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

SM-024/03
May 1, 2003

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

ATTENTION: Robert S. Rothman

SUBJECT: Contract No. DE-AC24-03OH20152
BUILDING 60, BUILDING DATA PACKAGE, FINAL

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Mr. Provencher:

Rob Rothman from your office has approved the release of the following final document:

- Building 60, 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,

K. L. Kehler
SMPP/TFV Project Manager

KLK/VKD

Enclosures

Approved: May 1, 03
Robert S. Rothman Date
CERCLA Program Manager

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
Randy Tormey, DOE/OH, (1) w/attachments
Terry Tracy, DOE/HQ, (1) w/attachments
Dann Bird, MMCIC, (3) 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
Administrative Record (2) w/attachments

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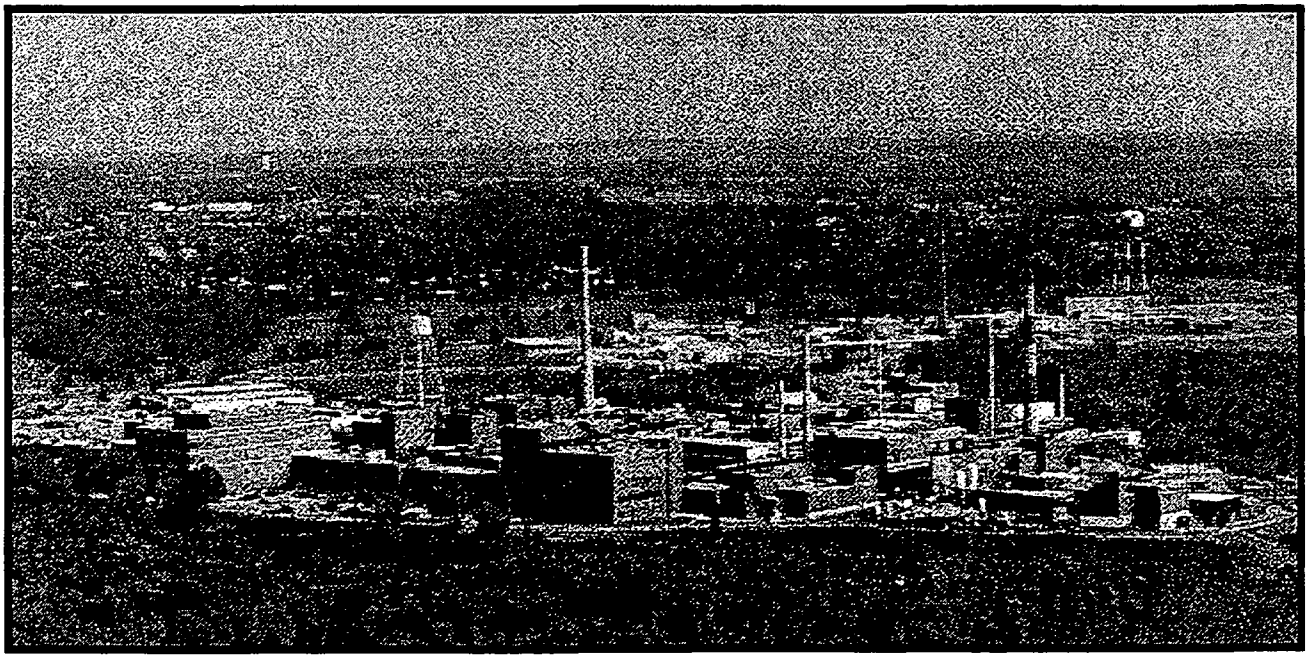
Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Building 60

(Demolition)

Final
May 2003



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

April 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 60 Building Data Package. Attached is our response.

Should the responses to comments require additional detail, please contact Rob Rothman at (937) 865-3823 and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MCP: 04/30/03
Robert S. Rothman, Remedial Project Manager — date

USEPA: David P. Seely 04/28/03
David P. Seely, Remedial Project Manager — date

OEPA: 4/30/03
Brian K. Nickel, Project Manager — date

Response to MMCIC Comments on the Building 60 Building Data Package Public Review Draft March 2003

Comment 1. From our review of the Building 60 Review Draft Data Package, MMCIC is in agreement with the decision to demolish the building. MMCIC understands from the Draft Data Package that all appropriate inspections have been completed or will be completed prior to demolition. This includes a radiological inspection, the results of which showed Building 60 was not impacted by site operations. MMCIC understands that any other potential environmental concern, such as asbestos or lead paint, will be addressed prior to the demolition activity.

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

Comment 2. It is MMCIC's understanding that after the demolition process is completed, the area will be restored to a natural state in accordance with the *Mound Reuse Plan*.

Response 2. The Core Team agrees that overall cost efficiencies could be achieved if the restoration of the Building 60 site is designed with its reuse in mind. To the extent practicable, that goal will be pursued.

MOUND

Environmental
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MIAMISBURG CLOSURE PROJECT
BUILDING DATA PACKAGE

The following Building Data Packages (BDP) will be available for your information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio. Building 19: 5 March 2003, Building 60: 10 March 2003

BDP Building 19: Salvage and Sales
BDP Building 60: Ceramic Facility

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

BDP Building 60

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**March 2003**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
DRAFT PROPOSED FINAL (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	The BDP was made available in the CERCLA Public Reading Room on March 10, 2003 for simultaneous review by Core Team and the public.	**March 2003**
FINAL	The Core Team's response to public comments is included in this document. No text changes were indicated based on public comments. USEPA had no comments regarding this document. Changes made in response to OEPA comments include: revised references to the solvent shed/PRS 127 for consistency and clarity; revised Work Package to specify that the shed and pipe debris will be segregated from the Building 60 debris for post-demolition radiological surveys, and to include a recently required reference to OPA980014 Fugitive Dust.	**May 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 60 (Ceramic Facility) and its associated solvent shed 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 60 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 60 and its associated solvent shed, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation 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 60 OVERVIEW

Building 60

Building 60 was constructed in 1980 on the southeastern edge of the "Main Hill," (Figures 1 and 3) immediately east of Building 28. The building contains 3,958 square feet of floor space, and has not undergone any additions since its original construction. The building was designed and used for ceramics development and support. The first floor includes a fabrication area, furnace area, and mechanical room. The second floor includes an office area, metalizing area, restroom facilities, and janitorial closet.

Exposed exterior wall construction generally consists of brick veneer on reinforced concrete block, with a four-inch break between the veneer and the block containing insulation. The building has a six inch thick reinforced concrete slab underlain by six inches of compacted gravel, and the footer beams are twenty-four inches by thirty-six inches. Photographs are provided in Figure 4, and floor plans in Appendix D.

The building is serviced by sanitary and stormwater service lines, a fire sprinkler water main, and electric service of 480 volts. The building used central steam for heating and chilled glycol for cooling.

Solvent Shed/PRS 127

A 9-foot by 9-foot solvent shed, with corrugated metal walls, is located approximately 13 feet south of the southeast corner of Building 60. The foundation is a concrete slab on grade, and is in good condition. The shed was used to store solvents and pump them to Buildings 28 and 60. The waste solvent was pumped back to the shed and containerized in drums prior to removal by Waste Management. To maintain a safe environment for flammable wastes, the shed had an explosion proof electrical system and thermostat controlled exhaust. The shed has been inactive and solvents and wastes removed since 1995 when ceramics operations in Buildings 28 and 60 ceased. This shed is designated as PRS 127, which was binned No Further Assessment (NFA) by the Core Team in 1996 (Appendix N). Photographs are provided in Figure 4.

2.1 Past Uses of Building 60

Building 60 was constructed and used for ceramic development. Processes conducted include: metal cleaning, the Sol-gel process (Sol-gels are the chemical preparations which, when hardened, form ceramics), and acid etching. Building 60 is credited with also having housed non-destructive testing operations in support of explosives and detonator activities. In the mid 1990s the building was transitioned to the Miamisburg Mound Community Improvement Corporation (MMCIC) as a "user facility," although it was never used as such. Since the mid 1990s, the building has been uninhabited, and only used for equipment storage.

2.2 Current Uses of Building 60

Building 60 is vacant and is currently undergoing Safe Shutdown activities in preparation for demolition.

2.3 Summary of Environmental Concerns and Findings - Building 60

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data was found pertaining to the paint coatings in Building 60. Paint coatings were observed to be largely intact. Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building. (Appendix J).	If lead-based paint were present, it would not impact the demolition or disposal of the debris. Close worker disturbance of paint coatings will be avoided during demolition. If close disturbance is necessary, the point of contact will be tested for lead and appropriate controls and personal protective equipment (PPE) used for disturbance as required.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Chemicals	A list of chemicals known to have been used or stored in Building 60 or the solvent shed is provided in Appendix K.	Chemicals will be removed prior to demolition.
Fluorescent Lamps and PCBs	Fluorescent lamps were used in the building. Ballasts may contain polychlorinated biphenyls (PCBs).	Will be removed prior to demolition.
Air Emissions	There are fume hoods in the building that could have been a potential source for uncontrolled air emission releases. However, none of the operations conducted in the fume hoods required an air permit by OEPA.	Will be demolished with the building.
Asbestos	Asbestos containing material (ACM) is present in the building. A copy of the asbestos survey is provided in Appendix I.	Friable ACM will be removed prior to demolition. The roofing-type mastic sealant, which is nonfriable does not have to be removed prior to demolition so long as it remains nonfriable up to that point. All work will be performed in accordance with current state and federal regulations.
Drainage Sumps	There are no drainage sumps.	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Within acceptable limits (Appendix G)	N/A
Septic System	N/A	N/A
Wastewater	Handled by MCP wastewater facility.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	N/A	N/A
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	Within acceptable limits (Appendix H)	No further action required.
HVAC	HVAC refrigerant will be drained and disposed of during Safe Shutdown.	No further action required.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Energetic Material	Non-destructive testing (NDT) operations for ceramic components were performed in Building 60, and NDT operations included methods such as helium leak checks and dye penetration checks on headers (the detonator minus the explosive). Building 60 was not designed for explosives, and no energetic materials were ever in the building.	N/A
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 30-feet of the Building 60 perimeter, and provides tables for all detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). All results are below applicable screening levels. (Note, a 30-foot radius was evaluated instead of the standard 15-foot radius because of the limited number of soil sampling results available.) Soil gas survey results are also presented in Appendix L. PRS 126/127 was binned NFA based upon these survey results.	No further action required.

N/A: Not applicable

2.4 Radiological Characterization Summary for Building 60

A radiological assessment of Building 60 was performed by reviewing operational history and radiological survey information. Building 60 was initially placed in service as a ceramic facility, but also housed NDT operations for ceramic components. Process information indicates that this building continued these functions until the mid 1990s when the building was transitioned to MMCIC as a "user facility." Building 60 has not been used for any other purpose other than a ceramics processing and NDT facility. No radiological process systems were ever a part of the facility and no radioactive material was used or stored there. Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). A review of all of the radiological survey data supports the conclusion that Building 60 was not impacted by site operations. 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. 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-0036	Exterior Wall	3.7	20
Highest Alpha Fixed Activity	03-TF-0023	Interior Wall	82 (Note 3)	100
Highest Beta Smearable Activity	03-TF-0030	Roof	10.07	1,000
Highest Beta Fixed Activity	03-TF-0036	Exterior Wall	1,739	5,000
Highest Tritium Smearable Activity	03-TF-0023	Interior Floor	32.54	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.
Note 3: RSDS 03-TF-0023 documents alpha fixed activity of 96 dpm/100cm² was found at a floor drain sample location.

Pre-demolition radiological surveys of the solvent shed and piping were not performed. Demolition debris from these structures will be staged separately from the Building 60 debris. Post-demolition radiological surveys will be performed on the shed and piping debris to determine proper disposal.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 60 is located at the DOE MCP site, formerly known as Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

The Mound Plant at one time was situated on approximately 300 acres of land and contained approximately 130 buildings with a total of approximately 1.4 million square feet of floor space (the number of buildings is constantly diminishing as buildings are decommissioned and either sold or demolished). The original 182-acre site, purchased by the Manhattan Engineering District in 1946, consisted of two hills and an intervening valley that runs approximately east and west. The 124-acre tract acquired in 1981 was an undeveloped mixture of fields and woods that undulates and slopes downward to the west, away from the main site. This area was acquired to serve as a buffer and has been used as a staging area and parking area for contractors working onsite.

To the west lies a railroad line and the north-south trending Miami-Erie Canal. The northern boundaries of the site abut the residential area of Miamisburg, Ohio. Mound Road marks

the northern half of the eastern perimeter of the facility then veers east, away from the southern half of the eastern boundary. A public golf course (belonging to the City of Miamisburg), the Miamisburg Mound Memorial Park, old agricultural fields, residential lots, and vacant wooded lots border the facility along Mound Road. Benner Road formed the southern property line of the Mound Plant (at the 300-acre stage), with agricultural fields and farms occupying the lands beyond.

3.2 Description of Structures, Roads, Other Improvements in Proximity to Building 60

As shown on Figures 2 and 4, Building 60 is bordered on the west by Building 28; a concrete dock separates the two buildings. Doorways from buildings 60 and 28 open to the dock. Building 60 is bordered on the north and east by small grassy areas and then an asphalt road. A sidewalk adjacent to the east face of the building services a doorway through the east wall. On the south side, the building is bordered by an asphalt driveway and a grassy area. The associated solvent shed is located south of the southeast corner of the building.

3.3 Current and Past Uses of Buildings in Proximity to Building 60

The closest buildings (Figure 3) to Building 60 are:

- Building 28 (Ceramic Fabrication Facility), located west of Building 60, is a 11,329 square-foot building currently used as a maintenance and machine shop. Building 28 is leased from DOE to MMCIC who leases it to a private enterprise.
- Building 46 (Welding Development Facility), located southeast of Building 60,is a 2,439 square-foot building used for welding and weld development activities.
- W Building (Warehouse Building), located northwest of Building 60, is a 32,484 square-foot building currently used for fabrication shops.
- Building 65 (Modular Office) was a 2,400 square-foot double-wide modular unit located north of Building 60 before it was removed from the site in early 1996.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under RCRA, the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), the site has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B Permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D.

number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and OEPA. The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that no reportable chemicals are stored in Building 60.

Mound Plant was identified as a contaminated site on the National Priorities List under CERCLA (Superfund) in 1989. 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 system to define and characterize cleanup areas. As the cleanup effort went forward, it became apparent that the site did not fit the profile for a cleanup strategy based on the operable units. The DOE, the United States Environmental Protection Agency (USEPA), and OEPA designed a new decision making process for the cleanup of the site. The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." The Mound 2000 Process system divided the site into geographical parcels containing over 400 PRSs with approximately equal numbers of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had releases of radioactive and/or hazardous materials. For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach.*

4.2 Specific Record Sources for Building 60

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 ER Program, DOE and site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, four are at or near Building 60. PRSs in the vicinity of Building 60 are identified in Table 3. Additional information is included in Appendix N.

Table 3: PRSs in Proximity to Building 60

PRS	CERCLA or Bldg. Related	Binning Status	Comments
100	CERCLA	NFA	Area F, Chromium Trench.
126	CERCLA	NFA	Building 28 Solvent Storage Area.
127	CERCLA	NFA	Building 28 Solvent Storage Shed. This solvent shed will be demolished as part of the Building 60 demolition activities.
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 1973 (prior to construction), 1983 (following construction), and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

The current Building Manager, Gary Weidenbach, was interviewed regarding past facility operations and current conditions. No significant items related to the building were identified based on the interview.

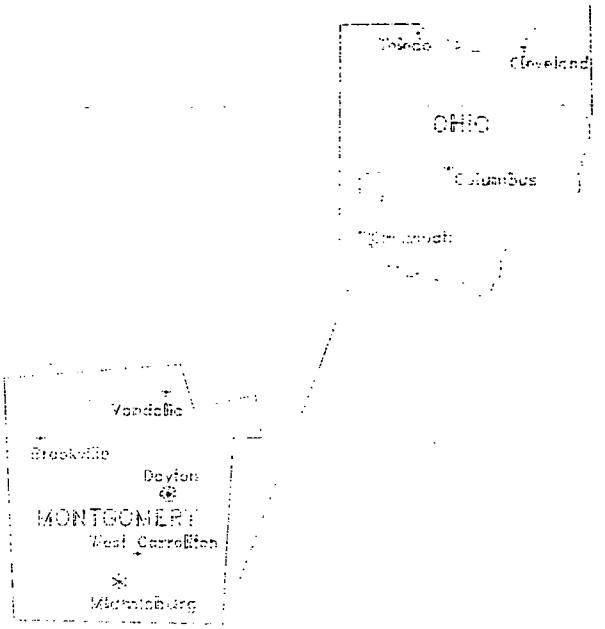
Appendix A

General Listing of Acronyms

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

Appendix B

Map of Montgomery County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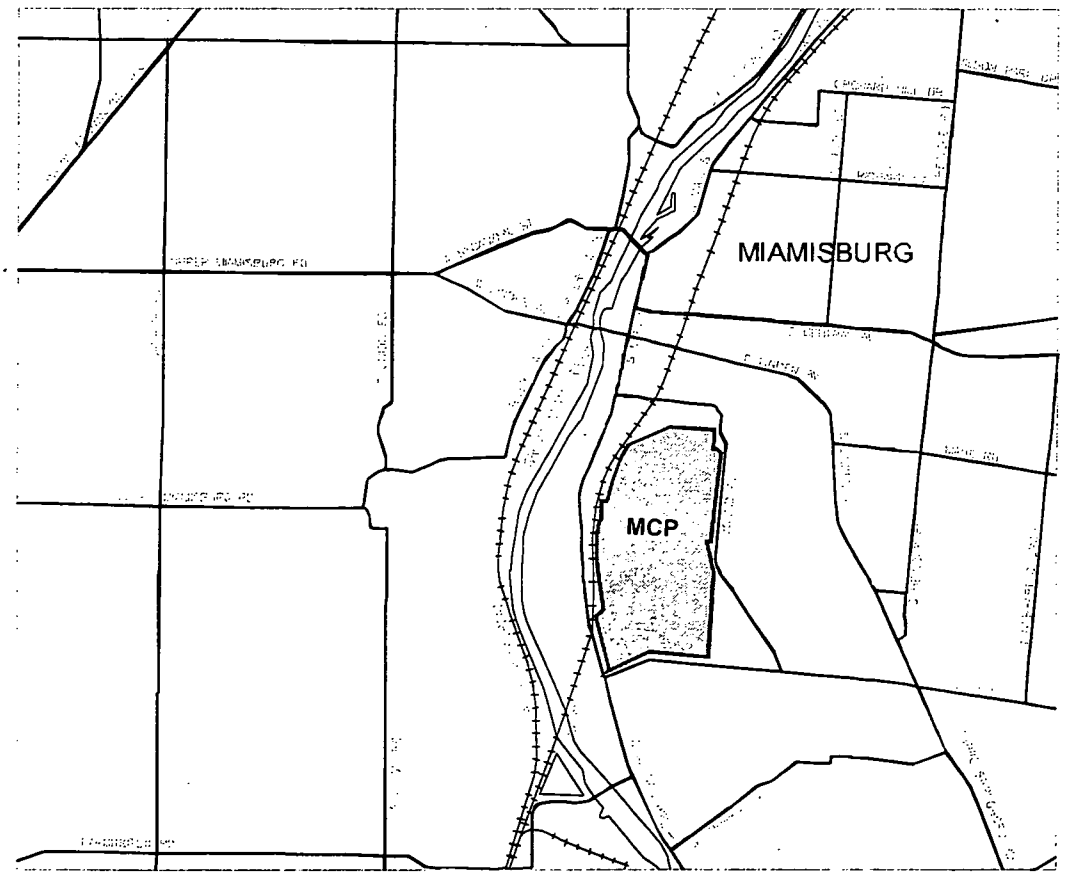
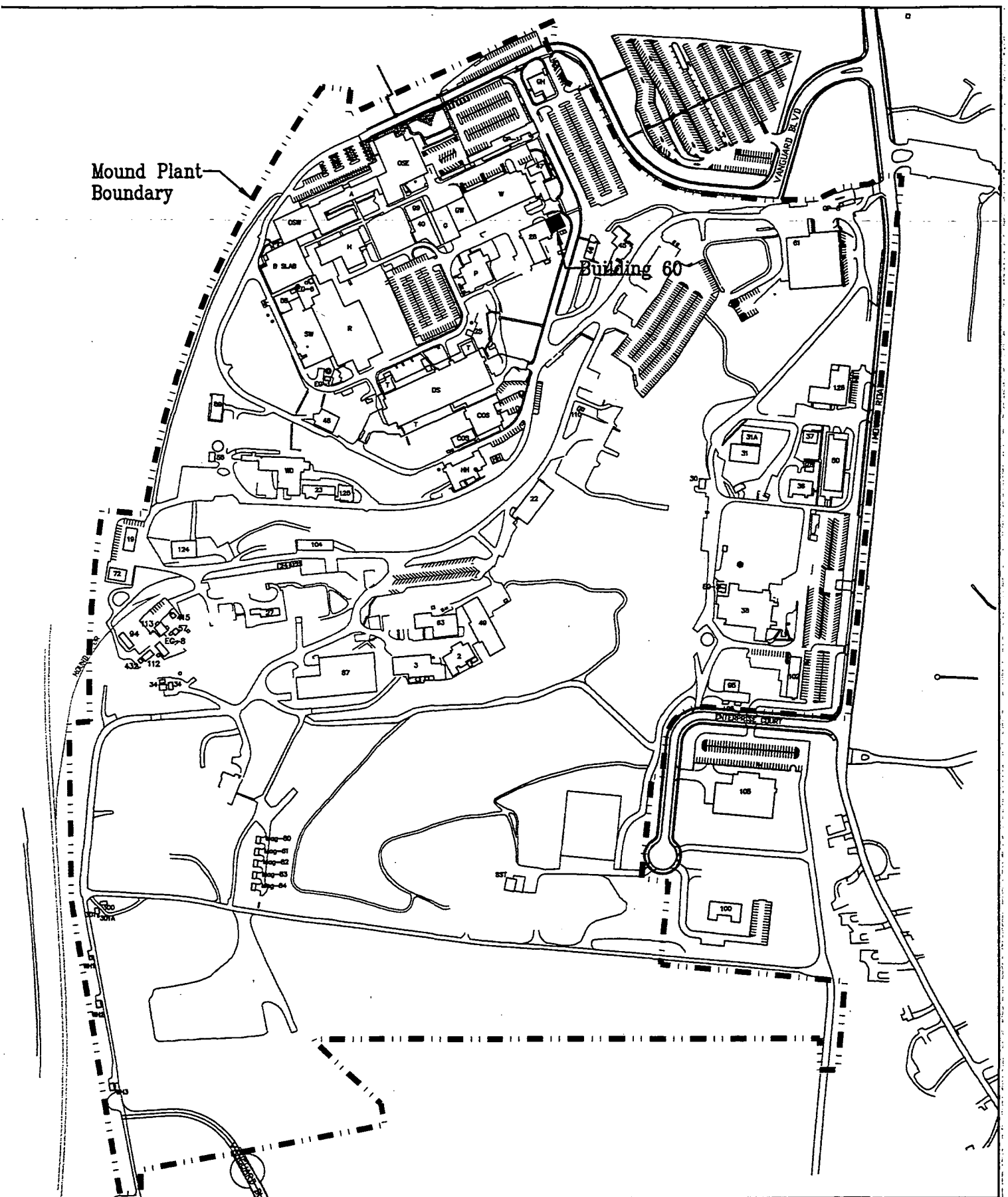
OHIO
Columbus
Vandalia
Brookville
Dayton
MONTGOMERY
West Carrollton
Miamisburg


MIAMISBURG
MCP

B 1 of 1

Appendix C

Figures



Legend

Structures
Roadway
Mound Spur
Railroad
Mound Plant Boundary

0 225 450 900
SCALE IN FEET

DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

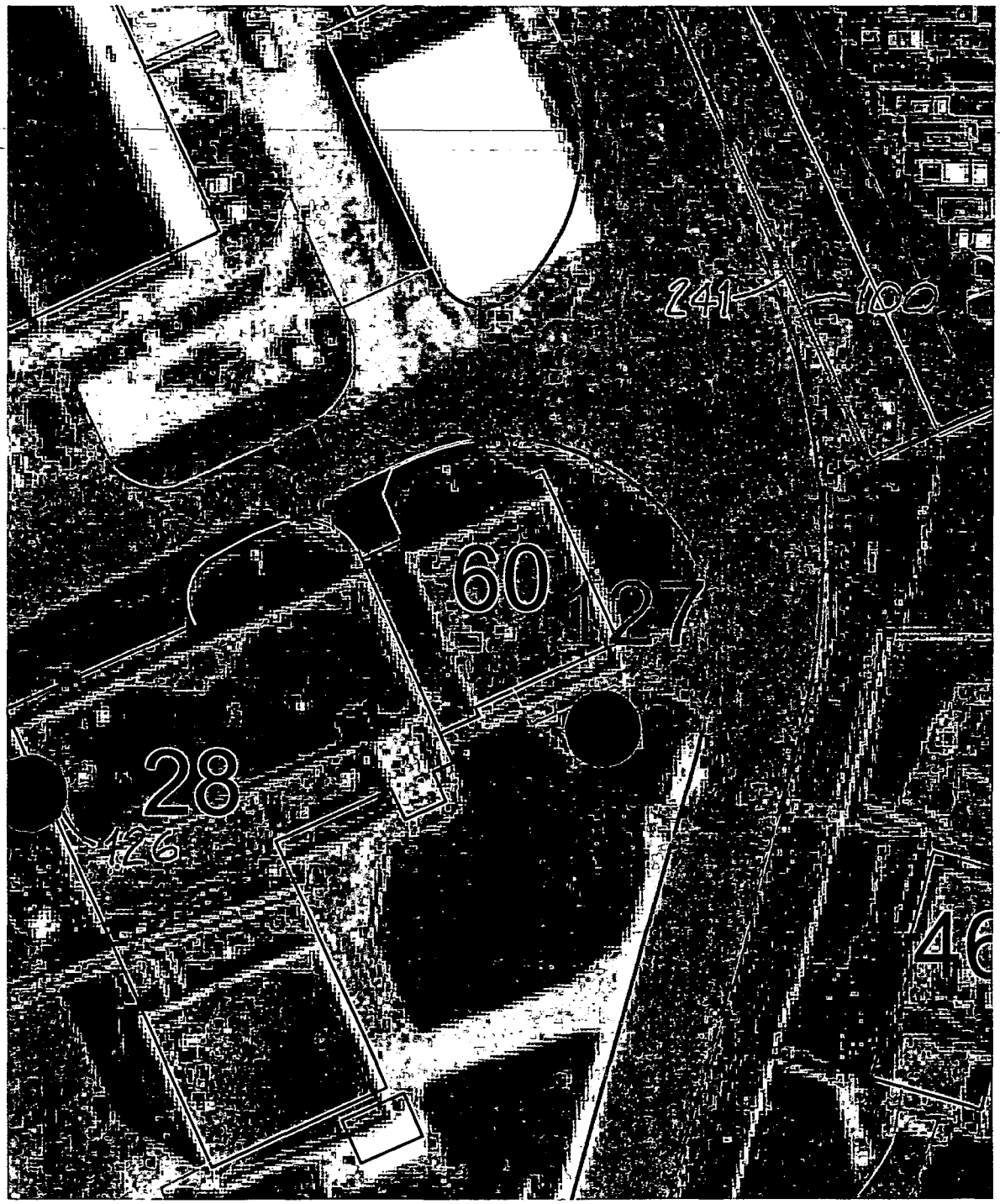
DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

Figure 1
Location of Building 60



Legend

- 45 Structures
- PRS Point
- PRS Area
- PRS Line

DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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

SHEET	1	2	3	4	5	6
ISSUE	•					

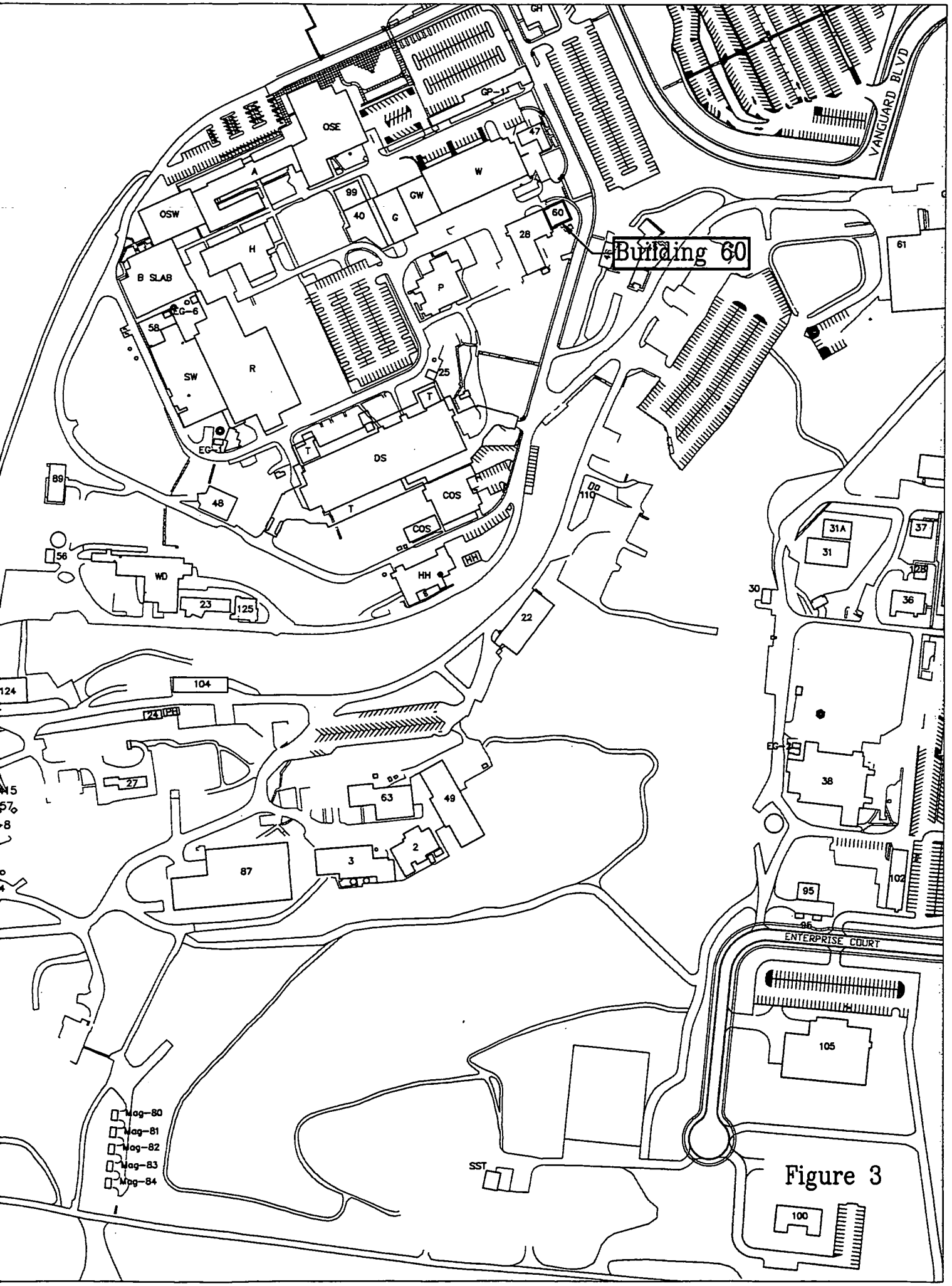
PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

Figure 2
Building 60
and Vicinity

SIZE	DRAWING NUMBER	JOB NUMBER
	MAPS.DWG	

DWG TYPE STE	PRMG ER-GIS	CAGEC	SCALE	SHEET 1 OF
STATUS MD-REL-**/**/**		ORIGIN AUTOCAD		


Building 60
VANGUARD BLVD
ENTERPRISE COURT
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OSW
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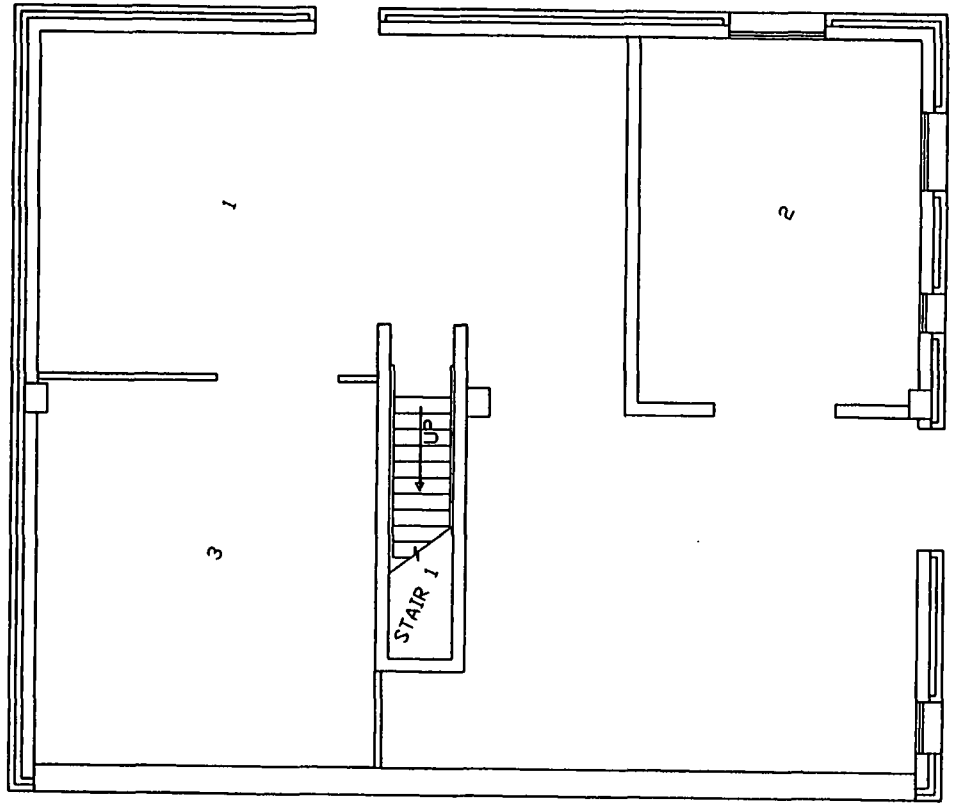
100
SST
Mag-80
Mag-81
Mag-82
Mag-83
Mag-84

Figure 3

Figure 4
Building 60

Appendix D

Floor Plans



A 1 of 2

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND
Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

DRAWING CLASSIFICATION
UNCLASSIFIED

Building 60
Floor Plans
First Floor

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

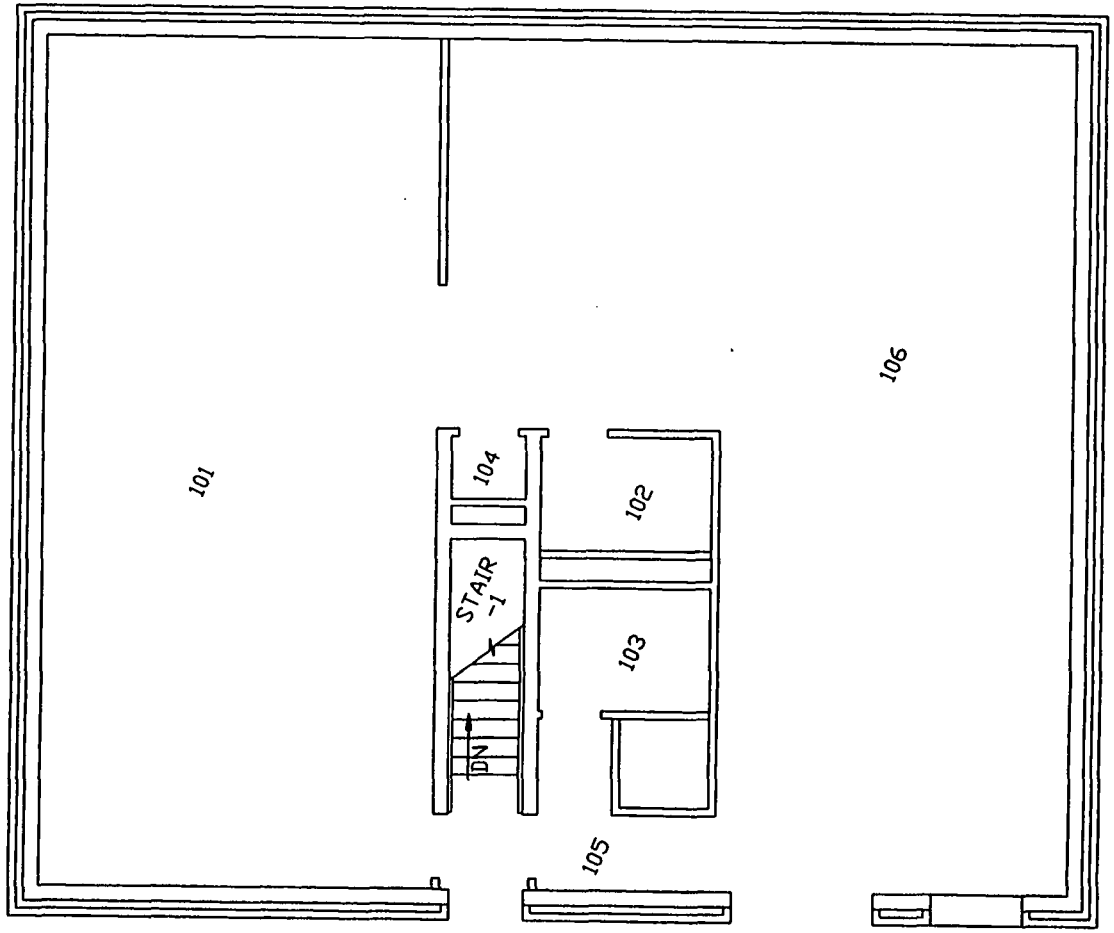


Fig 2

MOUND

Environmental Restoration Geographic Information

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

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

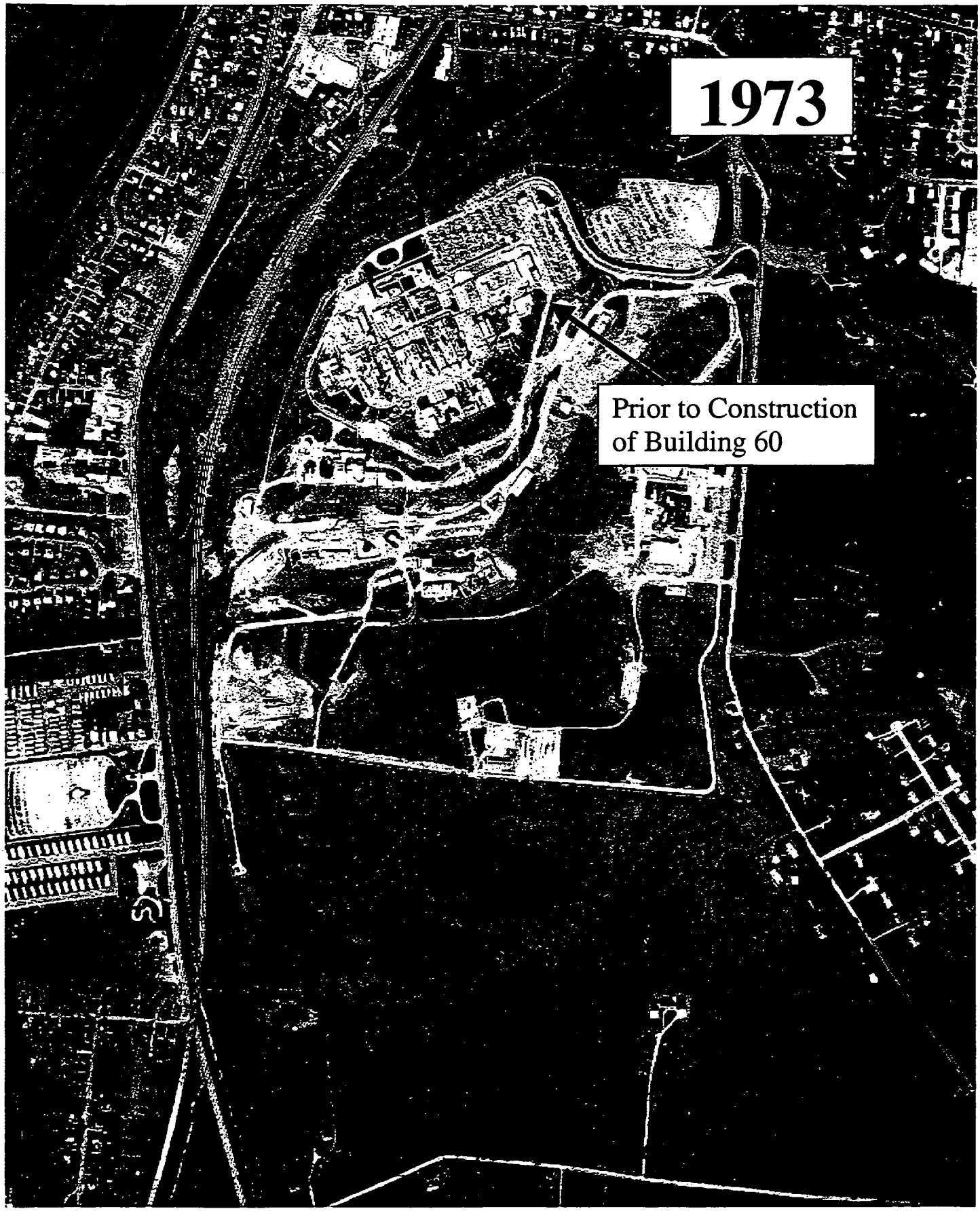
SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

DWG TYPE SIE | PRIMGER-GIS | CAGEC | SCALE | SHEET 1 OF

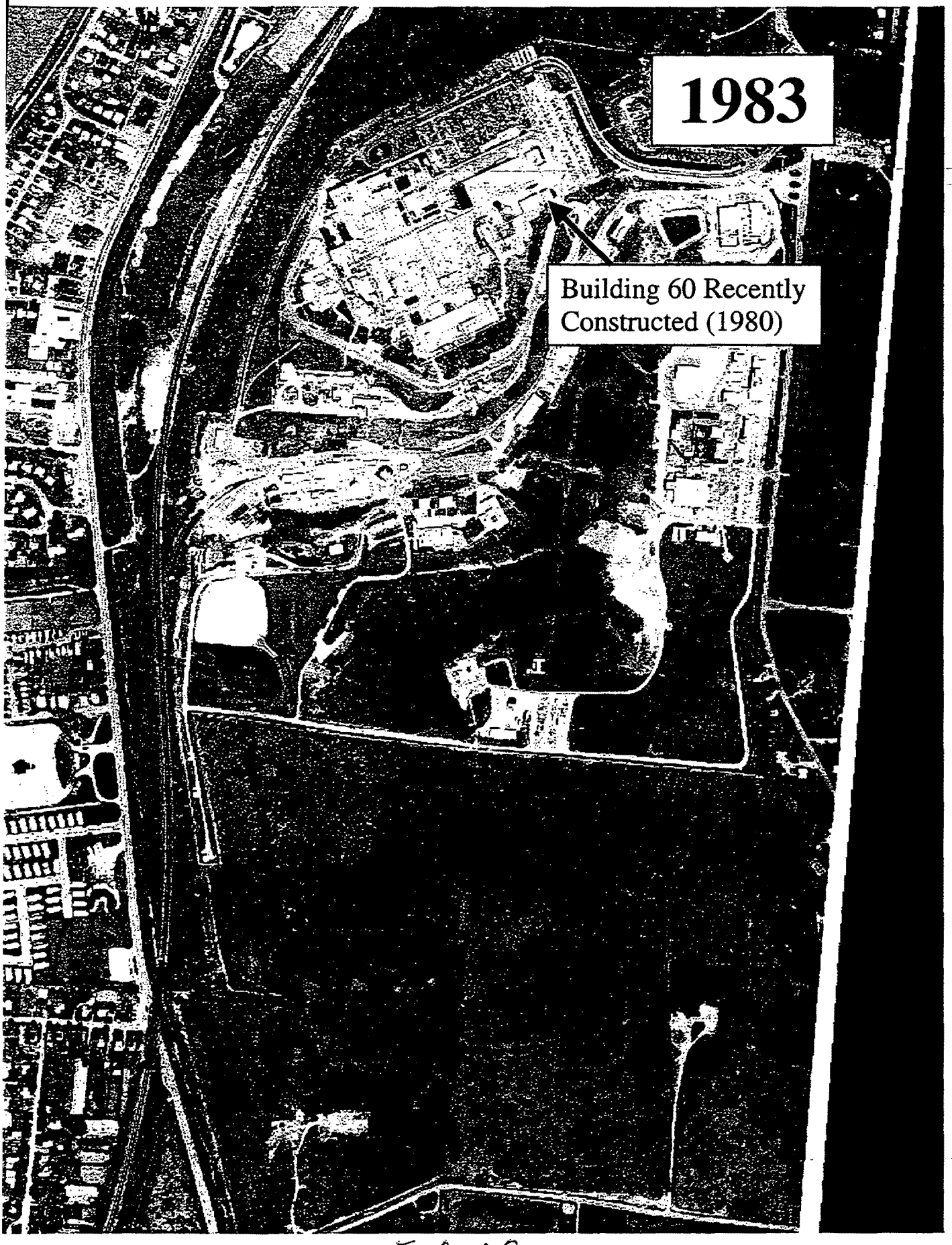
Building 60
Floor Plans
Second Floor

Appendix E

Aerial Photographs



E 1 of 3



E 2 of 3

E 3 of 3

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

9.79 BUILDING 60

9.79.1 Scope of Building 60 Report

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

A team of environmental professionals did not perform an environmental appraisal on Building 60 because it is a leased building.

9.79.2 Description of Building

Building 60 is a 3,958-squar-foot building that was used for ceramic development and nondestructive testing. The building is bordered by Building 47 to the north, Building 28 to the west, and roadways to the east and south. Location is shown in Attachment 1 (Section 9.79.4.1).

The building was leased in 1995. The building had been used for the same purpose since construction. The building was not contaminated with energetic or radioactive material (*Mound Facility Physical Characterization*, 12-1-93).

9.79.3 Summary of Findings

Photographs were taken to document the building. They are included as Attachment 2 (Section 9.79.4.2). Building 60 has undergone Safe Shutdown which includes removal of wastes and other materials plus equipment which cannot be released. A Health Physics safety determination and a liabilities assessment were made. ESA's (ASTM E 1527-94 or ASTM E 1528-93) were not conducted. The building has been leased by DOE to the City of Miamisburg, which accepted the liabilities assessment. The General Purpose Lease between the DOE and the City of Miamisburg requires the sub-lessee to obtain and comply with regulatory agency permits.

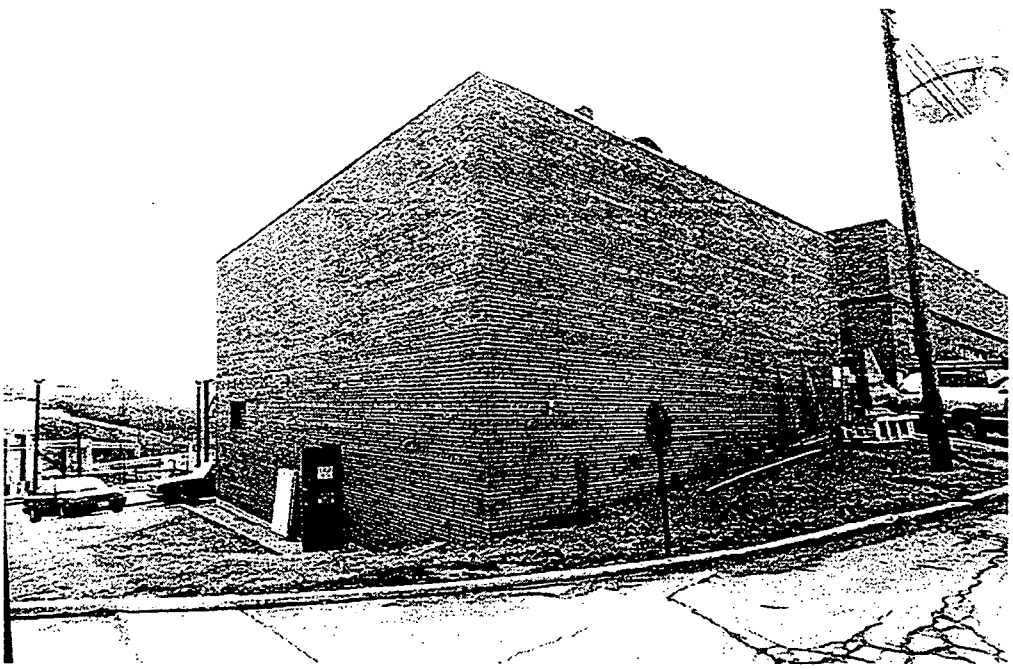
Since the building has been leased, an EAC was not prepared and no further action was taken concerning this building.

F 1 of 1

Appendix G

Radiological Information

Final Status Report
For
Building 60



Prepared by:	**Roderick C. Case /**	**Date:**	**February 11, 2003**
Reviewed by:	**Galen Tomlinson /**	**Date:**	2-11-03
Approved by:	**Dan Riley /**	**Date:**	02-11-03

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1.0 Historical Review

Building 60 was placed in service in 1980 and named the "Ceramic Facility." Process information indicates that this building continued in this function until the mid 1990's when the building was transitioned to the Miamisburg Mound Community Improvement Corporation (MMCIC) as a "user facility." At the time of construction, the building contained 3,958-ft^2. Building 60 has not had any additions constructed on it, and today remains at the "as constructed" square footage.

Ceramic development and ceramic support activities took place in Buildings 60 and 28. Ceramic parts are cast using Sol-gel, and metal parts are coated with a ceramic material in Building 60. Finished ceramic parts are degreased and cleaned in ultrasonic baths in Building 28. Building 60 through its over 20-plus year history has, based upon available information been used primarily for a ceramics production facility. Some later references indicate that the building also housed non-destructive testing (NDT) operations for explosives.

Building 60 has not been used for any purpose other than as a ceramics processing and NDT facility. No radiological process systems were ever a part of the facility. No radioactive materials were stored in this facility. However, two yellow Equipment Transfer tags (ML-1234) were discovered during a pre-survey inspection of the building. One tag was discovered on the floor and one was attached to a bagged section of piping that appeared to be a gas-sampling device. The tags were dated 1993 and 1990 respectively. On each of these tags, it was noted that no contamination was present. The tags also were imprinted with the standard radioactive material symbol (trefoil), but there was no indication that the material was ever considered contaminated. The section of pipe was surveyed and no alpha or beta contamination was found (RSDS# 03-TF-0008). The presence of these tags does not affect the classification of this building as non-impacted since these tags had been used extensively to move equipment between buildings in accordance with procedures in place at that time. Building 60 is currently unoccupied and is scheduled for demolition in accordance with the Mound Exit plan. A complete structural and operational history 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 60 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 4500.5. These limits are the Derived Concentration Guidelines (DCGL's) for building and structure release.

Table 1

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

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

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

2.1 Survey Design

The characterization survey was designed to evaluate the building internal and external surfaces. The building was divided into survey units as follows:

Survey Unit 1 – First Floor interior surfaces

Survey Unit 2 – Second Floor interior surfaces

Survey Unit 3 – External surfaces (Roof and Exterior Walls)

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

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

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

Sediment samples were collected from floor drains and sink traps. 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 43-89 scintillation probe was used for beta measurements in accordance with Reference 4. Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The gross alpha and beta fixed point measurements from each survey unit was collected and compared directly to the $DCGL_w$. Two data points on the interior floor and one data point on the interior wall were found to be above the $DCGL_w$. It was believed that these elevated readings were the result of short-lived activity from Radon daughters. To test this, the affected areas were covered with a polyethylene sheet for 24 hours and re-surveyed. This process interrupts the equilibrium of the short-lived activity and allows the radon daughters to decay. The re-survey results showed that no long-lived activity was present at these locations. All of the remaining data points were found to be below the $DCGL_w$. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1.

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

Total Activity Results

Area	Alpha (dpm/100cm²)			Beta (dpm/100cm²)		
	Max	Average	± σ	Max	Average	± σ
Survey Unit 1	35	8.45	12.4	408	92.4	92.5
Survey Unit 2	82	15.3	21.2	240	32.4	88.7
Survey Unit 3	69	33.7	18.5	1739	761.2	542.1

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/100cm²)			Beta (dpm/100cm²)		
	Max	Average	± σ	Max	Average	± σ
Survey Unit 1	1.7	0.165	0.508	4.0	1.29	1.16
Survey Unit 2	3.5	0.61	1.15	4.4	0.85	1.19
Survey Unit 3	3.7	0.50	1.08	10.1	2.39	2.77

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5

The highest removable tritium activity was 32.54 dpm/100cm2 (RSDS# 03-TF-0023). The average removable tritium was 4.84 dpm/100cm2 (±8.20).

The floors and major walkways in Survey Units 1 & 2 were scanned for alpha activity. The highest activity measured was 74 dpm/100cm2.

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-0019). 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. The highest activity observed was 96 dpm/100cm^2 alpha and 182 dpm/100cm^2 beta.

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Eight data points were selected at random from the sample group of 65 data points. The highest and lowest alpha measurements and corresponding beta measurements were selected from each survey unit. Replicate measurements were taken at these locations using the same instruments and performed in the same manner as the original survey. The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is within a factor of two of the variance in the replicate samples (at 95% confidence level). Negative beta values occur when the measured value is below the instrument background level. These values are used for this analysis to show the true variability of the data set. The results of the replicate surveys are shown in the following table:

Replicate Analysis Results

Location #	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Initial	± 2σ	Replicate	Initial	± 2σ	Replicate
SU1FPF-11	-6	4.90	11	32	11.31	59.2
SU1FPW-17	29	10.77	-13	72	16.97	71.2
SU2FPF-15	-6	4.90	11	60	15.49	159.2
SU2FPF-10	59	15.36	-1	132	22.98	179.2
RFFP-01	16	8.00	81	335.2	36.62	867.2
RFFP-07	69	16.61	52	491.3	44.33	1167.2
SU3FPW-05	34	11.66	40	1507	77.64	1407.2
SU3FPW-09	58	15.23	-1	299.2	34.59	303.2
Variance (S^2)	847.125		1032.571	238482.3		209466
Ratio			0.820403			0.8210333
Agreement			Yes			Yes

Replicate analyses were not performed on smears or sediment samples. Quality control procedures, blanks, and spikes are a part of the laboratory quality control program at

Mound. Participation in the DOE/EML inter-laboratory quality assurance program provides acceptable assurance of nuclide identification reliability and ensures a high quality of sample results. Since a relatively small number of samples were taken for this survey, additional replicate analysis was not required for this survey.

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

2.5 Conclusion

The objective of this survey plan is to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 60 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 60 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 60 Survey Results

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)	COMMENTS
Highest Alpha Smearable Activity	03-TF-0036	Exterior Wall	3.7	20	
Highest Alpha Fixed Activity	03-TF-0023	Interior Wall	82	100	96 dpm/100cm^2 was found at a floor drain sample location
Highest Beta Smearable Activity	03-TF-0030	Roof	10.07	1000	
Highest Beta Fixed Activity	03-TF-0036	Exterior Wall	1739	5000	
Highest Tritium Smearable Activity	03-TF-0023	Interior Floor	32.54	10,000	

Note 1: DOE Order 5400.5 (DCGLw)
Note 2: Corrected for background and/or Po210 interference

3.0 Attachments and Enclosures

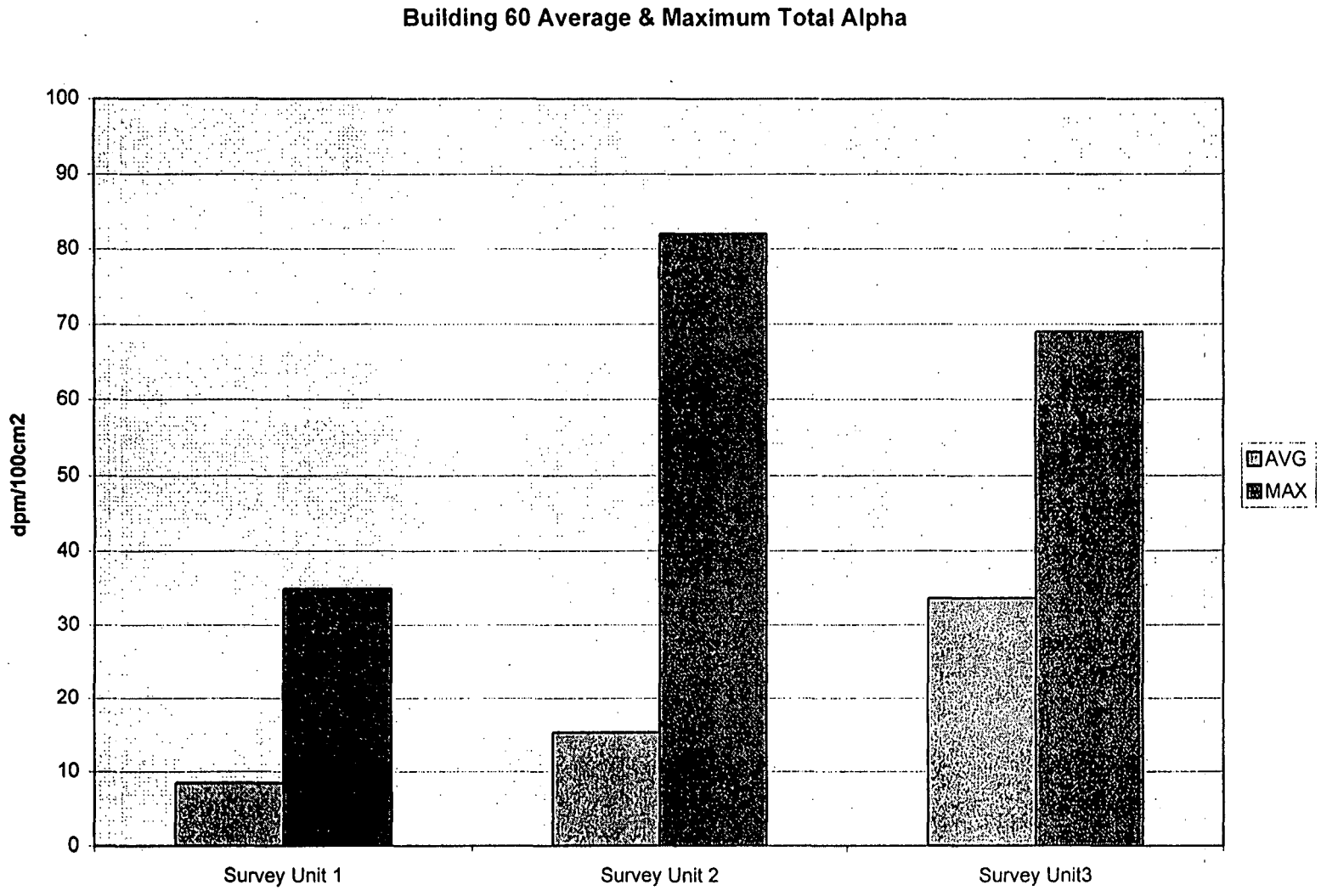
Attachment 1 – Average Total Alpha and Beta Graph

Enclosure 1 – Sample Data Analysis Worksheets

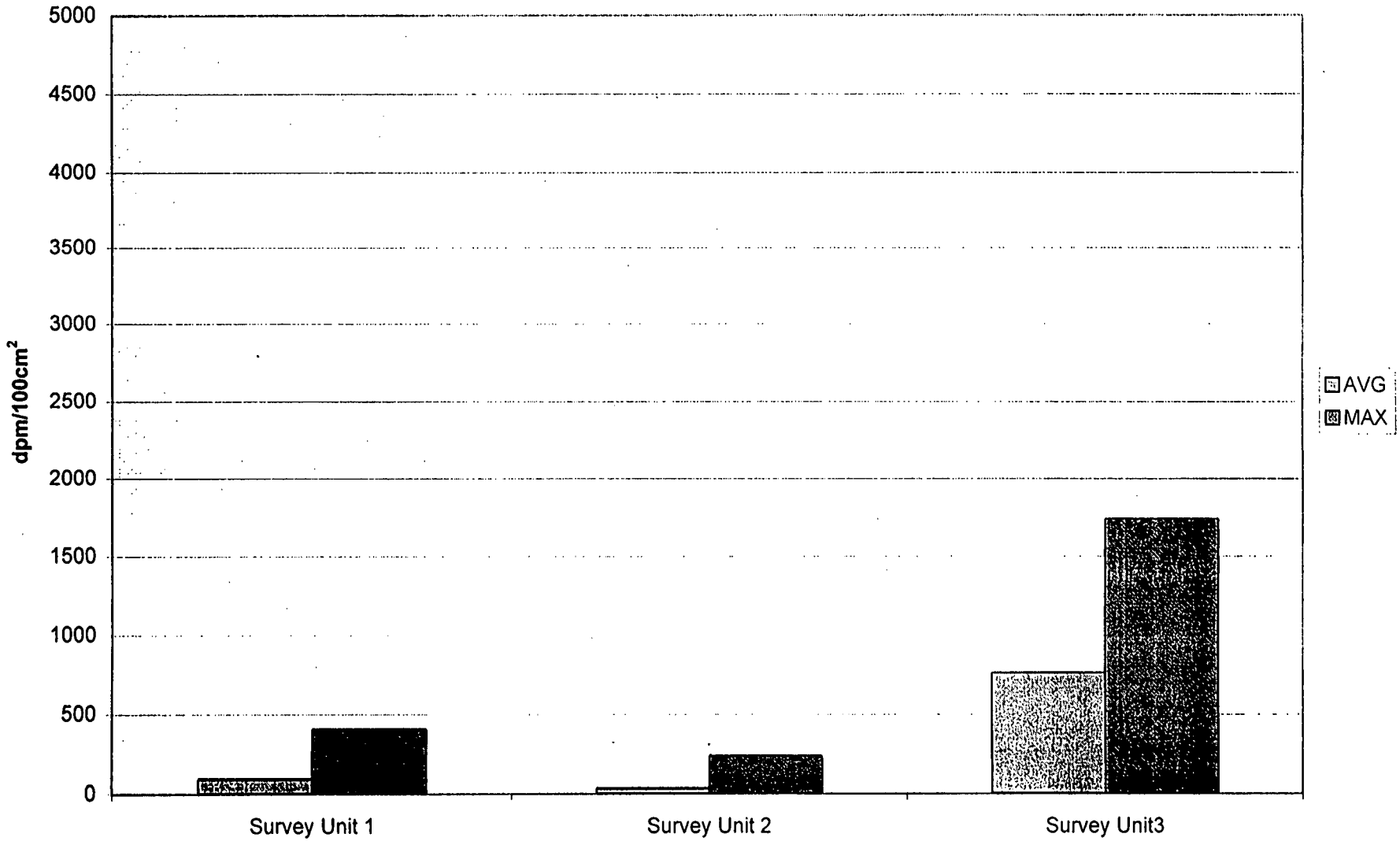
Enclosure 2 – SPF 60-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 60 Structural History and Process History Summary Background Document, January 2003
2. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op. 402
4. MD80036, Issue 29, Op. No. 30030,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator,* Section 6.3


Building 60 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

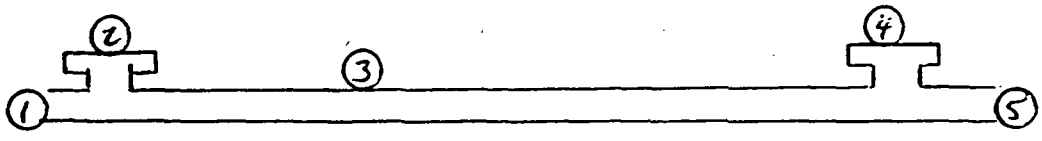
Building 60 Average & Maximum Total Beta Activity



RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 60 Room 101	SURVEY NO 03-TF-0008
PURPOSE: Investigation of pipe with tag	RWP NO. N/A
	DATE: 1-15--2003
	TIME 1330

MAP / DRAWING



PIPE WITH (2) VALVES

COPY

- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED

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

[redacted]

HP# 6178 7474 Date: 1-15-2003

[redacted]

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5704/5714	9-26-2003
	N/A	

Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA
Counted by: (Print Name) NA		
Reviewed/A[redacted]	HP# 7707	Date: 01/21/03
Reviewed/A[redacted]		

2 of 4

Survey No. 03-TF-0008

Page ___ of ___

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comment
		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 re 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-9620A (4-98)

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

	LL	UL	LCR	2SZ	BKG
Region A:	0.5 -	18.6	0	0.0	6.63
Region B:	2.0 -	18.6	0	0.0	6.48
Region C:	40.0 -	2000	0	0.0	15.20

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0008 HARVEY (5) BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	6.63	6.48	15.20	588.60	1	B		0.00
0	2.00	430.96	418.62	0.00	497.75	0		930.84	93.48
1	2.00	21.44	21.09	7.80	672.42	0		40.42	14.75
2	2.00	8.37	8.52	0.30	682.29	0		15.69	10.78
3	2.00	13.37	12.75	0.00	660.33	0		25.36	12.53
4	2.00	9.38	8.68	8.40	639.14	0		18.00	11.37
5	2.00	0.87	0.11	0.00	672.66	0		1.64	7.92

DJH

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Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200301160901	**Count Date:**	1/16/2003
Group:	J	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0008 HARVEY (5) BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	90	0.00	0.00	1.37	1.45
2	64	0.00	0.00	10.96	4.09
3	82	4.37	2.72	5.17	2.90
4	19	2.18	1.92	3.95	2.51
5	56	0.00	0.00	1.37	1.45

DJH DJH

B. Brown

4 of 4

Batch ID: 03-TF-0008 HARVEY (5) BSB

SURVEY PLAN FORM

SP NUMBER	60-01	DATE OF REQUEST	January 21, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 60		
PURPOSE	The purpose of this SP is to characterize Building 60 to support decisions on final disposition.		
SURVEY UNIT # 1	First Floor	SURVEY UNIT # 4	
SURVEY UNIT # 2	Second Floor	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
DOSE RATE MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE		DETECTOR DISTANCE FROM SURFACE	

OTHER SURVEY TYPES OR COMMENTS:

All surveys shall be performed and documented in accordance with Mound Radiological Control procedures.

Take photographs of survey units, if possible. Pay particular attention to grid markings or other identifying features. Date and label photos.

Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Survey Plan Continuation Sheet.

Safety Considerations

1. Obtain assistance from the responsible building custodian for access to upper walls, ceilings, roof, etc. Exercise extreme caution when performing surveys from ladders or scaffolds. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.
2. Ensure ventilation units are de-energized prior to attempting to collect a sample. Obtain approval and assistance from the responsible building custodian to dismantle any equipment for sample collection.

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

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

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

1. Perform an alpha and beta count on at least twenty (20) data points in Survey Units 1 & 2. Data points are selected by the surveyor and should be broadly representative of the entire survey unit.
2. Perform an alpha and beta measurement on at least ten (10) data points on the roof and penthouse areas. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit.
3. Perform an alpha and beta measurement on at least ten (10) data points on the building exterior walls and exposed foundations. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit
4. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
5. Document gross activity for each location (No "<" values). Record instrument background at survey location.

Loose Surface Contamination

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

Sediment Samples

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

Continued Next Page

Specific Survey and Sampling Instructions (continued)

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	January 21, 2003
Technical Reviewer		DATE	01/21/03
Rad Con Manager		DATE	01-21-03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	DATE	2-8-03
Technical Reviewer	G. TOMLINSON	DATE	2-11-03
Rad Con Manager	DANNY K. RILEY	DATE	02-11-03
COMMENTS			

Attachment 2

PAGE 1 of 2

Sample Number	Sample Date	Sample Time	Sample Volume Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab Date	Time	Initials	Rec'd By
60-01-01	1-22-03	N/A	~~2.5ml Aqueous Container~~ ~~& Smear~~	* Smear	[redacted]	1/22/03	1500	[redacted]	CyR
60-01-02			250ml Container & Smear	Liquid sample from sink trap & Smear Rm 102		1/23/03	1300	[redacted]	HoP
60-01-03			Smear	Smear		1/22/03	1500	[redacted]	CyR
60-01-04			250ml CONT.	Sediment sample from sink trap & smear Rm 104		1/23/03	1300	[redacted]	HoP
60-01-05			Smear	Smear		1/22/03	1500	[redacted]	CyR
60-01-06			Smear	Smear		1/22/03	1500	[redacted]	CyR
60-01-07			250ml Cont	Liquid sample from sink trap & Smear Rm 105		1/23/03	1300	[redacted]	HoP
60-01-08			Smear	Smear		1/22/03	1500	[redacted]	CyR
60-01-09			250ml Cont	Liquid sample from floor drain & Smear Rm 1		1/23/03	1300	[redacted]	HoP
60-01-~~01~~ 10			Smear	Smear		1/22/03	1500	[redacted]	CyR
60-01-11			Smear	Smear		1/22/03	1500	[redacted]	CyR
60-01-12			250ml Cont	Liquid sample from south sink trap and Smear Rm 1		1/23/03	1300	[redacted]	HoP
60-01-13	1-22-03	N/A	250ml Cont	Liquid sample from west floor drain and Smear Rm 2	[redacted]	1/23/03	1300	[redacted]	HoP

~~03-TF-0017~~ F10646 MR 2-6-03

* ALL smears turned into TBLDG count lab
SEE RSDS 03-TF-0016

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Attachment 2

Sample Number	Sample Date	Sample Time	Sample Volume Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
60-01-14	1/22/03	N/A	250 ml container and smear	Sediment Sample From East Floor Drain and Smear RM 2	[redacted] 6196	1/23/03	1300	[illegible]	HoP
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									
60-01-									

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG. / ROOM / AREA) 60	SURVEY NO. 03 – TF – 0016
PURPOSE: FLOOR AND SINK DRAIN SURVEY	RWP NO. N/A
	DATE: 1-22-03
	TIME: 16:00

MAP / DRAWING

β Background (CPM)	139.6
β Conv. Factor	4

α Background	4
α Conv. Factor	8

* Location	β CPM	β dpm/100 cm²	α CPM	α dpm/100 cm²
1	151	45.6	7	24
2	157	69.6	5	8
3	152	49.6	11	56
4	147	29.6	11	56
5	152	49.6	16	96
6	163	93.6	8	32
7	161	85.6	4	0
8	185	181.6	8	32
9	149	37.6	7	24
10	167	109.6	11	56
11	139	-2.4	8	32
12	146	25.6	10	48
13	154	57.6	10	48
14	181	165.5	11	56

* Denotes drain and smear location. Smears taken on interior drain pipes/traps. One-Minute integrated count performed at each location. Maps shown on pages 3 and 4.

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
Ludlum 2360	5707 / 5718	8-23-03

[redacted]		HP# 6196 6175	Date: 1-30-03
[redacted]			
Counted by (Signature)	SFF	HP#	Date:
Counted by (Print Name)	ATTACHED PAGES		
Reviewed/A [redacted]		HP# [illegible]	Date: 1/30/03
Reviewed/A [redacted]			

ML-9620 (2-98) Computer Generated

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Survey No. 03-TF-0016

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				
7				
8				
9				
10				
11				
12				
13				
14	SEE	ATTACHED		SEE MAP

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

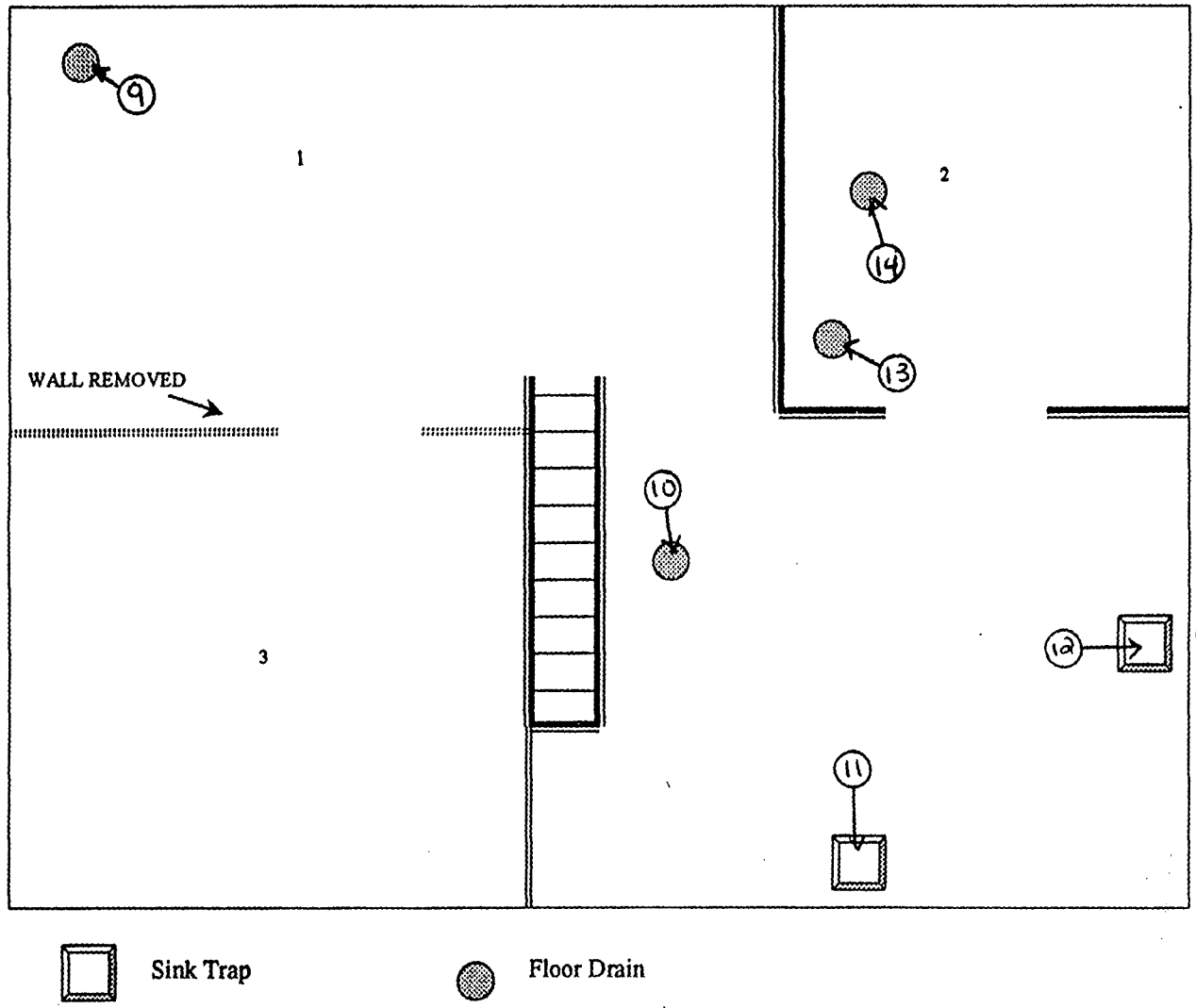
COPY

COMMENTS: SMEARS FIELD SCREENED < 1000 dpm /100cm²
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-9620A (4-98)

BUILDING 60 FIRST (GROUND) FLOOR



COPY

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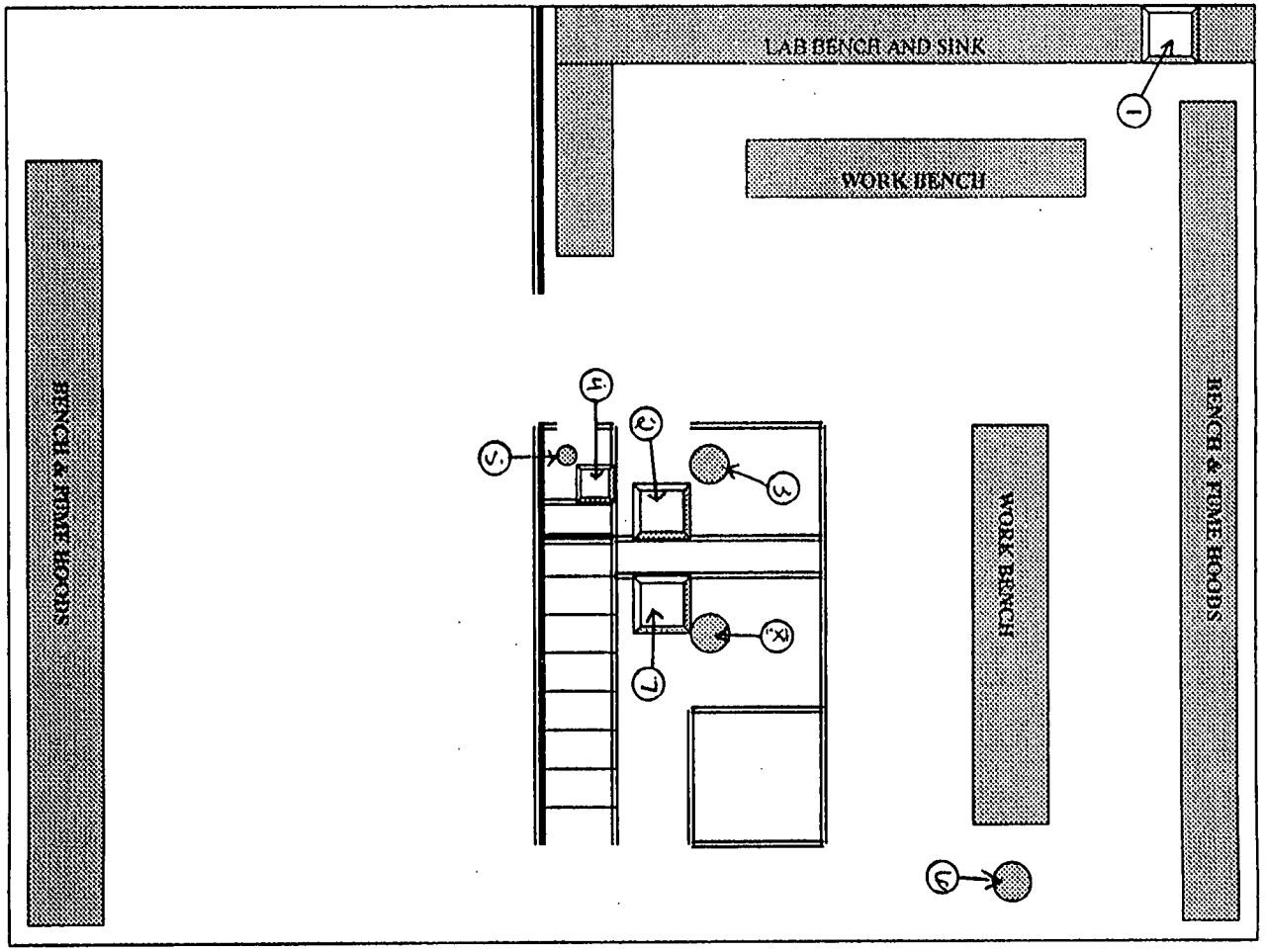
BUILDING 60 SECOND FLOOR



Sink Trap

Floor Drain

COPY

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR009
Batch Ended: 1/22/03 14:37

Crosstalk correction performed.

Batch ID: BECKER 03-TF-0016 RGB

Recalibration Date: 6/7/04
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		2.2	2.4	
A2	2	0.0	2.2		0.0	1.5	
A3	3	0.0	2.0		2.0	2.2	
A4	4	0.0	1.9		0.0	1.4	
B1	5	0.0	2.0		3.7	3.2	
B2	6	0.0	2.0		0.0	1.6	
B3	7	0.0	1.9		1.0	2.1	
B4	8	1.6	1.9		0.3	1.8	
C1	9	0.0	2.1		1.8	2.2	
C2	10	0.0	2.0		0.0	1.4	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.9		0.0	1.2	
D1	13	2.1	2.3		0.6	1.9	
D2	14	0.0	2.1		0.0	2.0	

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

	LL	UL	LCR	2SI	BKG
Region A:	0.5 -	18.6	0	0.0	4.50
Region B:	2.0 -	18.6	0	0.0	4.33
Region C:	40.0 -	2000	0	0.0	5.70

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
BECKER 03-TF-0016 (K1-K14) 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	4.50	6	B	683.49		0.00	5.70
0	2.00	809.99	0		547.73	1681.94	131.21	0.00
1	2.00	0.00	0		450.95	0.00	0.00	0.00
2	2.00	0.00	14		582.39	0.00	0.00	0.00
3	2.00	0.00	0		546.63	0.00	0.00	1.80
4	2.00	3.71	6		546.39	7.70	8.90	0.00
5	2.00	0.00	0		571.16	0.00	0.00	0.00
6	2.00	0.00	0		609.33	0.00	0.00	3.30
7	2.00	0.00	0		567.53	0.00	0.00	0.00
8	2.00	0.00	0		569.42	0.00	0.00	0.30
9	2.00	0.00	0		491.19	0.00	0.00	0.00
10	2.00	0.50	0		545.64	1.04	7.17	0.00
11	2.00	0.00	0		487.87	0.00	0.00	0.00
12	2.00	0.00	0		484.18	0.00	0.00	0.00
13	2.00	0.00	0		410.10	0.00	0.00	0.30
14	2.00	0.00	0		394.75	0.00	0.00	0.00

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG. / ROOM / AREA) BUILDING 60	SURVEY NO. 03-TF-0019
PURPOSE: LIQUID AND SEDIMENT SAMPLES FROM FLOOR/SINK DRAINS	RWP NO. N/A
	DATE: 1-22-03
	TIME: 16:00

MAP / DRAWING

Could not obtain sediment/liquid samples from the following drains: 1, 3, 5, 6, 8, 10, and 11. See RSDS 03- TF – 0016 for smear results. See pages 2 and 3 for drain locations.

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

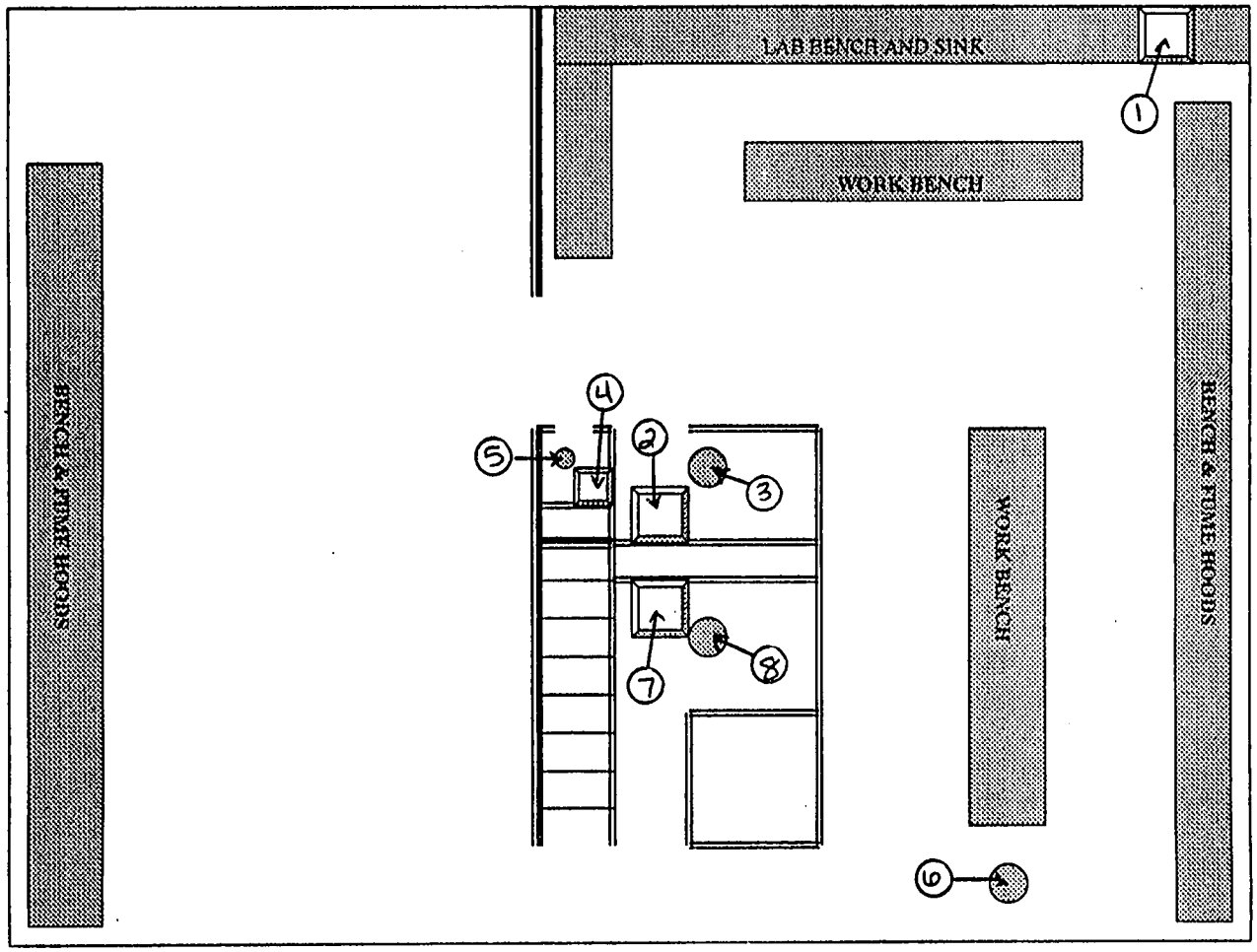
INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date

[redacted]		HP# 0196 4175	Date: 1-30-03
Counted by: (Signature) SEE		HP#	Date:
Counted by: (Print Name) ATTACHED			
Reviewed [redacted]		HP# 7707	Date: 02/03/03
Reviewed/approved by: (Print Name) [redacted]			

ML-0620 (2-98) Computer Generated

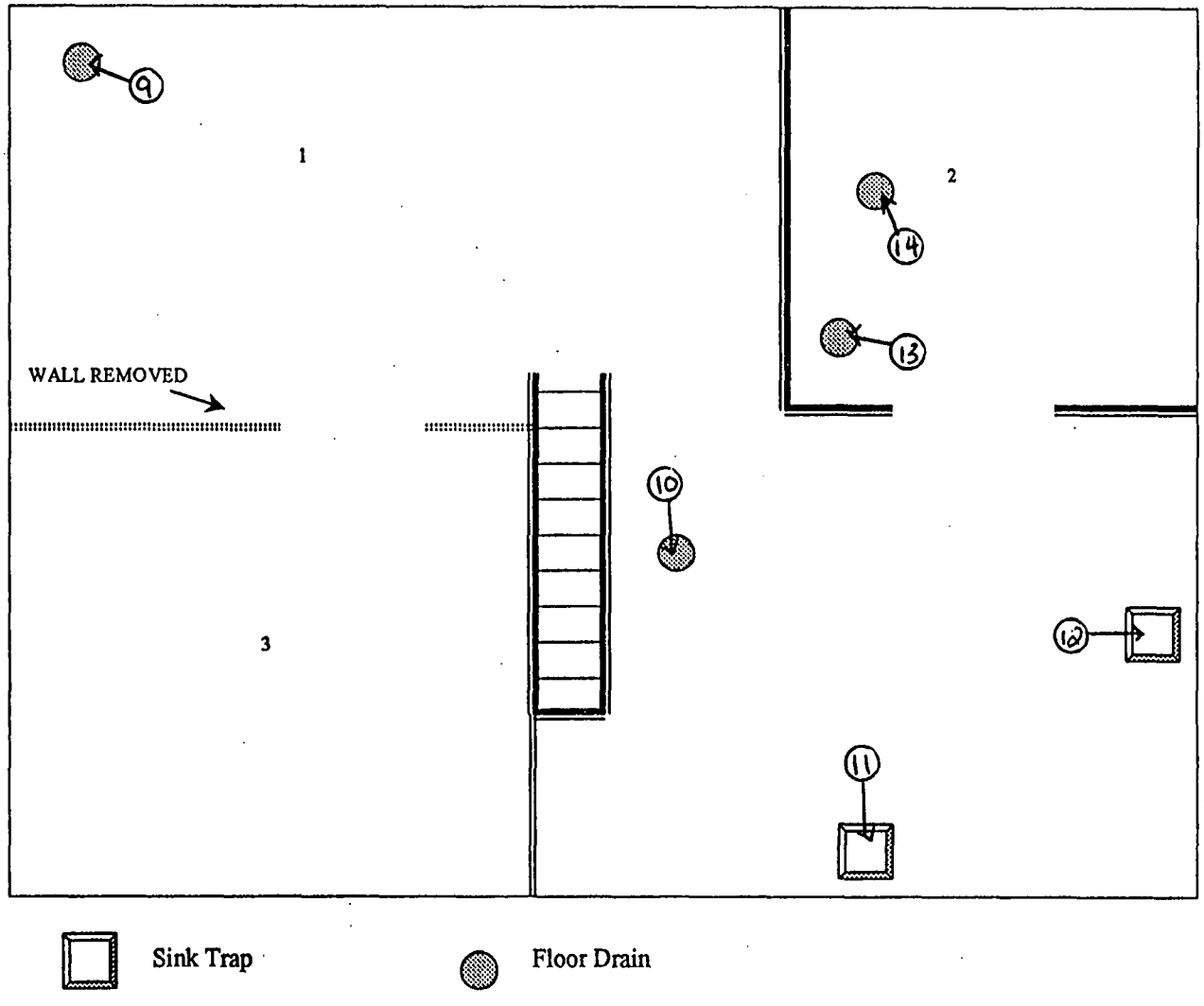
BUILDING 60 SECOND FLOOR



Sink Trap

Floor Drain

BUILDING 60 FIRST (GROUND) FLOOR



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BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
1/23/03	Liquid	Mike Rubadue	5
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
SMPP/TFV	Mike Rubadue 3104		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
F90646	1/22/03	03-TF0019	

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____
- [x] Other Gross Beta

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
0300810	RD-60	2	
0811	↓	7	
0812		9	
0813		12	
0814		13	

COMMENTS:

ANALYZED BY: [signature] DATE: 1/29/03

ML-5222 (1-01)

Laboratory ID#: 0300810-0300814
Project/function: TFV/Bldg 60 liquid
Submitted: Jan 23, 2003
Submitted by: Mike Rubadue
Point of Contact: Mike Rubadue
RSDS#: 03-TF-0019
Date: Jan 29, 2003

Tritium 3H

Lab ID	Sample Location	pCi/g	LDL (pCi/g)
0300810	Bldg 60 #2	0.78	0.62
0300811	Bldg 60 #7	<LDL	1.00
0300812	Bldg 60 #9	<LDL	1.00
0300813	Bldg 60 #12	<LDL	1.00
0300814	Bldg 60 #13	<LDL	0.62

MR

Gross Alpha

Lab ID	Sample Location	pCi/g	LDL (pCi/g)
0300810	Bldg 60 #2	<LDL	0.62
0300811	Bldg 60 #7	<LDL	0.62
0300812	Bldg 60 #9	<LDL	0.91
0300813	Bldg 60 #12	<LDL	0.62
0300814	Bldg 60 #13	<LDL	0.62

MR

Gross Beta

Lab ID	Sample Location	pCi/g	LDL (pCi/g)
0300810	Bldg 60 #2	<LDL	0.70
0300811	Bldg 60 #7	<LDL	0.70
0300812	Bldg 60 #9	<LDL	2.19
0300813	Bldg 60 #12	<LDL	0.70
0300814	Bldg 60 #13	<LDL	0.70

MR

[redacted] 6195 1/29/03
HP # Date

[redacted] 2857 1/29/2003
Data Verification HP # Date

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
1/23/03	Sediment	Mike Rudadue	2
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
JMPP/TFV	Mike Rudadue 3104		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
F90646	1/22/03	03-TF-0019	

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____
- [x] Other Gross Beta

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
0300808	BLDG 60	4	
0809	↓	14	

COMMENTS:

ANALYZED BY: Bradley D Jones

DATE: 1/29/03

ML-5222 (1-01)

Laboratory ID#: 0300808-0300809
Project/function: TFV/Bldg 60 soil
Submitted: Jan 23, 2003
Submitted by: Mike Rubadue
Point of Contact: Mike Rubadue
RSDS#: 03-TF-0019
Date: Jan 29, 2003

Tritium 3H

Lab ID	Sample Location	pCi/g	LDL (pCi/g)
0300808	Bldg 60 #4	<LDL	14.31
0300809	Bldg 60 #14	10.015	9.61

MR

Gross Alpha

Lab ID	Sample Location	pCi/g	LDL (pCi/g)
0300808	Bldg 60 #4	<LDL	2.43
0300809	Bldg 60 #14	<LDL	1.89

MR

Gross Beta

Lab ID	Sample Location	pCi/g	LDL (pCi/g)
0300808	Bldg 60 #4	<LDL	2.28
0300809	Bldg 60 #14	<LDL	2.12

MR

[redacted] 6175 1/29/03
HP # Date

[redacted] 2857 1/29/2003
Data Verification HP # Date

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG. / ROOM / AREA) BLDG 60	SURVEY NO. 03-TF-0022
PURPOSE: FLOOR SCANS OF SURVEY UNIT 1 & 2	RWP NO. N/A
	DATE: 1-23-03
	TIME: 1600

MAP / DRAWING

SMEARS TAKEN AT EACH INTEGRATED COUNT LOCATION. INTEGRATED COUNTS TAKEN IN ACCORDANCE WITH SURVEY PLAN. MAPS SHOWING MEASUREMENT LOCATIONS ARE ON PAGES 5 & 6. DIRECT MEASUREMENTS LISTED ON PAGES 3 & 4.

COPY

○ → INDICATED MEASUREMENT LOCATION & SMEAR LOCATION

↑ → INDICATES SCAN PATH

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
Ludlum 2350	5671 / 5675	9/11/03

[redacted]	HP# 6196 7561	Date: 1-29-03
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/App [redacted]	HP# 7707	Date: 01/29/03
Reviewed/App [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 03-TF-0022

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTAC	HED	60SU1 SU-01
2				SU-02
3				SU-03
4				SU-04
5				SU-05
6				SU-06
7				SU-07
8				SU-08
9				60SU1 SU-09
10				60SU2 FS-01
11				FS-02
12				FS-03
13				FS-04
14				FS-05
15				FS-06
16				FS-07
17				FS-08
18				FS-09
19	SEE	ATTAC	HED	60SU2 FS-10

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

COMMENTS: SMEARS FIELD SCREENED <1000 dpm/100cm²
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-9620A (4-98)

BLUIDING 60 MARSSIM SURVEY

RSDS# 03-F-0020 RCT: MR RCT: AGL

43-20 BKG:	0	EFF:	0.188	PROBE AREA:	181	cm	Surface Eff:	0.5	
43-37 BKG:	5	EFF:	0.199	PROBE AREA:	584	cm	Surface Eff:	0.5	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	ALPHA CNTS	CT TIME	ALPHA dpm/100cm2
SRC BKG	5671	6196	5675	4	0	1/22/03	12:18:40	25	300	0
SRC CHECK	5671	6196	5675	4	1	1/22/03	12:22:38	2247	60	3858
SRC CHECK	5671	6196	5675	4	2	1/22/03	12:24:14	2158	60	3705
SRC CHECK	5671	6196	5675	4	3	1/22/03	12:26:08	2201	60	3779
SRC CHECK	5671	6196	5675	4	4	1/22/03	12:27:42	2120	60	3640
SRC CHECK	5671	6196	5675	4	5	1/22/03	12:29:20	2084	60	3578
SRC CHECK	5671	6196	5675	4	6	1/22/03	12:30:52	2120	60	3640
60SU1 SU-01	5671	6196	5675	4	17	1/22/03	14:42:32	6	30	12
60SU1 SU-02	5671	6196	5675	4	18	1/22/03	14:45:04	15	30	43
60SU1 SU-03	5671	6196	5675	4	19	1/22/03	14:47:16	3	30	2
60SU1 SU-04	5671	6196	5675	4	20	1/22/03	14:48:44	8	30	19
60SU1 SU-05	5671	6196	5675	4	21	1/22/03	14:51:24	3	30	2
60SU1 SU-06	5671	6196	5675	4	22	1/22/03	14:53:30	24	30	74
60SU1 SU-07	5671	6196	5675	4	23	1/22/03	14:55:46	5	30	9
60SU1 SU-08	5671	6196	5675	4	24	1/22/03	14:58:16	4	30	5
60SU1 SU-09	5671	6196	5675	4	25	1/22/03	15:00:32	8	30	19
60SU2 FS-01	5671	6196	5675	4	26	1/22/03	15:02:58	5	30	9
60SU2 FS-02	5671	6196	5675	4	27	1/22/03	15:04:38	7	30	15
60SU2 FS-03	5671	6196	5675	4	28	1/22/03	15:10:14	11	30	29
60SU2 FS-04	5671	6196	5675	4	29	1/22/03	15:13:42	11	30	29
SRC BKG	5671	6196	5675	4	30	1/22/03	15:20:46	45	300	7
SRC CHECK	5671	6196	5675	4	31	1/22/03	15:23:08	1977	60	3394
SRC CHECK	5671	6196	5675	4	32	1/22/03	15:24:52	2216	60	3805
SRC CHECK	5671	6196	5675	4	33	1/22/03	15:26:28	1960	60	3364
SRC CHECK	5671	6196	5675	4	34	1/22/03	15:28:04	2146	60	3685
SRC CHECK	5671	6196	5675	4	35	1/22/03	15:29:28	1955	60	3356
SRC CHECK	5671	6196	5675	4	36	1/22/03	15:31:14	2061	60	3538

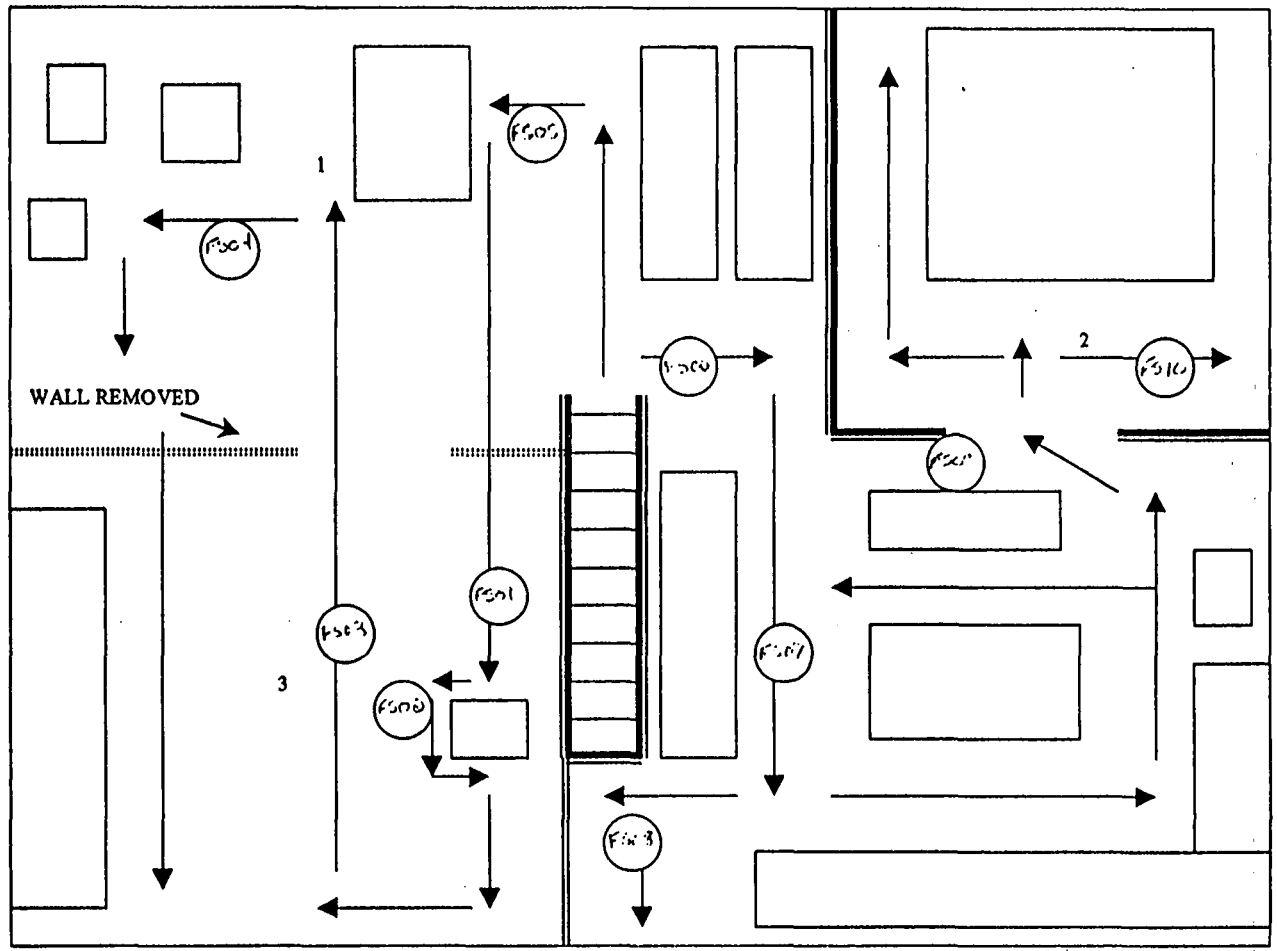
BUILDING 60 MARSSIM SURVEY

RSDS# 03 TF 0029 RCT: MJR RCT: SMK

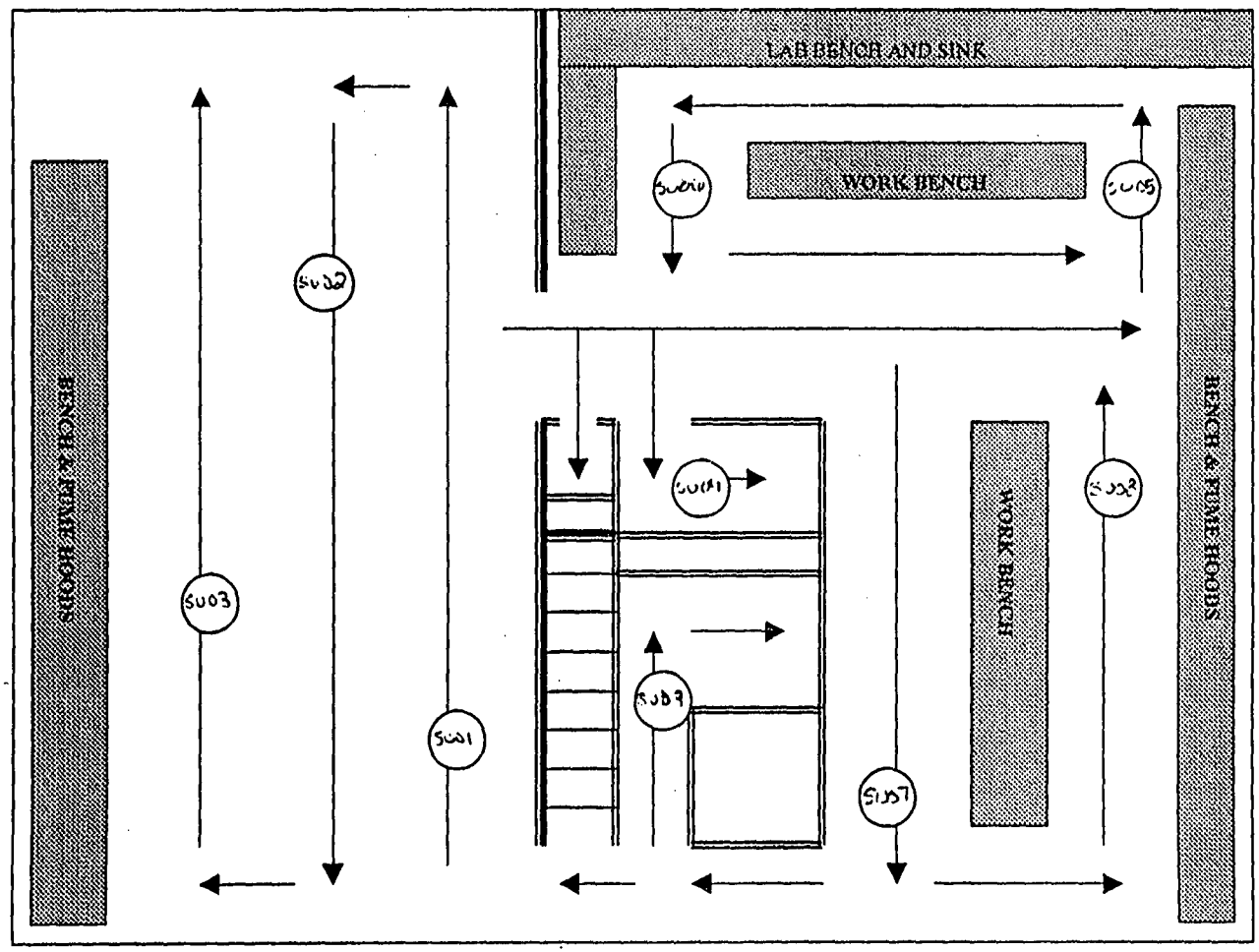
43-20 BKG:	1	EFF:	0.188	PROBE AREA:	181	cm	Surface Eff:	0.5	
43-37 BKG:	2.4	EFF:	0.199	PROBE AREA:	584	cm	Surface Eff:	0.5	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	ALPHA CNTS	CT TIME	ALPHA dpm/100cm2
SRC BKG	5671	6196	5675	4	37	1/23/03	8:18:52	12	300	0
SRC CHECK	5671	6196	5675	4	38	1/23/03	8:22:06	2071	60	3560
SRC CHECK	5671	6196	5675	4	39	1/23/03	8:24:14	2152	60	3699
SRC CHECK	5671	6196	5675	4	40	1/23/03	8:25:54	2026	60	3482
SRC CHECK	5671	6196	5675	4	41	1/23/03	8:27:50	2111	60	3629
SRC CHECK	5671	6196	5675	4	42	1/23/03	8:30:34	1956	60	3362
SRC CHECK	5671	6196	5675	4	43	1/23/03	8:32:26	2072	60	3562
SRC BKG	5671	6196	5148	3	44	1/23/03	8:38:38	5	300	0
SRC CHECK	5671	6196	5148	3	45	1/23/03	8:40:52	1941	60	11402
SRC CHECK	5671	6196	5148	3	46	1/23/03	8:42:24	2011	60	11814
SRC CHECK	5671	6196	5148	3	47	1/23/03	8:43:56	1960	60	11514
SRC CHECK	5671	6196	5148	3	48	1/23/03	8:45:22	2004	60	11773
60SU2 FS-05	5671	6196	5675	4	49	1/23/03	8:54:38	4	30	10
60SU2 FS-06	5671	6196	5675	4	50	1/23/03	8:56:14	5	30	13
60SU2 FS-07	5671	6196	5675	4	51	1/23/03	8:58:58	10	30	30
60SU2 FS-08	5671	6196	5675	4	52	1/23/03	9:00:58	5	30	13
60SU2 FS-09	5671	6196	5675	4	53	1/23/03	9:05:00	10	30	30
60SU2 FS-10	5671	6196	5675	4	54	1/23/03	9:07:48	9	30	27
SRC BKG	5671	6196	5148	3	98	1/23/03	14:00:28	14	300	11
SRC CHECK	5671	6196	5148	3	99	1/23/03	14:03:20	2030	60	11925
SRC CHECK	5671	6196	5148	3	100	1/23/03	14:05:24	1899	60	11156
SRC CHECK	5671	6196	5148	3	101	1/23/03	14:07:06	2040	60	11984
SRC CHECK	5671	6196	5148	3	102	1/23/03	14:08:38	2053	60	12061
SRC BKG	5671	6196	5675	4	103	1/23/03	14:35:40	45	300	11
SRC CHECK	5671	6196	5675	4	104	1/23/03	14:37:50	2153	60	3701
SRC CHECK	5671	6196	5675	4	105	1/23/03	14:39:24	2146	60	3689
SRC CHECK	5671	6196	5675	4	106	1/23/03	14:41:14	2197	60	3777
SRC CHECK	5671	6196	5675	4	107	1/23/03	14:42:38	2245	60	3859
SRC CHECK	5671	6196	5675	4	108	1/23/03	14:44:06	2077	60	3570
SRC CHECK	5671	6196	5675	4	109	1/23/03	14:45:32	2176	60	3741

BUILDING 60 FIRST (GROUND) FLOOR



BUILDING 60 SECOND FLOOR



Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR007
Batch Ended: 1/27/03 10:44

Crosstalk correction performed.

Batch ID: RUBADUE 03-TF-0022 (19) CYR

Recalibration Date: 6/7/04
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.8	2.0	
A2	2	0.0	2.2		0.0	1.5	
A3	3	0.0	2.0		3.3	2.6	
A4	4	0.0	2.0		0.2	1.8	
B1	5	0.0	2.0		0.0	2.3	
B2	6	1.6	2.0		0.0	1.6	
B3	7	0.0	1.9		1.0	2.1	
B4	8	1.6	1.9		0.3	1.8	
C1	9	0.0	2.1		3.0	2.5	
C2	10	0.0	2.0		0.0	1.4	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.9		0.0	1.2	
D1	13	0.0	2.3		0.0	1.4	
D2	14	0.0	2.1		0.0	1.5	
D3	15	0.0	2.0		5.7	3.1	
D4	16	0.0	2.0		0.1	1.9	
A1	17	0.0	2.1		0.0	1.4	
A2	18	0.0	2.2		0.0	1.5	
A3	19	0.0	2.0		0.8	1.8	

MR MR Carol G Robinson

Page 1 of 1

27 Jan 2003 11:54 ALPHA/BETA - 1.09 Page #1
Protocol #: 2 PW H3 403728 User : 57

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

	LL	UL	LCR	2SZ	BKG
Region A:	0.5	- 18.6	0	0.0	10.92
Region B:	2.0	- 18.6	0	0.0	9.94
Region C:	40.0	- 2000	0	0.0	6.90

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
RUBADUE 03-TF-0022 (K1-K19)/BKS
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA2.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	10.92	3	B	643.62		0.00	6.90
0	2.00	11.65	8		270.05	39.82	25.14	64.60
1	2.00	0.00	0		491.71	0.00	0.00	0.00
2	2.00	0.00	0		454.65	0.00	0.00	0.00
3	2.00	0.00	0		501.93	0.00	0.00	0.00
4	2.00	0.00	0		553.45	0.00	0.00	0.00
5	2.00	0.00	0		494.03	0.00	0.00	0.00
6	2.00	0.00	0		585.63	0.00	0.00	0.60
7	2.00	0.00	0		594.76	0.00	0.00	0.10
8	2.00	0.00	0		549.34	0.00	0.00	0.00
9	2.00	0.00	0		579.00	0.00	0.00	0.00
10	2.00	0.00	0		567.68	0.00	0.00	0.00
11	2.00	0.00	0		622.69	0.00	0.00	0.00
12	2.00	0.00	17		595.74	0.00	0.00	0.00
13	2.00	0.00	0		616.29	0.00	0.00	0.00
14	2.00	0.00	0		560.73	0.00	0.00	0.00
15	2.00	0.00	0		609.82	0.00	0.00	0.00
16	2.00	0.00	0		610.33	0.00	0.00	0.00
17	2.00	0.00	0		563.44	0.00	0.00	0.00
18	2.00	0.00	20		562.47	0.00	0.00	0.60
19	2.00	0.00	0		558.20	0.00	0.00	0.00

MDR

Carol Y. Robinson

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG. / ROOM / AREA) BUILDING 60	SURVEY NO. 03-TF-0023
PURPOSE: SURVEY UNIT 1 & 2 JUDGEMENTAL FIXED POINT MEASUREMENTS	RWP NO. N/A
	DATE: 1-23-03
	TIME: 15:00

MAP / DRAWING

β Background	166
β Conv. Factor	4

SURVEY UNIT – 1			SURVEY UNIT – 2		
Location	β CPM	β dpm/100cm²	Location	β CPM	β dpm/100cm²
60SU1 FPW-01	195	116	60SU2 FPW-01	137	-116
60SU1 FPF-02	223	228	60SU2 FPW-02	156	-40
60SU1 FPW-03	186	80	60SU2 FPW-03	191	100
60SU1 FPW-04	165	-4	60SU2 FPF-04	160	-24
60SU1 FPW-05	179	52	60SU2 FPW-05	194	112
60SU1 FPF-06	207	164	60SU2 FPW-06	165	-4
60SU1 FPF-07	182	64	60SU2 FPF-07	185	76
60SU1 FPF-08	193	108	60SU2 FPW-08	226	240
60SU1 FPW-09	169	12	60SU2 FPW-09	187	84
60SU1 FPW-10	165	-4	60SU2 FPF-10	199	132
60SU1 FPF-11	174	32	60SU2 FPF-11	185	76
60SU1 FPW-12	178	48	60SU2 FPW-12	141	-100
60SU1 FPW-13	189	92	60SU2 FPW-13	182	64
60SU1 FPF-14	195	104	60SU2 FPW-14	183	68
60SU1 FPW-15	186	80	60SU2 FPF-15	181	60
60SU1 FPF-16	187	84	60SU2 FPW-16	166	0
60SU1 FPW-17	184	72	60SU2 FPF-17	181	60
60SU1 FPF-18	195	116	60SU2 FPW-18	170	16
60SU1 FPW-19	185	76	60SU2 FPW-19	149	-68
60SU1 FPF-20	173	28	60SU2 FPF-20	144	-88

Beta measurements taken with Ludlum 2360, Alpha measurements taken with Ludlum 2350 w/Ludlum 43-20 detector. Alpha activity listed on Pages 3 and 4. Data Point loctions depicted on Pages 5 and 6. Smears taken at each measurement location.

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
Ludlum 2350	5671 / 5148	9-11-03
Ludlum 2360	5707 / 5718	8-23-03

[redacted]		HP# 6194 7561	Date: 1-29-03
Counted by: (Signature) SEE		HP#	Date:
Counted by: (Print Name) ATTACHED			
Reviewed/Ap[redacted]		HP# 7707	Date: 01/30/03
Reviewed/Ap[redacted]			

ML-9620 (2-98) Computer Generated

Survey No. 03-TF-0023

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTACHED		60SU1 FPW-01
2				FPF-02
3				FPW-03
4				FPW-04
5				FPW-05
6				FPF-06
7				FPF-07
8				FPF-08
9				FPW-09
10				FPW-10
11				FPF-11
12				FPW-12
13				FPW-13
14				FPF-14
15				FPW-15
16				FPF-16
17				FPW-17
18				FPF-18
19				FPW-19
20				60SU1 FPF-20
21				60SU2 FPW-01
22				FPW-02
23				FPW-03
24				FPF-04
25				FPW-05
26				FPW-06
27				FPF-07
28				FPW-08
29				FPW-09
30				FPF-10
31				FPF-11
32				FPW-12
33				FPW-13
34				FPW-14
35	SEE	ATTACHED		60SU2 FPF-15

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36	SEE	ATTACHED		60SU2 FPW-1
37				FPF-1
38				FPW-1
39				FPW-1
40	SEE	ATTACHED		60SU2 FPF-0

COMMENTS: SMEAR FIELDE SCREENED < 1000 dpm/100cm²
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-9620A (4-98)

BUILDING 60 MARSSIM SURVEY

RSDS# 03-TF-0023 RCT: MOR RCT: [illegible]

43-20 BKG:	1	EFF:	0.188	PROBE AREA:	181	cm	Surface Eff:	0.5	
43-37 BKG:	2.4	EFF:	0.199	PROBE AREA:	584	cm	Surface Eff:	0.5	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	ALPHA CNTS	CT TIME	ALPHA dpm/100cm2
SRC BKG	5671	6196	5675	4	36	1/23/03	8:18:52	12	300	0
SRC CHECK	5671	6196	5675	4	37	1/23/03	8:22:06	2071	60	3560
SRC CHECK	5671	6196	5675	4	38	1/23/03	8:24:14	2152	60	3699
SRC CHECK	5671	6196	5675	4	39	1/23/03	8:25:54	2026	60	3482
SRC CHECK	5671	6196	5675	4	40	1/23/03	8:27:50	2111	60	3629
SRC CHECK	5671	6196	5675	4	41	1/23/03	8:30:34	1956	60	3362
SRC CHECK	5671	6196	5675	4	42	1/23/03	8:32:26	2072	60	3562
SRC BKG	5671	6196	5148	3	43	1/23/03	8:38:38	5	300	0
SRC CHECK	5671	6196	5148	3	44	1/23/03	8:40:52	1941	60	11402
SRC CHECK	5671	6196	5148	3	45	1/23/03	8:42:24	2011	60	11814
SRC CHECK	5671	6196	5148	3	46	1/23/03	8:43:56	1960	60	11514
SRC CHECK	5671	6196	5148	3	47	1/23/03	8:45:22	2004	60	11773
60SU1 FPW-01	5671	6196	5148	3	56	1/23/03	9:43:08	7	60	35
60SU1 FPF-02	5671	6196	5148	3	57	1/23/03	9:44:36	1	60	0
60SU1 FPW-03	5671	6196	5148	3	58	1/23/03	9:46:10	2	60	6
60SU1 FPW-04	5671	6196	5148	3	59	1/23/03	9:48:02	3	60	12
60SU1 FPW-05	5671	6196	5148	3	60	1/23/03	9:51:32	1	60	0
60SU1 FPF-06	5671	6196	5148	3	61	1/23/03	9:53:22	2	60	6
60SU1 FPF-07	5671	6196	5148	3	62	1/23/03	9:55:02	1	60	0
60SU1 FPF-08	5671	6196	5148	3	63	1/23/03	9:56:38	1	60	0
60SU1 FPW-09	5671	6196	5148	3	64	1/23/03	9:58:12	25	60	141
60SU1 FPW-10	5671	6196	5148	3	65	1/23/03	10:00:02	1	60	0
60SU1 FPF-11	5671	6196	5148	3	66	1/23/03	10:01:42	0	60	-6
60SU1 FPW-12	5671	6196	5148	3	67	1/23/03	10:04:24	4	60	18
60SU1 FPW-13	5671	6196	5148	3	68	1/23/03	10:06:26	0	60	-6
60SU1 FPF-14	5671	6196	5148	3	69	1/23/03	10:07:46	2	60	6
60SU1 FPW-15	5671	6196	5148	3	70	1/23/03	10:09:34	1	60	0
60SU1 FPF-16	5671	6196	5148	3	71	1/23/03	10:11:02	1	60	0
60SU1 FPW-17	5671	6196	5148	3	72	1/23/03	10:12:58	6	60	29
60SU1 FPF-18	5671	6196	5148	3	73	1/23/03	10:14:36	6	60	29
60SU1 FPW-19	5671	6196	5148	3	74	1/23/03	10:16:02	4	60	18
60SU1 FPF-20	5671	6196	5148	3	75	1/23/03	10:17:42	1	60	0
60SU2 FPW-01	5671	6196	5148	3	76	1/23/03	13:20:36	15	60	82
60SU2 FPW-02	5671	6196	5148	3	77	1/23/03	13:22:12	4	60	18
60SU2 FPW-03	5671	6196	5148	3	78	1/23/03	13:24:10	7	60	35
60SU2 FPF-04	5671	6196	5148	3	79	1/23/03	13:25:52	19	60	106
60SU2 FPW-05	5671	6196	5148	3	80	1/23/03	13:27:40	1	60	0
60SU2 FPW-06	5671	6196	5148	3	81	1/23/03	13:29:10	3	60	12
60SU2 FPF-07	5671	6196	5148	3	82	1/23/03	13:31:12	4	60	18
60SU2 FPW-08	5671	6196	5148	3	83	1/23/03	13:32:42	3	60	12

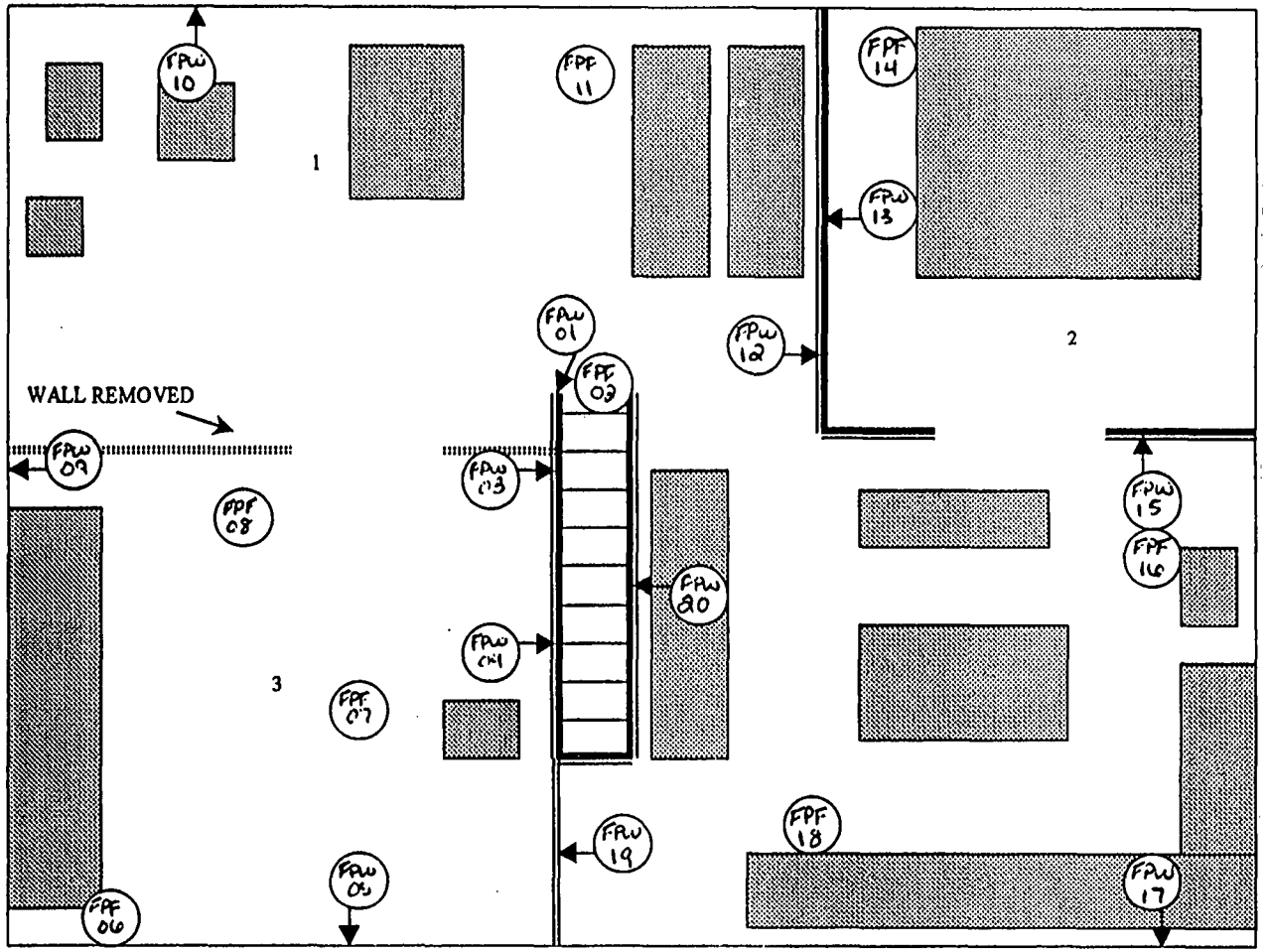
BUILDING 60 MARSSIM SURVEY

RSDS# 03-TF-0023 RCT: MR RCT: SPK

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	ALPHA CNTS	CT TIME	ALPHA dpm/100cm2
60SU2 FPW-09	5671	6196	5148	3	84	1/23/03	13:34:16	3	60	12
60SU2 FPF-10	5671	6196	5148	3	85	1/23/03	13:35:42	11	60	59
60SU2 FPF-11	5671	6196	5148	3	87	1/23/03	13:38:08	22	60	123
60SU2 FPW-12	5671	6196	5148	3	88	1/23/03	13:39:38	1	60	0
60SU2 FPW-13	5671	6196	5148	3	89	1/23/03	13:41:02	3	60	12
60SU2 FPW-14	5671	6196	5148	3	90	1/23/03	13:42:40	3	60	12
60SU2 FPF-15	5671	6196	5148	3	91	1/23/03	13:44:14	0	60	-6
60SU2 FPW-16	5671	6196	5148	3	92	1/23/03	13:46:52	3	60	12
60SU2 FPF-17	5671	6196	5148	3	93	1/23/03	13:48:18	2	60	6
60SU2 FPW-18	5671	6196	5148	3	94	1/23/03	13:49:34	1	60	0
60SU2 FPW-19	5671	6196	5148	3	96	1/23/03	13:52:28	2	60	6
60SU2 FPF-20	5671	6196	5148	3	97	1/23/03	13:54:14	3	60	12
SRC BKG	5671	6196	5148	3	98	1/23/03	14:00:28	14	300	11
SRC CHECK	5671	6196	5148	3	99	1/23/03	14:03:20	2030	60	11925
SRC CHECK	5671	6196	5148	3	100	1/23/03	14:05:24	1899	60	11156
SRC CHECK	5671	6196	5148	3	101	1/23/03	14:07:06	2040	60	11984
SRC CHECK	5671	6196	5148	3	102	1/23/03	14:08:38	2053	60	12061
SRC BKG	5671	6196	5675	4	103	1/23/03	14:35:40	45	300	11
SRC CHECK	5671	6196	5675	4	104	1/23/03	14:37:50	2153	60	3701
SRC CHECK	5671	6196	5675	4	105	1/23/03	14:39:24	2146	60	3689
SRC CHECK	5671	6196	5675	4	106	1/23/03	14:41:14	2197	60	3777
SRC CHECK	5671	6196	5675	4	107	1/23/03	14:42:38	2245	60	3859
SRC CHECK	5671	6196	5675	4	108	1/23/03	14:44:06	2077	60	3570
SRC CHECK	5671	6196	5675	4	109	1/23/03	14:45:32	2176	60	3741

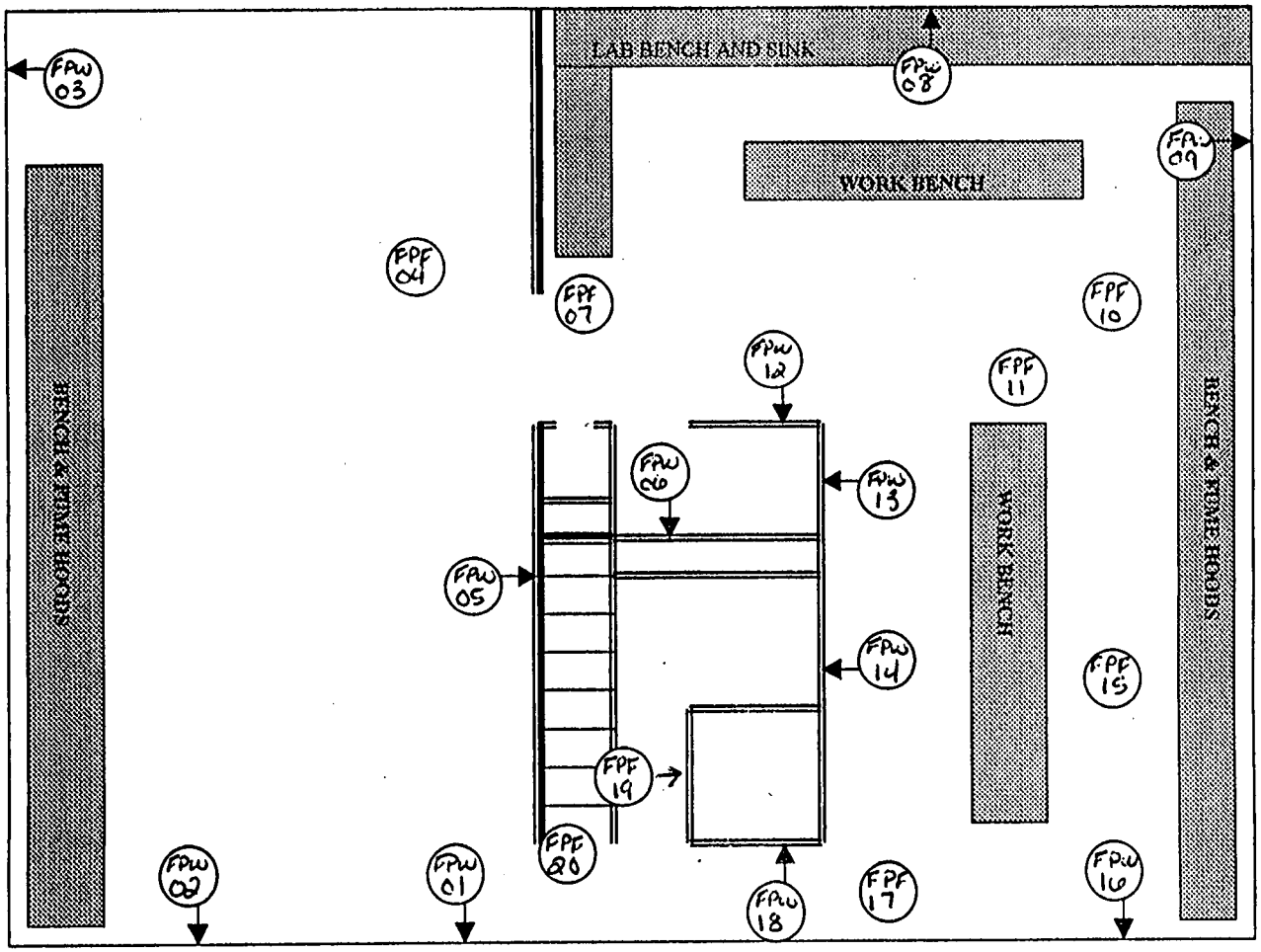
BUILDING 60 FIRST (GROUND) FLOOR

SURVEY UNIT 1



BUILDING 60 SECOND FLOOR

SURVEY UNIT 2



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PAGE 60 OF

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR008
Batch Ended: 1/27/03 10:51

Crosstalk correction performed.

Recalibration Date: 6/7/04
Serial Number: 26966-2

Batch ID: RUBADUE 03-TF-0023 (40) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		2.2	2.4	
A2	2	0.0	2.2		2.0	2.4	
A3	3	0.0	2.0		0.8	1.8	
A4	4	0.0	2.0		2.6	2.5	
B1	5	0.0	2.0		1.1	2.7	
B2	6	1.6	2.0		1.2	2.4	
B3	7	0.0	1.9		0.0	1.3	
B4	8	0.0	1.9		2.8	2.4	
C1	9	1.7	2.1		4.0	2.7	
C2	10	0.0	2.0		0.0	1.4	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.9		2.2	2.1	
D1	13	0.0	2.3		0.0	1.4	
D2	14	0.0	2.1		0.0	1.5	
D3	15	0.0	2.0		2.0	2.2	
D4	16	0.0	2.0		0.0	1.4	
A1	17	0.0	2.1		0.8	2.0	
A2	18	0.0	2.2		0.7	2.0	
A3	19	0.0	2.0		2.0	2.2	
A4	20	0.0	2.0		1.4	2.2	
B1	21	0.0	2.0		2.4	2.9	
B2	22	0.0	2.0		1.4	2.4	
B3	23	3.4	2.7		0.7	2.1	
B4	24	0.0	1.9		0.0	1.3	
C1	25	0.0	2.1		1.8	2.2	
C2	26	0.0	2.0		0.0	1.4	
C3	27	1.7	1.9		0.9	1.7	
C4	28	0.0	1.9		2.2	2.1	
D1	29	0.0	2.3		2.0	2.3	
D2	30	0.0	2.1		0.0	1.5	
D3	31	0.0	2.0		0.0	1.3	

MR MR

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR008
Batch Ended: 1/27/03 10:51

Crosstalk correction performed.

Batch ID: RUBADUE 03-TF-0023 (40) CYR

Recalibration Date: 6/7/04
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D4	32	0.0	2.0		0.0	1.4	
A1	33	0.0	2.1		0.0	1.4	
A2	34	1.9	2.2		0.0	1.5	
A3	35	0.0	2.0		0.8	1.8	
A4	36	1.7	1.9		0.0	1.4	
B1	37	0.0	2.0		0.0	1.5	
B2	38	0.0	2.0		0.1	2.0	
B3	39	0.0	2.0		4.4	2.9	
B4	40	3.5	2.7		0.2	1.8	

MR MR

Carol Y Robinson

G. Hoop 1/28/03

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Protocol #: 5 Name:PW H3 #87267 27-Jan-2003 12:00
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
RUBADUE 03-TF-0023 (J1-J40)/BKS
Conventional DPM
Nuclide 1 = 843
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	12	B	4.40	4.30	5.50	654.		0.00
0	2.00	1		700.60	664.70	6.00	509.	1528.78	147.73
1	2.00	0		1.10	0.70	0.00	631.	2.12	6.88
2	2.00	0		0.10	0.00	0.00	617.	0.19	6.39
3	2.00	4		6.60	5.20	6.00	637.	12.65	11.50
4	2.00	0		11.10	6.70	1.50	621.	21.57	11.23
5	2.00	5		4.10	3.70	1.00	640.	7.84	10.27
6	2.00	0		3.60	1.70	3.00	629.	6.94	8.14
7	2.00	7		2.10	0.70	0.00	612.	4.11	9.35
8	2.00	10		3.60	2.70	0.00	604.	7.10	11.13
9	2.00	9		6.60	5.20	0.00	633.	12.69	11.53
10	2.00	13		4.60	4.20	0.00	498.	10.17	13.24
11	2.00	0		8.10	6.70	0.00	565.	16.61	10.68
12	2.00	3		10.60	9.70	0.00	549.	22.12	13.90
13	2.00	0		14.60	11.70	1.50	632.	28.10	12.29
14	2.00	6		11.10	6.20	0.00	621.	21.57	13.37
15	2.00	0		14.10	8.70	0.00	568.	28.84	12.91
16	2.00	6		3.10	1.70	0.00	608.	6.10	10.18
17	2.00	0		15.10	9.70	0.00	623.	29.27	12.55
18	2.00	5		16.60	12.70	2.00	611.	32.54	14.82
19	2.00	3		11.60	7.70	0.00	565.	23.80	14.29
20	2.00	0		8.10	5.20	0.00	592.	16.17	10.39
21	2.00	18		2.10	1.70	0.00	561.	4.33	11.05
22	2.00	12		1.60	1.20	0.00	611.	3.14	10.34
23	2.00	0		0.00	0.00	0.00	630.	0.00	0.00
24	2.00	15		0.00	0.00	0.00	599.	0.00	0.00
25	2.00	0		5.10	3.20	0.00	637.	9.77	8.76
26	2.00	0		3.60	3.20	1.00	490.	8.04	9.43
27	2.00	6		3.10	2.70	0.00	515.	6.71	11.63
28	2.00	7		0.60	0.70	0.00	591.	1.20	9.32
29	2.00	0		6.10	4.20	1.00	642.	11.65	9.15
30	2.00	32		0.60	0.00	0.50	558.	1.24	11.27
31	2.00	0		2.60	2.20	0.00	489.	5.81	8.89
32	2.00	22		0.00	0.00	0.00	559.	0.00	0.00
33	2.00	8		0.60	0.00	0.00	611.	1.18	8.72
34	2.00	10		0.00	0.00	0.00	529.	0.00	0.00
35	2.00	14		2.10	0.20	0.00	558.	4.34	9.86
36	2.00	7		2.10	1.70	0.00	548.	4.39	10.40
37	2.00	15		0.00	0.00	0.00	615.	0.00	0.00
38	2.00	16		1.10	1.20	0.50	540.	2.32	9.60
39	2.00	9		0.60	0.20	0.00	617.	1.17	8.22
40	2.00	0		6.10	5.70	0.00	586.	12.26	9.63

MG
Carol G Robinson

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG. / ROOM / AREA) BUILDING 60	SURVEY NO. 03-TF-0035
PURPOSE: RE-COUNT SURVEY	RWP NO. N/A
	DATE: 2-4-03
	TIME: 15:45

MAP / DRAWING

Measurement locations 60SU2 FPF-11, 60SU2 FPF-04, and 60SU1 FPW-09 were re-counted due to elevated activity found during original survey (see RSDS 03-TF-0023). These locations were covered for 24 hours and re-surveyed. Survey results are listed on Page 2. Measurement locations shown on Pages 3 and 4.

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
Ludlum 2350	5071/5148	9-11-03

[redacted]	# 0196 7561	Date: 2-5-03
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Print Name) [redacted]		
Reviewed [redacted]	HP# 7207	Date: 02/05/03
Reviewed [redacted]		

ML-9620 (2-98) Computer Generated

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BUILDING 60 RE-COUNT SURVEY

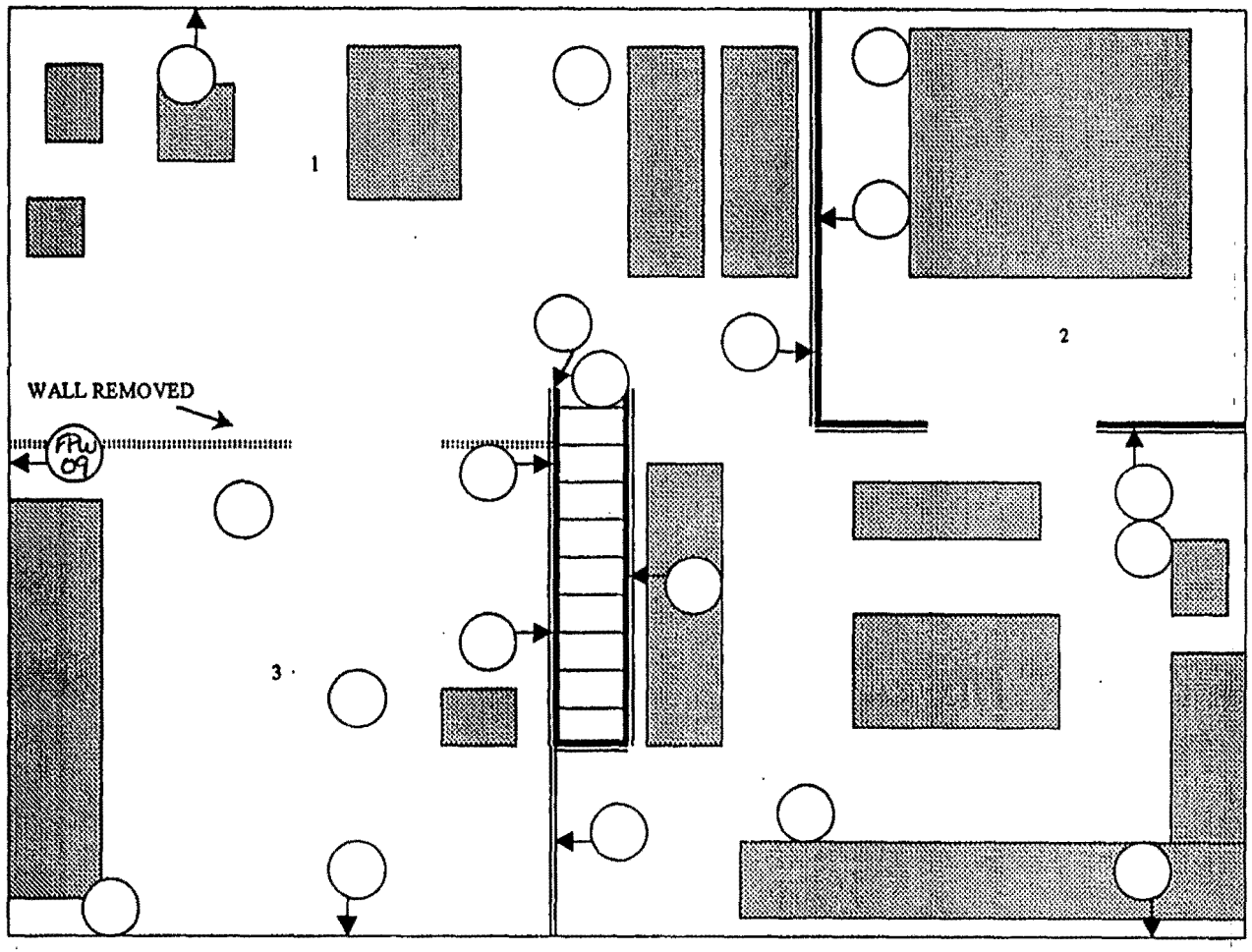
RSDS# 03-TF-0035 RCT: [illegible] RCT: [illegible]

43-20 BKG:	2.2	EFF:	0.188	PROBE AREA:	181	cm	Surface Eff:	0.5	
43-37 BKG:	0	EFF:	0.199	PROBE AREA:	584	cm	Surface Eff.	0.5	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	ALPHA CNTS	CT TIME	ALPHA dpm/100cm2
SRC BKGD	5671	6196	5148	3	0	2/4/03	12:38:02	11	300	0
SRC CHECK	5671	6196	5148	3	1	2/4/03	12:42:16	2019	60	11854
SRC CHECK	5671	6196	5148	3	2	2/4/03	12:44:30	2113	60	12406
SRC CHECK	5671	6196	5148	3	3	2/4/03	12:46:38	2030	60	11918
SRC CHECK	5671	6196	5148	3	4	2/4/03	12:49:42	1940	60	11389
60SU2 FPF-11	5671	6196	5148	3	5	2/4/03	13:17:02	2	60	-1
60SU2 FPF-04	5671	6196	5148	3	6	2/4/03	13:18:54	3	60	5
60SU1 FPW-09	5671	6196	5148	3	7	2/4/03	13:23:36	6	60	22
SRC BKGD	5671	6196	5148	3	17	2/4/03	15:16:38	13	300	2
SRC CHECK	5671	6196	5148	3	18	2/4/03	15:18:10	1711	60	10043
SRC CHECK	5671	6196	5148	3	19	2/4/03	15:20:20	1992	60	11695
SRC CHECK	5671	6196	5148	3	20	2/4/03	15:21:32	1907	60	11195
SRC CHECK	5671	6196	5148	3	21	2/4/03	15:22:54	1947	60	11431

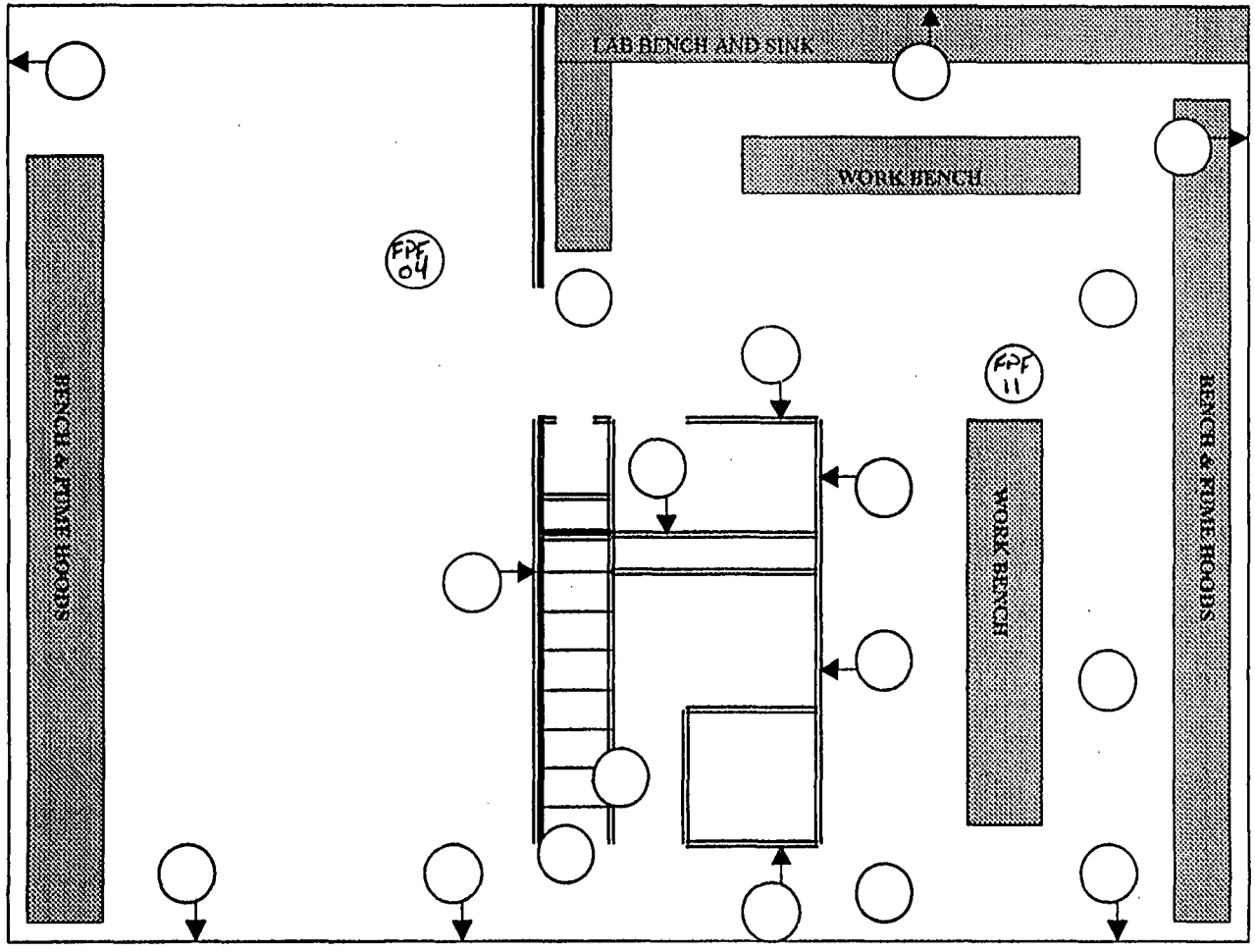
BUILDING 60 FIRST (GROUND) FLOOR

Survey Unit 1



BUILDING 60 SECOND FLOOR

SURVEY UNIT 2



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG. / ROOM / AREA)	60 BUILDING	SURVEY NO.	03-TF-0036
PURPOSE:	EXTERNAL WALLS FIXED POINT MEASUREMENTS	RWP NO.	N/A
		DATE:	2-3-03
		TIME:	11:00

MAP / DRAWING

β Background	186.2
β Conv. Factor	4

COPY

Location	β CPM	β dpm/100cm^2
60EXT FPW-01	544	1431.2
60EXT FPW-02	621	1739.2
60EXT FPW-03	577	1563.2
60EXT FPW-04	545	1435.2
60EXT FPW-05	563	1507.2
60EXT FPW-06	525	1355.2
60EXT FPW-07	523	1347.2
60EXT FPW-08	520	1335.2
60EXT FPW-09	259	291.2 *
60EXT FPW-10	525	1355.2

Beta measurements taken with Ludlum 2360, Alpha measurements taken with Ludlum 2350 w/Ludlum 43-20 detector. Alpha activity listed on Page 3. Data Point loctions depicted on Page 4. Smears taken at each measurement location. Exterior walls are Red Brick.

* MEASUREMENT TAKEN ON METAL EXHAUST VENT

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 cm^2

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Ludlum 2350	5671 / 5148	9/11/03
Ludlum 2360	5707 / 5718	8/23/03

[redacted]		HP# 6196 7561	Date: 2-5-03
Counted by: (Signature)	SEE	HP#	Date:
Counted by: (Print Name)	ATTACHED PAGES		
Reviewed/A[redacted]		HP# 7707	Date: 02/05/03
Reviewed/A[redacted]			

ML-9620 (2-98) Computer Generated

Survey No.
03-TF-0036

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE ATTACHED		N/A	FPW-01
2				FPW-02
3				FPW-03
4				FPW-04
5				FPW-05
6				FPW-06
7				FPW-07
8				FPW-08
9				FPW-09
10	SEE ATTACHED		N/A	FPW-10

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

COMMENTS: SMEARS FIELD SCREENED < 1000 dpm/100 cm²
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-9620A (4-98)

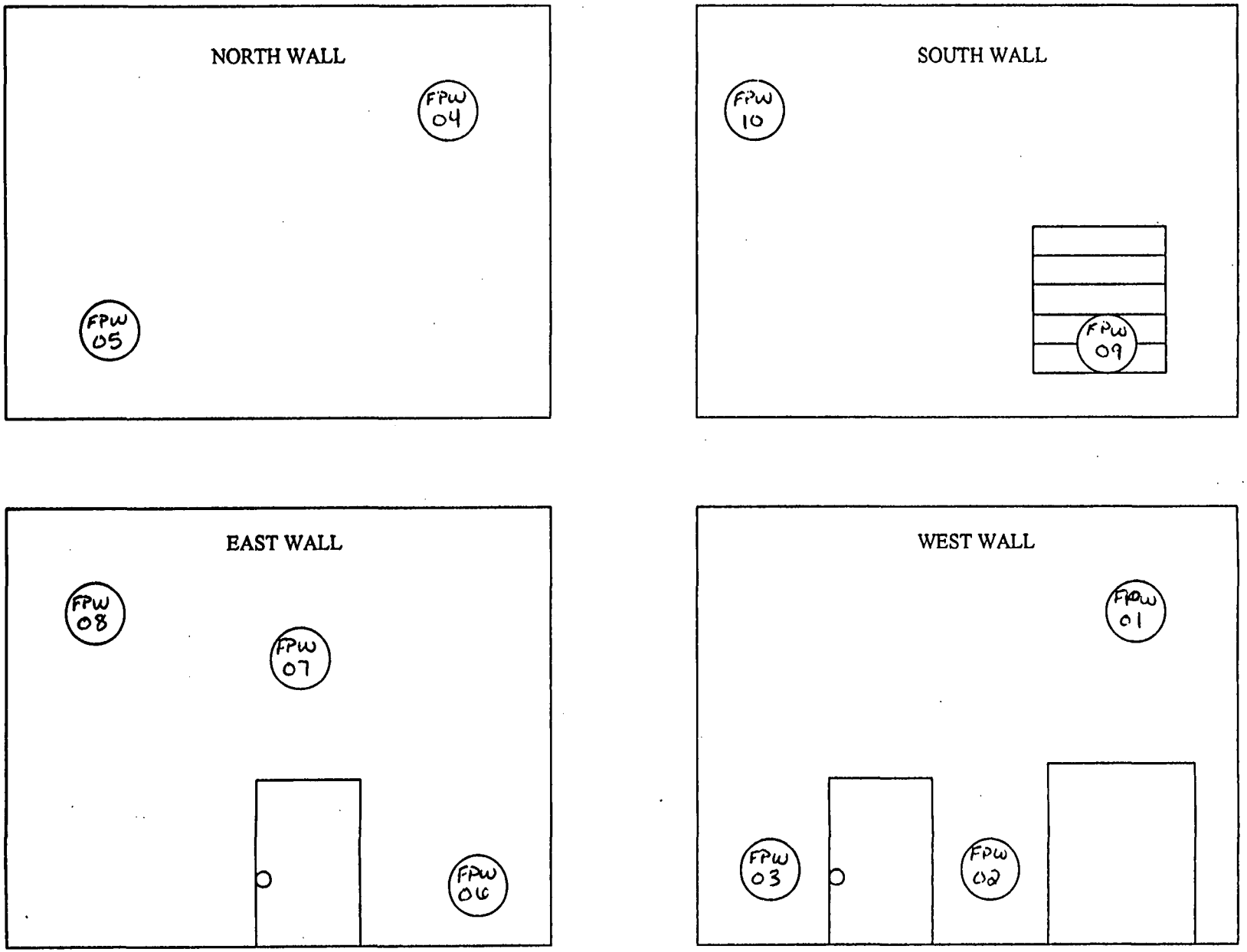
BUILDING 60 MARSSIM SURVEY

RSDS# C3-TF-0036 RCT: MJR RCT: SAA

43-20 BKG:	1.2	EFF:	0.188	PROBE AREA:	181	cm	Surface Eff:	0.5	
43-37 BKG:	0	EFF:	0.199	PROBE AREA:	584	cm	Surface Eff:	0.5	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	ALPHA CNTS	CT TIME	ALPHA dpm/100cm2
SRC BKG	5671	6196	5148	3	28	1/28/03	8:40:24	6	300	0
SRC CHECK	5671	6196	5148	3	29	1/28/03	8:58:38	2011	60	11813
SRC CHECK	5671	6196	5148	3	30	1/28/03	9:00:06	1990	60	11689
SRC CHECK	5671	6196	5148	3	31	1/28/03	9:02:12	1955	60	11483
SRC CHECK	5671	6196	5148	3	32	1/28/03	9:03:46	2015	60	11836
60EXT FPW-01	5671	6196	5148	3	33	1/28/03	10:01:36	7	60	34
60EXT FPW-10	5671	6196	5148	3	34	1/28/03	10:05:12	7	60	34
60EXT FPW-04	5671	6196	5148	3	35	1/28/03	10:09:56	3	60	11
60EXT FPW-07	5671	6196	5148	3	36	1/28/03	10:14:28	5	60	22
60EXT FPW-08	5671	6196	5148	3	37	1/28/03	12:53:36	7	60	34
60EXT FPW-02	5671	6196	5148	3	38	1/28/03	13:21:02	6	60	28
60EXT FPW-03	5671	6196	5148	3	39	1/28/03	13:25:14	6	60	28
60EXT FPW-05	5671	6196	5148	3	40	1/28/03	13:29:16	1	60	-1
60EXT FPW-06	5671	6196	5148	3	41	1/28/03	13:34:44	11	60	58
60EXT FPW-09	5671	6196	5148	3	42	1/28/03	13:38:54	8	60	40
SRC BKG	5671	6196	5148	3	43	1/28/03	14:03:40	5	300	-1
SRC CHECK	5671	6196	5148	3	44	1/28/03	14:59:04	1903	60	11178
SRC CHECK	5671	6196	5148	3	45	1/28/03	15:01:42	1950	60	11454
SRC CHECK	5671	6196	5148	3	46	1/28/03	15:03:42	1964	60	11536
SRC CHECK	5671	6196	5148	3	47	1/28/03	15:05:58	2071	60	12165

BUILDING 60 EXTERIOR WALLS



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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR010
Batch Ended: 2/5/03 10:04

Crosstalk correction performed.

Recalibration Date: 6/7/04
Serial Number: 26966-2

Batch ID: KUBERA 03-TF-0036 (10) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.4	
A2	2	0.0	2.2		0.0	1.5	
A3	3	3.7	2.8		1.7	2.2	
A4	4	0.0	1.9		0.0	1.4	
B1	5	1.5	2.0		0.0	2.3	
B2	6	0.0	2.0		0.0	1.6	
B3	7	0.0	1.9		0.0	1.3	
B4	8	0.0	1.9		0.4	1.8	
C1	9	0.0	2.1		3.0	2.5	
C2	10	0.0	2.0		0.0	1.4	

MGR MGR

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG. / ROOM / AREA)	BUILDING 60	SURVEY NO.	03-TF- 0038
PURPOSE:	QUALITY CONTROL (QC) MEASUREMENTS	RWP NO.	N/A
		DATE:	2-4-03
		TIME:	15:30

MAP / DRAWING

COPY

β Background	179.2
β Conv. Factor	4

Location	β CPM	β dpm/100cm^2
SU1QC FPF-11	194	59.2
SU1QC FPW-17	197	71.2
SU2QC FPF-15	219	159.2
SU2QC FPF-10	224	179.2
RFQC FP-01	396	867.2
RFQC FP-07	471	1167.2
EXTQC FPW-05	531	1407.2
EXTQC FPW-09	255	303.2

Beta measurements taken with Ludlum 2360, Alpha measurements taken with Ludlum 2350 w/Ludlum 43-20 detector. Alpha activity listed on Page 2. Data Point loctions depicted on Pages 3-6.

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 cm^2

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Ludlum 2350	5671 / 5148	9/11/03
Ludlum 2360	5707 / 5718	8/23/03

[redacted]		HP# 0190 2561	Date: 2-5-03
Counted by: (Signature)	N/A	HP#	Date:
Counted by: (Print Name)			
Reviewed/A[redacted]		HP# 7707	Date: 2-5-03 03 02/05/03
Reviewed/A[redacted]			

ML-9620 (2-98) Computer Generated

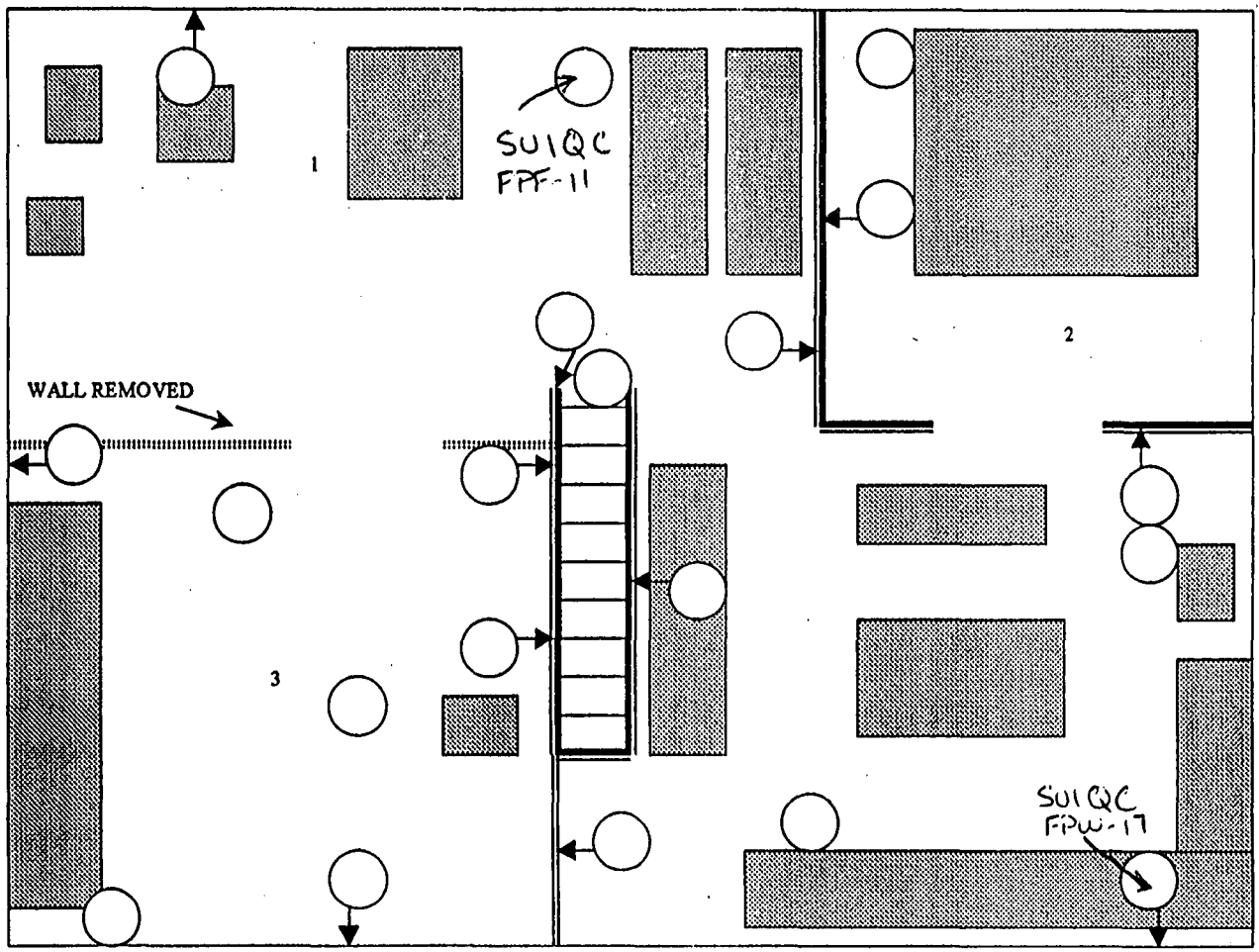
BUILDING 60 MARSSIM SURVEY

RSDS# 03-TF-0038 RCT: MJR RCT: _____

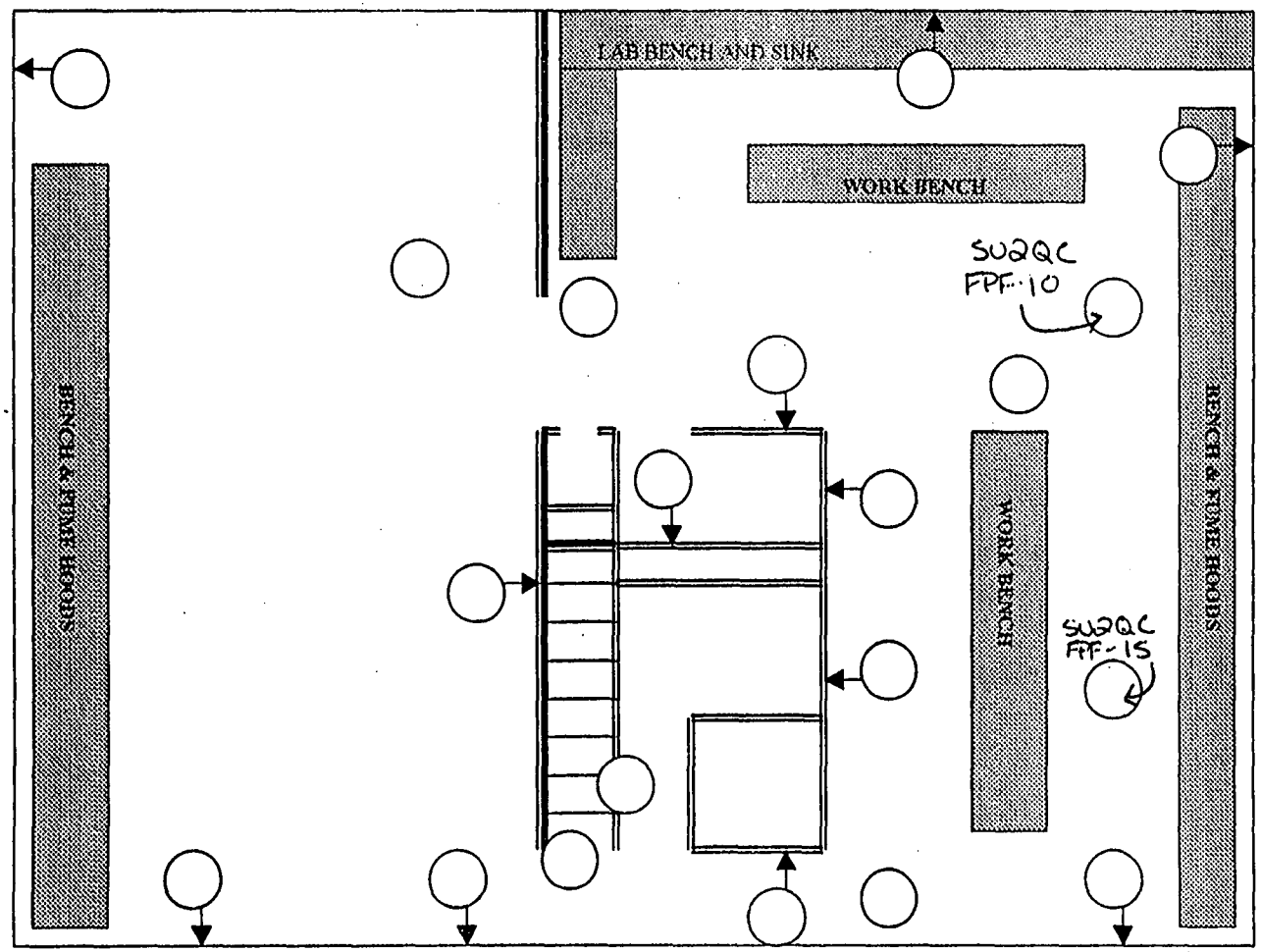
43-20 BKG:	2.2	EFF:	0.188	PROBE AREA:	181	cm	Surface Eff:	0.5	
43-37 BKG:	0	EFF:	0.199	PROBE AREA:	584	cm	Surface Eff:	0.5	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	ALPHA CNTS	CT TIME	ALPHA dpm/100cm2
SRC BKGD	5671	6196	5148	3	0	2/4/03	12:38:02	11	300	0
SRC CHECK	5671	6196	5148	3	1	2/4/03	12:42:16	2019	60	11854
SRC CHECK	5671	6196	5148	3	2	2/4/03	12:44:30	2113	60	12406
SRC CHECK	5671	6196	5148	3	3	2/4/03	12:46:38	2030	60	11918
SRC CHECK	5671	6196	5148	3	4	2/4/03	12:49:42	1940	60	11389
SU1QC FPF-11	5671	6196	5148	3	8	2/4/03	13:27:56	4	60	11
SU1QC FPW-17	5671	6196	5148	3	9	2/4/03	13:31:26	0	60	-13
SU2QC FPF-15	5671	6196	5148	3	10	2/4/03	13:36:00	4	60	11
SU2QC FPF-10	5671	6196	5148	3	11	2/4/03	13:37:58	2	60	-1
RFQC FP-01	5671	6196	5148	3	12	2/4/03	14:45:56	16	60	81
RFQC FP-07	5671	6196	5148	3	13	2/4/03	14:47:48	11	60	52
EXTQC FPW-05	5671	6196	5148	3	14	2/4/03	14:54:12	9	60	40
EXTQC FPW-09	5671	6196	5148	3	16	2/4/03	14:58:16	2	60	-1
SRC BKGD	5671	6196	5148	3	17	2/4/03	15:16:38	13	300	2
SRC CHECK	5671	6196	5148	3	18	2/4/03	15:18:10	1711	60	10043
SRC CHECK	5671	6196	5148	3	19	2/4/03	15:20:20	1992	60	11695
SRC CHECK	5671	6196	5148	3	20	2/4/03	15:21:32	1907	60	11195
SRC CHECK	5671	6196	5148	3	21	2/4/03	15:22:54	1947	60	11431

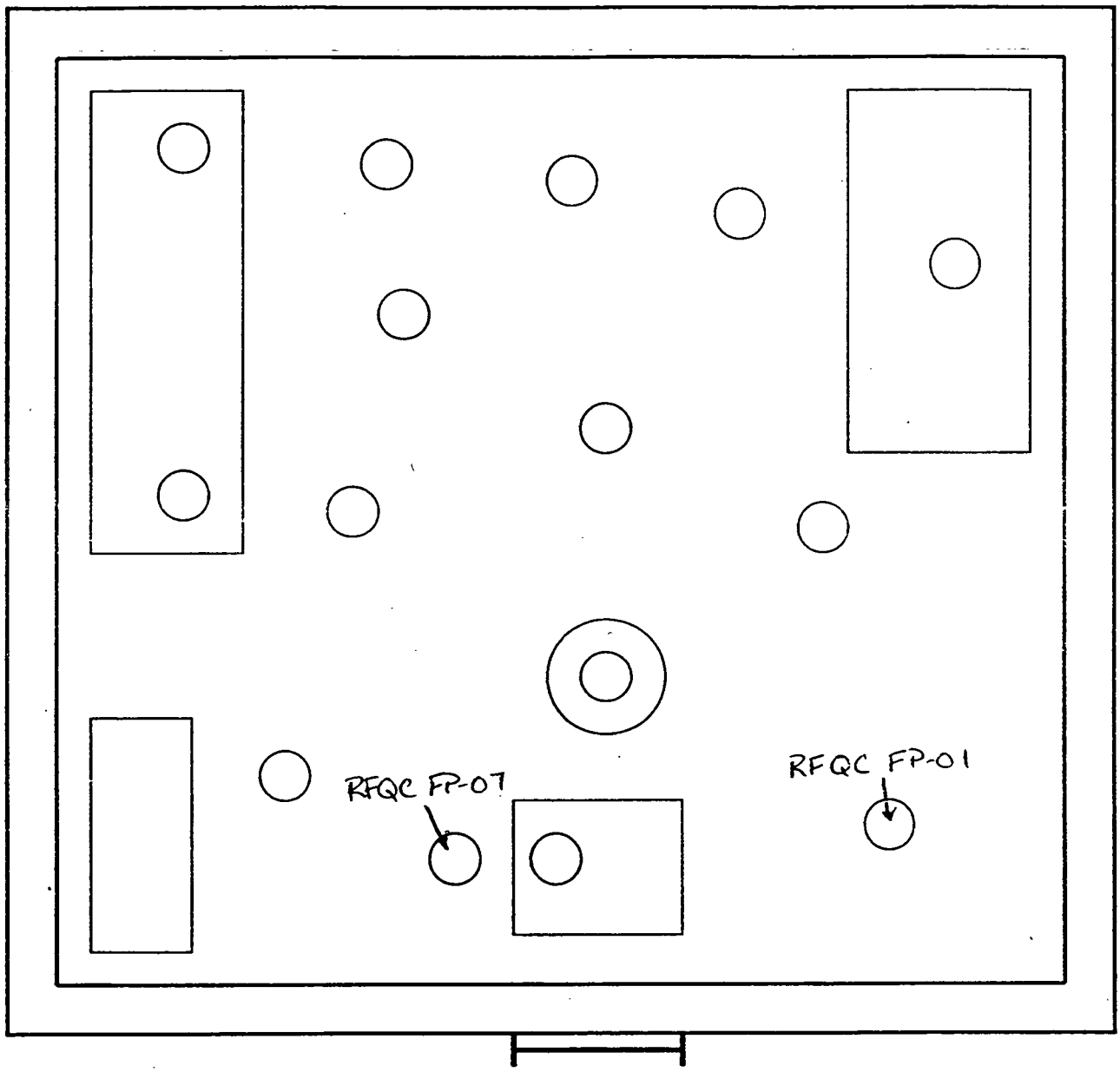
BUILDING 60 FIRST (GROUND) FLOOR



BUILDING 60 SECOND FLOOR

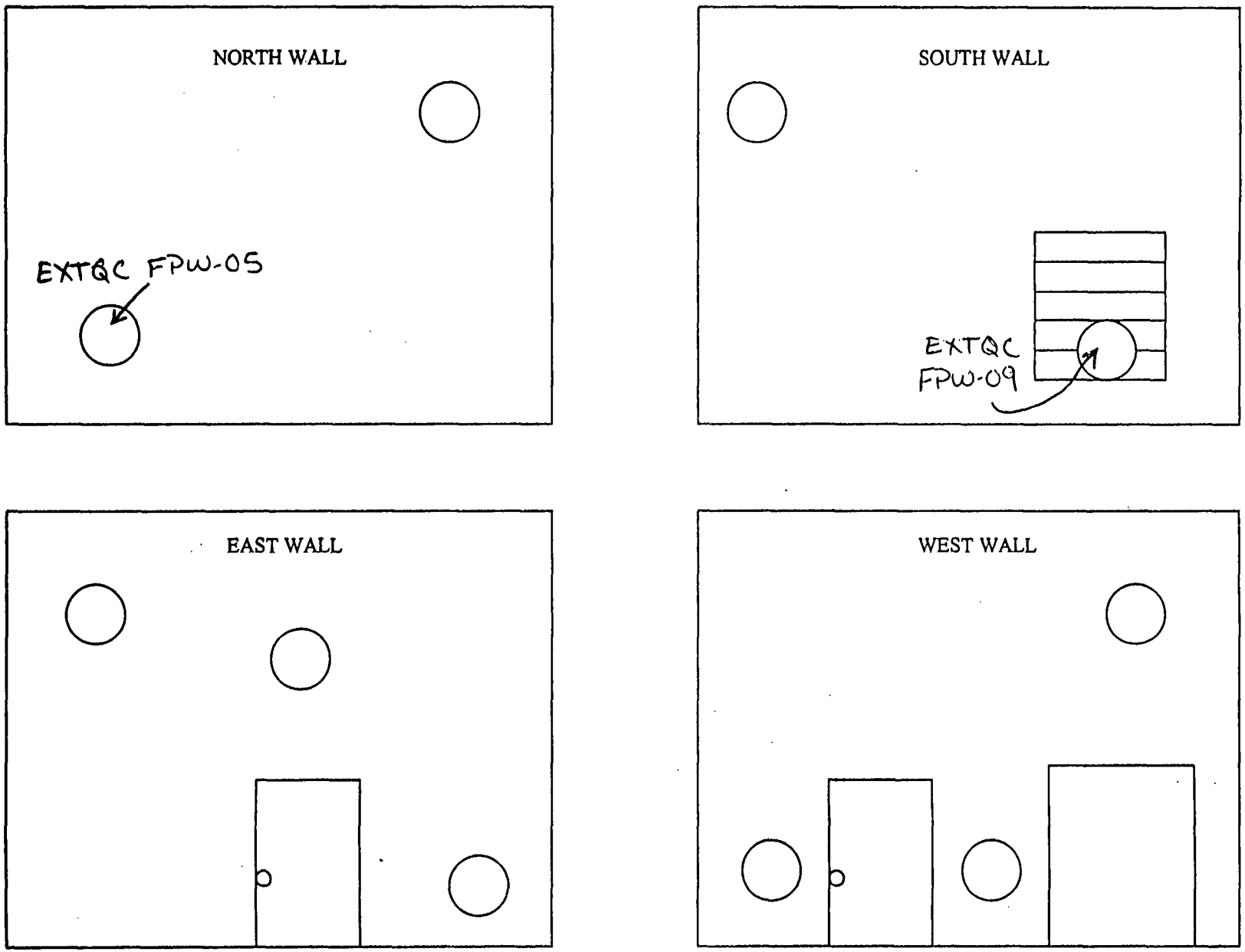


BUILDING 60 Roof



← N

BUILDING 60 EXTERIOR WALLS



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

A subsidiary of UNC Incorporated

Bldg	Bldg Description	Room	pCi/l	pCi/l	Manid	Dupid	Date	Date	Comments
21		ABOVE AIR SAMPLER	161.1	125.8	1678055	1666782	12/14/89	2/16/90	MET - OLD THORIUM STORAG
21		ABOVE AIR SAMPLERS	116.7		1668588		12/14/89	2/16/90	MET - OLD THORIUM STORAG
	SM	19 MID EAST WALL	4.8		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED READ
48		114 B CLOSET ON SPRINKLER PIPE	3.2		1671282		12/12/89	2/19/90	
19		ROOM 1	2.6		1678051		12/12/89	2/19/90	
	OLD SD BLDG	BASEMENT RIGHT CABINET	2.4		1681585		12/14/89	2/19/90	
55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/18/89	2/19/90	
57		ROOM 1	1.8		1681565		12/12/89	2/19/90	
87		143	1.5		1681563		12/13/89	2/19/90	
998	FIRE STATION	ROOM 602 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		1678060		12/12/89	2/19/90	
37		6 NORTH WALL	1.0		1678046		12/12/89	2/19/90	
34		34 A WEST WALL	.9	.6	1672062	1672042	12/12/89	2/19/90	MET
102		123	.9		1681577		12/14/89	2/19/90	
61		RM 221 MIDDLE OF NORTH WALL	.9		1681585		12/12/89	2/19/90	
67		101 N	.9		1678021		12/12/89	2/19/90	
G-13	LOG	G-514 WEST WALL	.9		1661544		12/12/89	2/16/90	
	T	CORRIDOR 26	.9		1678039		1/15/90	2/19/90	
	T	153	.9		1678067		1/15/90	2/19/90	
	T	76	.9		1678077		1/15/90	2/19/90	
	T	38	.9		1681586		1/15/90	2/19/90	
105	PARTS MACHINING BUILDING	STAIRWELL NEXT TO ROOM 127	.8		1681564		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		1678049		12/12/89	2/19/90	
	A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/89	2/16/90	
	C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL BK2	.8		1672052		12/12/89	2/16/90	
	R BUILDING	68 NORTH WALL	.8		1678068		12/12/89	2/16/90	
	SM	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
	WO BLDG	WO 8	.8		1678045		12/18/89	2/16/90	
87		124	.8		1678032		12/12/89	2/19/90	
88		ROOM 116 ON NORTH WALL RIGHT OF CEN	.7	.5	1661524	1661635	12/12/89	2/19/90	
89		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666783	1668532	12/15/89	2/19/90	
22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1678070		12/13/89	2/19/90	
56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1678066		12/12/89	2/19/90	
	E ANNEX	E 225 EAST WALL	.7		1681552		12/18/89	2/16/90	
	POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1678040		12/12/89	2/19/90	
	W BLDG	W-135	.7		1681553		12/12/89	2/16/90	
26		ROOM 84 SOUTH WEST WALL	.6	.5	1672048	1667158	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		1671278		12/13/89	2/16/90	
35		RM 7	.6		1654459		12/14/89	2/19/90	
38	PP BLDG	PP CORR 136	.6		1678016		12/14/89	2/19/90	
72		ON OVERHEAD DOOR BEAM	.6		1672069		1/03/90	2/19/90	
93		HALLWAY 107 (MIDWAY)	.6		1681628		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	
	OSM	120 C	.6		1681573		12/12/89	2/16/90	
	SM	150 WEST END GAS BOX	.6		1678043		12/11/89	2/16/90	
	A	34 EAST WALL	.5	.7	1672075	1672051	12/14/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5	.5	1658114	1666819	12/12/89	2/16/90	

H 2 of 4

/14/90 Radon Monitor Results for 88 Round Facility

rea	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		1671204		12/14/89	2/19/90	
	66		OFFICE AREA	.4		1681554		12/12/89	2/19/90	
	68		EAST WALL CENTER BEAM	.4		1681555		12/14/89	2/19/90	
	69		RM 10A	.4		1681576		12/12/89	2/19/90	
	70		170 MEETING ROOM CENTER WALL	.4		1678041		12/12/89	2/19/90	
	88		ROOM 116	.4		1671205		12/12/89	2/19/90	
	95	SK/PP	95- BLD-ROOM81	.4		1661531		12/12/89	2/20/90	
		DS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/13/89	2/19/90	
		I	I HALLWAY	.4		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

H 3 of 4

Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	R BUILDING	143 NEXT TO NORTH WALL	.5	.5	1666533	1666816	12/13/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671288		12/12/89	2/19/90	
	"B" 115	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
		ELECTRICAL PANEL RM IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
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		1678059		12/12/89	2/16/90	
47		CELL 113	.5		1681582		12/13/89	2/19/90	
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 8	.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	110 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	219 WALL CABINET TO RIGHT OF SINK	.5		1681590		12/12/89	2/19/90	
	COS	159 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		12/18/89	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		1671269		12/18/89	2/19/90	
	MH	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	I BUILDING	N 108	.5		1678056		12/15/89	2/19/90	
	N BUILDING	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSE	4HT FLOOR	.5		1678028		12/12/89	2/16/90	
	OSM	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSE	319	.5		1678069		12/13/89	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		1654530		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	M135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
	W BLDG	WOA 116	.5		1671201		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		12/13/89	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									

H Hoff

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 2/18/03 5:56PM
Subject: Building 60 Asbestos & Lead

Donald -

I have completed walk-through surveys of Building 60 for lead paint and asbestos concerns. The following is provided for your use:

Lead

No previous lead surveys or sampling data could be found for Building 60. Observed paint coatings were largely intact.

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

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. Four types of materials were found to contain asbestos which must be removed prior to demolition. The roofing is of a built-up asphalt variety which 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 is attached.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Boston, Jeffrey; Darnell, Val

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MOUND

INTEROFFICE CORRESPONDENCE

Date: February 18, 2003

From: Christopher Ahlquist
SMPP/TFV Safety & Health

To: Jeff Boston
SMPP/TFV Engineering

Re: Building 60: Asbestos-Containing Materials

During February of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2MHILL of Ohio, Inc. (CH2M), completed a survey of Building 60 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 and collected additional bulk samples of materials found within Building 60 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 prepare an inventory of the location and approximate quantities of identified asbestos-containing materials. Four (4) distinct types of materials were 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 survey 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 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 different types

P.O. Box 3000 Miamisburg, Ohio 45343-3000 (513) 865-4020

TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS
BUILDING 60
FEBRUARY 18, 2003

Location of ACM	Material Description	Homo-geneous Area No.	Type ACM	Material Quantity (approx.)
The following areas were located on the First Floor:				
Room 1, pipes	No drip pipe insulation	1	TSI	185 lf
Room 2, pipe	No drip pipe insulation	1	TSI	3 lf
Room 3, Deltec Unit work plate	Transite panel, grey	2	Misc.	1 sf
The following areas were located on the Second Floor:				
Room 101, laboratory fume hood	Transite panel lining, white	3	Misc.	55 sf
Room 106, laboratory fume hood	Transite panel lining, white	3	Misc.	55 sf
Room 106, laboratory counter tops	Laboratory counter top, black	4	Misc.	225 sf

Notes:

TSI = Thermal Systems Insulation
Misc. = Miscellaneous Material
lf = Linear feet
sf = Square feet

Asbestos-containing homogeneous area number description:

1 - No drip pipe insulation
2 - Transite panel, grey
3 - Fume hood transite panel lining, white
4 - Laboratory counter top, black

Appendix J

Lead Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 2/18/03 5:56PM
Subject: Building 60 Asbestos & Lead

Donald -

I have completed walk-through surveys of Building 60 for lead paint and asbestos concerns. The following is provided for your use:

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No previous lead surveys or sampling data could be found for Building 60. Observed paint coatings were largely intact.

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

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. Four types of materials were found to contain asbestos which must be removed prior to demolition. The roofing is of a built-up asphalt variety which 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 is attached.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Boston, Jeffrey; Darnell, Val

J 1 of 1

Appendix K

Chemical Information

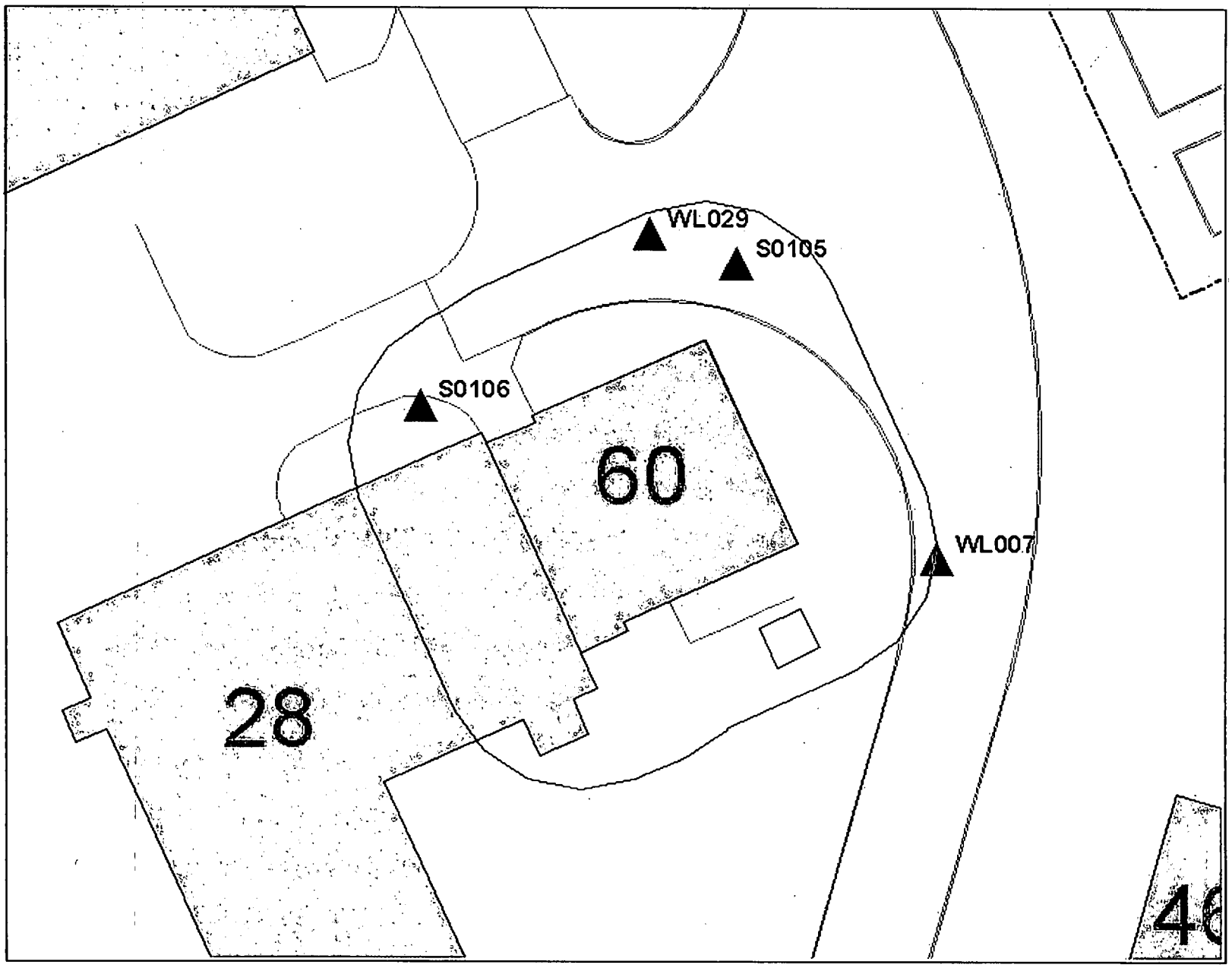
Chemicals previously used or hazardous waste previously generated in Building 60 or the associated solvent shed (PRS 127)

Acetone
Ammonium Hydroxide
BioacTEC-7
Ethyl Alcohol
Hydrochloric Acid
Hydrochloric-Nitric Acid Mixture
Hydrofluoric Acid
Isopropyl Alcohol
Methyl Alcohol
Methylene Chloride
Nitric Acid
Rhodamine Tetraflouroborate
Sol-gel
Sulfuric Acid
Toluene

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 30 feet of Building 60



Sample Detect

N
W
E
S

MOUND

Environmental Restoration Geographic Information System

25 0 25 50 75 100 Feet

01/22/03

1 of 11

Building 60 Detects

Location _name	Sample_id	Collection _date	Value_name	Screening Level	Measured _value	Value_units	Detection _limit	Chem _class	Start_ depth	End_d epth	Lab	Data	Project _code	Media	Comments
WL007	WL007	20010105	Lead-210	1.8	0.4200	PCI/G	0.0800	RAD	0.0	0.0			H2O_LINE	Soil	
S0106	6202	19840801	Plutonium-238	55	0.0600	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	
WL007	WL007	20010105	Radium-226	2.1	1.1200	PCI/G	0.1200	RAD	0.0	0.0			H2O_LINE	Soil	1
WL029	WL029	20010116	Radium-226	2.1	0.6100	PCI/G	0.2400	RAD	0.0	0.0			H2O_LINE	Soil	1
WL007	WL007	20010105	Thorium-232	1.47	0.5600	PCI/G	0.0300	RAD	0.0	0.0			H2O_LINE	Soil	1
WL029	WL029	20010116	Thorium-232	1.47	0.4300	PCI/G	0.0400	RAD	0.0	0.0			H2O_LINE	Soil	1
S0105	3056	19831001	Tritium	2.2	0.9000	PCI/ML		RAD	0.0	0.0			RSS	Soil	

*Comments

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

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

Building 60 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
WL029	WL029	20010116	Actinium-227	0.0700	PCI/G	0.0700	RAD	0.0	0.0	U		H2O_LINE	Soil
WL007	WL007	20010105	Actinium-227	0.0300	PCI/G	0.0300	RAD	0.0	0.0	U		H2O_LINE	Soil
WL029	WL029	20010116	Americium-241	0.0200	PCI/G	0.0200	RAD	0.0	0.0	U		H2O_LINE	Soil
WL007	WL007	20010105	Americium-241	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL029	WL029	20010116	Cesium-137	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL007	WL007	20010105	Cesium-137	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL029	WL029	20010116	Cobalt-60	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL007	WL007	20010105	Cobalt-60	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL029	WL029	20010116	Lead-210	0.2100	PCI/G	0.2100	RAD	0.0	0.0	U		H2O_LINE	Soil
WL029	WL029	20010116	Plutonium-238	7.6800	PCI/G	7.6800	RAD	0.0	0.0	U		H2O_LINE	Soil
WL007	WL007	20010105	Plutonium-238	1.8100	PCI/G	1.8100	RAD	0.0	0.0	U		H2O_LINE	Soil
S0105	3056	19831001	Plutonium-238	0.0100	PCI/G	0.0100	RAD	0.0	0.0	U		RSS	Soil
WL029	WL029	20010116	Thorium-230	2.2000	PCI/G	2.2000	RAD	0.0	0.0	U		H2O_LINE	Soil
WL007	WL007	20010105	Thorium-230	0.8000	PCI/G	0.8000	RAD	0.0	0.0	U		H2O_LINE	Soil
S0106	6202	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0105	3056	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil

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.

22-03-16

ENVIRONMENTAL RESTORATION PROGRAM

SOIL GAS SURVEY AND GEOPHYSICAL INVESTIGATIONS
MAIN HILL AND SM/PP HILL AREAS
RECONNAISSANCE SAMPLING

MOUND PLANT
MIAMISBURG, OHIO

February 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

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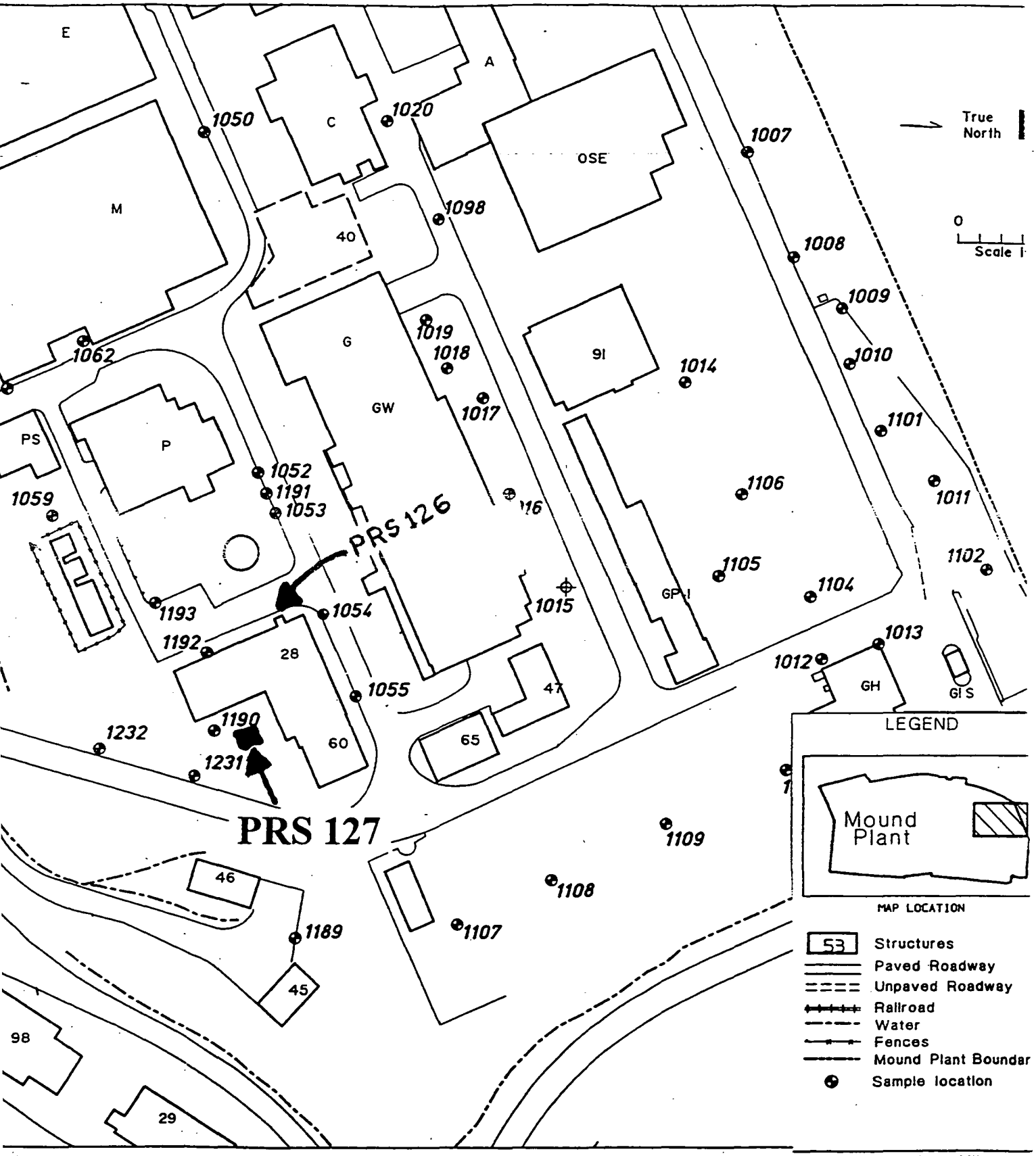

Figure 2.2. Main Hill east sample location map.

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* SOIL SCREENING LEVELS (SEE PAGE L 10 AND L 11)

SOIL GAS DATA (ABSOLUTE)

TABLE II.4. SUMMARY OF POSITIVE DETECTIONS – MAIN HILL (ppb)

SAMPLE ID	SAMPLE DATE	FREON 11	FREON 113	TRAN-12DCE	CIS-12DCE	111TCA	PCE	TCE	TOLUENE
								2400 (PPb)	414,600 (PPb)
MND-01-1002-1003	28 JUL 92	---	---	---	---	---	---	---	40
[illegible]	[illegible]		---	---	---	---	---	---	3 *
[illegible]	[illegible]		---	---	---	---	---	---	21 *
[illegible]	[illegible]		---	---	---	---	---	2	---
[illegible]	[illegible]		---	---	---	---	---	---	5
[illegible]	[illegible]		---	---	---	---	---	---	3
[illegible]	[illegible]		---	---	---	---	---	4	19
[illegible]	[illegible]		---	---	---	---	---	---	13
[illegible]	[illegible]		---	---	---	---	---	---	8
MND-01-1016-0003	30 JUL 92	---	---	---	---	---	---	2	8
MND-01-1046-0005	4 AUG 92	---	---	---	---	2	---	186	3 *
MND-01-1047-0005	4 AUG 92	---	---	---	---	7	---	4	---
MND-01-1048-0005	4 AUG 92	---	---	---	---	6	---	4	---
MND-01-1050-0003	4 AUG 92	---	---	---	---	---	---	8	---
MND-01-1050-1003	4 AUG 92	---	---	---	---	---	---	17	27 *
MND-01-1051-0003	4 AUG 92	---	---	---	---	---	---	8	5 *
MND-01-1052-0003	4 AUG 92	---	---	---	---	---	---	---	13 *
~~MND-01-1053-0002~~	~~5 AUG 92~~	~~2~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~447~~
MND-01-1054-0005	5 AUG 92	4	---	---	---	7	---	226 *	11
MND-01-1055-1005	5 AUG 92	---	---	---	---	---	---	4 *	5
~~MND-01-1057-0005~~	~~5 AUG 92~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~24~~
MND-01-1062-0003	5 AUG 92	---	---	---	---	13	---	6	---
MND-01-1064-0005	11 AUG 92	---	---	---	---	---	---	---	19
MND-01-1066-0005	11 AUG 92	---	---	---	---	6	---	---	226
MND-01-1067-0005	11 AUG 92	---	---	---	---	---	---	11	133
MND-01-1069-1005	12 AUG 92	---	---	---	---	---	---	---	37
MND-01-1070-0005	12 AUG 92	---	---	---	---	---	---	---	5
MND-01-1070-1005	12 AUG 92	---	---	---	---	---	---	---	5
MND-01-1072-0005	12 AUG 92	---	---	---	---	---	---	---	106
MND-01-1074-0005	12 AUG 92	---	799	---	---	---	1191	---	5
MND-01-1074-1005	12 AUG 92	---	812	---	---	---	1117	---	5
MND-01-1075-0005	12 AUG 92	---	---	---	---	---	---	---	80
MND-01-1076-0005	12 AUG 92	---	2934	---	---	148	---	---	---
MND-01-1077-0005	12 AUG 92	---	---	---	---	---	---	---	27
MND-01-1079-0005	13 AUG 92	---	13	---	---	---	---	---	---
MND-01-1080-0005	13 AUG 92	---	13	---	---	---	---	---	---
MND-01-1085-0005	13 AUG 92	---	102	---	---	22	---	41	---
MND-01-1086-0005	13 AUG 92	---	47	---	---	---	---	---	---
MND-01-1093-0005	15 AUG 92	---	**131000	247	40800	---	---	**34780	53 *
MND-01-1094-0005	14 AUG 92	---	83	13	485	---	---	978	---
MND-01-1097-0002	14 AUG 92	---	---	---	---	---	---	6	8
MND-01-1099-0005	15 AUG 92	---	---	---	---	---	---	4	8 *
MND-01-1101-0005	16 AUG 92	---	865	---	---	---	---	---	8
MND-01-1102-0005	16 AUG 92	---	419	---	---	---	---	---	13
MND-01-1106-0003	16 AUG 92	---	329	---	---	---	---	6	---
MND-01-1108-0005	16 AUG 92	---	---	---	---	---	---	6	---
MND-01-1109-0005	16 AUG 92	---	---	---	---	---	---	8	13
MND-01-1110-0005	16 AUG 92	---	---	---	---	---	---	---	255

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* SEE PAGE L9

SOIL SCREENING LEVELS
(SEE PAGES L10 AND L11)

SOIL GAS DATA (ABSOLUTE)

TABLE II.4. SUMMARY OF POSITIVE DETECTIONS–MAIN HILL
(ppb)

SAMPLE ID	SAMPLE DATE	FREON 11	FREON 113	TRAN–12DCE	CIS–12DCE	111TCA	PCE	TCE	TOLUENE
								2400 (PPb)	414,600 (PPb)
[illegible]	17 AUG 92	---	---	---	---	---	---	11	---
			9	---	---	315	10	357	5 *
			---	---	---	259	9	263	3 *
			---	---	---	56	---	13	---
			---	---	---	---	12	8	---
			---	---	---	---	15	9	---
			---	---	---	---	3	---	---
			---	---	---	---	---	---	213
MND–01–1122–0005	18 AUG 92	801	13	---	---	---	---	---	---
MND–01–1123–0005	18 AUG 92	---	---	---	---	---	---	---	5 *
MND–01–1124–0005	18 AUG 92	---	---	---	---	---	---	---	8884 *
MND–01–1127–0005	18 AUG 92	---	---	---	---	---	4	---	27 *
~~MND–01–1128–0005~~	~~18 AUG 92~~	~~---~~	~~10~~	~~---~~	~~---~~	~~37~~	~~12~~	~~4~~	~~11 *~~
→ MND–01–1190–0005	24 SEP 92	240	477	---	---	---	---	---	3 * ←
→ MND–01–1190–1005	24 SEP 92	287	707	---	---	---	---	---	3 * ←
→ MND–01–1192–0005	24 SEP 92	---	---	---	---	---	---	---	5 * ←
~~MND–01–1193–0005~~	~~24 SEP 92~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~18 *~~
MND–01–1196–0005	25 SEP 92	---	---	---	---	---	---	4	64
MND–01–1197–0002	25 SEP 92	---	---	---	---	---	---	23	5
MND–01–1198–0006	25 SEP 92	---	24	13	518	33	---	474	5
MND–01–1199–0002	25 SEP 92	---	10218	---	120	---	---	479	---
MND–01–1201–0007	25 SEP 92	---	4716	13	811	---	---	130	48
MND–01–1201–1007	25 SEP 92	---	5895	---	612	---	---	117	43
MND–01–1202–0002	25 SEP 92	---	6419	66	2499	9	---	1921	3
MND–01–1202–1002	25 SEP 92	---	9301	41	1706	---	---	1737	---
MND–01–1203–0002	25 SEP 92	---	1475	---	334	---	---	45	192
MND–01–1204–0005	25 SEP 92	---	453	---	---	---	---	11	5
MND–01–1205–0005	25 SEP 92	---	---	---	---	---	---	---	21
MND–01–1206–0005	26 SEP 92	---	---	---	---	---	---	---	23142
MND–01–1207–0005	26 SEP 92	---	---	---	---	---	---	---	90
MND–01–1227–0005	28 SEP 92	---	10	---	---	---	---	---	4788
MND–01–1228–0005	28 SEP 92	---	---	---	---	---	---	---	11
MND–01–1230–0005	28 SEP 92	---	---	---	---	---	---	---	13
~~MND–01–1230–1005~~	~~28 SEP 92~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~		~~5~~
→ MND–01–1231–0005	28 SEP 92	---	48	---	---	---	34	21	5 ←
→ MND–01–1232–0005	28 SEP 92	---	4	---	---	---	13	8	24 ←
~~MND–01–1233–0002~~	~~29 SEP 92~~	~~---~~	~~29~~	~~---~~	~~---~~	~~---~~	~~---~~		~~72~~
MND–01–1233–1002	29 SEP 92	---	29	---	---	---	---	---	64

Notes:

Only sample locations having positive detections are shown.
*: Associated trip, ambient, equipment or field blank contained specified compound.
B: Indicates blank sample.
w: Indicates water sample.
**: Freon 113 & TCE Off–Scale

* THE SOIL SCREENING LEVEL IS THE MOST STRINGENT COMPARISON VALUE AND RELATES THE POTENTIAL FOR CONTAMINANTS IN SOIL TO LEACH TO GROUNDWATER.

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SCREENING POTENTIAL RELEASE SITES BASED ON SOIL GAS READINGS

Soil gas readings can be utilized in the PRS screening process to identify potential release sites that may present a potential soil contamination problem for volatile organics. The soil gas survey that was conducted at Mound as part of the "Reconnaissance Sampling Report--Soil Gas Survey and Geophysical Investigations, Mound Plant Main Hill and SM/PP Hill" investigated 8 volatile compounds. The concentrations of these compounds in the in the vapor phase within the pore spaces of the soil can be correlated to the actual soil contaminant concentrations by utilizing a method developed by ICF Kaiser Engineers. This technique has been used with US EPA Region IX approval at a large Superfund site contaminated with many of the same chemicals found at relatively low levels in soils at the Mound Plant.

The soil concentration can be estimated from the soil gas values by the following equation:

$$Ct = (Cg/Pb)*[[Pb * Kd / H] + [pw / H] + [pt - pw]]$$

where

Cg	concentration of volatile chemical concentrations as soil vapor in ng/ml
Pb	Bulk density of the soil in g/ml
Kd	soil/water partition coefficient in ml/g
H	Dimensionless Henry's Law Constant
pw	water filled porosity
pt	total porosity
Ct	target soil concentration in ng/g or ug/kg (ppb)

The technique that Mound Plant will use for screening a PRS, is to compare the soil gas values obtained at a PRS with soil gas concentrations that are known to be below any regulatory or health based level of concern. The risk based guideline values for the Mound Plant (DOE, December 1995) soils are based upon 10^{-6} risk levels or a hazard index of 1. These values correspond to direct soil exposure to persons who's activities place them at the highest risk, in particular inhalation and ingestion by a Mound Plant construction worker.

Another potential exposure path must be considered, however. The potential for some of the organic contaminants to leach into ground water must be considered in developing protective soil screening levels. A "Mound Plant Soil Screening Level" paper explains the calculation of soil screening levels. For all of the chemicals that the soil gas survey identified, the calculated soil screening level soil concentrations are below the standard guideline values, therefore they are more conservative and are appropriate to be used as the basis for the soil gas calculations.

By re-arranging the equation, and using either the soil guideline values or the soil screening levels as the target soil concentration, a soil gas concentration can be calculated; this calculated soil gas concentration can be compared to the actual observed soil gas values:

$$Cg = (Pb*Ct)/[[Pb*Kd/H] + [pw/H] + [pt-pw]]$$

The values of the soil specific and chemical parameters for this equation are summarized as follows:

Pb	1.6	Bulk density of the soil in g/ml
pw	0.15	water filled porosity
pt	0.43	total porosity
foc	0.02	fraction organic material in soil (used in developing the SSL values)

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Typical chemicals that are detected with soil gas sampling are:					
NAME	H	Kd	Calculated Acceptable Soil Screening Level Value	Calculated Acceptable Soil Gas Reading	Calculated Acceptable Soil Gas Reading
		ml/g	mg/kg (ppm)	ng/ml	ppb
Toluene	2.52E-01	3.42	22.06	1.56E+03	414800
Trichloroethene (TCE)	4.35E-01	2.24	0.07	1.26E+01	2400
111 Trichloroethane (TCA)	7.63E-01	2.2	3.01	9.46E+02	173400
Trans-1,2 Dichloroethene (DCE)	2.29E-01	1	0.70	1.41E+02	35700
cis-1,2 Dichloroethene (DCE)	1.85E-01	2.78	0.31	1.97E+01	5000
Freon 11	NA	NA			
Freon 113	NA	NA			
Tetrachloroethene (PCE)	7.09E-01	2.78	0.09	2.13E+01	3100

na not available

IF THE SOIL GAS READING IS BELOW THE VALUES IN THE CALCULATED SOIL GAS READING COLUMN (SHADED), THEN THERE IS NO THREAT TO GROUNDWATER FROM THIS PRS.

The soil screening level values are calculated using the Soil Screening Methodology. The Potential Release Site is assumed to be more than 100 meters from a potential drinking water source with an aquifer thickness of 15 meters and a source size of 10 meters. The hydraulic gradient is assumed to be 0.01 which is conservative for most of the Mound Plant PRSs. In special instances where the PRS lies less than 100 meters from a potential drinking water source, or the hydraulic gradient is much less than 0.01, new SSL values and new acceptable soil gas values will be calculated for that particular PRS.

Appendix M

Occurrence Reports

There were no Occurrence Reports generated for Building 60.

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.

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

RECOMMENDATION:

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

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

CONCURRENCE:

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

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

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

SUMMARY OF COMMENTS AND RESPONSES:

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

☒ No comments were received during the comment period.

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

N 2 of 3

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.

N 3 of 3

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.

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

RECOMMENDATION:

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

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

CONCURRENCE:

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

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

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

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 10/17/96 to 11/15/96

☒ No comments were received during the comment period.

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

N 2 of 3

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.

N 3 of 3

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 60 Demolition

2. WORK PACKAGE NUMBER: SMPP/TFV-*34620 - 01*

3. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Building 60. Using heavy equipment to demolish the facility (including pipe stanchions, solvent transfer structure, slab and foundation), remove and dispose of the debris, provide site restoration, grading, and erosion protection with seeding and mulch.

This is a Non-Radiological Demolition project and no RWP is required

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

4. WORK LOCATION: Building #: 60
NE Corner of Main Hill Area

5. WORK PACKAGE PHASES:

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

List of Appendixes

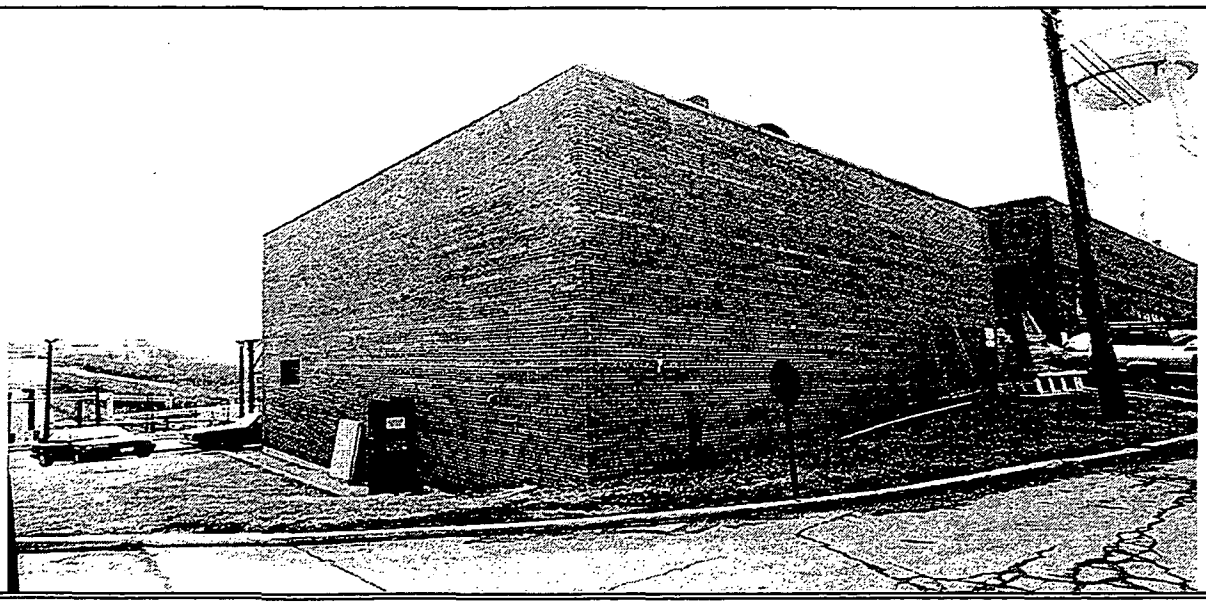
A – PHA/JSHA
B – Pre-Job Briefings/Job Status Log
C – Drawings/Sketches
D – Miscellaneous (RWP, USQ, etc.)
E – Post-Job Conference/Lessons Learned

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.

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 60 was constructed in 1980, as the "Ceramic Facility." At the time of construction, the building contained 3,958-ft^2. Building 60, 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 "beams" and "piers."

Exposed exterior wall construction generally consists of brick veneer on reinforced concrete block, with a 4" break between the veneer and the block containing about 4" of insulation. Reinforcing rebar consists of #5 @ 24" 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 westerly wall areas of the first floor, in the areas towards Building 28 (the below grade areas), are constructed of 17" reinforced poured concrete. The reinforcing rebar in this wall is running horizontally (#5 @ 12").

The vertical bar on the outside of the wall is #5@ 20" on the inside of the wall rebar is #6 @ 9". The subsurface wall is anchored to the footer with #5@ 14', imbedded at 15" (Minimum).

The footer beams and pears bear 2' of perimeter insulation, with a subsoil drain. The footer beams are 24" x 36", as noted in the referenced drawing. The concrete dock that adjoins Building 60 to Building 28 is anchored into Building 28 using Φ threaded anchors @ 12" O.C. The dock is constructed of poured walls and slab, filled with granular fill.

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

Interior wall footings on the original building interior walls (slab thickness) are approximately 12" thick and 2' wide (the slab itself is 6" thick).

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 60 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

Establish work zone boundary 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.

Emergency egress for BD28 occupants shall be maintained.

Install sediment/storm water control fence around designated construction area. See Siltation Control Sketch Appendix C. Coordinate with Environmental Compliance PoC.

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.

7.3.2 Remove MMCIC Lamp Post

Temporarily disconnect, remove & store MMIC lamp post at North East corner of Building 60. LOTO required.

Cover base to mark the location & for protection during demolition of the building & slab.

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.

Mark and/or protect fire prevention line in NE corner of BD60 basement, new yellow MMCIC fire hydrant and other utility equipment with visible stakes. Cover field grates for protection.

7.3.4 Temporary Utilities

The only temporary utility that may be required is water. Ensure backflow prevention is present. Coordinate with site Safety and Health and Environmental Compliance PoCs. Water will be used to control dust emissions.

7.3.5 Temporary Facilities

This project will use the existing SMPP/TFV project new 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 – 34621

verified by _____ date: _____

7.4.2 Verify all Building Utility Isolation Activities have been completed per UA – 35172

verified by _____ date: _____

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 BD28 Occupants of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

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

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.

HOLD POINT: RAPCA Notification verification

Environmental Compliance PoC_____ Date to Proceed with Demo_____

Demolish the Upper Section of 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 and to reach the 12" - flexicore roof & 8" – inch flexicore second floor for dismantlement.

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

Demolish the solvent shed & associated piping stanchion located outside the SE corner of Building 60

Revision #1 - IMPORTANT – Separate solvent shed debris from all other debris. Have RCTs perform debris pile survey before disposal

NOTE: Solvent lines have been flushed in the Safe Shutdown Work Package SMPP/TFV – 34621

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

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 near solvent transfer shed, and be aware of street light locations to prevent damage.

IMPORTANT: Ensure structure collapse is directed away from Building 28 and dock area

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

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.

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.

Demolish and dispose of the solvent transfer shed slab.

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.

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 near solvent transfer shed, 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.

7.6 SITE REMEDIATION & DEMOBILIZATION

7.6.1 Grading, Seeding, & Mulching

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

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

Remove any unnecessary remaining sediment/storm water control fences

7.6.2 Re-install MMCIC lamp post

Reinstall MMCIC lamp post to the original location. LOTO required.

7.6.3 Install guardrail on Building #28 dock

Install guardrail on Building #28 dock to match existing.

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

7.6.4 Remove Temporary Protection Structures

Remove plywood barriers from BD28 windows/doorways and wooden boxes from fire hydrants, fire prevention water lines, steel sheeting from field grates.

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.

8. *Note: Comments, to identify activities hazards that are unique 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: J.J. Boston Date: 03 03 03 Phone: 3262

Job Foreman: James Harris Date: 3 11 03 Phone: 3880

Superintendent/Constr. Mgr: [illegible] Date: 3 11 03 Phone: 3866

Project Eng. Mgr: R.C. Bensleton Date: 3 3 03 Phone: 4220

Industrial Safety & Hygiene: [illegible] Date: 3 3 03 Phone: 4096 373

Rad. Controls: Harry K. Riley Date: 03 03 03 Phone: 4235

Environmental Compliance: [illegible] Date: 3 11 03 Phone: 4080

Waste Mgmt: [illegible] Date: 3 3 03 Phone: x 3822

Bldg. Mgr: [illegible] Date: 3 11 03 Phone: 3241

Craft Review: [illegible] Trade H.D. Date: 3 11 03 Phone: 3663

Craft Review: [illegible] Trade H.D. Date: 3 11 03 Phone: 3663

Craft Review: [illegible] Trade H.D. Date: 3 11 03 Phone: 3663

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

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

Brief Explaination Building 60 is not a Nuclear or Radiological Building

USQ Trained Person: J.J. Boston Date: 03 03 03 Phone: 3262

10. AUTHORIZATION SIGNATURE:

Project Manager: R.C. Bensleton for R.L. Rehder Date: 3/19/03 Phone: 4220

11. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: / / Phone:

Project Manager: _____ Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

Work Package Revision Form

Work Package Revision Form	
Work Package No.SMPP/TFV-34620-00	Revision No. 1

Revision Description: (attach page revisions to form)

Section 7.5.1 Structural Demolition – Add step for debris separation & radiological survey to the demolition of the solvent shed.

	Name	Signature	Date
PREPARED BY:			
Revision Preparer:	Jeffrey L. Boston	J.L. Boston	04.09.03
REVIEWED BY:			
Project Engr. Manager:	Robert Ransbottom	R.C. Ransbottom	4/9/03
Project Foreman:	Bill Wahler	B Wahler	4-9-03
Project Superintendent/ Constr. Mgr.:	Mike Stromberg	M.M. Stromberg	4.9.03
Industrial Safety & Hygiene P o C:	N/A		
Radiological Point of Contact:	Steve Collas	S Collas	4-9-03
Environmental Safeguards & Compliance P o C:	N/A		
Waste Management PoC:	Willis Daniel	Will Daniel	4/9/03
Building Manager:	Gary Weidenbach	Gary J Weidenbach	4-9-03
Other:			
Other:			
USQ Trained Person	Jeffrey L. Boston	J Boston	04.09.03

USQ SCREEN / DETERMINATION REQUIRED? ☐YES ☒NO

Brief Explaination_____Building 60, including solvent shed is not a Nuclear or Radiological Building_____

APPROVED BY:			
Project Manager:	Kurt Kehler	K T Kehler	4/9/03

Work Package Revision History Form

WORK PACKAGE REVISION HISTORY FORM			
REV. NO.	REASON	SIGNATURE	DATE
1	Add requirement to separate solvent shed debris & have RCTs radiologically survey the debris pile before disposal.		04.09.03

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	Yes	2	[EGRESS] BD28 emergency egress will be maintained
Blockages/obstructions (Identify)	N/A	N/A	
Burning, welding, hot-work (Fire Watch)	Yes	3	[BURN] Use of cutting torch during demolition. Hot Work Permit required.
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 are removed during safe shutdown activities
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.
Fire Hazards Analysis Required of Demolition	No	N/A	[FHA/ADJA] FHA walkthrough of facility is accomplished during Utilities Isolation activities.
Flammable liquids/gases	N/A	N/A	[FLAM]
Forklifts, aerial lifts or material handling equipment	N/A	N/A	
Grounding of electrical equipment	N/A	N/A	
Hazards due to condition of facility or terrain (Identify)	Yes	3 & 4	Proximity to BD28 & 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	Excavation Permit is required.

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. MMCIC lamp removal & replacement requires LOTO. Street light circuit to be LOTO as needed.
• Mechanical (steam, hydraulic, pneumatic)	N/A	N/A	
• Interlocks	N/A	N/A	[ILOCK]
• Chemical	N/A	N/A	
• Radiological	No	N/A	BD60 is not a radiological area, no RWP is required.
Machine guards	N/A	N/A	
Modification to Fire Wall/Door	N/A	N/A	[FIREWAL]
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	Yes	All	Fire hydrant available for emergency use.
Off-shift work	Yes	All	Potential for 2nd Shift due to traffic/BD28 access coordination
Outages of the plant public announcement (PA) system or the emergency notification system	N/A	N/A	[OUTAGE]
Overhead or underground utilities (Identify)	Yes	2, 3, & 4	[UITL] See attached drawings Appendix C.
Penetrations into walls, floors, etc.	N/A	N/A	[PENETR]
Plastic sheeting or wood framing/enclosures	N/A	N/A	
Powder-actuated tools	N/A	N/A	
Plant utilities (Identify)	N/A	N/A	[WATER]
Repetitive work	N/A	N/A	[ERGO]
Structural Modification	Yes	2 & 3	[STRUCT] Building & slab is 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 Bd28 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_____ Date: ___02.19.03_____

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] Hot Work Permit required
Other (specify)	N/A	N/A	

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

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

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

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

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

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

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

	Quantity Expected	Work Package Phase	Radiological Characterization	Packaging Requirements	Mode of Disposal
Types: Solid Waste (list types):	Total 23,533 cu. ft.	3	No elevated radioacitivity levels	30 Cu. Yd. Roll-Off/End Dumps	Offsite disposal via Waste Management Operations/Journey LTD
Concrete					
Steel & Copper Piping					
Metal Roofing					
PVC					
Electrical Wiring					
Fiberglass Insulation					
Wood					
RCRA Hazardous Waste (list types)	Non-hazardous				
Asbestos Waste	None				All non-regulated asbestos disposed with construction debris
Low Level Waste	N/A				
TRU Waste	N/A				
NOTE: 1. Sealed pressure vessels will need to be at <1.5 atmosphere if present. 2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal.					
Other:					

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

EMERGENCY PREPAREDNESS

- Site Notification Procedures

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

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

- Evacuation Route/Assembly Areas

Assembly area is 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

Project/Activity: Building 60 Demolition
Name: Jeffrey L. Boston

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

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

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV – 60 - 021903

DATE: 4/15/03	_X_ NEW ___ REV	**BUILDING:** 60	**JOB:** Demolish Building 60
DEPARTMENT/COMPANY: SMPP-TFV Project/CH2M Hill Mound, Inc.			**SECTION:** N/A

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

SIGNATURES

ORIGINATOR:
REVIEW/REV:
REVIEW/REV:
REVIEW/REV:
APPROVED:

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 Emergency egress/access	Struck by equipment, debris Blocked access	-Once the work area is defined, only authorized personnel are permitted in the construction perimeter. -Unescorted, Non-project and Non-emergency personnel, must have acceptance of the SMPP/TFV Project Manager for entry -Emergency access to the work zone will be maintained to the extent possible. BD28 emergency egress will be maintained for occupants.
1b. Remove MMCIC Lamp Post	Electrical shock hazard	LOTO required

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
1c. Clear Area and Mark/Protect Utility Equipment	Running into fire hydrants, manhole covers, or grates over field drains.	-Mark/protect fire prevention water line in BD60 basement 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
2a. Operation of heavy equipment near electric overhead lines	Shock Hazard	-All utilities to the building including electrical have been disconnected by project electricians at a point away from the building. -Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit.
2c. Demolish building, pipe stanchions , solvent transfer structure and slab using excavator mounted shear, hoe ram, grapple, loader, and bobcat	Struck by flying debris Struck by moving equipment Noise Hazard	-Establish construction boundary. -Wear hard hat safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Install traffic control with sufficient flagmen -Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9
2d. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -Test for lead paint; do not torch cut lead paint.
2e. Working in excessive heat/cold	Heat Stress/Cold Stress	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings
2f. Slab removal	Strike underground utilities Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5 -Coordinate in-process Rad Surveys with Rad Techs
3 Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary

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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
3c. Re-install MMCIC Lamp Post	Shock Hazard Lifting /twisting strain	-LOTO required -2 man rule follow standard practice lifting
3d. Install Guardrail on BD28 dock	Falling hazard	-Utilize fall protection/man-lifts as necessary to eliminate hazard
3e Remove Temporary Protection Structures Remove plywood barriers from BD28 windows/doorways Remove wooden boxes from fire hydrants & fire prevention water lines Remove steel sheeting from field grates	Lifting /twisting strain Cuts and abrasions Slip trips and falls	-2 man rule follow standard practice lifting -Wear appropriate PPE -Be cognizant of your own safe work practices as well as those of your co-workers
3d. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture Cuts and abrasions Lifting /twisting strain Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary -Coordinate in-process Rad Surveys with Rad Techs

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

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.

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

PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

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

HP#	SIGNATURE	HP#	SIGNATURE

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

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

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

Job Supervisor/Foreman Date

JOB STATUS LOG

Work Package Title: Building 60 Demolition

Work Package No: SMPP/TFV 34620 - 00

DATE	TIME	1.1. WORK PKG. SECTION	% Complete	BY	STATUS

Appendix C

DRAWINGS/SKETCHES

- Evacuation Assembly Area/Take Shelter Area Sketch
- Site Utilities Demolition Area Sketch
- BD60 Foundation Plan and Wall Section
- BD60 Roof and Second Floor Framing Plans
- BD60 Wall Reinforcement
- BD60 Structural Details
- BD60 Siltation Controls

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.
- MSR 34620

Appendix E

POST-JOB CONFERENCE/LESSONS LEARNED

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

Lessons Learned Statement:

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

Discussion:

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

Analysis:

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

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

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

Recommended Actions:

1) Following changes to the work package, numbering and sequencing should be reviewed and verified by a peer reviewer.
2) A formal revision to the work package is triggered by changes other than minor editorial revisions. Based on the type of change, further reviews must be performed.
3) Editorial changes, comments, and other suggested changes should be documented during the LMSA and discussed at closing to assure that they have been incorporated.

Excavator Damaged During Demolition Work

Lesson Learned Statement:

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

Discussion of Activities:

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

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

Analysis

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

POST JOB CONFERENCE

5. WHAT WENT WELL?

What could be improved?

Other Comments:

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

LESSONS LEARNED INPUT FORM

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

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

Submitted by: _____ **Date:** _____

OPTIONAL