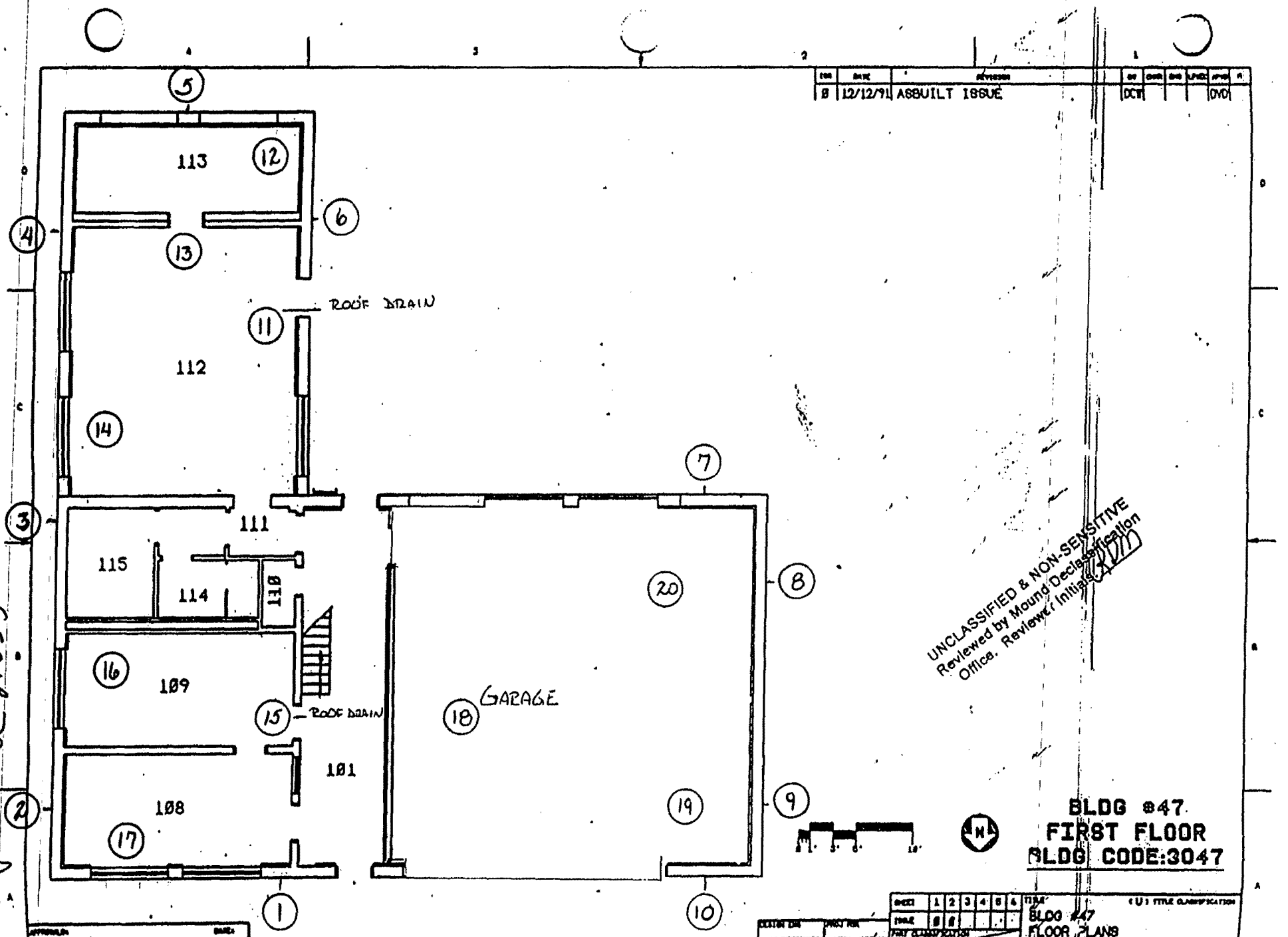
REV	DATE	REVISION	BY	CHKD	DWG	UPDTD	APVD	A
B	12/12/91	ASBUILT ISSUE	DCT				DVD	



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Reviewed by Mound Declassification Office. Reviewer Initials

BLDG #47
FIRST FLOOR
BLDG CODE:3047

EXTERIOR WALL AND ROOF SURVEY UNIT 3

SHEET	1	2	3	4	5	6	TITLE: BLDG #47 FLOOR PLANS	(U) TITLE CLASSIFICATION
TOTAL	8	8						

UNCLASSIFIED | C/ FSC911257 | 12335

G5008 72.

R8888

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 47 RM 112-113	SURVEY NO. 03-TF-0130
PURPOSE: MARISSM SURVEY PLAN 47-01 UNIT 1	RWP NO. N/A
	DATE: 6-13-03
	TIME: 1130

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
2350	5673/5143	8-13-03
2360	5833/5847	3-13-04
	N/A	

Completed by: (Signature)	HP# [redacted]	Date: 6-16-03
Completed by: (Print Name) DANIEL J. HARVEY DANNY RILEY		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 6-16-03
Reviewed/Approved by: (Print Name)		

ML-9620 (2-98)

03-TF-0130

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE			SEE UNIT 1 MAP
2	ATTACHED			
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
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 (4-88)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR002
Batch Ended: 6/16/03 7:30

Crosstalk correction performed.

Batch ID: RILEY 03-TF-0130 (20) CYR

Recalibration Date: 4/2/05
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.3	
A2	2	1.7	2.2		0.0	1.3	
A3	3	0.0	2.0		0.0	1.2	
A4	4	1.4	2.0		0.0	1.7	
B1	5	0.0	1.9		0.5	2.3	
B2	6	0.0	2.1		2.1	2.3	
B3	7	2.9	2.8		1.0	1.7	
B4	8	0.0	1.9		0.0	1.6	
C1	9	0.0	2.0		2.5	2.4	
C2	10	1.6	2.0		0.0	1.3	
C3	11	0.0	1.9		6.1	3.0	
C4	12	0.0	1.9		0.6	1.6	
D1	13	0.0	2.3		2.0	2.3	
D2	14	0.0	2.1		0.0	1.3	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		2.6	2.4	
A1	17	0.0	2.1		0.0	1.3	
A2	18	0.0	2.2		0.0	1.3	
A3	19	0.0	2.0		0.0	1.2	
A4	20	0.0	1.9		0.0	1.2	

DGH DGH

Carol G Robinson

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DGH 6-16-03

Protocol #: 5 Name:Pw-H3 #401387 16-Jun-2003 08:17
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
RILEY 03-TF-0130 (F1-F20) CYR
Conventional DPM
Nuclide 1 = 208074
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	11.00	10.71	5.18	B	4	624.		19.07
0	2.00	839.98	802.45	1.32		1	534.	1679.00	4.96
1	2.00	0.00	0.00	0.00		0	653.	0.00	0.00
2	2.00	0.00	0.00	0.00		10	675.	0.00	0.00
3	2.00	0.00	0.00	1.82		0	654.	0.00	0.00
4	2.00	0.00	0.00	0.00		0	664.	0.00	0.00
5	2.00	0.00	0.00	0.00		59	665.	0.00	0.00
6	2.00	0.00	0.00	0.32		0	666.	0.00	0.00
7	2.00	0.00	0.00	0.00		0	684.	0.00	0.00
8	2.00	0.00	0.00	0.00		0	670.	0.00	0.00
9	2.00	0.00	0.00	2.32		5	661.	0.00	0.00
10	2.00	0.00	0.00	2.32		0	679.	0.00	0.00
11	2.00	0.00	0.00	0.00		0	662.	0.00	0.00
12	2.00	0.00	0.00	0.32		47	678.	0.00	0.00
13	2.00	0.00	0.00	0.00		0	628.	0.00	0.00
14	2.00	0.00	0.00	0.00		11	671.	0.00	0.00
15	2.00	0.00	0.00	0.00		0	669.	0.00	0.00
16	2.00	0.00	0.00	0.82		0	669.	0.00	0.00
17	2.00	0.00	0.00	0.00		0	670.	0.00	0.00
18	2.00	0.00	0.00	0.00		0	675.	0.00	0.00
19	2.00	0.00	0.00	0.00		0	683.	0.00	0.00
20	2.00	0.00	0.00	0.00		22	644.	0.00	0.00

29 H
Carol G. Robinson

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47 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1

RSDS# 03-TF-0130 RCT: [illegible] RCT: [illegible]

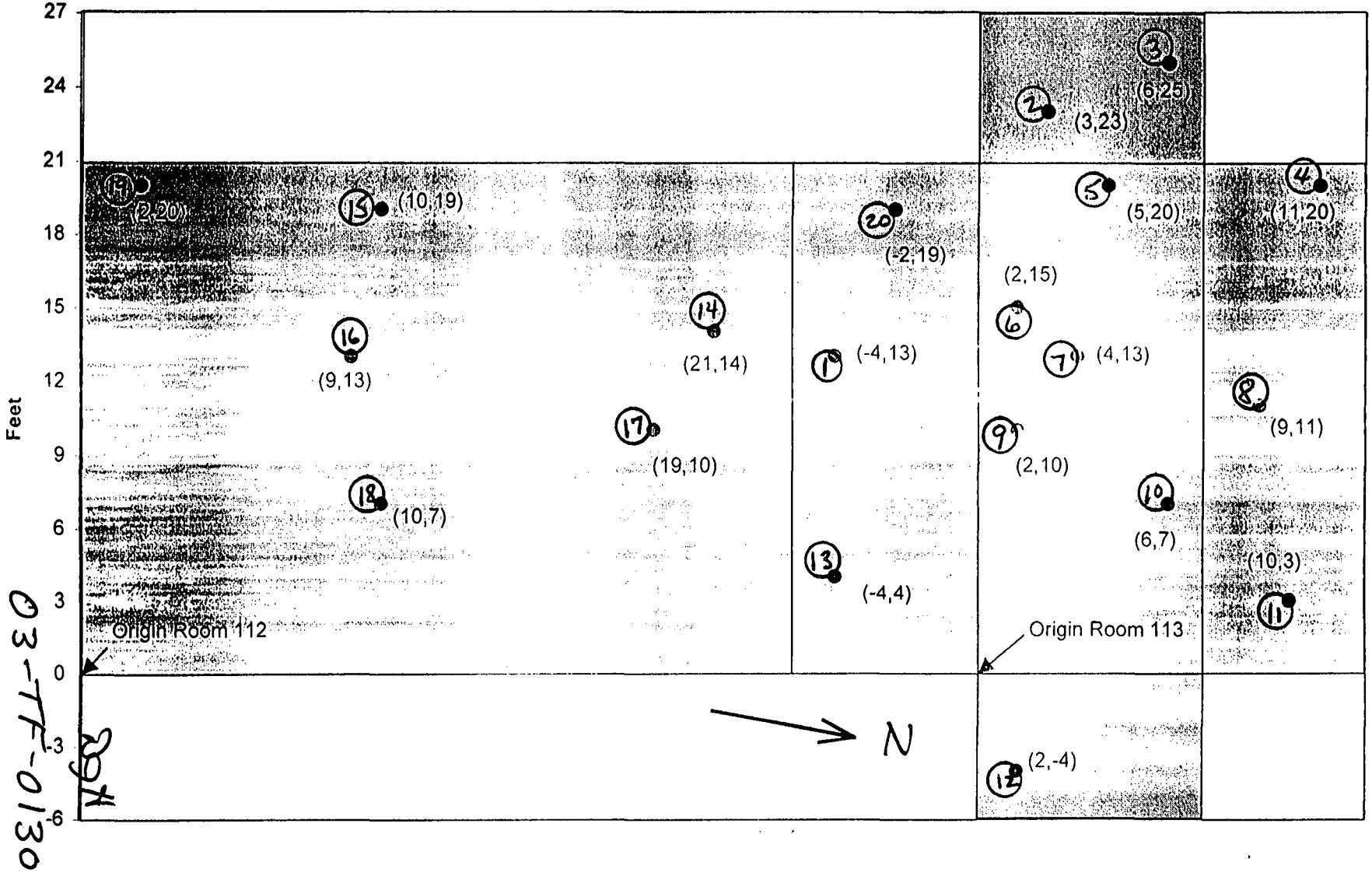
43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5673	[redacted]	5143	2		6/13/03	8:03	7	300	9	
SRC CHECK	5673	[redacted]	5143	2		6/13/03	8:12	2083	60	13382	
SRC CHECK	5673	[redacted]	5143	2		6/13/03	8:14	2070	60	13298	
SRC CHECK	5673	[redacted]	5143	2		6/13/03	8:15	1939	60	12457	
SRC CHECK	5673	[redacted]	5143	2		6/13/03	8:17	1983	60	12739	
U-1 01	5673	[redacted]	5143	2	1	6/13/03	8:51	4	60	26	
U-1 02	5673	[redacted]	5143	2	2	6/13/03	8:52	2	60	13	
U-1 03	5673	[redacted]	5143	2	3	6/13/03	8:54	0	60	0	
U-1 04	5673	[redacted]	5143	2	4	6/13/03	8:55	1	60	6	
U-1 05	5673	[redacted]	5143	2	5	6/13/03	8:57	0	60	0	
U-1 06	5673	[redacted]	5143	2	6	6/13/03	8:59	2	60	13	
U-1 07	5673	[redacted]	5143	2	7	6/13/03	9:01	0	60	0	
U-1 08	5673	[redacted]	5143	2	8	6/13/03	9:02	1	60	6	
U-1 09	5673	[redacted]	5143	2	9	6/13/03	9:04	2	60	13	
U-1 10	5673	[redacted]	5143	2	10	6/13/03	9:05	0	60	0	
U-1 11	5673	[redacted]	5143	2	11	6/13/03	9:07	3	60	19	
U-1 12	5673	[redacted]	5143	2	12	6/13/03	9:08	1	60	6	
U-1 13	5673	[redacted]	5143	2	13	6/13/03	9:09	0	60	0	
U-1 14	5673	[redacted]	5143	2	14	6/13/03	9:11	0	60	0	
U-1 15	5673	[redacted]	5143	2	15	6/13/03	9:14	3	60	19	
U-1 16	5673	[redacted]	5143	2	16	6/13/03	9:17	1	60	6	
U-1 17	5673	[redacted]	5143	2	17	6/13/03	9:18	0	60	0	
U-1 18	5673	[redacted]	5143	2	18	6/13/03	9:20	0	60	0	
U-1 19	5673	[redacted]	5143	2	19	6/13/03	9:21	2	60	13	
U-1 20	5673	[redacted]	5143	2	20	6/13/03	9:23	0	60	0	
QC 01	5673	[redacted]	5143	2		6/13/03	9:24	1	60	6	
QC 07	5673	[redacted]	5143	2		6/13/03	9:26	1	60	6	

47-BLDG CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0130 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-1 01	5833	[redacted]	5847	1	6/13/03	225	60	220
U-1 02	5833	[redacted]	5847	2	6/13/03	190	60	45
U-1 03	5833	[redacted]	5847	3	6/13/03	179	60	-10
U-1 04	5833	[redacted]	5847	4	6/13/03	184	60	15
U-1 05	5833	[redacted]	5847	5	6/13/03	186	60	25
U-1 06	5833	[redacted]	5847	6	6/13/03	205	60	120
U-1 07	5833	[redacted]	5847	7	6/13/03	221	60	200
U-1 08	5833	[redacted]	5847	8	6/13/03	161	60	-100
U-1 09	5833	[redacted]	5847	9	6/13/03	220	60	195
U-1 10	5833	[redacted]	5847	10	6/13/03	199	60	90
U-1 11	5833	[redacted]	5847	11	6/13/03	180	60	-5
U-1 12	5833	[redacted]	5847	12	6/13/03	171	60	-50
U-1 13	5833	[redacted]	5847	13	6/13/03	232	60	255
U-1 14	5833	[redacted]	5847	14	6/13/03	252	60	355
U-1 15	5833	[redacted]	5847	15	6/13/03	250	60	345
U-1 16	5833	[redacted]	5847	16	6/13/03	260	60	395
U-1 17	5833	[redacted]	5847	17	6/13/03	264	60	415
U-1 18	5833	[redacted]	5847	18	6/13/03	260	60	395
U-1 19	5833	[redacted]	5847	19	6/13/03	235	60	270
U-1 20	5833	[redacted]	5847	20	6/13/03	247	60	330
QC 01	5833	[redacted]	5847		6/13/03	212	60	155
QC 07	5833	[redacted]	5847		6/13/03	233	60	260
BETA BACKGROUND (CPM) FOR 6-13-2003 WAS——————>								181

Building 47 Survey Unit 1 Data Points



G5768 72

03-TF-0130

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RADIOLOGICAL SURVEY DATA SHEET

1 of 1

LOCATION: (BLDG./AREA/ROOM) 47 ALL	SURVEY NO. 03-TF-0131
PURPOSE: MARISSM SURVEY PLAN 47-01 FLOOR SCAN + VENTILATION	RWP NO. N/A
	DATE: 6-13-03
	TIME:

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
~~2350~~	~~5833~~ / 2054	6-16-03
2360	5833/5847	3-13-04
2350	5673/5676	8-13-03
	N/A	

Completed by: (Signature)	HP # [redacted]	Date: 6-16-03
Completed by: (Print Name) DANIEL J. HARVEY DANNY RILEY		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	HP # [redacted]	Date: 6-16-03
Reviewed/Approved by: (Print Name) R. COBB		

ML-9620 (2-98)

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Survey No. 03-TF-0131

Page ___ of ___

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTACHED		SEE MAP
2	↓	↓	↓	↓
3	↓	↓	↓	↓
4	↓	↓	↓	↓
5	↓	↓	↓	↓
6	↓	↓	↓	↓
		N	A	

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

COMMENTS:

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-8620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR001
Batch Ended: 6/16/03 7:25

Crosstalk correction performed.

Batch ID: RILEY 03-TF-0131 (6) CYR

Recalibration Date: 4/2/05
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C1	1	0.0	2.0		3.6	2.6	
C2	2	1.6	2.1		8.0	3.5	
C3	3	0.0	1.9		0.5	1.6	
C4	4	0.0	1.9		0.0	1.2	
D1	5	0.0	2.3		0.0	1.3	
D2	6	0.0	2.1		0.0	1.3	

DJH DJH Carol G. Robinson

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DJH 6-16-03

16 Jun 2003 08:15 ALPHA/BETA - 1.09 ~~Page #1~~ 706
Protocol #: 6 PW H3 #403728 User : 56 1

DJH 6-16-03

Time: 2.00
Data Mode: DPM Nuclide: SMGL02 Quench Set: SMGL02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5	- 18.6	0	0.0	21.20
Region B:	2.0	- 18.6	0	0.0	19.58
Region C:	40.0	- 2000	0	0.0	5.70

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
RILEY 03-TF-0131 (G1-G6) CYR
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA6.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	21.20	0	B	635.99		0.00	5.70
0	2.00	338.93	0		441.76	793.26	79.10	0.00
1	2.00	0.00	0		594.95	0.00	0.00	0.00
2	2.00	0.00	0		414.62	0.00	0.00	7.30
3	2.00	0.00	0		654.99	0.00	0.00	0.00
4	2.00	0.00	0		595.27	0.00	0.00	0.00
5	2.00	0.00	0		518.08	0.00	0.00	0.00
6	2.00	0.00	0		503.57	0.00	0.00	0.30

DJH Carol G. Robinson

47-BLDG CHARACTERIZATION ALPHA-BETA VENTILATION SURVEY

RSDS# 03-TF-0131 RCT: [illegible] RCT: _____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	[redacted]	5847	1	06/13/2003	310	60	645	8	60	70
2	5833	[redacted]	5847	2	06/13/2003	227	60	230	5	60	40
3	5833	[redacted]	5847	3	06/13/2003	287	60	530	5	60	40
4	5833	[redacted]	5847	4	06/13/2003	276	60	475	7	60	60
5	5833	[redacted]	5847	5	06/13/2003	201	60	100	0	60	-10
6	5833	[redacted]	5847	6	06/13/2003	221	60	200	5	60	40
BETA BACKGROUND (CPM) FOR 6-13-2003 WAS---------->								181			
ALPHA BACKGROUND (CPM) FOR 6-13-2003 WAS---------->								1			

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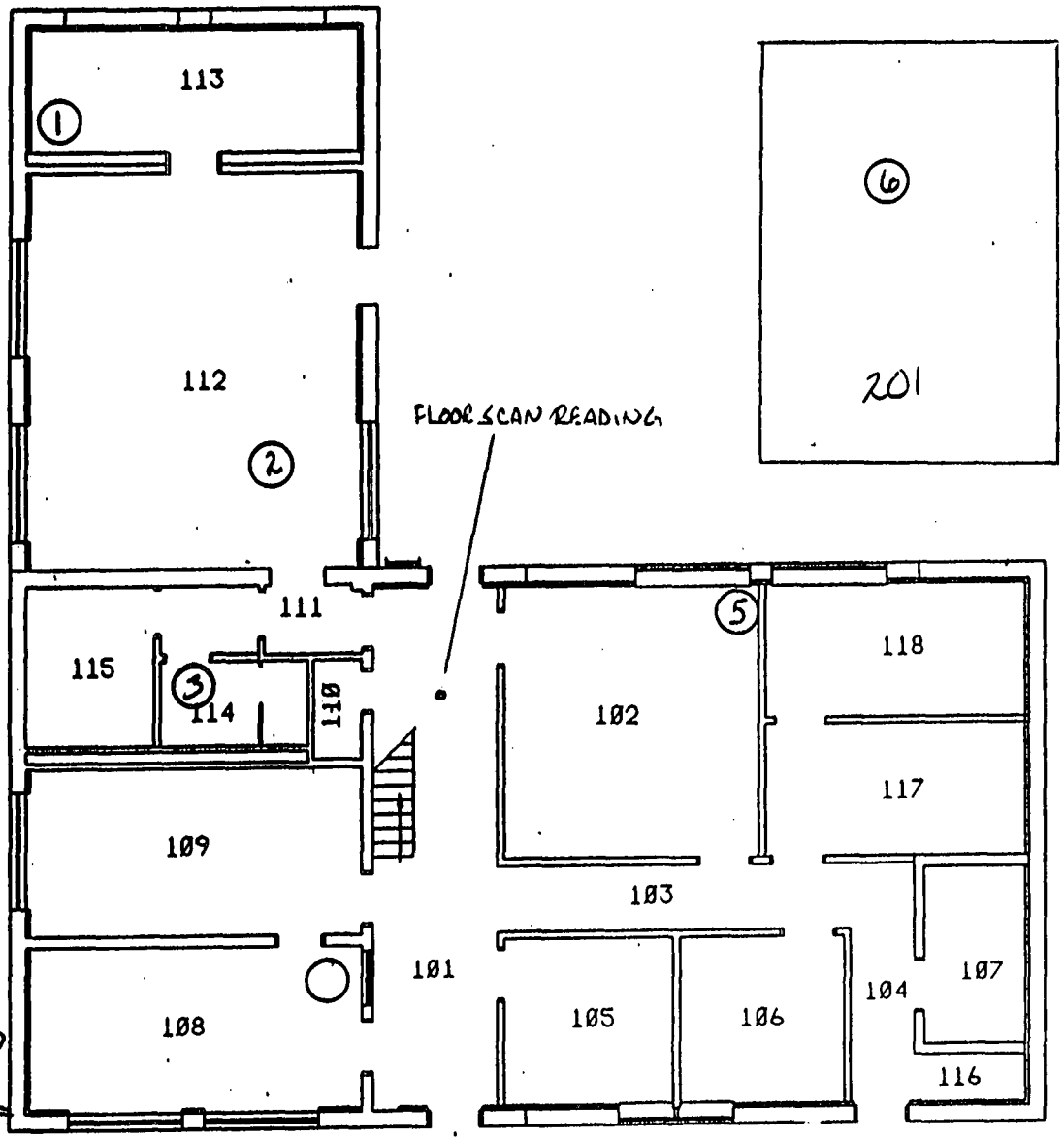
47 BUILDING CHARACTERIZATION ALPHA SURVEY FOOR SCAN

RSDS# 03-TF-0131 RCT: DJH RCT: _____

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5673	[redacted]	5676	3		6/13/03	7:42	19	300	6	
SRC CHECK	5673	[redacted]	5676	3		6/13/03	7:47	2099	60	3391	
SRC CHECK	5673	[redacted]	5676	3		6/13/03	7:48	1982	60	3202	
SRC CHECK	5673	[redacted]	5676	3		6/13/03	7:50	2261	60	3652	
SRC CHECK	5673	[redacted]	5676	3		6/13/03	7:51	2117	60	3420	
SRC CHECK	5673	[redacted]	5676	3		6/13/03	7:53	2143	60	3462	
SRC CHECK	5673	[redacted]	5676	3		6/13/03	7:54	2196	60	3547	
FSCAN 01	5673	[redacted]	5676	3	1	6/13/03	9:37	4	30	13	

ISS	DATE	REVISION	BY	CHKD	ENG	APPRD	APPRD	A
B	12/12/91	ASBUILT ISSUE	DCW				DVD	



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

BLDG #47
FIRST FLOOR
BLDG CODE:3047

47 VENTILATION MARSSIM SURVEY

03-TF-0131
Gs 4 72
Page 7 of 7

SHEET	1	2	3	4	5	6
TOTAL	8	8				

TITLE (U) TITLE CLASSIFICATION
BLDG #47
FLOOR PLANS

CLASSIFICATION: UNCLASSIFIED
ORIGINAL CLASSIFICATION: C / FSC911257
JOB NUMBER: 12335
DWG TYPE: SFP | PROJ: BLDG #47 | CODE: 14865 | SCALE: AS NOTED | SHEET 1 OF 2
STATUS: MO-REL.-12/12/91 | DRAWN: MO-BR3-V3.8

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION (BLDG/AREA/ROOM) 47 ROOF	SURVEY NO 03-TF-0134
PURPOSE: COLLECT ROOF SAMPLES FOR ACID ETCHING FROM ROOF DRAINS AT SAMPLE LOCATIONS 11-15 FROM MARSSIM SURVEY RSDS #03 TF-126	RWP NO N/A
	DATE: 06-16-03
	TIME: 1630

MAP / DRAWING

SEE ATTACHED

COPY

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
— · — · · = radiological boundary
△# = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/43-93	5833/5847	3-13-04
	N/A	

Completed by: (Signature)	[redacted]	Date: 06-16-03
Completed by: (Print Name) DANNY L. RILEY		
Counted by: (Signature)	HP#	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Approved by: (Signature)	[redacted]	Date: 6-18-0
Reviewed/Approved by: (Print Name) DANIEL J. HARVEY		

G6706 72

Survey No. 03-TF-0134

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				#11
2	SEE ATTACHED RESULTS			#15

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

COMMENTS: NONE

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

ML-9620A (4-98)

47 -BLDG CHARACTERIZATION ALPHA BETA SURVEY

RSDS# 03-TF-0134 RCT: [illegible] RCT: _____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	[redacted]	5847	1	06/16/2003	144	60	-75	11	60	100
2	5833	[redacted]	5847	2	06/16/2003	153	60	-30	13	60	120
BETA BACKGROUND (CPM) FOR 6-16-2003 WAS---------->								159			
ALPHA BACKGROUND (CPM) FOR 6-16-2003 WAS---------->								1			

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Attachment 1

Field Sample Data Collection Sheet

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
47-01- 11	6-16-03	1630		47 ROOF LEAD	SKR	6/14/03	4:30	LCH	LCH
47-01- 15	6-16-03	1630		47 ROOF LEAD	SKR				
47-01-									
47-01-									
47-01-									
47-01-									
47-01-				N/A					
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									
47-01-									

RSDS # 03-TF-0134

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
6-16-03	ROOF LEAD	D.K. RILEY	2

PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:	MAIL STOP:
SMPP/TFV	D. RILEY 4235	OSW 413

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
	6-16-03	03-TF-0134	

ANALYSES REQUESTED (check):

- ☐ ^3H
- ☐ Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- ☐ Gross Alpha
- ☐ Air Filter – Isotopic Analysis
- ☐ Characterization per MD-80036, Operation #10015
- ☐ Isotopic Analysis: Pu____ U____ Th____ Am____ Other____
- ☐ Other _____

ADDITIONAL INFORMATION:

IDENTIFY & QUANTIFY

NOTE: Attach additional information (e.g. RSDS, screening results, collection data, and gamma spec. results) if applicable

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
030 6585	47 ROOF	11	70 DPM/100CM2 OF PO210
030 6586	47 ROOF	15	49 " " " "

COMMENTS:

ANALYZED BY: Lowell P. Hopkins

DATE: 6-18-03

ML-5122 (1-01)

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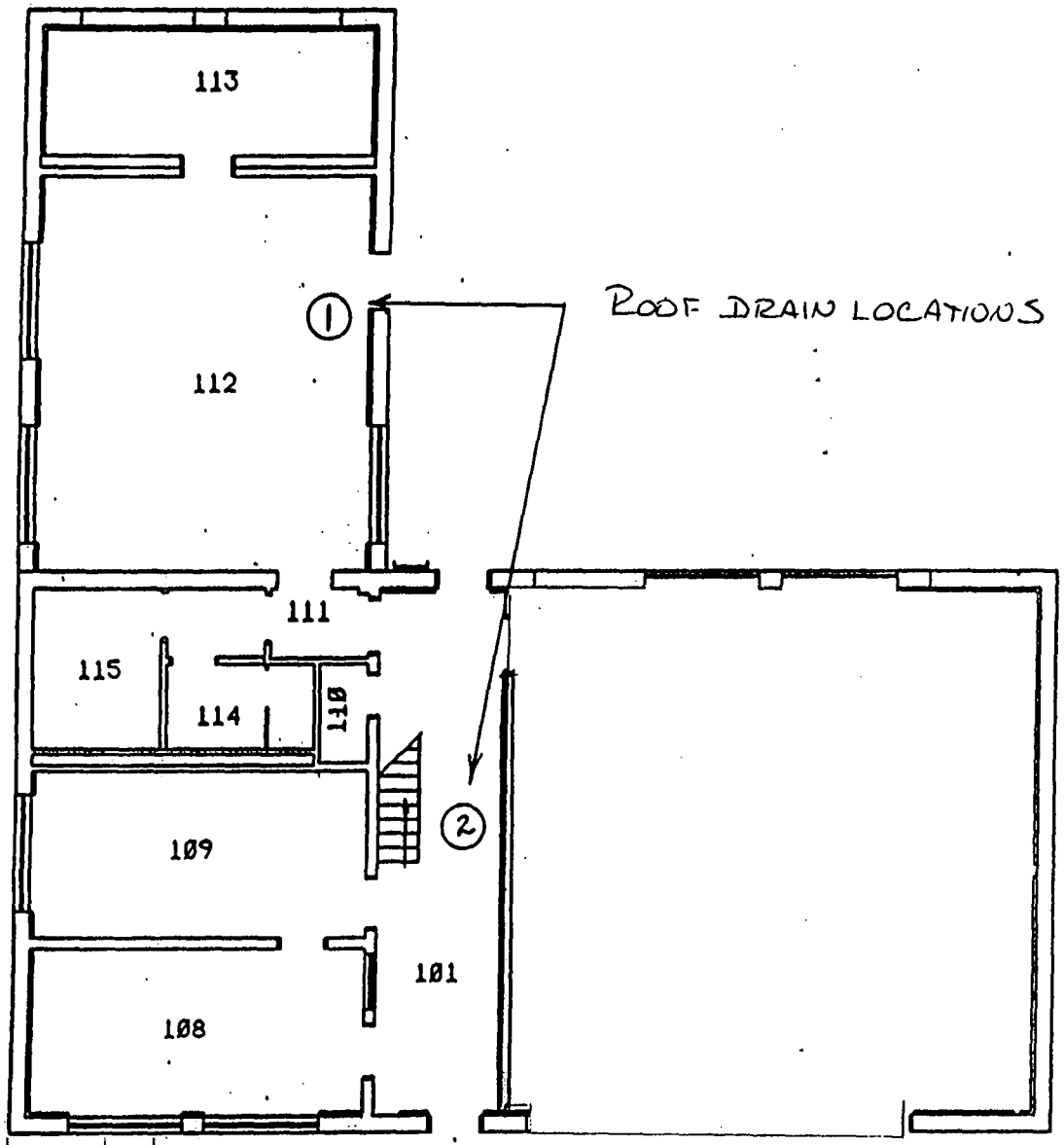
A 586

REV	DATE	REVISION	BY	CHKD	DWN	APPD	APVD	R
0	12/12/91	ASBUILT ISSUE	DCW				DVD	



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

BLDG #47
FIRST FLOOR
BLDG CODE:3047

SHEET	1 2 3 4 5 6
TITLE	BLDG #47 FLOOR PLANS
(U) TITLE CLASSIFICATION	
DRAWING CLASSIFICATION	UNCLASSIFIED
SIZE	C
DRAWING NUMBER	FSC911257
JOB NUMBER	12335
SHEET	1 OF 2
SCALE AS NOTED	
DATE	6FP 2/91
BLDG #47	
CODE 14875	
-V3.0	

RSDS 03-TF-0134

[redacted]

67258 72

Q5 6664

Appendix H

Radon Information

The USEPA recommended standard for a maximum radon level is 4.0 pCi/L.

UNC Geotech

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

April 12, 1990

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

Dear Mr. Murphy:

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

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

Sincerely yours,

Mark D. Pearson

Mark D. Pearson
Project Manager
UNC Geotech

cc: DOE Points of Contact

Bldg	Bldg Description	Room	pCi/l	pCi/l	Monid	Gupid	Date	Date	Comments
21		ABOVE AIR SAMPLER	161.1	125.8	1670855	1666782	12/14/89	2/16/90	MET - OLD THORIUM STORAGE
21		ABOVE AIR SAMPLERS	116.7		1668580		12/14/89	2/16/90	MET - OLD THORIUM STORAGE
	SW	19 NXO EAST WALL	4.0		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED REA[illegible]GS
48		114 B CLOSET ON SPRINKLER PIPE	3.2		1671292		12/12/89	2/19/90	
19		ROOM 1	2.6		1670051		12/13/89	2/19/90	
	OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661595		12/14/89	2/19/90	
55		1 BELOW THEMOSTAT ON E WALL	2.1		1661515		12/10/89	2/19/90	
57		ROOM 1	1.9		1661565		12/12/89	2/19/90	
87		143	1.5		1661563		12/13/89	2/19/90	
998	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		1672087		12/12/89	2/19/90	
	PAINT SHOP	PS 4	1.2		1661516		12/12/89	2/16/90	
30		ROOM 3 EAST	1.1		1671262		12/12/89	2/16/90	
100		103 MIDDLE OF NORTH WALL	1.0		1670060		12/12/89	2/19/90	
37		6 NORTH WALL	1.0		1670044		12/12/89	2/19/90	
34		34 A WEST WALL	.9	.6	1672062	1672042	12/12/89	2/16/90	MET
102		123	.9		1661577		12/14/89	2/19/90	
61		RM 221 MIDDLE OF NORTH WALL	.9		1661545		12/13/89	2/19/90	
67		101 N	.9		1670029		12/12/89	2/19/90	
G-13	LOG	G-514 WEST WALL	.9		1661544		12/12/89	2/16/90	
	T	CORRIDOR 24	.9		1670031		1/15/90	2/19/90	
	T	153	.9		1670067		1/15/90	2/19/90	
	T	76	.9		1670077		1/15/90	2/19/90	
	T	38	.8		1661566		1/15/90	2/19/90	
105	PARTS MACHINING BUILDING	STAIRWELL NEXT TO ROOM 127	.8		1661564		12/12/89	2/19/90	
25	ARAC	3 ON BOOK CASE MIDDLE	.8		1671314		12/15/89	2/19/90	
60		1 ON DOOR TO ROOM 3	.8		1670049		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	68 NORTH WALL	.8		1670068		12/13/89	2/16/90	
	SW	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
	MO BLDG	MO 8	.8		1670045		12/10/89	2/16/90	
87		124	.8		1670032		12/12/89	2/19/90	
64		ROOM 116 ON EXHAUST WALL RIGHT OF DOOR	.7	.6	1661526	1661535	12/12/89	2/19/90	
65		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666785	1668532	12/15/89	2/19/90	
22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1670070		12/12/89	2/19/90	
56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1670066		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		1670040		12/12/89	2/19/90	
	M BLDG	M-135	.7		1661553		12/12/89	2/16/90	
26		ROOM 84 SOUTH WEST WALL	.6	.5	1672048	1667159	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		1654459		12/14/89	2/19/90	
34	PP BLDG	PP CORR 136	.6		1670016		12/14/89	2/19/90	
72		ON OVERHEAD DOOR BEAM	.6		1672069		1/11/90	2/19/90	
93		HALLWAY 107 (MIDWAY)	.6		1661629		12/13/89	2/20/90	
98	FIRE STATION	ROOM 114 DOOR	.6		1661507		12/12/89	2/19/90	
	COS	RM STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/89	2/19/90	
	OSW	120 C	.6		1661573		12/12/89	2/16/90	
	SW	150 WEST END GAS BOX	.6		1670043		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	1650110	1666819	12/12/89	2/16/90	

Area	Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	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		12/12/89	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 16A	.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		1671215		12/12/89	2/19/90	
	95	SR/PP	95- BLD-ROOM41	.4		1661531		12/12/89	2/20/90	
		BS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/13/89	2/19/90	
		I	I HALLWAY	.4		1667194		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		1678035		12/12/89	2/19/90	
		R BUILDING	12 SOUTH WALL	.4		1681566		12/13/89	2/19/90	
	34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
	61		RM 151			1681567		12/13/89		MISSING

Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monitor Monid	Monitor Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	R BUILDING	163 NEXT TO NORTH WALL	.5	.5	1660533	1660816	12/13/89	2/16/90	
		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671288		12/12/89	2/16/90	
101	"B" 115	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
		ELECTRICAL PANEL RM IN ELEC/RONICS	.5		1678062		12/12/89	2/16/90	
36		100	.5		1654480		12/13/89	2/16/90	
40		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
43		ON BULLETIN BOARD	.5		1678047		12/12/89	2/16/90	
44		102 MIDDLE OF EAST WALL	.5		1678058		12/12/89	2/16/90	
47		CELL 113	.5		1681582		12/13/89	2/16/90	
50		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1681605		12/18/89	2/16/90	
79		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
89		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1681593		12/15/89	2/16/90	
91		HALLWAY RIGHT OFF ROOM 6	.5		1661509		12/12/89	2/19/90	
92		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
94		215 WEST WALL	.5		1681572		12/14/89	2/16/90	
	A	1080 WEST WALL	.5		1681580		12/14/89	2/16/90	
	A	119 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	319 WALL CABINET TO RIGHT OF SINK	.5		1681590		12/12/89	2/19/90	
	COS	158 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.5		1678072		12/14/89	2/16/90	
	E BUILDING	E 212 NORTH WALL	.5		1681587		12/19/89	2/16/90	
	E-ANNEX	ROOM 2	.5		1678065		12/12/89	2/16/90	
	GH BUILDING	1A MIDDLE OF WEST WALL	.5		1678054		12/12/89	2/19/90	
	GP B1	ROOM 127	.5		1681571		12/12/89	2/16/90	
	H BLDG	MH-8	.5		1671268		12/18/89	2/19/90	
	MH	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	I BUILDING	N 106	.5		1678056		12/15/89	2/19/90	
	K BUILDING	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672044		12/15/89	2/16/90	
	OSE	4NT FLOOR	.5		1678028		12/12/89	2/16/90	
	OSM	CORR 232 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSE	319	.5		1678069		12/18/89	2/16/90	
	OSM	2ND FLOOR	.5		1681611		12/12/89	2/16/90	
	OSM	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	POWER HOUSE PH-1	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	R BUILDING	128 OVER LARGE METAL FLOOR DISC	.5		1678019		12/12/89	2/16/90	
	SW/R TRITIUM COMPLEX	W135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
	W BLDG	WOA 110	.5		1671301		12/18/89	2/16/90	
	WO BLDG	EAST WALL	.5		1667189		12/12/89	2/16/90	
	"B" 124	113 BULLETIN BOARD OPPOSITE ELEVATO	.5		1678027		12/15/89	2/16/90	
	OSE	114 EAST WALL CENTER OF ROOM	.4		1678064		12/12/89	2/19/90	
TF-2		MH-24	.4		1667187		12/14/89	2/19/90	
	MH	CORRIDOR 7 NEXT TO ROOM 216	.4		1661614		12/12/89	2/19/90	
	OS BUILDING	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
	GP B1	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	CELL 8 - WALL	.4		1681583		12/12/89	2/19/90	
27		101	.4		1672061		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	HALLWAY	.4		1672105		12/14/89	2/19/90	
29		3-315	.4		1672036		12/12/89	2/19/90	
	TEST FIRE BUILDING 3	PP CORR 16/BAY 2 WALL	.4		1681570		12/14/89	2/19/90	
38	PP BLDG	BREAK RM	.4		1678050		12/14/89	2/19/90	
39		101 B EAST WALL	.4		1678031		12/13/89	2/19/90	
42									

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 3/17/03 5:55PM
Subject: Bldg 47 Asbestos Blurb

Donald -

For Building 47 asbestos concerns, the following is provided for your use:

Asbestos

An asbestos survey was conducted by Mr. Ahlquist (an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist) in accordance with EPA NESHAP requirements prior to demolition. One type of material was found to contain asbestos which must be removed prior to demolition; this material was four linear feet of friable cementitious pipe insulation on roof drain line fittings. The roofing is of a built-up asphalt variety and is assumed to contain asbestos - being classified as an EPA Nonfriable Category I type of material, its removal is not necessary prior to demolition by normal heavy-duty means. A copy of the survey report was previously forwarded.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

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MOUND

INTEROFFICE CORRESPONDENCE

Date: March 11, 2003

From: Christopher Ahlquist
SMPP/TFV Safety & Health

To: Lee Koehmstedt
SMPP/TFV Engineering

Re: Building 47: Asbestos-Containing Materials

During February of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2MHill Mound, Inc. (CH2M), completed a survey of Building 47 at the Mound site in Miamisburg, Ohio for purpose of identifying asbestos-containing materials contained therein. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by Ohio Department of Health regulations. During the course of the survey, Mr. Ahlquist reviewed previous survey reports and sampling data of materials found within Building 47 as necessary in order to determine the asbestos content of said materials. A room-by-room inspection of all accessible spaces was then conducted in order to verify the previous data and prepare an inventory of the location and approximate quantities of identified asbestos-containing materials. One (1) distinct type of material, cementitious insulation on roof drain pipe fittings, was found to contain greater than one percent (>1%) asbestos content which defines a material as asbestos-containing by EPA and OSHA regulations. No asphalt roofing materials were sampled during the course of this or previous referenced surveys, and all such materials should be assumed to contain asbestos until analysis indicates otherwise.

Sample Method

During CH2M's review of previous surveys it was noted that previous bulk samples were collected utilizing sampling methods and protocol specified in the EPA's Asbestos Hazard Emergency Response Act (AHERA). Each sample was collected and placed in a clean, sealable hard-shell container and labeled with a unique sample identification number. Pertinent information was recorded on a Bulk Sample Data Sheet including sample identification number, date of inspection, name of inspector, building name, a brief description and location of the sample, and the type of material sampled (e.g., preformed-block pipe insulation, aircell-paper pipe insulation, etc.).

Analysis of Samples

The reviewed samples were submitted to DataChem Laboratories of Cincinnati, Ohio and analyzed for asbestos content by PLM and dispersion staining (Method Reference: 40 CFR Part 763, Volume 47, No. 103, May 27, 1982 pg. 23376). This analytical method, which the EPA currently recommends for the determination of asbestos in bulk samples of suspect materials, can be used for qualitative identification of six morphologically

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different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos. The method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percentage) within the range of 0 to 100. The result of the bulk sample analysis is reported in a standard written laboratory report. This report includes the client name, the project number, the laboratory identification number, the sample number assigned to the bulk sample upon receipt at the laboratory, and the field number assigned to the bulk sample upon collection at the site. If the bulk sample contains more than one distinct layer of material, each layer is analyzed separately. The composition of the bulk sample is reported in percentages of asbestos (i.e., cellulose, fiberglass, or other) components. The results of the sample analyses can be found on the laboratory reports.

DataChem is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP is the agency sponsored by the National Institute of Standards and Technology providing EPA accreditation of laboratories analyzing bulk samples for asbestos content.

Conclusions

One (1) type of material was identified through analysis to be asbestos-containing (>1%) per EPA and OSHA definition. This material was the cementitious insulation applied to pipe fittings of the roof drain line which was located above the suspended ceiling in the main corridor situated east of Room 101 (Garage). There were four (4) fittings (approximately four linear feet) to which this material was applied, and it is considered to be friable. Since the building is scheduled for demolition, this material will have to be removed prior to demolition. The quantities involved are less than the reportable limits established for the EPA and Ohio Department of Health. Removal activities must be accomplished by properly trained individuals employing appropriate work methods and engineering controls.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

Appendix J

Lead Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 3/13/03 3:28PM
Subject: Bldg 47 Lead Paint

Don -

I have completed a walk-through survey of Building 47 for lead paint concerns. The following is provided for your use:

Lead

A previous lead paint survey for selected areas of Building 47 conducted in March 2002 indicated that some damaged coatings did contain lead. These damaged paint coatings were stabilized by trained personnel during the Building 47 renovation project conducted in 2002. Currently, observed paint coatings are intact. A copy of the field data sheet for sample readings taken will be forwarded for your use.

Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building. 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

Appendix K

Chemical Information

Chemicals believed to have been previously used or stored in Building 47

All Purpose Cleaner
Cold Clean Foam
Dichlorodifluoromethane
Fog Pruf
Kindest Kare
Light Water Foam
Low Suds Laundry Soap
Met-L-Ex
Nabc Cleaner
Ph Nine
Pro-Shine
Propylene Glycol
Safe Step
Sodium Bicarbonate
Turtle Wax
Unleaded Gasoline
WD-40

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 30 feet of Building 47

Sample Detect

N
W
E
S

MOUND

Environmental Restoration Geographic Information System

25 0 25 50 75 100 Feet

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04/08/03

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Building 47 Detects

Location_ name	Sample_id	Collection _date	Value_name	Measured _value	Value _units	Detection _limit	Chem _class	Start_ depth	End_ depth	Lab	Data	Project_code	Media	Comments
WL031	WL031	20010117	Cesium-137	0.0400	PCI/G	0.0100	RAD	0.0	0.0			H2O_LINE	Soil	
WL032	WL032	20010118	Lead-210	0.2400	PCI/G	0.1600	RAD	0.0	0.0			H2O_LINE	Soil	
WL031	WL031	20010117	Lead-210	0.2300	PCI/G	0.2100	RAD	0.0	0.0			H2O_LINE	Soil	
S0083	3043	19831001	Plutonium-238	1.1400	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0082	3038	19831001	Plutonium-238	0.0400	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	
WL032	WL032	20010118	Radium-226	0.8500	PCI/G	0.1900	RAD	0.0	0.0			H2O_LINE	Soil	1
WL031	WL031	20010117	Radium-226	0.7500	PCI/G	0.3800	RAD	0.0	0.0			H2O_LINE	Soil	1
WL032	WL032	20010118	Thorium-232	0.4200	PCI/G	0.0300	RAD	0.0	0.0			H2O_LINE	Soil	1
WL031	WL031	20010117	Thorium-232	0.1300	PCI/G	0.0200	RAD	0.0	0.0			H2O_LINE	Soil	1

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

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Building 47 Non-Detects

Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value _units	Detection _limit	Chem _class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
WL031	WL031	20010117	Actinium-227	0.1000	PCI/G	0.1000	RAD	0.0	0.0	U		H2O_LINE	Soil
WL032	WL032	20010118	Actinium-227	0.0500	PCI/G	0.0500	RAD	0.0	0.0	U		H2O_LINE	Soil
WL031	WL031	20010117	Americium-241	0.0300	PCI/G	0.0300	RAD	0.0	0.0	U		H2O_LINE	Soil
WL032	WL032	20010118	Americium-241	0.0200	PCI/G	0.0200	RAD	0.0	0.0	U		H2O_LINE	Soil
WL032	WL032	20010118	Cesium-137	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL032	WL032	20010118	Cobalt-60	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL031	WL031	20010117	Cobalt-60	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL031	WL031	20010117	Plutonium-238	10.9700	PCI/G	10.9700	RAD	0.0	0.0	U		H2O_LINE	Soil
WL032	WL032	20010118	Plutonium-238	5.6300	PCI/G	5.6300	RAD	0.0	0.0	U		H2O_LINE	Soil
WL031	WL031	20010117	Thorium-230	2.9200	PCI/G	2.9200	RAD	0.0	0.0	U		H2O_LINE	Soil
WL032	WL032	20010118	Thorium-230	1.6700	PCI/G	1.6700	RAD	0.0	0.0	U		H2O_LINE	Soil
S0083	3043	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0082	3038	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	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.

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.

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

PU239/240	Plutonium-240	6.10E+00	PCI/G
13966-00-2	Potassium-40	1.42E+00	PCI/G
14331-85-2	Protactinium-231	3.90E-01	PCI/G
13982-63-3	Radium-226	9.00E-02	PCI/G
10098-97-2	Strontium-90	9.40E+00	PCI/G
14274-82-9	Thorium-228	1.10E-01	PCI/G
14269-63-7	Thorium-230	9.00E-02	PCI/G
7440-29-1	Thorium-232	7.00E-02	PCI/G
10028-17-8	Tritium	2.35E+04	PCI/G
13968-55-3	Uranium-233	9.68E-01	PCI/G
13966-29-5	Uranium-234	1.05E+01	PCI/G
15117-96-1	Uranium-235	1.60E+00	PCI/G
24678-82-8	Uranium-238	1.00E-01	PCI/G
14596-10-2	Americium-241	4.90E-01	PCI/L
14331-79-4	Bismuth-210	2.20E+01	PCI/L
15262-20-1	Radium-228	3.30E-01	PCI/L
13967-73-2	Strontium-85	1.10E+02	PCI/L
10098-97-2	Strontium-90	3.90E+00	PCI/L
15623-47-9	Thorium-227	4.00E+00	PCI/L
14274-82-9	Thorium-228	6.90E-01	PCI/L
14269-63-7	Thorium-230	1.20E-01	PCI/L
7440-29-1	Thorium-232	3.10E-01	PCI/L
24678-82-8	Uranium-238+D	2.02E-01	PCI/L
	OU9 Soil Background Values		
72-54-8	4,4'-DDD	4.2	MG/KG
72-55-9	4,4'-DDE	4.3	MG/KG
50-29-3	4,4'-DDT	13	MG/KG
309-00-2	Aldrin	ND	MG/KG
5103-71-9	Alpha Chlordane	ND	MG/KG
319-84-6	Alpha-BHC	ND	MG/KG
7429-90-5	Aluminum	19000	MG/KG
14596-10-2	Americium-241	ND	MG/KG
12672-29-6	Aroclor-1248	ND	MG/KG
11097-69-1	Aroclor-1254	58	MG/KG
11096-82-5	Aroclor-1260	ND	MG/KG
7440-38-2	Arsenic	8.6	MG/KG
7440-39-3	Barium	180	MG/KG
7440-41-7	Beryllium	1.3	MG/KG
319-85-7	Beta-BHC	ND	MG/KG
7440-69-9	Bismuth	ND	MG/KG
13982-38-2	Bismuth-207	ND	MG/KG
14331-79-4	Bismuth-210m	ND	MG/KG
7440-43-9	Cadmium	2.1	MG/KG
7440-70-2	Calcium	310000	MG/KG
7440-47-3	Chromium	20	MG/KG
7440-48-4	Cobalt	19	MG/KG
7440-50-8	Copper	26	MG/KG
57-12-5	Cyanide	ND	MG/KG
60-57-1	Dieldrin	ND	MG/KG
959-98-8	Endosulfan I	ND	MG/KG
1031-07-8	Endosulfan Sulfate	ND	MG/KG

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

	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

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

50-29-3	4,4'-DDT	1.10E+02	MG/KG
106-44-5	4-Methylphenol	1.10E+03	MG/KG
67-64-1	Acetone	2.10E+04	MG/KG
309-00-2	Aldrin	6.4	MG/KG
5103-71-9	Alpha Chlordane	110	MG/KG
7429-90-5	Aluminum	210000	MG/KG
120-12-7	Anthracene	6.40E+04	MG/KG
7440-36-0	Antimony	8.50E+01	MG/KG
11097-69-1	Aroclor-1254	4.30E+00	MG/KG
7440-38-2	Arsenic	6.40E+01	MG/KG
7440-39-3	Barium	1.50E+04	MG/KG
65-85-0	Benzoic Acid	8.50E+05	MG/KG
7440-41-7	Beryllium	1.10E+03	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	4.30E+03	MG/KG
75-27-4	Bromodichloromethane	4.30E+03	MG/KG
75-25-2	Bromoform	4.30E+03	MG/KG
85-68-7	Butyl Benzyl Phthalate	4.30E+04	MG/KG
7440-43-9	Cadmium	2.10E+02	MG/KG
75-15-0	Carbon Disulfide	2.80E+02	MG/KG
56-23-5	Carbon Tetrachloride	1.50E+02	MG/KG
75-00-3	Chloroethane	1.60E+02	MG/KG
67-66-3	Chloroform	2.10E+03	MG/KG
7440-47-3	Chromium	1.10E+03	MG/KG
18540-29-9	Chromium-VI	6.39E+02	MG/KG
7440-50-8	Copper	7.90E+03	MG/KG
57-12-5	Cyanide	4.30E+03	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.08E-02	MG/KG
124-48-1	Dibromochloromethane	4.30E+03	MG/KG
75-09-2	Dichloromethane	1.00E+03	MG/KG
60-57-1	Dieldrin	1.10E+01	MG/KG
84-74-2	Di-n-butyl Phthalate	2.10E+04	MG/KG
117-84-0	Di-n-octyl Phthalate	4.30E+03	MG/KG
959-98-8	Endosulfan I	1300	MG/KG
33213-65-9	Endosulfan II	1300	MG/KG
100-41-4	Ethylbenzene	4.80E-01	MG/KG
86-73-7	Flourene	8.50E+03	MG/KG
206-44-0	Fluoranthene	8.50E+03	MG/KG
5103-74-2	Gamma Chlordane	110	MG/KG
58-89-9	Gamma-BHC (Lindane)	64	MG/KG
76-44-8	Heptachlor	110	MG/KG
1024-57-3	Heptachlor Epoxide	2.8	MG/KG
110-54-3	Hexane	9.10E+01	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.08E-01	MG/KG
78-59-1	Isophorone	4.30E+04	MG/KG
7439-96-5	Manganese	2.70E+04	MG/KG
7439-97-6	Mercury	6.40E+01	MG/KG
72-43-5	Methoxychlor	1100	MG/KG
7440-02-0	Nickel	4.30E+03	MG/KG
87-86-5	Pentachlorophenol	6.40E+03	MG/KG
108-95-2	Phenol	1.30E+05	MG/KG
129-00-0	Pyrene	6.40E+03	MG/KG
7782-49-2	Selenium	1100	MG/KG

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

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Appendix M

Occurrence Reports

There were no Occurrence Reports generated for Building 47.

Appendix N

PRS Information

MOUND PLANT
PRS 99/100 Addendum 1
GH Parking Lot

RECOMMENDATION:

Both PRS 99 and PRS 100 were considered Potential Release Sites because of the reported disposal of "neutralized" chromium plating bath solution (PRS 100) and contaminated drums of sand and metal debris (PRS 99). A removal for the metal debris and plutonium was concluded with the signing of the On Scene Coordinator Report on July 12, 2000. Based on the results of the removal and further assessment results, all results were less than 10^{-5} risk. Therefore, PRSs 99 & 100 require NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MEMP: Art Kleinrath 8/14/2000
Art Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 8/10/00
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 8/14/00
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from _____ to _____

No comments were received during the comment period.

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

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MOUND PLANT
PRS 241
Soil Contamination-Main Hill Parking Lot Area

RECOMMENDATION:

PRS 241 consists of the northwest parking lots, including the parking lots east of OSE building, south of GH building and the parking lot north of A Building. This PRS was created due to the Soil Gas Survey and Geophysical Investigation - Reconnaissance Sampling Report, Feb.1993 because of several positive soil gas detections. These areas have always been and still are parking lots. No operations are known to have been performed in the parking lots east of OSE Building and north of A Building that would generate hazardous or radioactive wastes.

In 1992, reconnaissance soil gas sampling detected 8 ppb of trichloroethene (TCE) and 255 ppb toluene. These results were below calculated acceptable soil gas values. In addition, all radionuclides are at or below guideline criteria.

Therefore, NO FURTHER ASSESSMENT is recommended for PRS 241.

CONCURRENCE:

DOE/MEMP: Arthur W. Kleinrath 5/13/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 5/13/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 5/14/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 6/17/97 to 7/18/97

☐ No comments were received during the comment period.

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

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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 47 Demolition**

2. WORK PACKAGE NUMBER: SMPP/TFV-35695 | **Requestor: Lee Koehmstedt X 3659**

1. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Building 47. Using heavy equipment to demolish the facility (including concrete parking aprons, slab and foundation), coordinate with management the relocation trailer #8, 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 #: 47**

5. WORK PACKAGE PHASES:

1. Site Information
2. Site Preparation & Mobilization
3. Building & Slab Demolition
4. Site Remediation & Demobilization

List of Appendixes

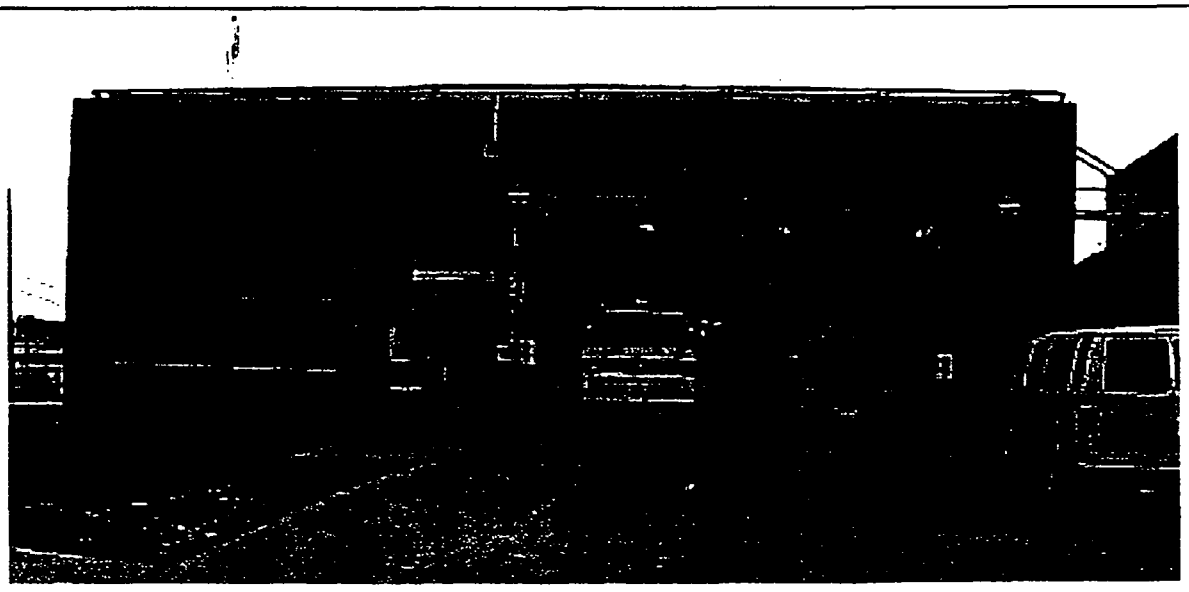
A – PHA/JSHA
B – Pre-Job Briefings/Job Status Log
C – Drawings/Sketches
D – Miscellaneous (RWP, USQ, etc.)
E – Post-Job Conference/Lessons Learned

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. Rubber tired and tracked front-end loaders.
4. Transport equipment for debris as required.
5. Water cannon.
6. Aerial Lift

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



7. DETAILED WORK STEPS:

7.1 SITE INFORMATION:

Building 47 was constructed in 1969, as the "Central Fire Station." At the time of construction, the building contained 3,600-ft^2. Building 47, atypical of Mound buildings, has not had any additions constructed on it, and today remains at the "as constructed" square footage.

The foundation consists of concrete footers and stem wall foundations. Exposed exterior wall construction generally consists of brick veneer on reinforced concrete block, with a mortar joint break between the veneer and the block. Reinforcing rebar consists of #5 @ 48" for vertical wall reinforcement and continuous tie reinforcing rebar (#4). The brick veneer/block walls are anchored by #5 rebar at 24", set 12" in the footer.
The floor slab is 6" thick reinforced concrete, bearing a vapor barrier at its base, underlain by 6" of compacted gravel.

Roofing system consists of open web metal truss system with metal decking and asphalt built up roof.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 47 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 activates 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 contacted the Project Construction Manager/Foreman first.

7.3.2 Install sediment/storm water control fence around designated construction area. See Siltation Control Sketch Appendix C. Coordinate with Environmental Compliance PoC. The effectiveness of storm water controls will be evaluated as the project progresses.

The demolition area will be identified utilizing construction fencing around the building, or at the discretion of the Project Construction Manager/Foreman, marked off with barricade tape/fencing.

7.3.3 Clear Area and Mark/Protect Utility Equipment

The area around the building will be mowed or otherwise cleared of obstacles as appropriate. Coordinate with site Safety and Health and Environmental Compliance.

Cover field utility grates and manholes for protection.

7.3.4 Temporary Utilities

The temporary utilities that are required is water and electricity. Ensure backflow prevention is present. Coordinate with site Safety and Health and Environmental Compliance PoCs. Water will be used to control dust emissions. The portable power generator will be used to supply electricity.

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 have been removed prior to demolition. At the job site, plant announcements and emergency notifications can be heard on the Plant radio channel.

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 – 35693

verified by _____ date: _____
Bill Wahler or designee

7.4.2 Verify all Building Utility Isolation Activities have been completed per UA – 35696

verified by _____ date: _____
Alan Upshaw or designee

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

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

7.4.5. Notify engineering to communicate with site security and site mound groupwise e-mails news of the pending traffic restrictions.

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

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.

Remove lead flashing around soil stack using Mound lead handling procedure and turn over to the Waste Management PoC.

HOLD POINT: RAPCA Notification verification

Environmental Compliance PoC_____ Date to Proceed with Demo_____
Ron Paulick or designee

Demolish the structure's concrete block walls & brick face using heavy equipment. Utilize debris to build a ramp to allow equipment to reach the higher level to weaken the structure to allow upper section to collapse onto lower level for demolition.

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

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

IMPORTANT: Ensure structure collapse is directed away from Building W south dock area.
CAUTION HAZARD: Vehicle traffic hazard. Control traffic flow with sufficient number of flagmen when necessary.

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CAUTION GLYCOL SPILL HAZARD: Be aware of potential for residual glycol in piping to spill during demolition. Ensure spill kit is available to prevent glycol from entering storm drains.

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 hard hat safety glasses, safety shoes, and reflective vest inside construction area.

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 the 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, offsite disposal, or rail spur as directed by Waste Management PoC. If slab disposition is to spoils area complete Attachment 1 (following the PHA'S) from MD-22180 and submit to WM PoC 2 working days before transporting slab to spoils.

Note: Take care to prevent damage to the fire prevention water line blanked off at NE corner of building slab, the new yellow MMCIC fire hydrant, and be aware of street light locations to prevent damage

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 – gloves, flame retardant clothes, safety glasses, hard hat, steel toed boots.

7.6 SITE REMEDIATION & DEMOBILIZATION

7.6.1 Grading, Seeding, & Mulching

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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

7.6.5 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: 6/6/03 Phone: 3659

Job Foreman: _____ Date: 6/11/03 Phone: 3880

Superintendent/Constr. Mgr: _____ Date: 6/10/03 Phone: 3866

Project Eng. Mgr: _____ Date: 6/9/03 Phone: 4220

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

Rad. Controls: _____ Date: 6/9/03 Phone: 4522

Environmental Compliance: _____ Date: 6/10/03 Phone: 4080

Waste Mgmt: _____ Date: 6/17/03 Phone: 4017

Bldg. Mgr: _____ Date: 06/18/03 Phone: 3241

Craft Review: _____ Trade H.D. Date: 6/17/03 Phone:

Craft Review: _____ Trade HDM Date: 6/17/03 Phone:

Craft Review: _____ Trade HDM Date: 6/17/03 Phone:

Craft Review: _____ Trade HDM Date: 6/17/03 Phone:

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

Brief Explaination BD-47 is not a Nuclear or Radiological Bldg, Nor will this work effect a Nuclear or Radiological Bldg.

USQ Trained Person: _____ Date: 06/18/03 Phone: 3241

10. AUTHORIZATION SIGNATURE:

Project Manager: _____ Date: 6/19/03 Phone: 4169

11. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: / / Phone:

Project Manager: _____ Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

5. WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE:
2. WORK PACKAGE NUMBER.

[Note: Mark this section in color]

~ Office Master Copy (Original Approval Signatures) ~ Field Working Copy (Original Field Sign -Offs) ~ Review Copy ~ Other Copy

Revision Description: (attach page revisions to form)

Reviewed by:	Name	Signature	Date
Project Engineering:			
Project Superintendent/Foreman:			
Radiological Operations:			
Industrial Safety & Hygiene:			
Waste Management:			
Environmental Safeguards & Compliance:			
Building Manager:			
Other:			

Approved by:

Project Manager _____

Name Signature

Date

Concurrence by:

DOE Project Manager

_____

Name Signature

Date

07656

REVISION LOG

1. WORK PACKAGE TITLE:

2. WORK PACKAGE NUMBER.

REVISION	Reason	BY	Date

Work Package Revision History Form

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

Appendix A

PHA/JSHA

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	NO	N/A	[EGRESS] BD-W will be empty at this time.
Blockages/obstructions (Identify)	N/A	N/A	
Burning, welding, hot-work (Fire Watch)	Yes	2,3	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	Solvent transfer lines were flushed during safe shutdown.
Chemical process safety	N/A	N/A	
Compressed gas cylinders	No	N/A	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	No	N/A	[LIVEL] Electrical Isolation of facility is accomplished during Utilities Isolation activities. Street light circuit will be LOTO when within 10'.
Elevated work/fall protection	N/A	N/A	[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. Work plan UA – 35696
Fire Hazards Analysis Required of Demolition	No	N/A	[FHA/ADJA] FHA walkthrough of facility is accomplished during Utilities Isolation activities. Work plan UA – 35696
Flammable liquids/gases	Yes	2,3	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	2,3,4	
Grounding of electrical equipment	N/A	N/A	
Hazards due to condition of facility or terrain (Identify)	Yes	3 & 4	Proximity to Building -W heavy traffic patterns. Increase awareness of adjacent structures & roadway and utilize traffic control.
Hoisting and rigging	N/A	N/A	[HOIST]
Lighting/illumination/adequacy	N/A	N/A	[MLITE]
Excavation and Soil disturbance	Yes	3 & 4	Check for URMA. Obtain and follow excavation permit is required.

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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:			[LOTO/ISO]
• Electrical	Yes	2, 3, & 4	Electrical Isolation of facility is accomplished during Utilities Isolation activities. UA – 35696
• Mechanical (steam, hydraulic, pneumatic)	N/A	N/A	
• Interlocks	N/A	N/A	[ILOCK]
• Chemical	N/A	N/A	
• Radiological	No	N/A	Building 47 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 off shift work due to traffic 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	N/A	N/A	[ERGO]
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 W 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

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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 of regulated materials 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]
Chlorofluorcarbon (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] 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-
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] Obtain and follow excavation permit. . Flip slab sections to survey before release.
	Surface destruction of radioactively contaminated materials or equipment?	N/A	N/A	[SURFAC]
	Welding, burning, or grinding?	Yes	2 & 3	[SURFAC] 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-
	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	

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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 control 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 spill kit is available.
Notifications			
RAPCA Notification for Asbestos	YES	N/A	Apart of a ACM abatement contract.
RAPCA Notification for Demolition	Yes	3	Required 10 business before beginning demolition activity
Emergency Spill Response	Yes	3	Call 911 or 854-4040
other			

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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 radioactivity levels	30 Cu. Yd. Roll-Off/End Dumps	Offsite disposal via Waste Management Operations/Journey LTD
Concrete	83 cyds	3	No elevated radioactivity levels	Mound Volvo	Disposal recycle at crusher.
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 south of W Building near the dock area. 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 the first floor of Building 99. See map per Appendix C.

APPLICABLE LESSONS LEARNED – See Appendix E

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Attachment 1 – Request To Stage Clean Hard Fill Debris at Construction Spoils Area

Work Location/ Buiding 47 Slab Approximate Volume 83 cyds
Source of material
Requestor Project Group BOSS Project Point of Contact Lee Koehmstedt

Name/Phone Ext 3659

MSR # 35695 Charge # EE00WJ

Process Knowledge (attach documentation, if more space needed):
~~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 Plan 47-01

In Process monitoring of excavating equipment: X <PP-1059F, Table 2-2 criteria > PP-1059F, Table 2-2 criteria
SLAB IN Going at point of contact w/soil.

Activation Concerns: (No) Yes If yes, explain

Material is released for recycle /reuse (Yes) No

Sending Rad POC Signature	**Date**
Sending ~~Project Manager~~ ENGINEER Signature	**Date** 6/6/03

Work Location/ Source of material

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

Waste Management Rad POC Signature	**Date**
Spoils Area Foreman Signature	**Date**

The BOSS Project has determined that all solid waste streams resulting from safe shutdown, decontamination, and/or demolition of Building(s) 47 Slab have been free released in accordance with DOE Order 5400.5, MCP procedural manual 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 Kurt Kehler, Project Manager, at 4169. This data may include radiological surveys and data sheets and/or process knowledge utilized according to the above procedures.

Waste Coordinator

6/17/03
Date

0186-58

Project/Activity: Building 47 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

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JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV – 35695

SIGNATURES

ORIGINATOR: Lee Koehnstedt	6/6/03
REVIEW/REV:	
REVIEW/REV:	
REVIEW/REV:	
APPROVED:	

DATE: 6/6/2003	_X_ NEW __ REV	**BUILDING:** 47	**JOB:** Demolish Building 47
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

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.
1. 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.
1a. Site Access Control	Struck by equipment, debris	-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.

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 hydrants, manhole covers, or grates over field drains.	-Mark/protect fire prevention hydrants 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 or off shift work.
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, 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 – gloves, flame retardant clothes, safety glasses, hard hat, steel toed boots. , have fire extinguishers in the construction zone. -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

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

3a Rough grading	Equipment/ personnel mixture	-Stay clear of operating heavy equipment
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 covering 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- from field grates	Lifting / twisting strain Cuts and abrasions Slip trips and falls	-2 man rule follow standard practice lifting -Wear appropriate proper PPE – gloves, flame retardant clothes, safety glasses, hard hat, steel toed boots. -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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JOB SPECIFIC WORK PLAN

Title:	5.		
Work Package No. (JSWP or MSR)	6.	If MSR Indicate Low, Moderate, or High Hazard	Rev.

6. WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE:
2. WORK PACKAGE NUMBER.

[Note: Mark this section in color]

~ Office Master Copy (Original Approval Signatures) ~ Field Working Copy (Original Field Sign -Offs) ~ Review Copy ~ Other Copy

Revision Description: (attach page revisions to form)

Reviewed by:	Name	Signature	Date
Project Engineering:			
Project Superintendent/Foreman:			
Radiological Operations:			
Industrial Safety & Hygiene:			
Waste Management:			
Environmental Safeguards & Compliance:			
Building Manager:			
Other:			

Approved by:

CH2MHILL Project Manager

Name Signature

Date

Concurrence by:

DOE Project Manager

Name Signature

Date

JOB SPECIFIC WORK PLAN

Title:	5.		
Work Package No. (JSWP or MSR)	6.	If MSR Indicate Low, Moderate, or High Hazard	Rev.

REVISION LOG

1. WORK PACKAGE TITLE:			
2. WORK PACKAGE NUMBER.			
7. REVISION	1.1. Reason	8. BY	1.2

PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	9. JOB SUPERVISOR

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

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).

3. Any changes/revisions to safety envelope for work: i. New/added assignments and responsibilities of any individual j. Changes in facility conditions, tagouts, valve lineups k. New or changed precautions/hazards l. 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
9. RWP revisions: e. Changes to radiological conditions of the workplace, particularly with respect to postings. f. 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.

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	

Daily Toolbox Safety Meeting

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

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PRE-JOB UPDATE

1.3. **Signature Sheet for** _____/_____/_____

HP#	SIGNATURE	HP#	SIGNATURE

JOB STATUS LOG

1. WORK PACKAGE TITLE:
2. WORK PACKAGE NUMBER.

DATE	TIME	1.4. WORK PKG. SECTION	% Complete	BY	STATUS

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POST JOB CONFERENCE

1. WORK PACKAGE TITLE:
2. WORK PACKAGE NUMBER.

10. WHAT WENT WELL?

What could be improved?

Other Comments:

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

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Appendix C

DRAWINGS/SKETCHES

- Evacuation Assembly Area/Take Shelter Area Sketch
- Site Utilities Demolition Area Sketch
- BD47 Foundation Plan and Wall Section
- BD47 Wall Reinforcement
- BD47 Structural Details
- BD47 Siltation Controls
- BD47 Monitoring well locations
- BD47 PRS's in the vicinity
- BD47 URMA's in the vicinity

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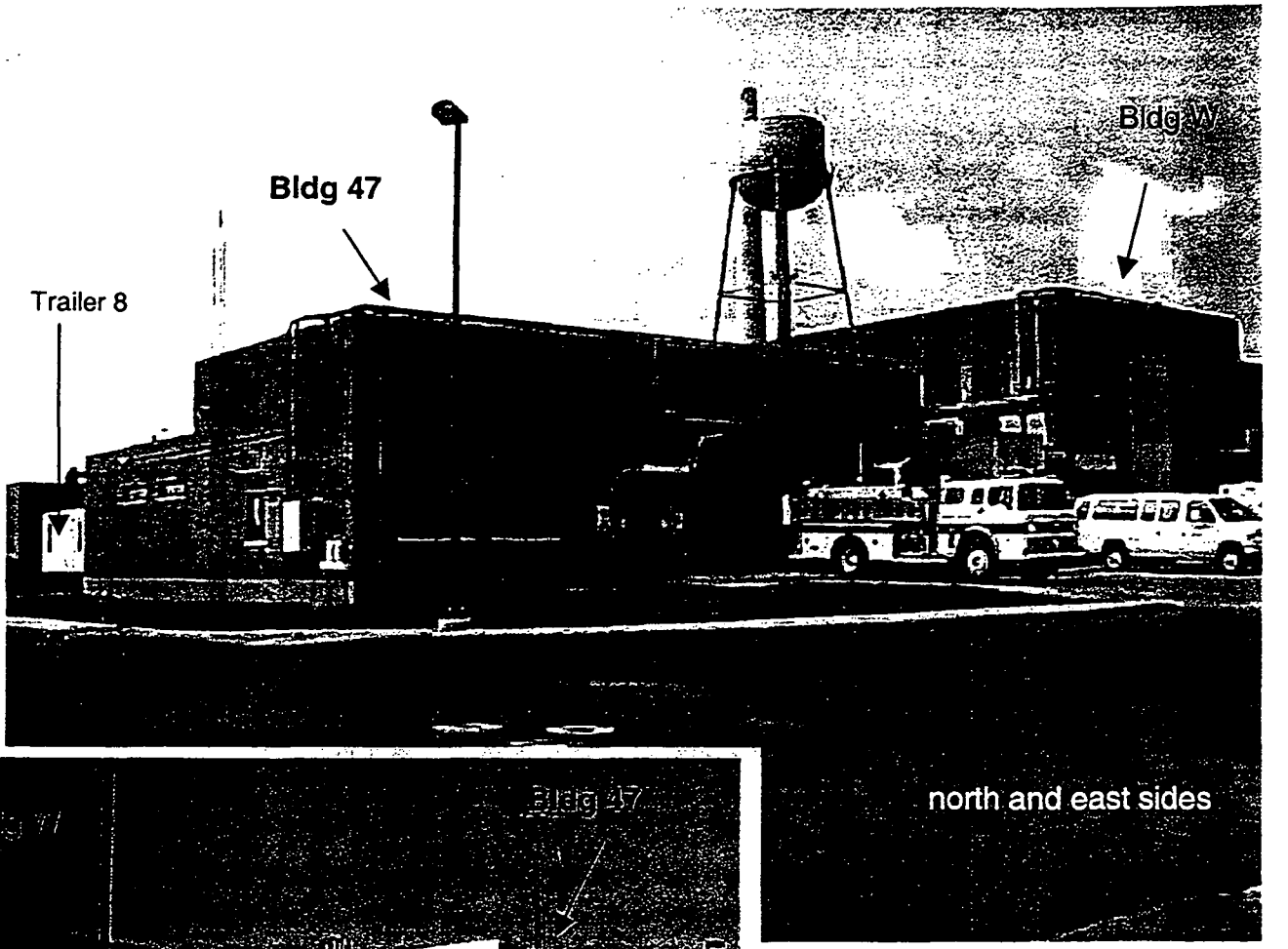


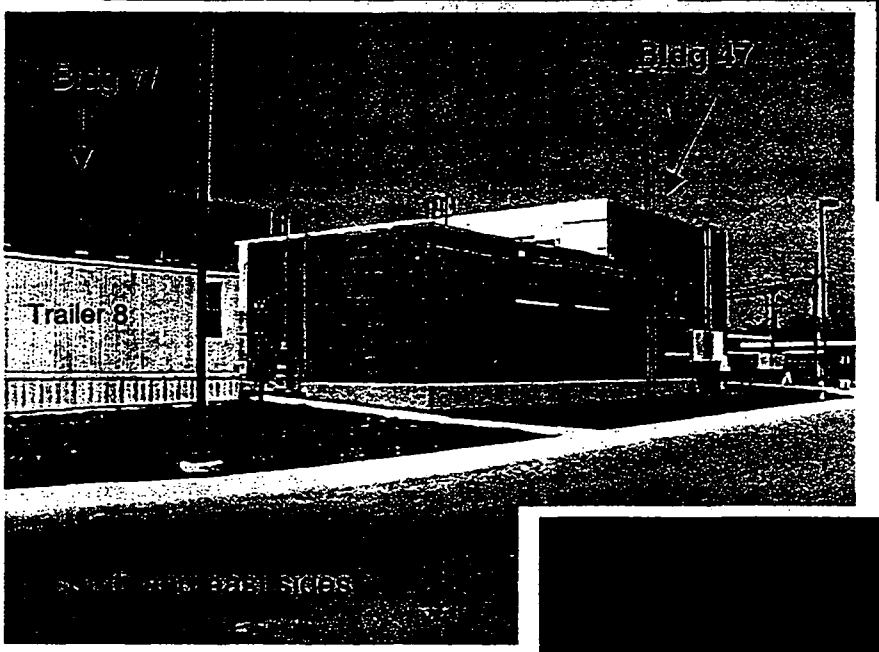
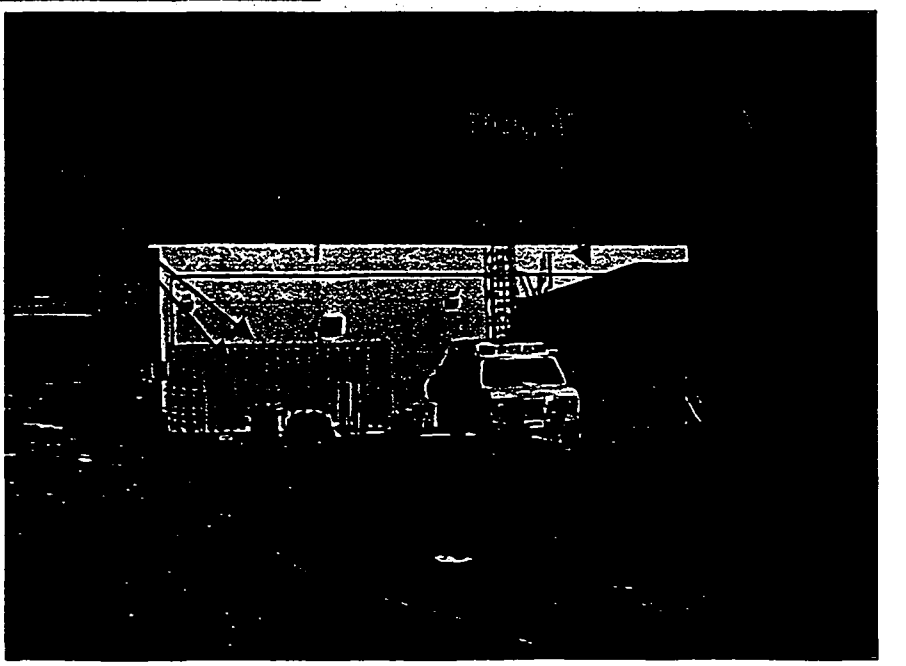
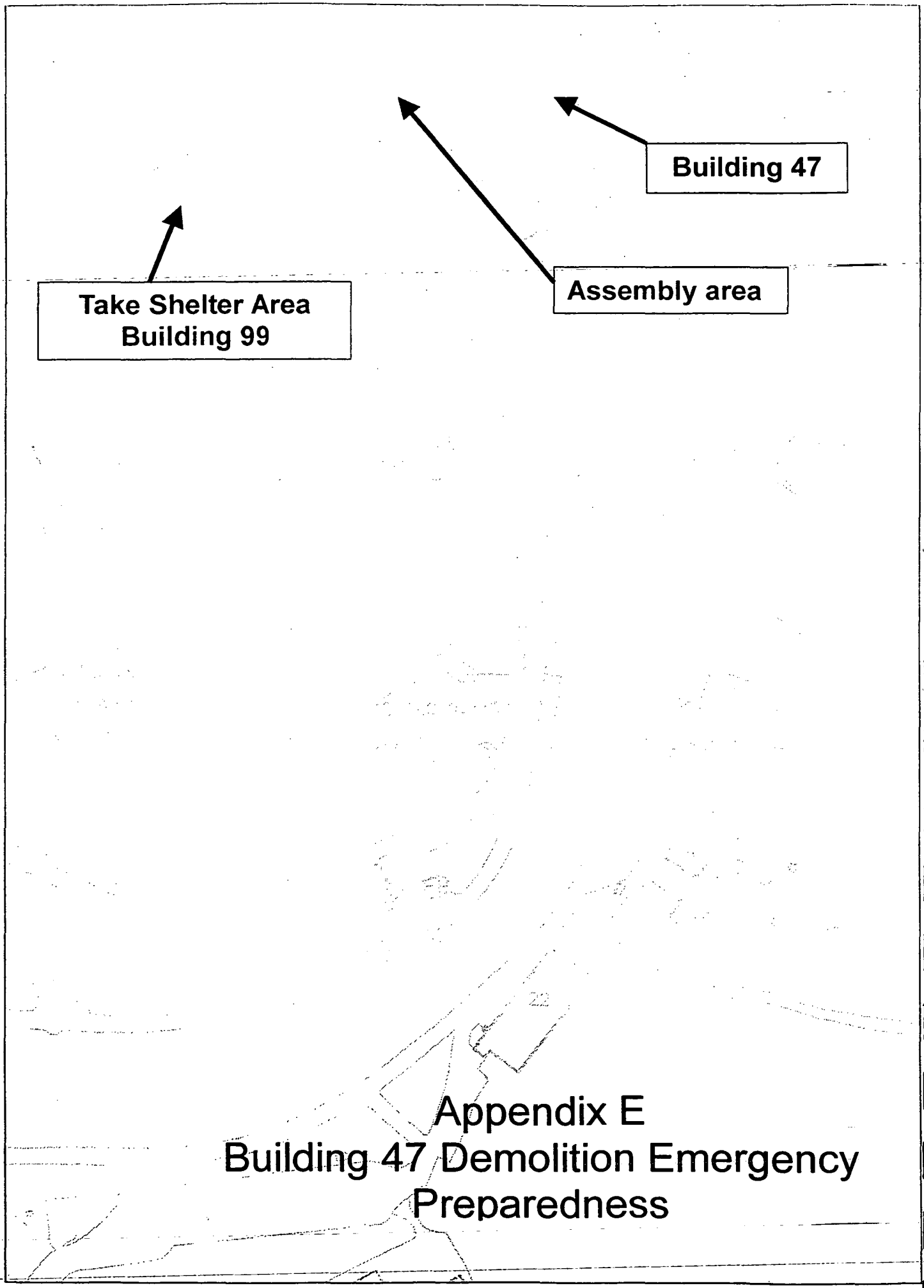
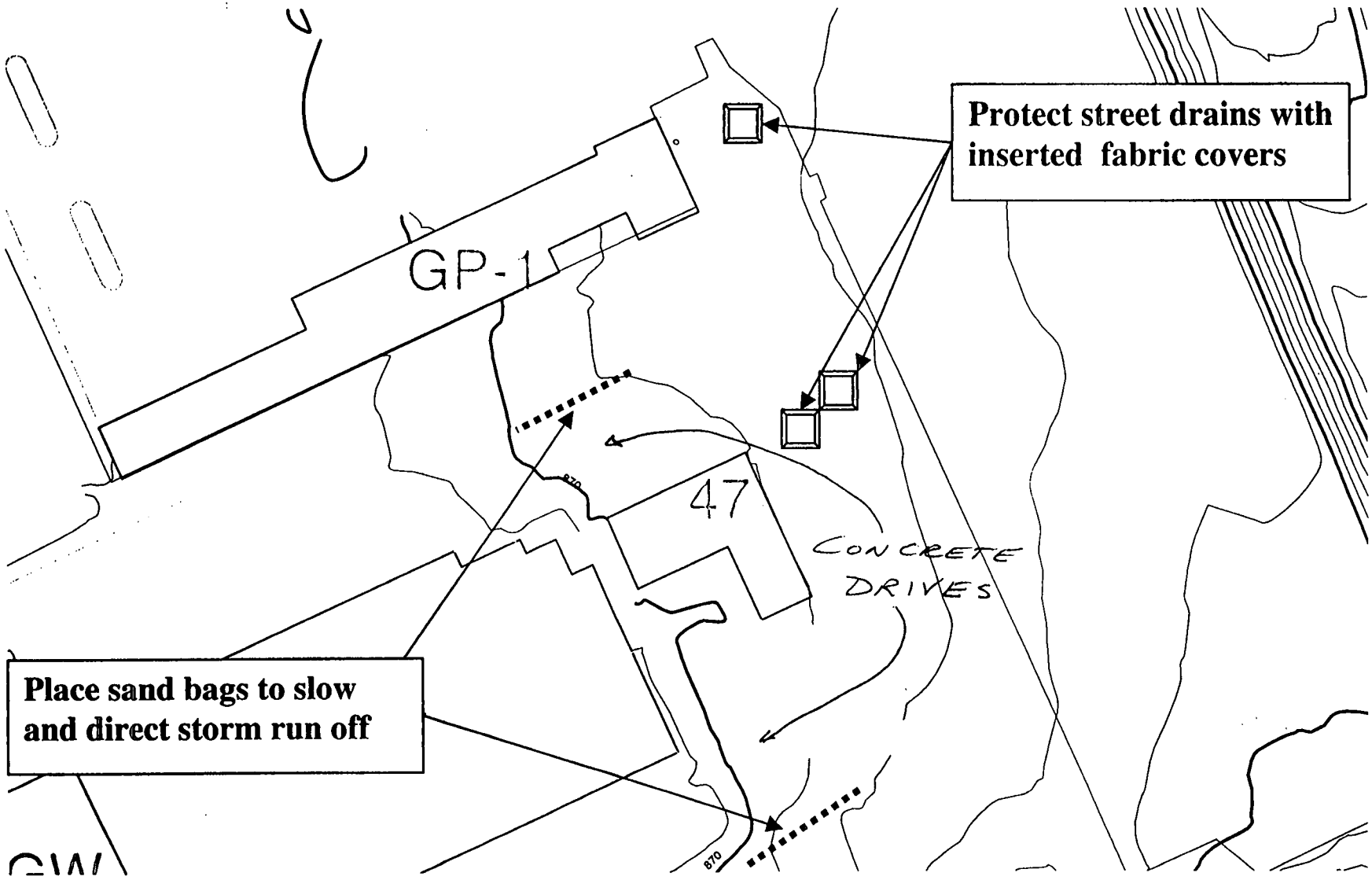


Figure 3: Building 47 Exterior Photos

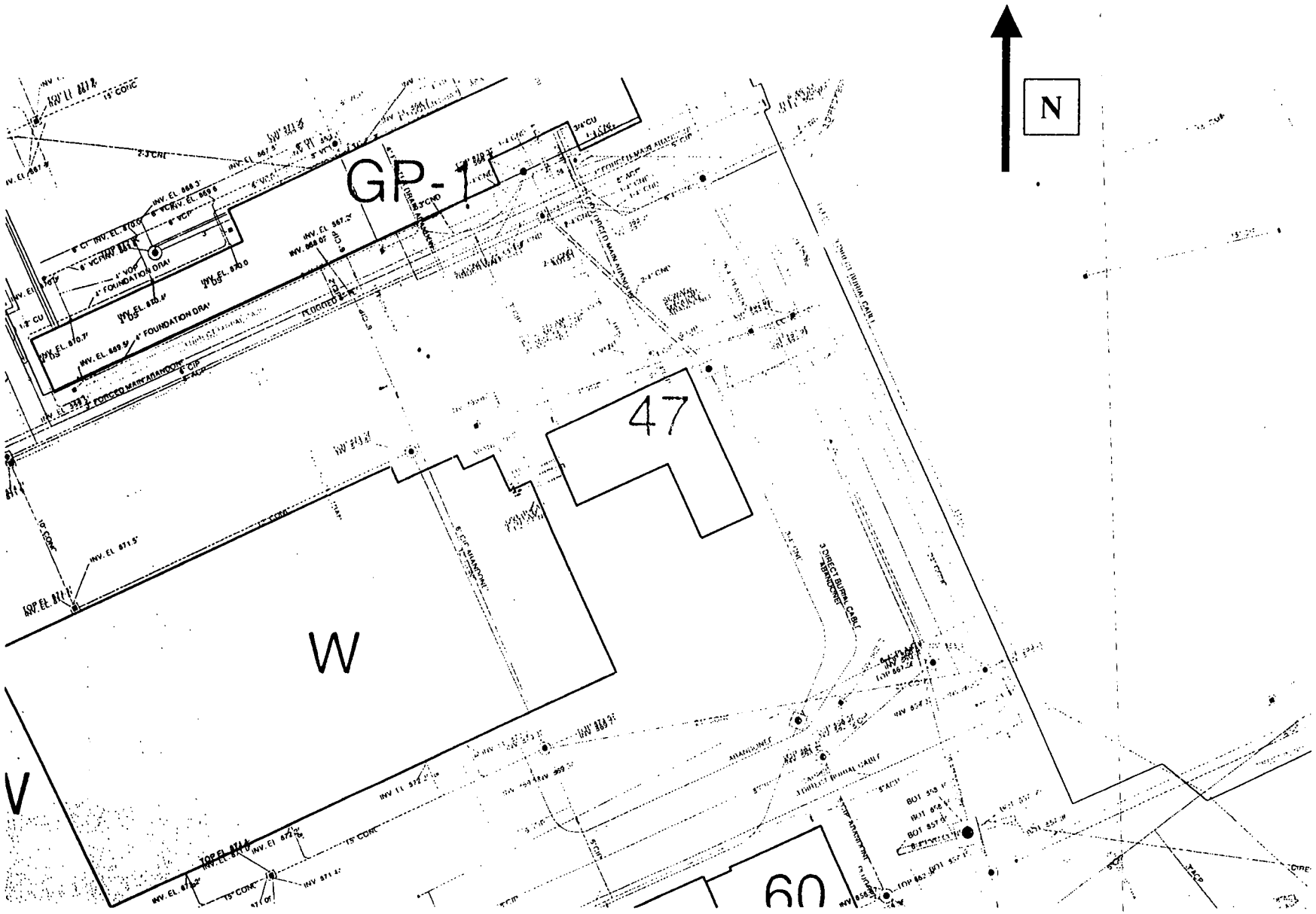




Appendix E
Building 47 Demolition Emergency Preparedness



Siltation Control Sketch
Appendix C



Underground Utilities

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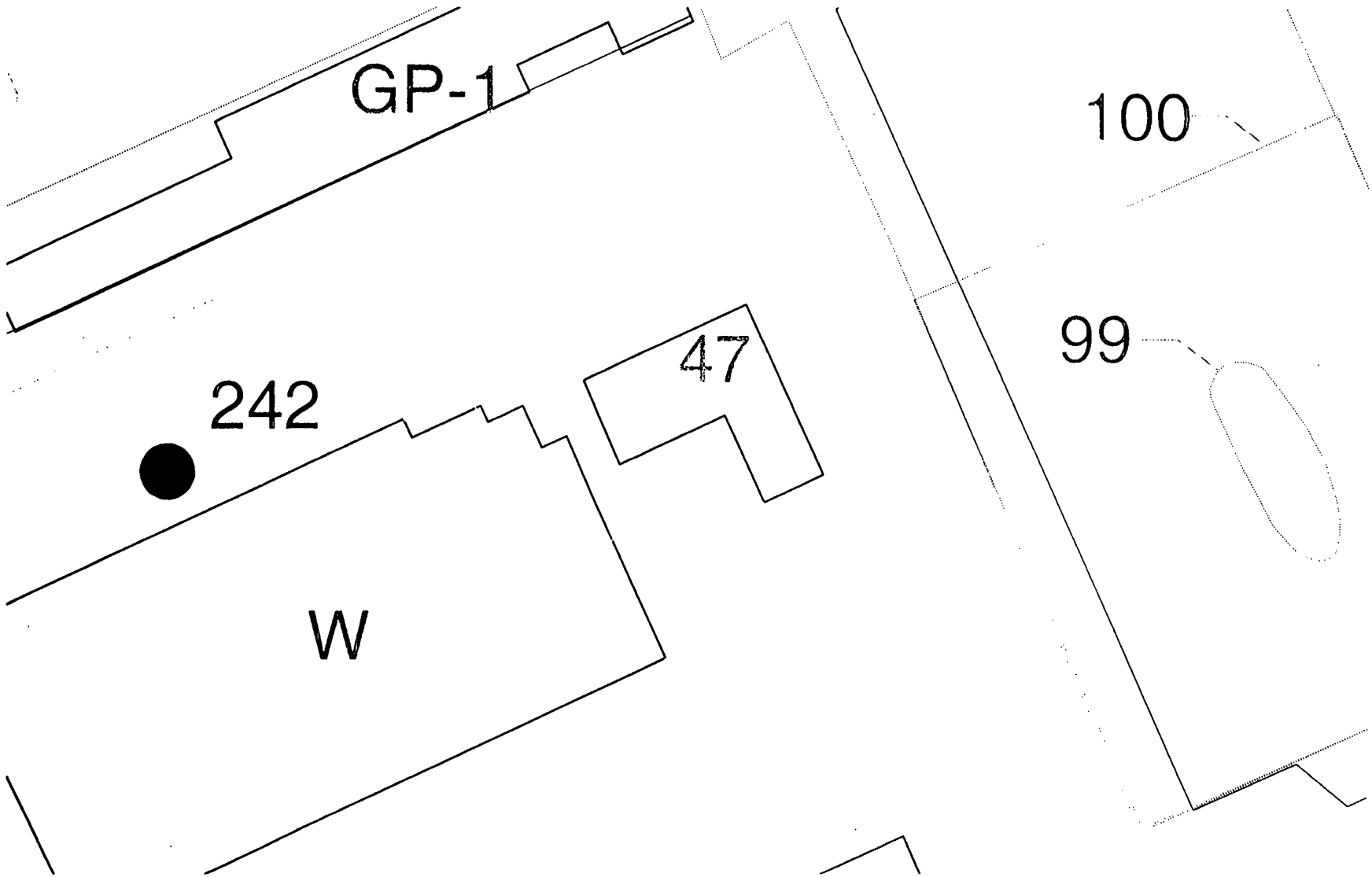

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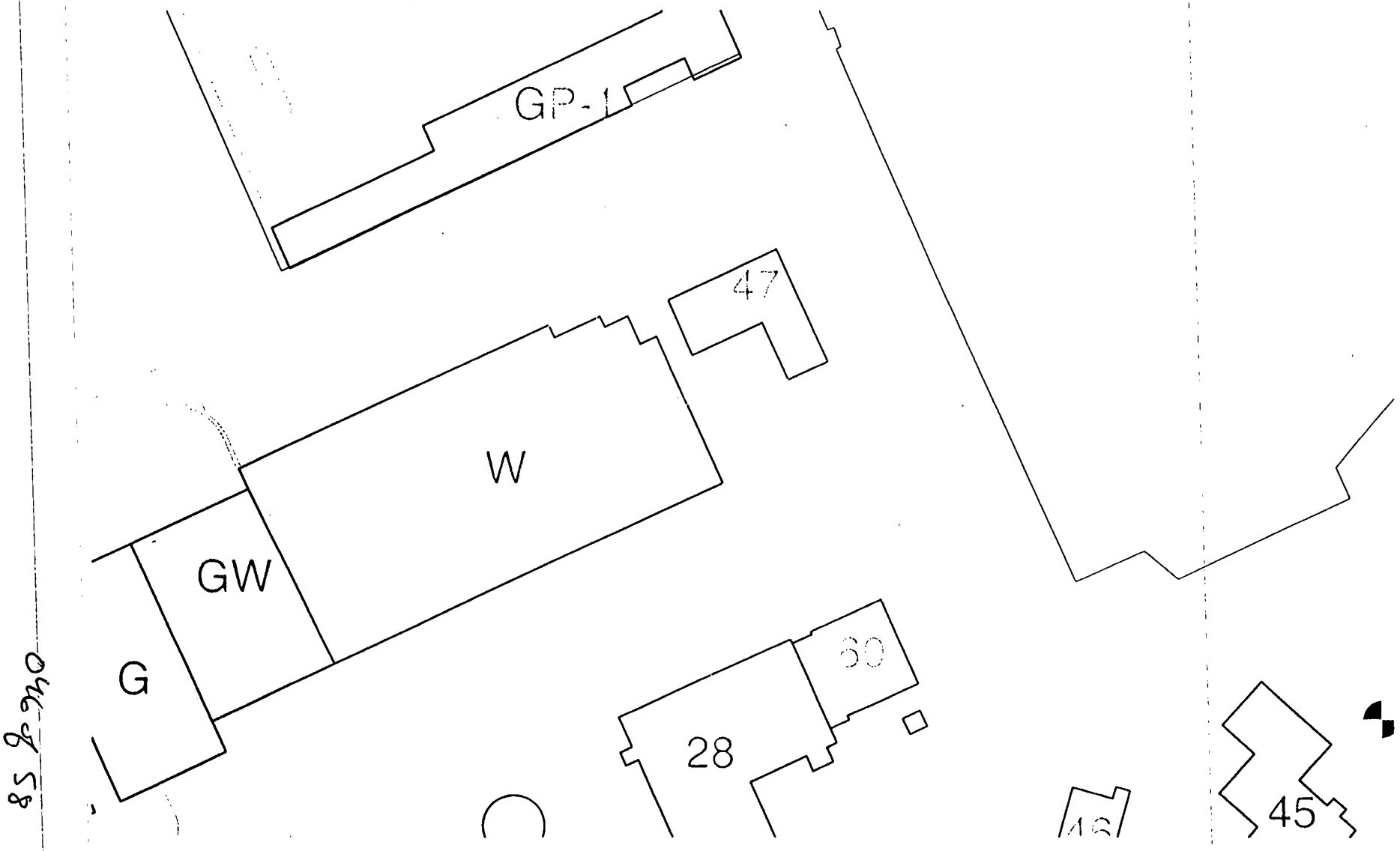
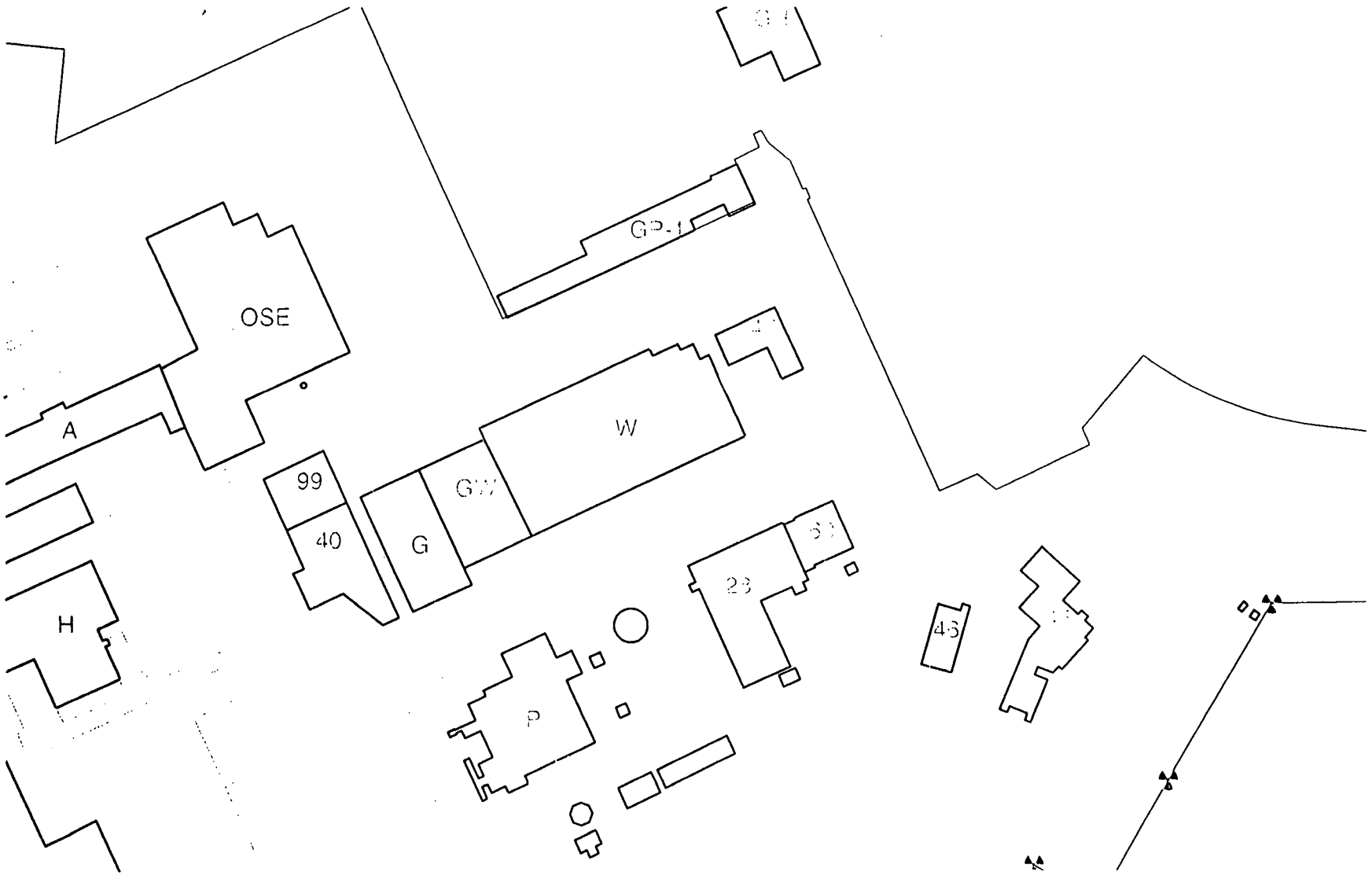
No PRSs in Vicinity



No Monitoring Wells in Vicinity



No URMAS in Vicinity

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Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

- No USQ required for this Work Package
- 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 47, 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

13. 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