3006-0605080005

CH2M HILL Mound, Inc.
1075 Mound Road
P.O. Box 750
Miamisburg, OH 45343-0750

CH2MHILL

SMO-155/06
March 2, 2006

Mr. Don Pfister, Director
Miamisburg Closure Project
U. S. Department of Energy
175 Tri-County Parkway
Springdale, OH 45246

ATTENTION: Paul Lucas

SUBJECT: **Contract No. DE-AC24-03OH20152:** Deliverable #36 Building Data Package; Section C.2.1.1 Facility Demolition; Building 36 Building Data Package, Final

Dear Mr. Pfister:

Attached is the following Final document for your records:

- Buildings 36 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 Dave Rakel at 937-865-4203.

Sincerely,

Michael D. Ebben
Site Manager

JL/jg

Enclosures

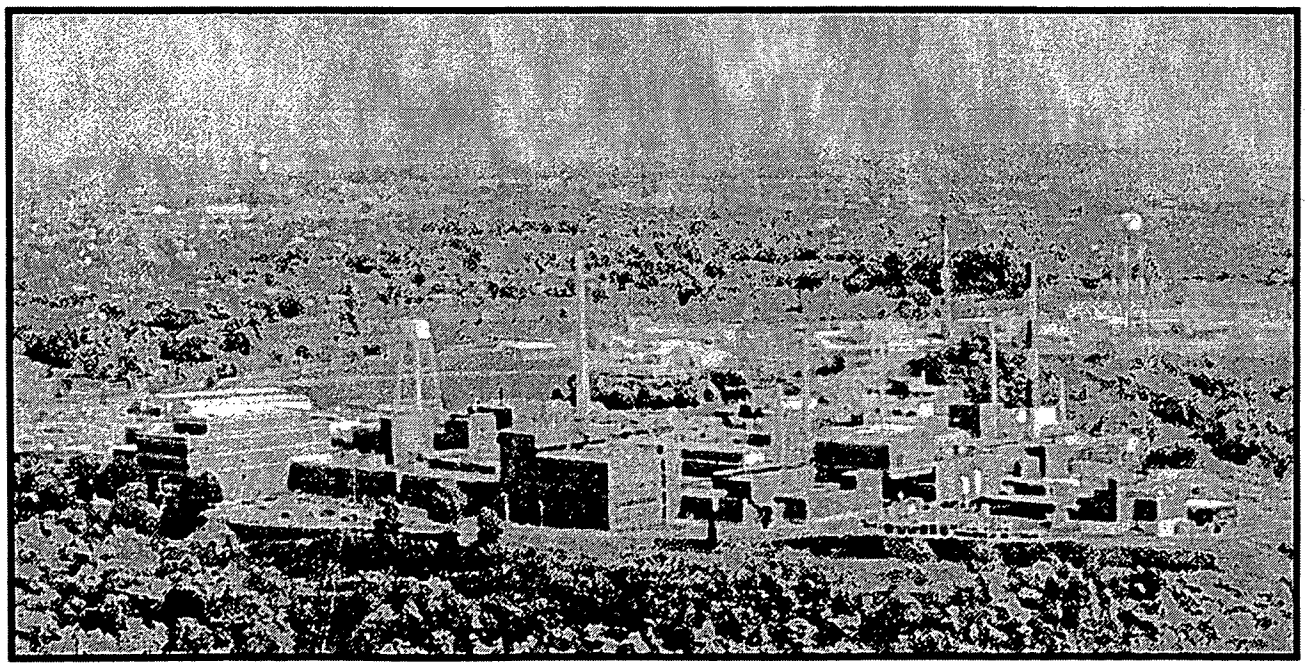
cc: T. Fischer, USEPA, (1) w/attachments
B. Nickel, OEPA, (1) w/attachments
R. Vandegrift, ODH, (1) w/attachments
J. Webb, ODH, (1) w/attachments
M. Wojciechowski, Tetra Tech, (1) w/attach
G. Gorsuch, DOE/MCP, (1) w/attachments
R. Tormey, DOE/OH, (1) w/attachments
G. Desai, DOE/HQ, (1) w/attachments
F. Bullock, MMCIC, (3) w/attachments
Public Reading Room, (1) w/attachments
Admin Record, (2) w/attachments
ER Records, CH2M Hill, (1) w/attachs
DCC (1) w/attachments
M. Ebben, CH2M Hill, w/o attachments
K. Armstrong, CH2M Hill, w/o attachments
D. Rakel, CH2M Hill, w/o attachments
D. Kramer, CH2M Hill, w/o attachments
A. Upshaw, CH2M Hill, w/o attachments
MOAT Coordinator, CH2M Hill, w/o attachs
S. Barr, CH2M Hill, w/o attachments
M. McDougal, CH2M Hill, w/o attachments
file, CH2M Hill, w/o attachments

Environmental
Restoration
Program

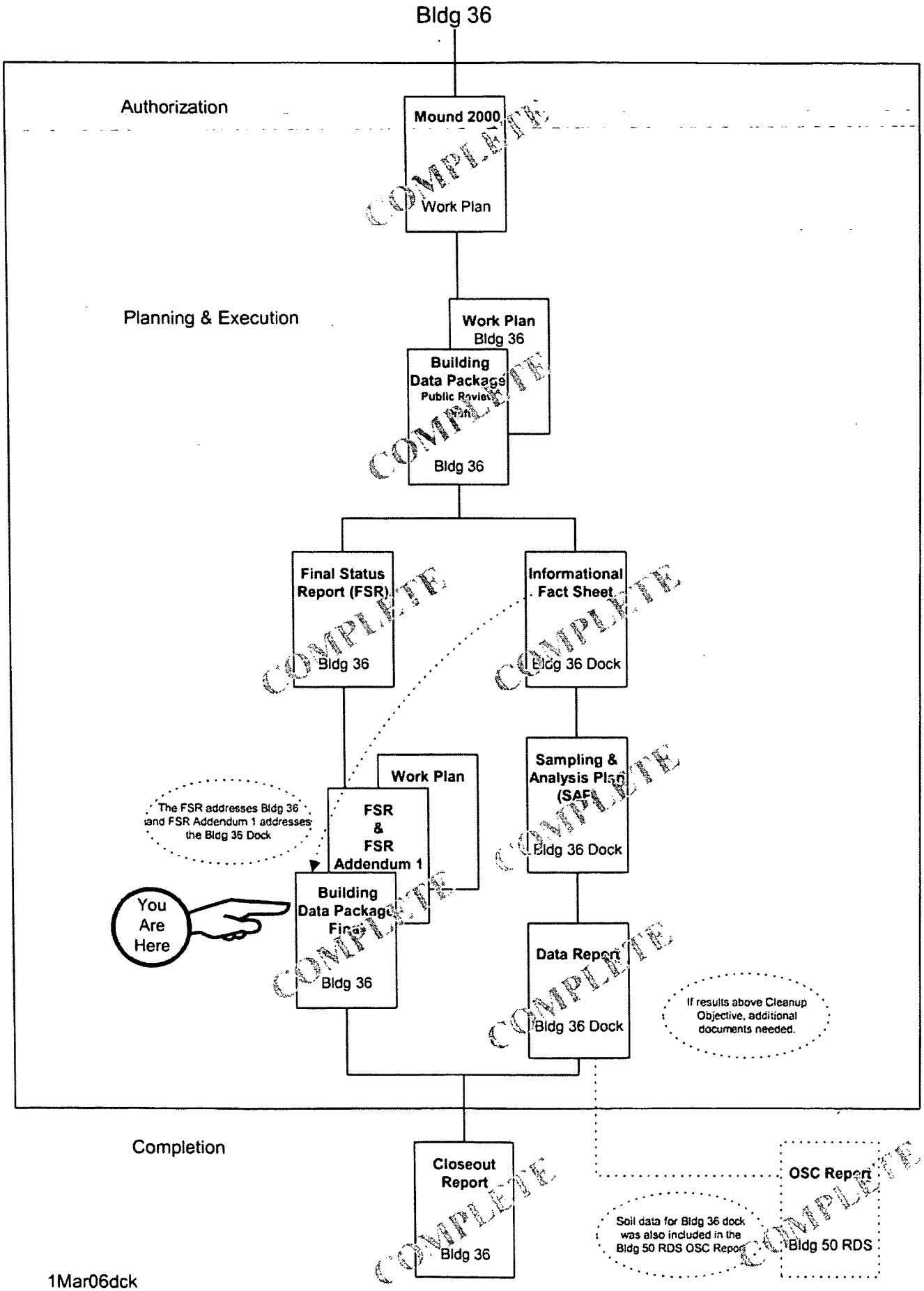
Miamisburg Closure Project
Building Data Package

Building 36
(Demolition)

Final
October 2004



Building 36



1Mar06dck

This page intentionally left blank.

MIAMISBURG
Mound
COMMUNITY
IMPROVEMENT
CORP

P.O. Box 232
Miamisburg, Ohio
45343-0232

720 Mound Road
DS Bldg., Suite 480
Miamisburg, Ohio
45342-6714

937-865-4462
800-708-1643
fax 937-865-4431
mmcic@aol.com
www.mound.com

Board of Trustees
John K. Weithofer, *Chairman*
James H. Van Tassel, *Vice Chairman*
George S. Perrine, *Secretary*
Robert Bell
Richard C. Church, Jr.
Donald L. Koller
Robert A. Lowden

Located Within
The Mound
Advanced
Technology Center

12-11-03 P01:10 IN
MIAMISBURG
LOG H-00230
CODE 6444.36

December 9, 2003

Mr. Paul Lucas
U.S. Department of Energy
MCP
500 Capstone Circle
Miamisburg, OH 45342

Re: Comments Regarding Building 36 Data Package
Mound Plant, Ohio

Dear Mr. Lucas:

The Miamisburg Mound Community Improvement Corporation (MMCIC) appreciates the opportunity to review the Building 36 Data Package, Public Review Draft. Our comments are included on the attached sheet. For your convenience, and where applicable, we have arranged the comments in two categories labeled "Substantive" and "Errata". The "Substantive" comments are ones that we believe are critical to our interpretation of the document. "Errata" comments are comments of an editorial nature and do not have a significant impact on the document.

If you have any questions, please contact me.

Sincerely,

Frank Bullock
Director of Operations

cc: Michael Grauwelman, MMCIC
Ellen Stanifer, EHS
David Rakel, CH2M Hill
Frank Schmaltz, DOE/MCP
Danny Punch, DOE/MCP

MMCIC Comments

Subject	Building 36 Data Package
Version	Working Draft November 2003

Substantive Comments

1. From our review of the Building 36 Data Package, Public Review Draft, MMCIC concurs with the planned demolition of the building. MMCIC understands that all procedures will be in place to ensure that the demolition activity will have a minimal environmental impact. In addition, as this area is part of the reuse of the site, MMCIC would appreciate the opportunity to coordinate with DOE and the clean-up contractor any anticipated work activities in this area.

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

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

Errata

1. No Comments.

Frank Bullock
MMCIC

12-9-03
December 9, 2003

Response to MMCIC Comments on the Building 36 Data Package Public Review Draft November 2003

Substantive Comments

Comment 1. From our review of the Building 36 Data Package, Public Review Draft, MMCIC concurs with the planned demolition of the building. MMCIC understands that all procedures will be in place to ensure that the demolition activity will have a minimal environmental impact. In addition, as this area is part of the reuse of the site, MMCIC would appreciate the opportunity to coordinate with DOE and the clean-up contractor any anticipated work activities in this area.

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

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

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

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

Response 3. We appreciate your input and review of our document.

Errata

Comment 1. No Comments.

Other Changes Since Public Review

Subsequent to the release of the BDP for public review, plutonium-238 contamination was discovered on the top surface of the dock. Please refer to the Informational Fact Sheet (Final), copy provided in Appendix G.

This page intentionally left blank.

OhioEPA
State of Ohio Environmental Protection Agency
Southwest District

401 East Fifth Street
Dayton, Ohio 45402-2911

TELE: (937) 285-6357
FAX: (937) 285-6249

December 11, 2003

Mr. Paul Lucas
U.S. DOE MCP
500 Capstone Circle
Miamisburg, Ohio 45342

Comments on the Building 36 Data Package

Dear Mr. Lucas:

The Ohio Environmental Protection Agency and Ohio Department of Health have completed our review of the Building 36 Data Package, Public Review Draft, November 2003. Please refer to the attached comments on the document. These comments were also forwarded via email on December 11, 2003.

Should there be any questions concerning the above, please feel free to contact Jane O'Dell (937) 285-6066 or me at (937) 285-6468.

Sincerely,

Mr. Brian Nickel
OEPA/Mound Project Manager
Office of Federal Facilities Oversight

copy: David Seely, USEPA Region V
Bob Ransbottom, CH2M HILL
Frank Schmaltz, DOE MCP
Celeste Lipp, ODH
Dave Rakel, CH2M HILL
~~Val Darnell, CH2M HILL~~

Printed on Recycled Paper
Ohio EPA is an Equal Opportunity Employer

Bob Taft, Governor
Jennette Bradley, Lt. Governor
Christopher Jones, Director

MIAMISBURG CLOSURE PROJECT
BUILDING DATA PACKAGE
BUILDING 36
NOVEMBER 2003 PUBLIC REVIEW DRAFT
OHIO ENVIRONMENTAL PROTECTION AGENCY
AND OHIO DEPARTMENT OF HEALTH
COMMENTS
DECEMBER 11, 2003

GENERAL

1. Based on the findings in the Final Status Report for Building 36, the Ohio EPA requests that additional sampling is conducted in the soil around and under the dock area. The dock will be removed as low level radioactive waste due to plutonium contamination. No explanation was given as to how this area was contaminated and history has indicated that the building should not have had radioactive contamination. A 100% walkover survey needs to be conducted around the loading dock. At a minimum, two rows of surface sample locations, resulting in a grid spacing of 15 feet, should be planned. One row, representing the area under the dock would be sampled after the dock is removed. The other row should be sampled before any demolition takes place. The contaminant of concern is plutonium. Pending the results, additional sampling may be required. Please provide a layout of sample locations prior to the event. The Ohio EPA may want to conduct split sampling. Please revise the BDP accordingly.

Response to Comments

on Building 36, BDP, Public Review Draft, November 2003

OEPA COMMENTS

Comment 1. Based on the findings in the Final Status Report for Building 36, the Ohio EPA requests that additional sampling is conducted in the soil around and under the dock area. The dock will be removed as low level radioactive waste due to plutonium contamination. No explanation was given as to how this area was contaminated and history has indicated that the building should not have had radioactive contamination. A 100% walkover survey needs to be conducted around the loading dock. At a minimum, two rows of surface sample locations, resulting in a grid spacing of 15 feet, should be planned. One row, representing the area under the dock would be sampled after the dock is removed. The other row should be sampled before any demolition takes place. The contaminant of concern is plutonium. Pending the results, additional sampling may be required. Please provide a layout of sample locations prior to the event. The Ohio EPA may want to conduct split sampling. Please revise the BDP accordingly.

Response 1. As discussed at the December 17, 2003 FFA/Core Team meetings, the soil below and around Building 36 will be addressed per the Contingent Removal Action. The BDP (Table 1, Soil Contamination, Resolution) has been revised to include the following: "To ensure that the soil under the Building 36 footprint and within a 15-foot perimeter of the building is not radiologically impacted, the soil will be evaluated and addressed per the Contingent Removal Action following building demolition."

USEPA COMMENTS

Comment 1. Section #: 2.2, Page #: 3, Line #: Not Applicable (NA)
The text indicates that "all required equipment will be removed from the building, and any remaining equipment will be left in place and demolished/disposed of with the building." It is not clear how the determination will be made regarding which equipment is to remain during demolition and which equipment is to be removed. The text should be revised to explain how this determination will be made.

Response 1. Equipment disposition: DOE evaluates the potential reuse or sale value of each piece of equipment along with the cost of moving the equipment. Based on that evaluation, DOE decides which pieces are reused or sold and which are demolished with the building. The BDP has been revised to include a reference to 41 CFR 101-200 for equipment disposition regulations.

Comment 2. Section #: 2.3, Page #: 3, Line #: NA
Table 1 states that "per Waste Management, building debris containing lead-based paint can be disposed of in a sanitary landfill." Further information should be provided on how this determination was made. Specifically, the table should be revised to explain why the debris would not be disposed of in a construction and demolition debris landfill.

Response 2. Lead-Based Paint: Waste with more than 5 ppm (parts per million) of lead (based on a TCLP test) is classified as hazardous waste. Site Waste Management personnel performed a calculation of the potential lead concentration that could possibly be present in site demolition debris. The calculation was based on a worst-case scenario that assumed all building surfaces were painted with lead-based paint, and included the calculated surface area of all painted surfaces, multiplied by the paint thickness, multiplied by an assumed worst-case lead concentration, and divided by the total volume of demolition debris. The results showed that the calculated worst-case value of possible lead concentration in demolition debris was significantly lower than what cause the debris to be classified as hazardous waste. Accordingly, Waste Management has authorized the disposal of demolition debris to Stoney Hollow.

Waste Management: Waste from the MCP site that meets free release criteria is disposed of at Stoney Hollow Recycling and Disposal Facility in West Carrollton, Ohio. Stoney Hollow includes both a construction and demolition debris landfill, and a sanitary landfill. All waste shipments to Stoney Hollow meet the applicable waste acceptance criteria.

The text page 3, Table 1, Lead-Based Paint, has been revised to read: "Waste Management performed worst-case scenario calculations to determine that building demolition debris containing lead-based paint meets the waste acceptance criteria at Stoney Hollow Landfill."

Comment 3. Section #: NA, Page #: NA, Line #: NA
Table 2 indicates that one soil sampling location in an asphalt paved area in the the vicinity of Building 36 had analytical results above the cleanup objective. However, the text indicates that because this soil sampling location cannot be identified, "it is technically unfeasible to locate where the data came from in order to assess or remove the potential contamination. Therefore, no sampling is planned as part of the Building 36 demolition activities and the data will be evaluated during the Residual Risk Evaluation Process." The text should be revised to explain if any demolition work is expected to take place in the vicinity of the asphalt paved area and what precautions will be taken to protect workers in the area.

Response 3. In response to this comment and OEPA Comment 1, the Soil Contamination, Resolution in Table 1 (page 6) has been revised to read:

"To ensure that the soil under the Building 36 footprint and within a 15-foot perimeter of the building is not radiologically impacted, the soil will be evaluated and addressed per the Contingent Removal Action following building demolition.

The possibility of soil contamination in the area should not present an increased risk to worker safety during demolition activities because the heavy-duty equipment will be operated on asphalt-paved areas (which will prevent unnecessary soil disturbance), and fugitive dust will be mitigated by using engineering controls such as misting or the fog cannon (Appendix O)."

The Work Plan has also been revised to include a cautionary note to the workers of the possibility of soil contamination in the area and instructions to leave the existing asphalt intact so that the potentially contaminated soil is not unnecessarily disturbed. The Final Work Plan will be included in the Final BDP.

This page intentionally left blank.

Response to Comments

on Building 36, BDP, Public Review Draft, November 2003
Revised September 2004 to reflect path forward
Only responses revised since previous submittal are included

OEPA COMMENTS

Comment 1. Based on the findings in the Final Status Report for Building 36, the Ohio EPA requests that additional sampling is conducted in the soil around and under the dock area. The dock will be removed as low level radioactive waste due to plutonium contamination. No explanation was given as to how this area was contaminated and history has indicated that the building should not have had radioactive contamination. A 100% walkover survey needs to be conducted around the loading dock. At a minimum, two rows of surface sample locations, resulting in a grid spacing of 15 feet, should be planned. One row, representing the area under the dock would be sampled after the dock is removed. The other row should be sampled before any demolition takes place. The contaminant of concern is plutonium. Pending the results, additional sampling may be required. Please provide a layout of sample locations prior to the event. The Ohio EPA may want to conduct split sampling. Please revise the BDP accordingly.

Response 1. The dock was removed and disposed of as low level radioactive waste. Following dock removal, a 100% walkover survey was conducted with no elevated areas detected. A Sampling and Analysis Plan (SAP) was provided to the Core Team on March 1, 2004, and Core Team concurrence was received on July 9, 2004. The data will be presented to the Core Team in a Data Report (in development). Results of the sampling will also be included in the Building 36 Closeout Report and the Building 50 RDS OSC Report.

USEPA COMMENTS

Comment 1.
Response 1. no change to previous response

Comment 2.
Response 2. no change to previous response

Comment 3. Section #: NA, Page #: NA, Line #: NA
Table 2 indicates that one soil sampling location in an asphalt paved area in the the vicinity of Building 36 had analytical results above the cleanup objective. However, the text indicates that because this soil sampling location cannot be identified, "it is technically unfeasible to locate where the data came from in order to assess or remove the potential contamination. Therefore, no sampling is planned as part of the Building 36 demolition activities and the data will be evaluated during the Residual Risk Evaluation Process." The text should be revised to explain if any demolition work is expected to take place in the vicinity of the asphalt paved area and what precautions will be taken to protect workers in the area.

Response 3. In response to this comment and OEPA Comment 1, the Soil Contamination, Resolution in Table 1 (page 6) has been revised to read:

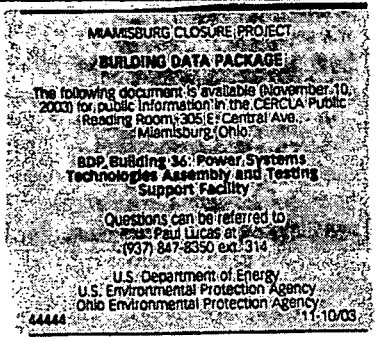
"The possibility of soil contamination at location SCR909 should not present an increased risk to worker safety during demolition activities because the heavy-duty equipment will be operated on asphalt-paved areas (which will prevent unnecessary soil disturbance), and fugitive dust will be mitigated by using engineering controls such as misting or the fog cannon (Appendix O)."

AFFIDAVIT OF PUBLICATION

State of Ohio

SS: CH2M HILL Mound Inc.

Montgomery County


MIAMISBURG CLOSURE PROJECT
BUILDING DATA PACKAGE
The following document is available (November 10, 2003) for public information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.
BDP, Building 36: Power Systems Technologies Assembly and Testing Support Facility
Questions can be referred to Paul Lucas at (937) 847-8350 ext. 314
U.S. Department of Energy
U.S. Environmental Protection Agency
Ohio Environmental Protection Agency
44444
11-10/03

Before me, the undersigned, a Notary public in and for said County, personally came Marsha Cox , who being first duly sworn says she is the Legal Advertising Agent of the DAYTON DAILY NEWS, which she says is a newspaper of general circulation in Montgomery, Clark, Warren, Butler, Clinton, Greene, Preble, Miami, Darke, Mercer, Shelby, Fayette, Logan, Auglaize, and Champaign Counties, and State of Ohio, and she furthur says that the Legal Advertisement, a copy of which is hereunto attatched, has been published in the said DAYTON DAILY NEWS

21 Lines, **1** Time(s), last day of publication

being **11/10/03** , and he/she furthur says

that the bona fide daily paid circulation of the said DAYTON DAILY NEWS was over Twenty-five Thousand (25,000) at the time the said advertisement was published, and that the price charged for same does not exceed the rates charged on annual contract for the like amount of space to other advertisers in the general display advertising columns.

Signed Marsha Cox

Sworn or affirmed to, and subscribed before me, this

10 day of **November** 2003

In Testimony Whereof, I have hereunto set my hand and affixed my official seal, the day and year aforesaid.

Kelli Jones

Notary Public in and for the State of Ohio

This page intentionally left blank.

BDP Building 36

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**November 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	Public review was 10 November 2003 through 10 December 2003.	**November 2003**
FINAL	Radiological contamination was discovered on the dock outside of Building 36. The contamination and corresponding actions are described in Section 2.4, Appendix G (Final Status Report, Final Status Report Addendum 1, and Fact Sheet), and Table 1 (Radiological, and Soil Contamination). Responses to public comments are bound into the front of this document.	**October 2004**

This page intentionally left blank.

TABLE OF CONTENTS

Section Page

1.0 General Overview 1
- 1.1 Introduction 1
- 1.2 Scope 1

2.0 Building 36 Overview 2
- 2.1 Past Uses of Building 36 2
- 2.2 Current Uses of Building 36 3
- 2.3 Summary of Environmental Concerns and Findings - Building 36 3
- 2.4 Radiological Summary for Building 36 7

3.0 Site Description 8
- 3.1 Site/Vicinity Location and Characteristics 8
- 3.2 Description of Structures, Roads, and Other Improvements in Proximity to Building 36 9
- 3.3 Current and Past Uses of Buildings in Proximity to Building 36 9

4.0 Records Review 10
- 4.1 General/Historical CERCLA Information 10
- 4.2 Specific Record Sources for Building 36 11
  - 4.2.1 Occurrence Reports 11
  - 4.2.2 Spills and Releases 11
  - 4.2.3 Associated PRS Overview 12
- 4.3 Review of Building Prints 12
- 4.4 Aerial Photographs 12
- 4.5 Interviews 12

Tables

Table 1: Summary of Environmental Concerns and Findings 3

Table 2: Maximum Results Exceeding Screening Levels 7

Table 3: Radiological Summary 8

Table 4: PRSs in Proximity to Building 36 12

TABLE OF CONTENTS

continued

Appendices

Appendix A General Listing of Acronyms
Appendix B Map of Montgomery County
Appendix C Figures
Appendix D Floor Plans
Appendix E Aerial Photographs
Appendix F Environmental Appraisal Report of the Mound Plant (Excerpt)
Appendix G Radiological Information
Appendix H Radon Information
Appendix I Asbestos Information
Appendix J Lead Information
Appendix K Chemical Information
Appendix L Soil Sampling, Vicinity
Appendix M Occurrence Reports
Appendix N PRS Information
Appendix O Work Plan

1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the demolition of Building 36 (PST [Power Systems Technologies] Assembly and Testing Support Facility) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and building.

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

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach.* This document is a BDP for Building 36 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 36, the soil beneath and a 15-foot wide perimeter border around the building. The investigation of Building 36 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 36 OVERVIEW

Constructed in 1967, Building 36 is located on the east central portion of the site (Figure 1). The facility is a single-story, slab-on-grade structure with a penthouse. It is constructed mainly of reinforced concrete block with the exterior walls being just over 11 inches thick and the interior walls and the walls of the penthouse being 12 inches thick. The floor is a 6-inch thick reinforced concrete slab set on a 6-inch thick gravel bed. The reinforced concrete footer/foundation of the building is set approximately 4 feet below grade. The roof is a built-up membrane of asphalt on a metal frame truss with a suspended ceiling. Building 36 was modified to add one small room (Room 12) and to add some interior walls since its original construction, and contains 4,255 square feet of floor space. It is believed that no research, development, or production activities using unencapsulated radiation or energetic materials have occurred in the building.

The building uses hot water (from Building 128-PST Boiler Building) for heating and a chilled glycol (standalone) unit for cooling. Electric service is 480 volts. The building has potable and service water, a fire sprinkler system, sanitary services, and storm drains.

2.1 Past Uses of Building 36

Building 36 was originally built and used as the System and Capsule Design Testing Facility. The building contained office and laboratory areas with facilities and equipment for testing of encapsulated components, including a Capsule Impact Facility, a Re-entry

Ablation Facility, welding machines, a vacuum chamber, and a high temperature vacuum furnace. By the late 1980s, Building 36 was used for support functions for RTG (Radioisotope Thermoelectric Generator) assembly and testing operations. Processes housed in Building 36 were a cleaning and degreasing facility for cleaning heat source hardware and tooling, high temperature vacuum bake out ovens for the bake out of graphite modules and cleaning, a long-term temperature facility, and a pressure burst facility. Building 36 was also used for the storage of heat source/RTG program quality records and the storage of raw materials, hardware, and tooling managed by Material Control for the heat source/RTG program.

2.2 Current Uses of Building 36

Building 36 is currently inactive. The equipment and furnishings are in the process of being removed. All required equipment will be removed from the building (in accordance with 41 CFR 101-200), and any remaining equipment will be left in place and demolished/disposed of with the building. Safe Shutdown activities will be conducted prior to the commencement of demolition.

2.3 Summary of Environmental Concerns and Findings - Building 36

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data could be found for Building 36, and paint coatings observed in the building appear to be intact. Since no significant degraded paint was seen, no sampling of paint for lead was performed. Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building. (Appendix J).	No further action would be necessary to protect occupant or worker health unless any coatings were to be disturbed by close worker contact (sanding, grinding, scraping, torch cutting, etc.). If these types of activities are planned, the affected paint coatings should be tested to verify the absence of lead. Waste Management performed worst-case scenario calculations to determine that building demolition debris containing lead-based paint meets the waste acceptance criteria at the landfill.
Chemicals	Appendix K provides a list of chemicals reportedly used or stored in Building 36.	All chemicals will be removed prior to demolition, and dispositioned by Waste Management.
Fluorescent Lamps and PCBs	Fluorescent lamps were used in the building. Ballasts may contain polychlorinated biphenyls (PCBs).	Ballasts that may contain PCBs will be removed prior to demolition, and disposed of by Waste Management.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Air Emissions	Two processes in Room 2 and one process in Room 3 were considered air emission sources for vapor (fumehoods).	RAPCA determined that all processes were de minimis (did not require permit). Processes in Room 2 were discontinued in 2003 and the process in Room 3 was discontinued in 1996. The previous air emissions from Building 36 processes are believed to have had no adverse impact on the building or the environment. No further action is required.
Asbestos	Previous asbestos surveys of Building 36 were completed in 1989 and 1993. These surveys were intended to identify all reasonably accessible asbestos-containing material (ACM) within the building for the purposes of identifying damaged material and managing asbestos in place. Asbestos pipe insulation, transite cement board in fume hoods, laboratory counter tops, and floor tiles were previously identified. In September 2003 a comprehensive walk-through survey of all areas of Building 36 was performed in order to identify ACM prior to building demolition. (Appendix I)	The following ACMs were identified and will be removed prior to building demolition: sheet vinyl flooring (due to the friable felt layer), laboratory counter tops, and transite cement board. All ACM removed will be disposed of per Waste Management direction. All work will be performed in accordance with current state and federal regulations.
Drainage Sumps	N/A	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Surveys of the interior and exterior surfaces of Building 36 found no radiological contamination, and the building meets surface release criteria. The dock outside of Building 36 was found to have radiological contamination on its top surface. The dock was demolished and the debris disposed of as low level waste (LLW). The plan for further action is described in the Building 36 Dock Fact Sheet (copy provided in Appendix G).	Section 2.4 provides a summary of the radiological findings, and Appendix G provides the Building 36 Final Survey Report (FSR), FSR Addendum 1, and Fact Sheet.
Septic System	N/A	N/A
Wastewater	Handled by site wastewater facility.	N/A
Stains & Corrosion/HVAC	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Storage Tanks	There is an aboveground liquid nitrogen storage tank (Tank T02) outside of the northwest corner of Building 36.	The aboveground liquid nitrogen storage tank is empty, and disconnected from Building 36. It will be removed prior to building demolition
	Two underground gasoline storage tanks (Tanks 239 and 240, PRS 269), identified on a 1948 construction drawing, were located in the area where Building 36 was later constructed. The underground gasoline storage tanks were installed in 1948 as part of a fueling facility to support the original plant construction. No documentation of the tanks having been removed has been found, although it is believed that they were removed as part of construction demobilization.	A ground penetrating radar (GPR) survey was performed to located the tanks. However, the survey did not find any tanks at PRS 269. Based on this, the Core Team binned PRS 269 No Further Assessment (NFA) (Appendix N).
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	Radon level is not applicable for open air demolitions.	N/A
HVAC	HVAC refrigerant will be drained and disposed of during Safe Shutdown.	No further action required.
Energetic Materials	Energetic materials were not present in Building 36.	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 15 feet of the Building 36 perimeter, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). Maximum exceedances to screening levels (Core Team approved or the more stringent of either 10^{-6} Risk-Based Guideline Value [RBGV] plus background or Hazard Index = 1) are listed in Table 2. All other results are below applicable screening levels. Only one sample location (SCR909) had analytical results above the Cleanup Objective (CO) as detailed in Table 2 and Appendix L. This same location was reportedly sampled once in 1988 and three times in 1994, giving question to the validity of the data. Only one of 1994 results is above CO (Th-232 at 2.9 pCi/g vs. CO of 2.1 pCi/g) and none are above the hot spot criterion for Th-232 of 3.5 pCi/g. The result above CO is identified as being a surface sample collected from a borehole. Aerial photos reviews show that the area has been paved since at least 1983. If a borehole were installed subsequent to the paving (as indicated by the dates of the sample data), a plugged borehole would still be visible. A visual inspection of the area was performed and gave question to the validity of the location of the historic data because there are no plugged boreholes in the area that could be related to the SCR909 data.	The possibility of soil contamination at location SCR909 should not present an increased risk to worker safety during demolition activities because the heavy-duty equipment will be operated on asphalt-paved areas (which will prevent unnecessary soil disturbance), and fugitive dust will be mitigated by using engineering controls such as misting or the fog cannon (Appendix O).
	Radiological contamination was present on the surface of the dock outside of Building 36.	The dock was demolished and the debris disposed of as LLW. The plan for further action is described in the Building 36 Dock Fact Sheet (copy provided in Appendix G).

N/A: not applicable

Table 2: Maximum Results Exceeding Screening Levels (pCi/g)

Analyte	Maximum Result	Background	RBGV (10^{-6})	Screening Level
Thorium 232	2.90*	1.40	0.07	1.47

RBGV: most stringent of construction and office worker scenarios per Risk-Based Guideline Values, March 1997, Final, as performed using April 2001 HEAST slope factors.

* See Table 1, Soil Contamination.

2.4 Radiological Summary for Building 36

A radiological assessment of Building 36 was performed by reviewing historic and operational records and performing radiological surveys. Building 36 was constructed in 1967, as the "System & Capsule Design Testing Facility." The square footage of Building 36 is noted in contemporary documents as 4,255-ft^2. The building included testing equipment and testing facilities in support of the Heat Source Program, as well as for records storage and other support activities.

Building 36 has been used for the same purpose since construction and no research, development, or production activities using radioactive or energetic materials have occurred in the building. Building 36 is scheduled for demolition in accordance with Miamisburg Closure Project goals.

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

The top surface of the dock was found to be contaminated with plutonium-238. Because the dock did not meet surface release criteria, Survey Unit 4 was removed from the Final Status Report. The dock was demolished, and disposed of as low level radioactive waste. After its removal, the exterior wall of Building 36 that had been adjacent to the dock was radiologically surveyed with no audible detections. A radiological walkover survey was performed on the backfill material that had been under the dock, with no audible detections. Three soil samples were collected from below the dock, and all results met soil screening criteria (RSDS 03-TF-0352). Information regarding the dock demolition and disposal is provided in the Final Status Report for Building 36, Addendum 1, and the plan for further action is described in the Building 36 Dock Fact Sheet (Appendix G).

The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5 and no further radiological surveys are required. Supporting documentation for the information summarized in Table 3 is contained in the Final Status Report (Appendix G).

Table 3: Radiological Summary
(highest results from final radiological surveys)

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 2)
Highest Alpha Smearable Activity	03-TF-0308	Roof	6	20
Highest Alpha Fixed Activity	03-TF-0308	Roof	95	100
Highest Beta Smearable Activity	03-TF-0301	Exterior Walls	8.28	1,000
Highest Beta Fixed Activity	03-TF-0300	Floor	2,573	5,000
Highest Tritium Smearable Activity	03-TF-0301	Exterior Walls	10.99	10,000

Note 1: Residual radiological activity may be present and not be a concern (within applicable limits). This may result from or be a function of counting statistics, instrument variances, the randomness of decay, radon presence, and/or natural fluctuations in background levels.
Note 2: Guideline values per DOE Order 5400.5, Radiation Protection of the Public and the Environment.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 36 is located at the DOE MCP site, formerly known as the Mound Plant. The MPC site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

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

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

3.2 Description of Structures, Roads, and Other Improvements in Proximity to Building 36

Building 36 is bordered by rip-rap/rock and Building 128 on the north; a concrete sidewalk and Building 50 on the east; an asphalt roadway and a gravel area on the south; and an asphalt roadway and an asphalt lot on the west. Buildings 31 and 31A are northwest of and down gradient from Building 36 (Figure 3).

3.3 Current and Past Uses of Buildings in Proximity to Building 36

Buildings in proximity to Building 36 include:

- Building 128 (PST Boiler Building), located north of Building 36, is a 900 square-foot single-story building which houses the boilers for the hot water heating system for Buildings 36, 37, 50, and 126.

- Building 37 (Heat Source Testing Facility), located west of Building 50, is a 2,464 square-foot single-story structure with a penthouse that was used for three purposes: research, development, and production in conjunction with the US Advanced Battery Consortium; converting processes with freon and other hazardous materials to processes that use safer materials; and a machine shop in support of the heat source program.

- Building 50 (PST Assembly and Testing Building), located east of Building 36, is a 14,849 square-foot two-story building that provided process areas for the assembly and testing of heat sources and radioactive thermoelectric generators (RTGs) that contained sealed radioactive sources. The process areas in Building 50 are currently inactive.

- Buildings 31/31A (TRU Waste Storage), 6,090 square-foot and 2,650 square-foot respectively, are single-story metal buildings located northwest of Building 36 that were used by Waste Management for storage and staging of transuranic (TRU) waste and low level waste prior to shipment offsite. Building 31 is currently inactive, and undergoing preparations for demolition. Building 31A was subsequently used to store raw materials and equipment for the heat source program. Operations are scheduled to cease in October 2003, and the building will then undergo preparations for demolition.

- SM Building (Special Metallurgical) was a 21,700 square-foot, single-story metal structure with a penthouse that was located south of Building 36. It was constructed in 1963 as a plutonium production facility. In 1972, a decontamination and decommissioning project removed the interior of the building along with the soil beneath the floor. During the 1990s, the outer shell of the building was taken down, with the last remnants being removed in 1995. Part of the SM Building foundation was left in place to prevent the undermining of the Building 38 stack. Building 38 and the stack were subsequently demolished.

- Buildings WH-5/WH-6 (Warehouses 5 and 6) were temporary structures built in 1947, and demolished in 1949. WH-5 was used as a garage and had approximately 6,000 square-feet of floor space. WH-6 was used as a repair shop and had approximately 2,800 square-feet of floor space. These structures were located northwest of Building 36 in the approximate location of the current Buildings 31 and 31A.

- Building 118 and GP-38 (Guard Post 38) were temporary structures that had been located southeast of Building 36. Building 118 was a small (approximately 350 square foot) structure used as an office. GP-38 was a small single-room structure used as a guard post. Both structures were demolished in the 1990s.

These buildings are believed to have had no adverse environmental impact on Building 36.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that reportable chemicals were stored in Building 36 (Appendix K).

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

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

Through the process described above, the specific PRSs in the vicinity of Building 36 (Section 4.2.3) are listed in Table 4 along with their binning status. Their locations are shown on Figure 2. Of the five PRSs in the vicinity of Building 36, two have been binned Removal Actions (RAs) by the Core Team, and the other three have been determined by the Core Team to require No Further Assessment (NFA). For a PRS to be binned NFA, the Core Team has reviewed the PRS data and agrees that all existing environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with Building 36 have been identified.

4.2 Specific Record Sources for Building 36

4.2.1 Occurrence Reports

A search of the occurrence reporting system revealed two reports, both of which were minor and without environmental impact:

- discovery of fixed alpha contamination on vacuum gauge being surveyed for release for unrestricted use (copy provided in appendix M), and
- Building 36, 37, and 50 fire alarm system failure.

4.2.2 Spills and Releases

The Environmental Appraisal (Page F3 of 47) indicates that one gallon of Dowtherm SR-1 coolant (ethylene glycol) was spilled in Building 36. The date of the spill was not specified and efforts to determine the date of the spill were unsuccessful. The spill did not enter the storm or sanitary drains because no floor drains were in areas of operations. The coolant was reportedly cleaned up with absorbent material and collected in a bag. Soap and water were used to mop up the floor. Since Building 36 waste chemicals were routinely transferred to Waste Management, it is assumed that the waste coolant was transferred to Waste Management for disposal.

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, five are at or near Building 36, as identified in Table 4. The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N.

Table 4: PRSs in Proximity to Building 36

PRS	CERCLA or Bldg. Related	Binning Status	Comments
267*	CERCLA	Removal Action (RA)	Area 9, Thorium Storage and Redrumming Area
269	CERCLA	No Further Assessment (NFA)	Building 36 Historic Gasoline Tanks (Tanks 239 and 240)
270	CERCLA	NFA	Underground Sanitary Sewer Lines G6 and G7
288*	Building	RA	Area 17, SM Building Soils
392	CERCLA	NFA	Elevated Soil Gas Location

* *The Removal Action for PRSs 267 and 288 are authorized by the Building 38 Action Memorandum and will be closed out via the Building 38 Soil OSC Report.*

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 1965 (prior to construction), 1968 (following construction) and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

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

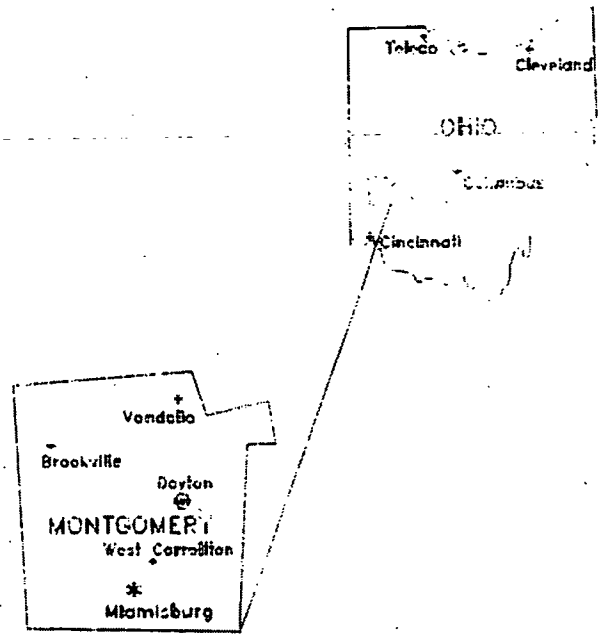
Appendix A

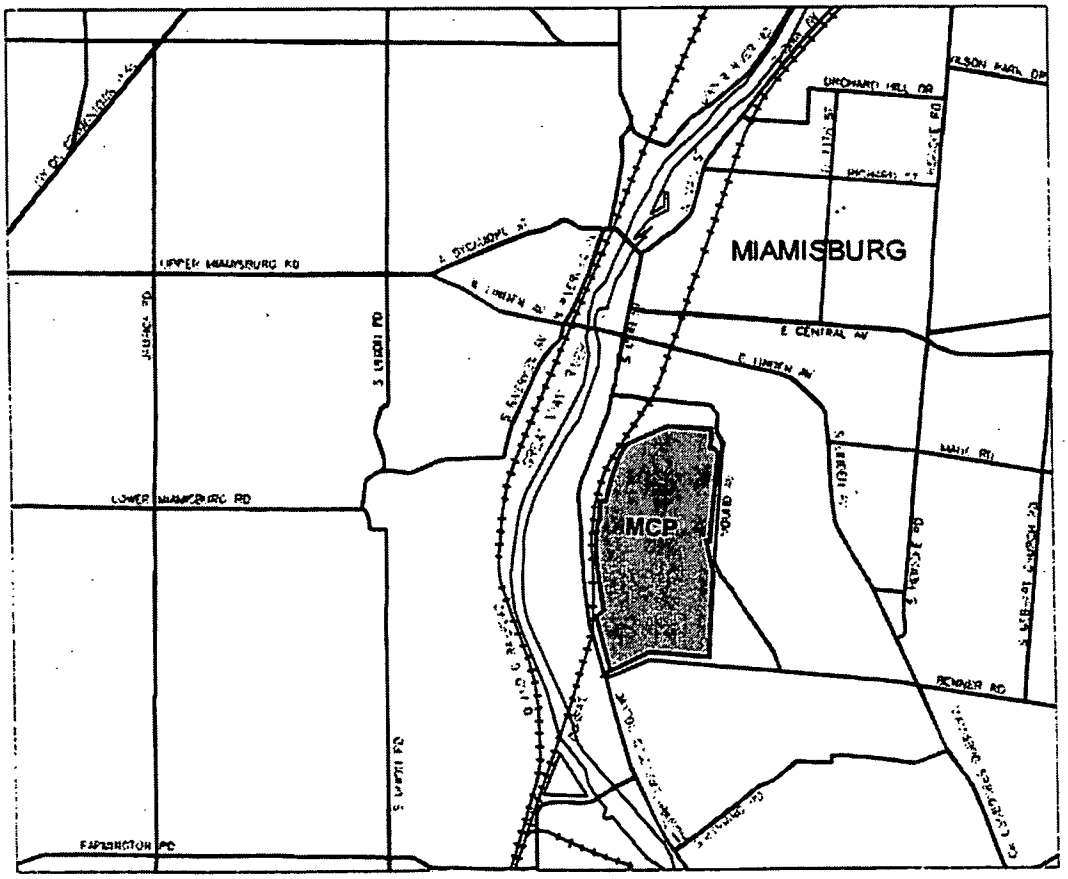
General Listing of Acronyms

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

Appendix B

Map of Montgomery County


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


MIAMISBURG
UPPER MIAMISBURG RD
LOWER MIAMISBURG RD
E CENTRAL AV
E LINDEN AV
S LINDEN RD
S LINDEN ST
MAIN RD
PENNER RD
ORCHARD HILL DR
MCP
FARRINGTON RD

Appendix C

Figures

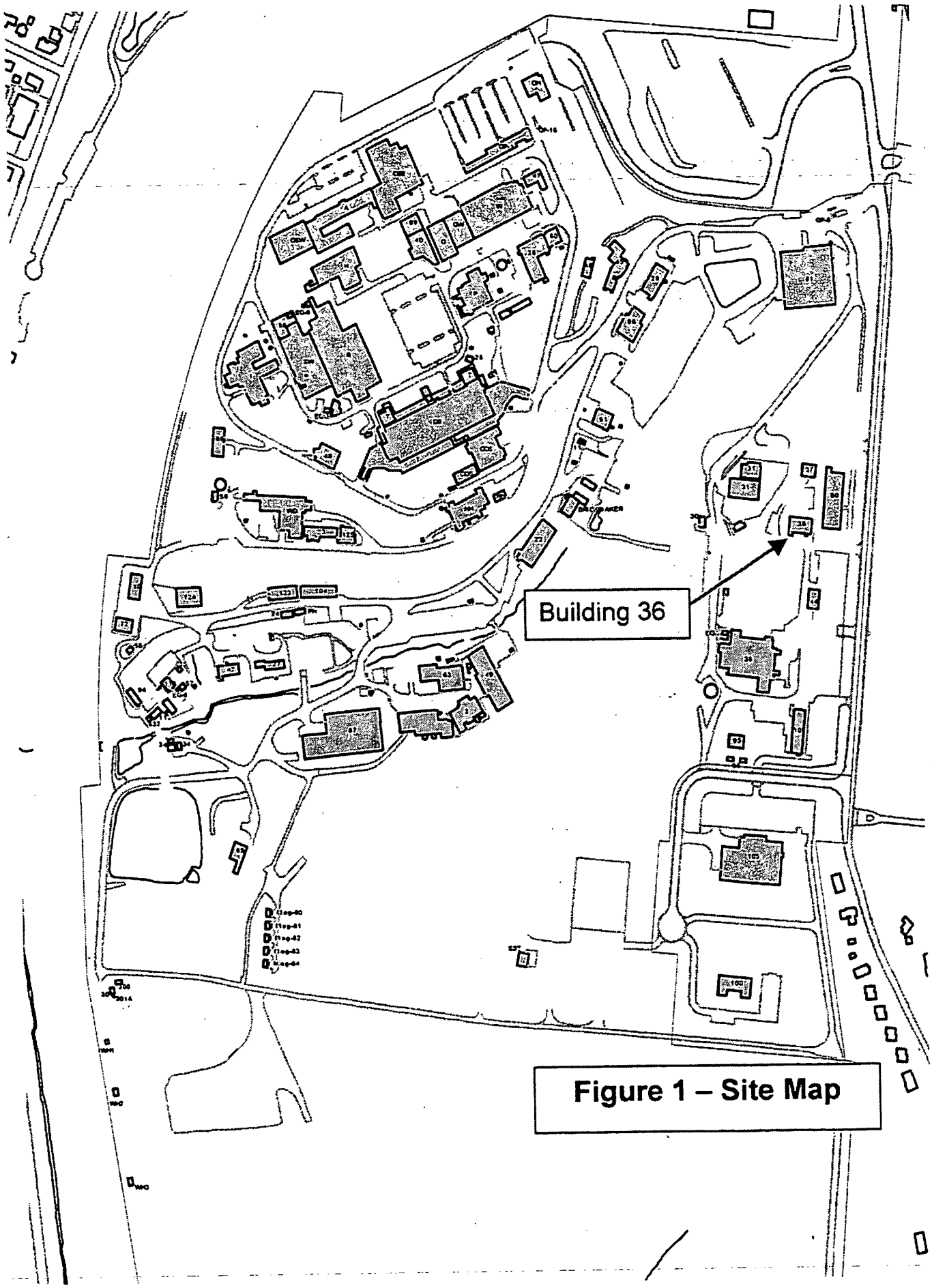
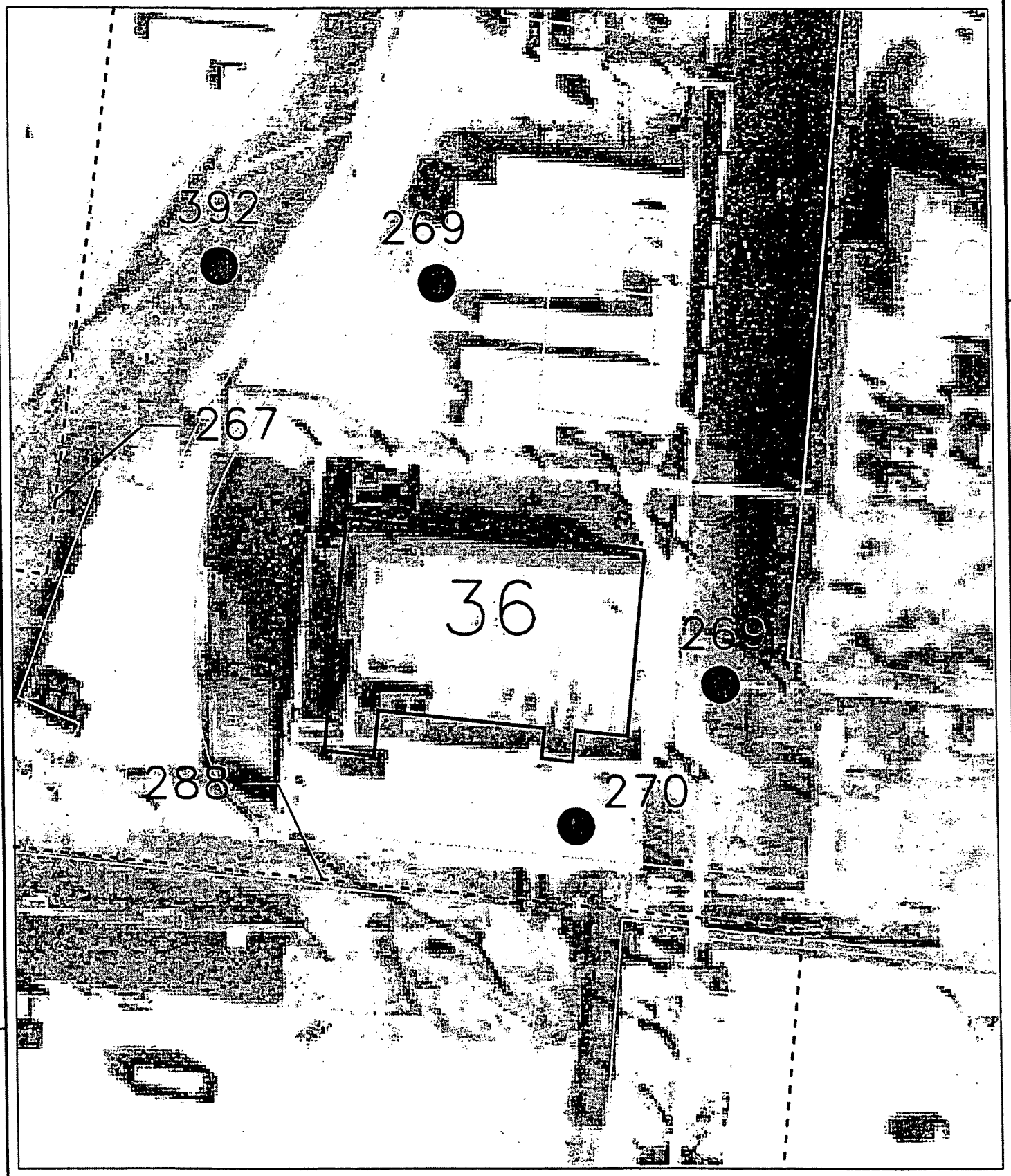


Figure 1 – Site Map



PRS Point

PRS Area

PRS Line

20 10 0 20 40FT

GRAPHIC SCALE

MOUND

Environmental Restoration Geographic Information System

Figure 2
Building 36
and Vicinity

UNCLASSIFIED

vicinity.dgn

STE ER-GIS

MD-REL

MSTATION / J

ISS	DATE	REVISION	BY	CHKD	DSG	UPREC	APVD	B
	04/29/03		SSF					

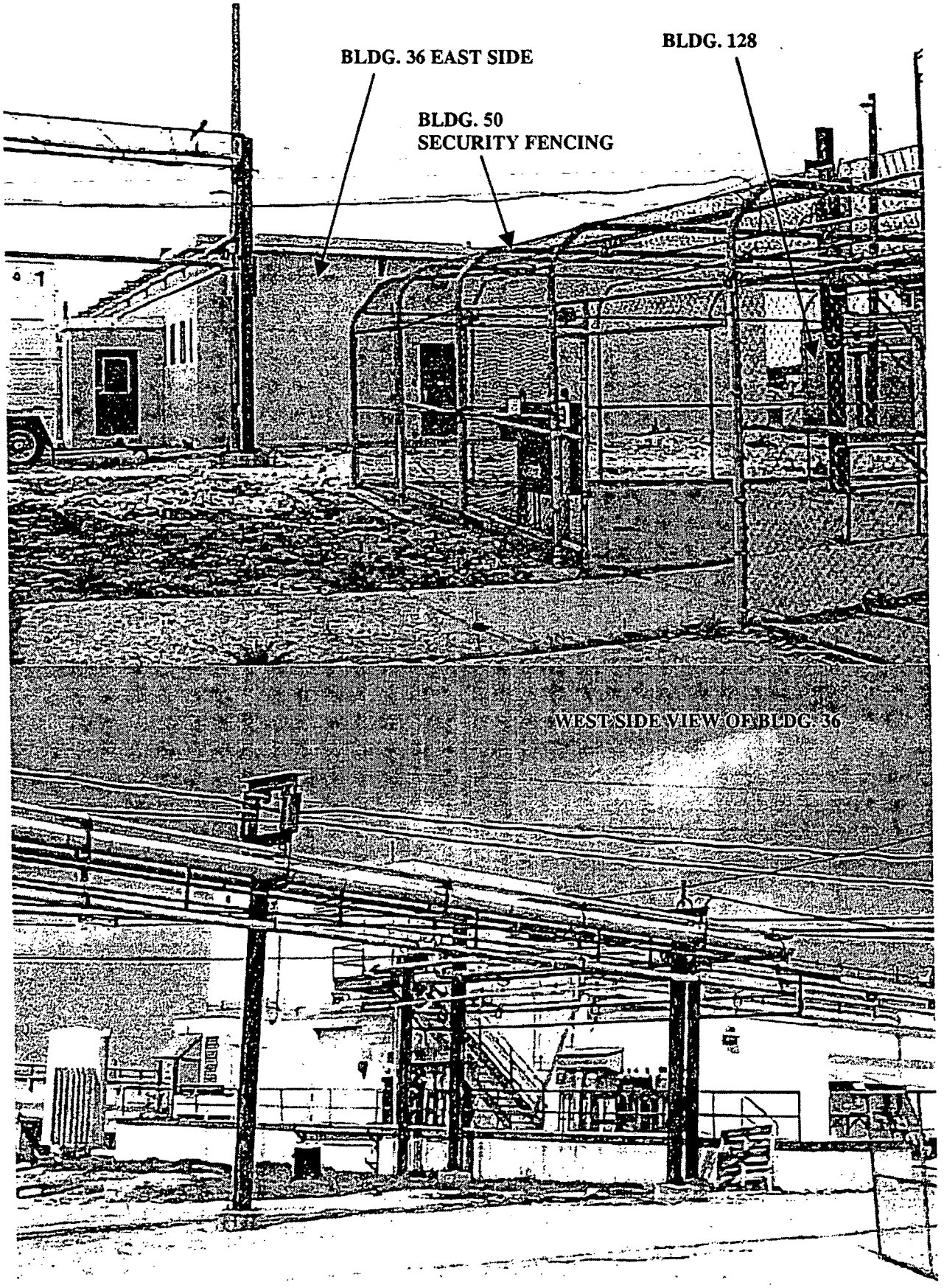


FIGURE 3A – BLDG. 36

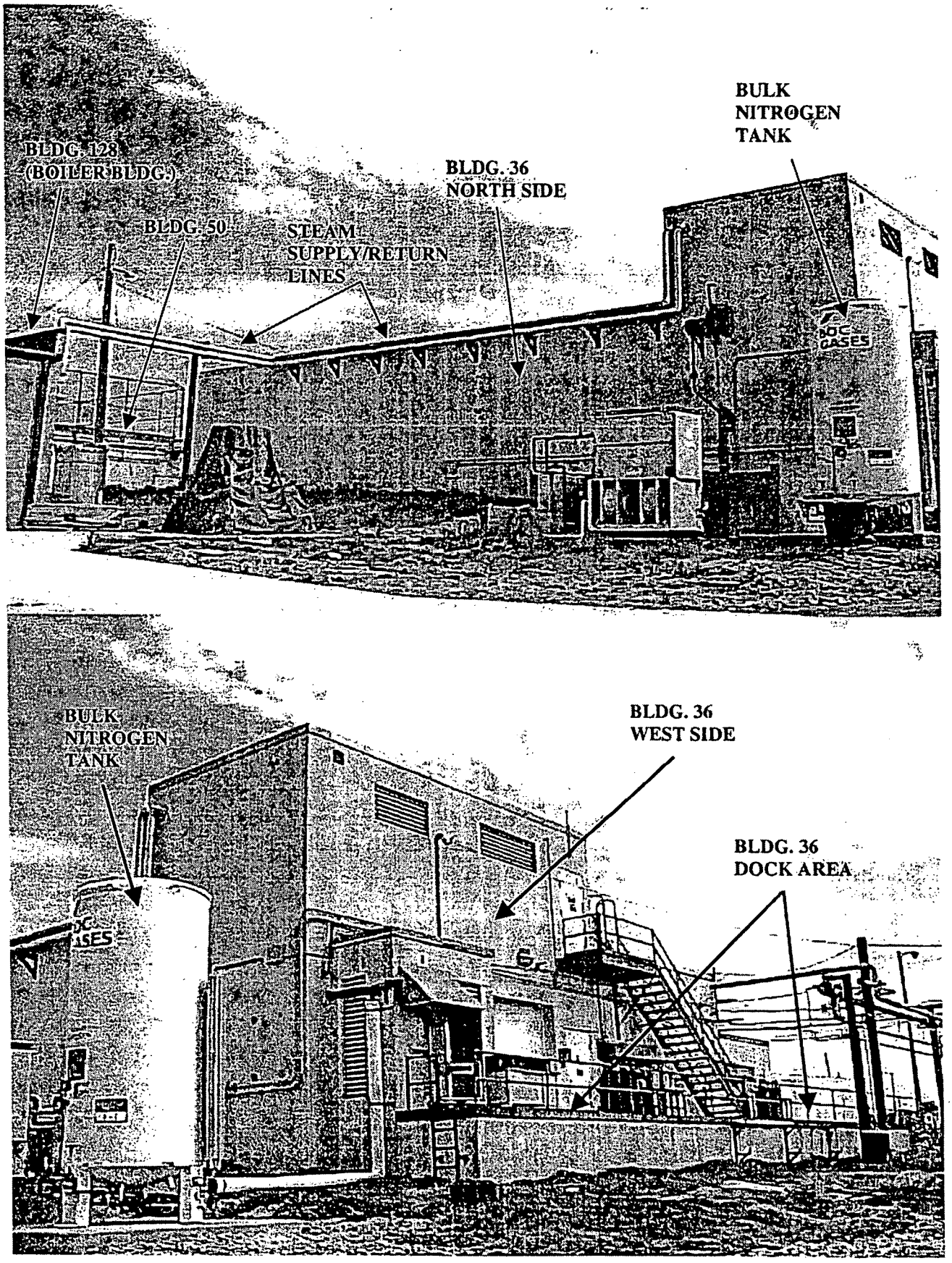


FIGURE 3B – BLDG. 36

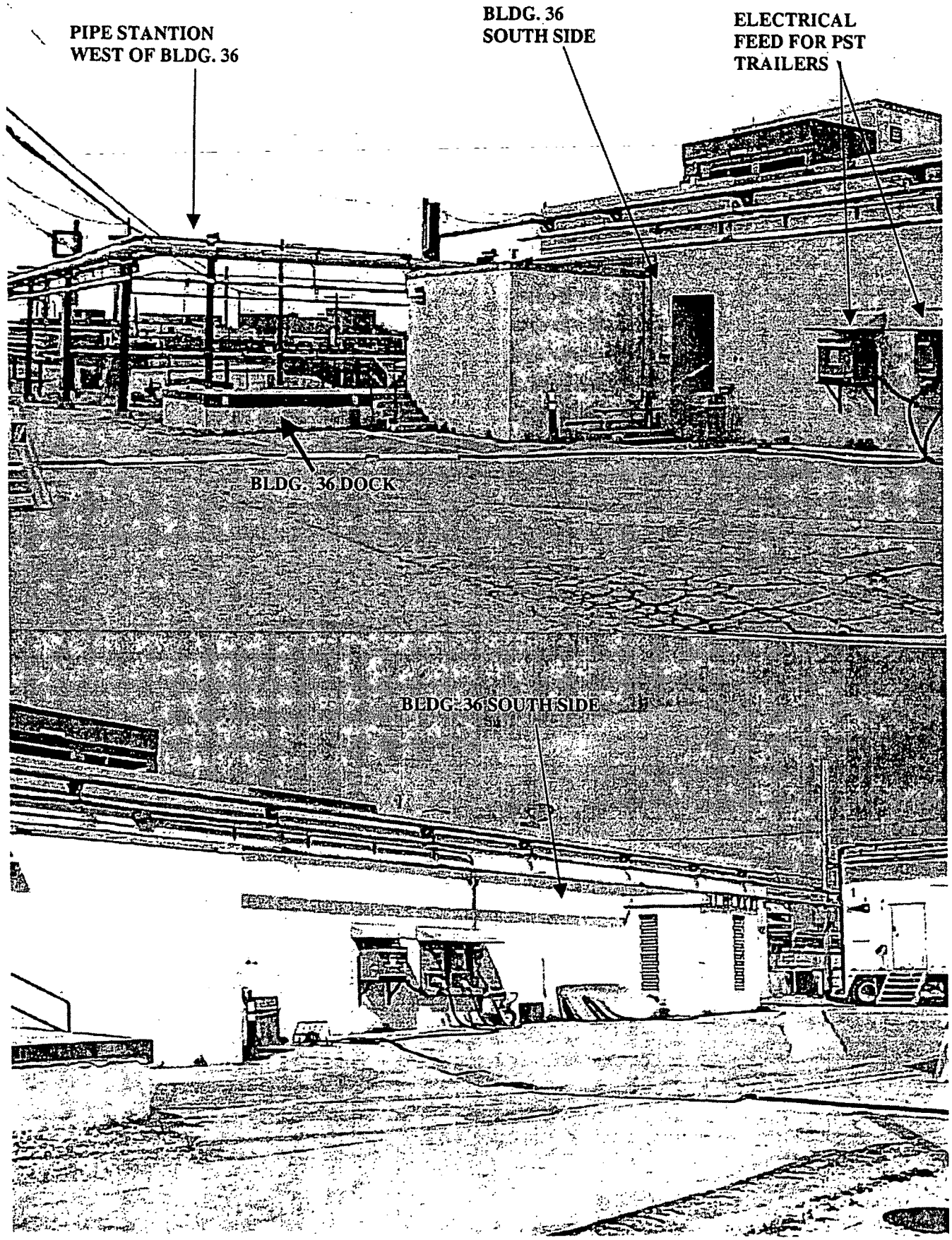
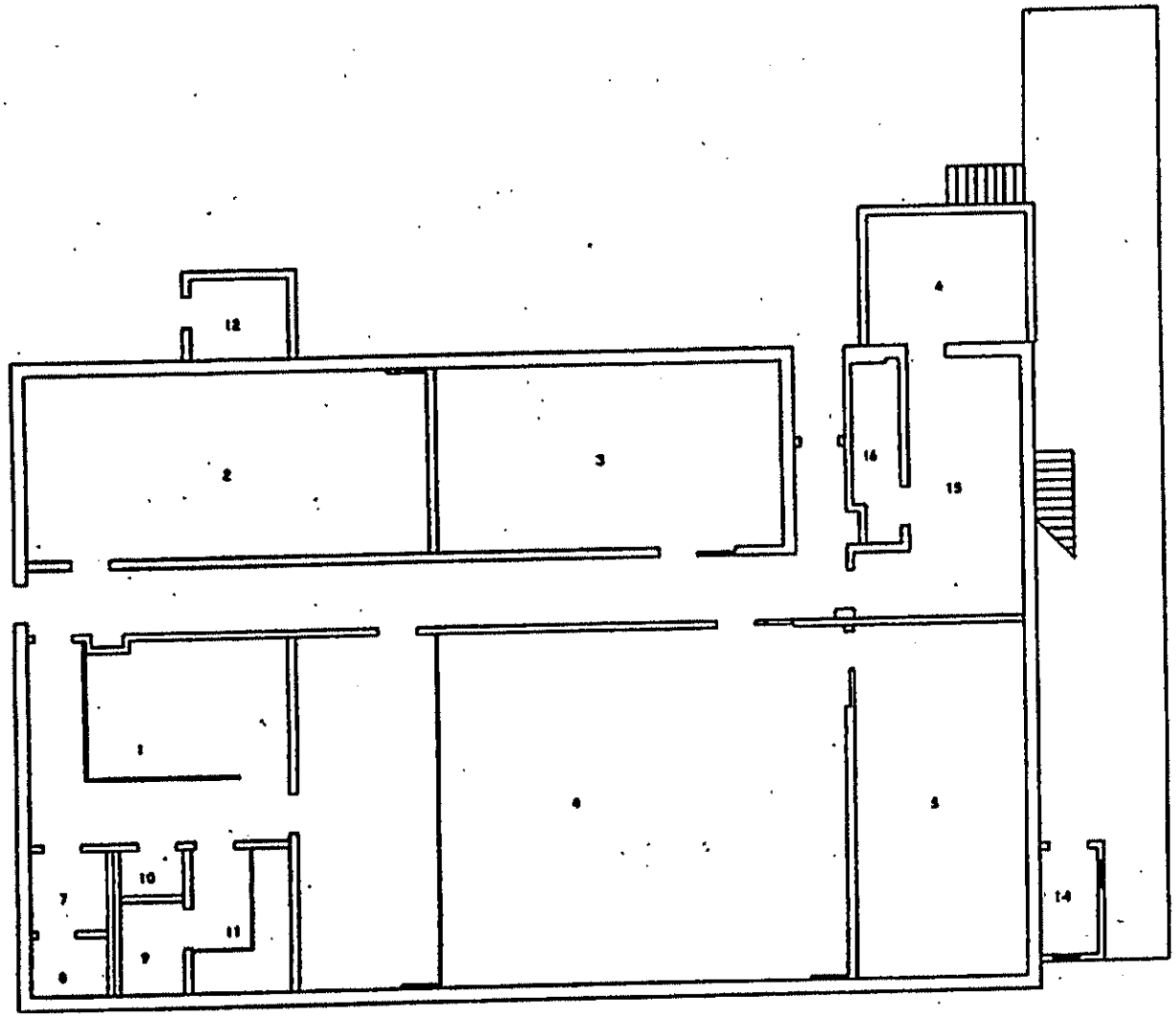


FIGURE 3C – BLDG. 36

Appendix D

Floor Plans

REV	DATE	REVISION	BY	CHKD	DWN	APVD	APVD
9	12/12/91	ASBUILT ISSUE	DCW			DVD	



DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

Reviewing Official: J. A. NESHEIM
EMCBC Classifier Name Office
Date: 08-26-08
See Mound determination below.

LU & NON-SENSITIVE
by Mound Declassification
Reviewer Initials: [illegible]
5/4/18

UNCLASSIFIED

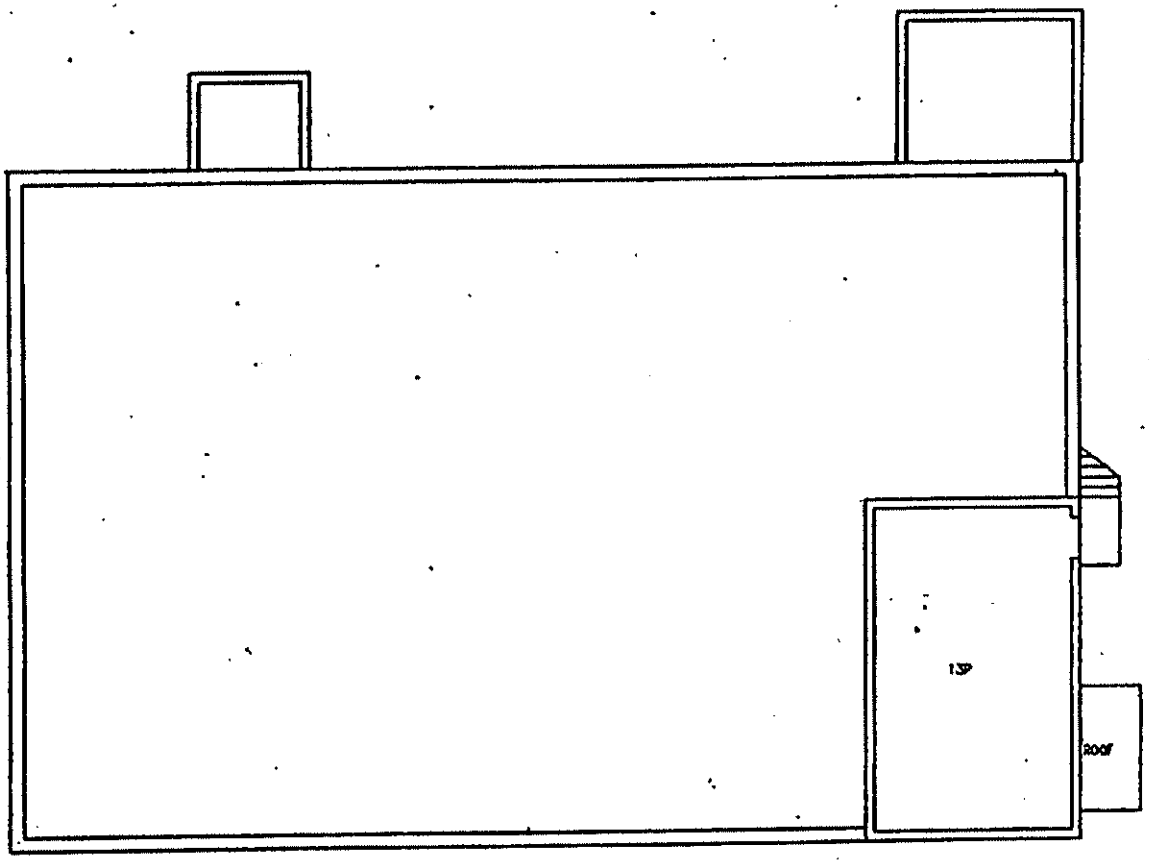
0 3' 6' 18' 28'

BLDG #36
FIRST FLOOR
BLDG CODE:3036

NOT FOR PUBLIC DISSEMINATION
MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

SAFETY SENSITIVE REVIEWER: ___NONE ___RADIOLOGIC ___TOXIC ___BIOHAZ
RADIOLOGIC
TOXIC
BIOHAZ

TITLE	(U) TITLE CLASSIFICATION
	BLDG #36 FLOOR PLANS
SHEET	1 2 3 4 5 6
TOTAL	9 9
PART CLASSIFICATION	
DRAWING CLASSIFICATION	UCNI
SIZE	C
DRAWING NUMBER	FSC911247
DR NUMBER	12333
DWG TYPE	GFP
FROM	BLDG #36
CODE	4845
SCALE AS NOTED	
SHEET	1 OF 2
SYSTEM	MO-REL-12/12/91
SYSTEM	MO-BR3-V3.3



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

UNCLASSIFIED

BLDG 038
PENTHOUSE
BLDG CODE:3038

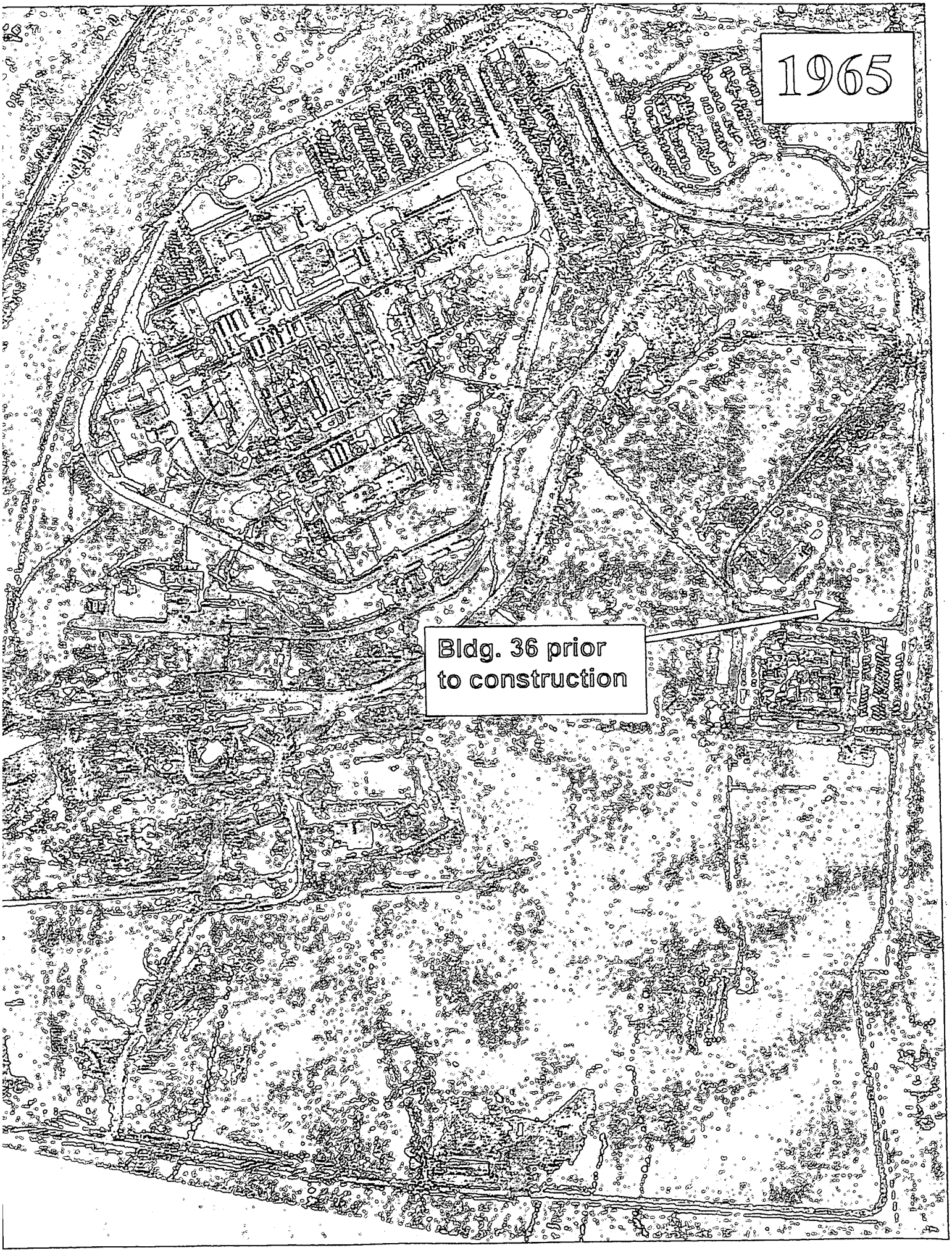
NOT FOR PUBLIC DISSEMINATION

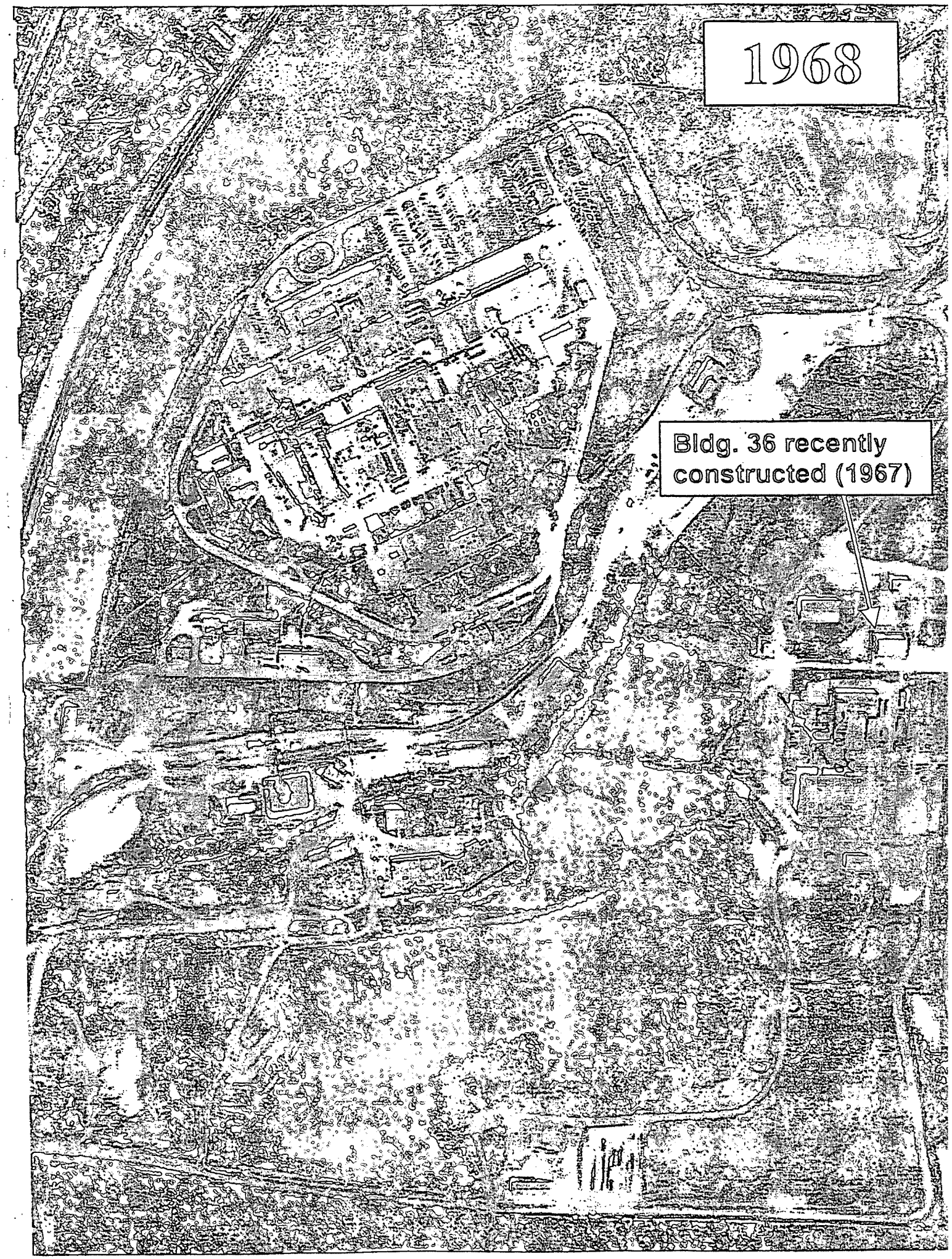
MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

DRAWING NUMBER	FSC911247
JOB NUMBER	12335
DRAWING CLASSIFICATION	~~UCNI~~
SIZE	C
CODE	14065
SCALE	AS NOTED
ISSUE	0
SHEET	2
STATUS	MO-REL-12/12/91

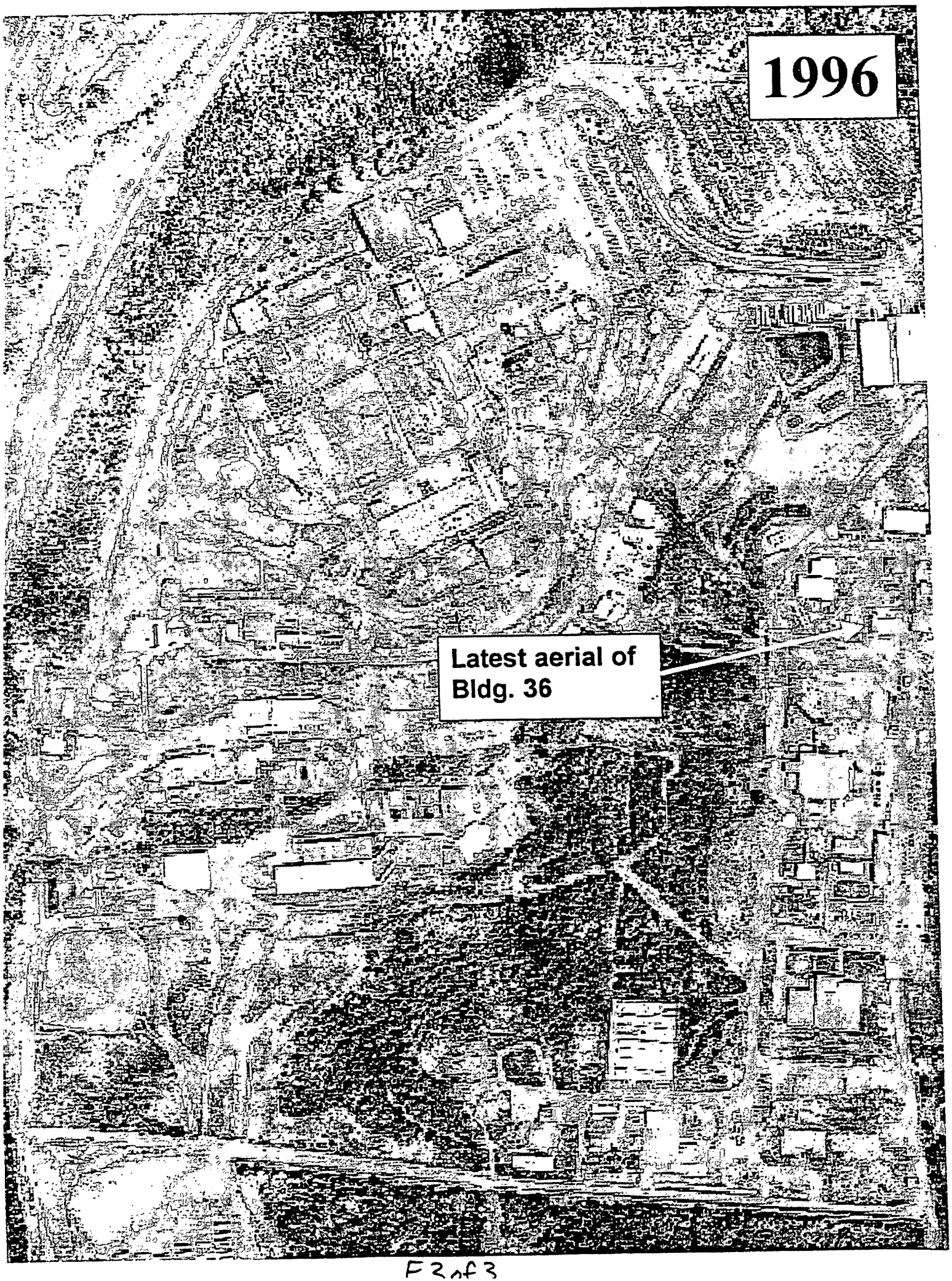
Appendix E

Aerial Photographs


1965
Bldg. 36 prior
to construction



F2 of 3



F 2 of 3

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

Based on a review by subject matter experts,
hand-written corrections have been made to the report provided in this appendix.

9.59 BUILDING 36

9.59.1 Scope of Building 36 Report

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

The appraisal team performed a walk-through of Building 36 on February 26, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.59.6.1). The appraisers were accompanied by the building manager. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.59.6.2).

9.59.2 Description of Building 36

Corrected 9-24-03

Building 36 is a one-story structure constructed of concrete block with a 1967 D.C. Kramer penthouse. The roof is a metal built-up membrane of asphalt. The building was constructed in ~~1968~~. Building 36 is located on what is known as the SM/PP hill as shown in Attachment 3 (Section 9.59.6.5). Adjacent buildings are Building 37 to the north, Building 50 to the east, Building 38 to the south, and Building 31 to the west. The building is serviced by ~~central steam for heat~~, chilled water, and electrical service of 480V (*Mound Facility Physical Characterization*, 12-1-93).
hot water from Bldg 128 for heat UKW 9/25/03

Building 36 is used to support general purpose heat source testing operations. Operations conducted in the building are high-temperature bakeout of graphite modules and cleaning. Room 3 has been renovated and all that remains in it is a fumehood. Total area of Building 36 is 4,255-square-feet. Floor plans are presented as Attachment 4 (Section 9.59.6.4). No research, development or production activities using radiation or energetic materials have occurred in the building (*Mound Facility Physical Characterization*, 12-1-93).

9.59.3 Summary of Findings

Several concerns were identified during the walk-through and during the review of reference materials. The air emission database must be updated. There is an unidentified drum below Building 36 dock. There is an Environmental Protection Agency (EPA) listed water fountain suspected of lead contamination. Containers of chemicals need to be properly labeled, including gas cylinders.

9.59.4 Observations

9.59.4.1 Air Emissions

Three applications were filed on March 5, 1992 for a Permit to Operate (PTO). No PTOs were received from the Regional Air Pollution Control Agency (RAPCA). The applications covered EF-1 and EF-2 in Room 2 and EF-3 in Room 3. Operations and emissions in Room 2 are the same as those listed in Mound's air emission database, but operations in Room 3 are different since it was renovated. The fumehood in Room 3 is currently being used as a staging area for materials to be picked up by Waste Management. Emissions from vacuum pumps are not listed in the air emission database. There are no fuel-burning units in the building. There was no visual evidence of fugitive dust.

9.4.2.2 Water Emissions

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

9.59.4.2.1 Sanitary Wastewater

The building has sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.59.6.5), the building is serviced by a sanitary line. Expected discharges to the sanitary system are by sinks and toilets. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort, therefore, dye tests or smoke tests were not conducted. There is no monitoring of building effluent. Based on current operations identified by the process owner, effluent from Building 36 should not deviate from that expected by the sanitary treatment plant manager. No chemicals would be expected to have entered the sanitary system as there are no floor drains in the laboratories.

9.59.4.2.2 Storm Wastewater

The building is also serviced by storm drains according to Attachment 5 (Section 9.59.6.5). Roof drains discharge to the storm sewer according to the BMQ, Attachment 2 (Section 9.59.6.2). Exterior grates and drains were not tested to confirm that they connect to the storm drainage

system. Inspection showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water have entered the storm drainage system

9.59.4.2.3 Process Wastewater

This building does not create or discharge radioactive wastewater to the WD facility. According to Attachment 5 (Section 9.59.6.5), no radioactive wastewater lines service Building 36.

9.59.4.2.4 Chemicals

Chemicals in Building 36 were evaluated against Table V of Appendix D in 40 CFR 122 and none are listed Clean Water Act (CWA) pollutants. Chemical storage and handling procedures are in place for proper disposal of chemicals. A gallon of Dowtherm SR-1 (ethylene glycol) was spilled in Building 36, but none entered the storm or sanitary drains. No floor drains were seen in areas of operations. There is no evidence that chemicals have entered the storm or sanitary drains.

9.59.4.3 Potable and Service Water

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross-connections. Potable and service water lines are uniquely marked and easily identified. The bottled water fountain in the building is not an EPA-listed model suspected of lead contamination, but the building water fountain is a listed model suspected of lead contamination. The water fountain suspected of lead contamination was previously removed. UKD 9/25/05

9.59.4.4 Chemical Storage and Hazardous Materials

Chemicals used in Building 36 were attached to the BMQ in Attachment (Section 9.59.6.2). There was no evidence of chemical storage incompatibility. Material Safety Data Sheets (MSDSs) are available in the building and were reviewed for completeness. There is a flammable storage cabinet which meets standard National Fire Protection Association (NFPA) requirements.

Several containers of tungsten molly metals and nickel particle coolant used as simulate fuels were stored in a cabinet. These containers did not have a chemical inventory label attached. Lab personnel did not know why these items were there or how they got there. The materials are not used in any ongoing processes in the building. A bag containing Dowtherm SR-1 coolant was not labeled as such. The coolant was collected in a bag as part of a 1-gallon spill.

Compressed gas cylinders are stored on the north side of building. Full and empty storage bay areas were properly marked with posted signs. Some full/empty tags were not attached to the cylinders.

The building is equipped with appropriate emergency response equipment such as eyewashes, safety showers, and fire extinguishers. Halon 1211 is the prevalent fire extinguisher. Inspection tags were present and current. There is an Emergency Evacuation Plan, and signs are posted in the building.

There is an aboveground storage tank outside Building 36 containing liquid nitrogen. No secondary containment is provided or required. The tank is owned and maintained by Airco, a contractor. This tank supports operations in Building 36. There are no sumps, separators, or catch basins, in or around the building. There are no underground storage tanks associated with Building 36.

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

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

9.59.4.5 Solid, Hazardous, and Chemical Wastes

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

Hazardous wastes generated by the operations in Building 36 are stored in solvent cans as a Satellite Accumulation Area (SAA) located inside the building. The SAA procedures and appearance conform to RCRA requirements. Hazardous wastes are characterized prior to being collected by the Waste Management Group. Hazardous wastes are transported and stored in Building 72 for ultimate disposal. There is no onsite treatment of waste. Waste disposal manifests and Certificates of Disposal are maintained by the EG&G Waste Management Group.

There was an unidentified 55-gallon drum outside of Building 36 below the west dock. Contents of the drum are unknown.

9.59.4.6 Waste Minimization and Pollution Prevention

At Mound there is an active program to minimize waste streams in accordance with state and federal requirements and Executive Order 12856. The use of Freon has been discontinued in the cleaning operations in Building 36.

9.59.5 Findings and Recommendations

Photographs were taken to document the environmental appraisal. They are included as Attachment 6 (Section 9.59.6.6). The environmental appraisal of Building 36 indicates that the following action items, in priority order, should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

36-1 Unidentified 55-gallon drum below the Building 36 west dock needs to be identified as to its contents and removed for proper management.

36-2 An EPA-listed water fountain suspected of lead contamination needs to be removed and replaced. This water fountain was removed. VKD 9/25/03

36-3 Secondary containers of chemicals need to be labeled. The bag of Dowtherm SR-1 should be properly, and promptly, disposed of.

36-4 Full and empty gas cylinders shall be stored separately and in a manner that minimizes handling. All gas cylinders shall carry a legible label or marking identifying their contents (CGA P-1).

36-5 Update air emissions database and air permit application for Building 36. RAPCA should be notified of the change in status of the fumehood in Room 3 (OAC 3745-31).

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 36

Appraisers:

Ronald Paulick
Name Discipline

Billie J Williams
Name Discipline

Philip A Parker
Name Discipline

Name Discipline

Building Manager: [illegible] for P. C. Molloy

Process Manager:

Date: 2-26-96

9.59-9

ENVIRONMENTAL APPRAISAL CHECKLIST

Table of Contents

Checklist	Page
Clean Water Act	1
Clean Air Act	2
Hazardous Materials	4
Safe Drinking Water Act	7
RCRA Hazardous Waste	8
TSCA and NESHAP Requirements for Asbestos	13
TSCA—PCB	14
Low-level and Transuranic Waste	17
Waste Minimization/Pollution Prevention Activities	22

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Pawlak/Adams/Parker Date: 2-26-96

Clean Water Act (CWA) Screening Checklist

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

CWA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 122 Appendix D Table V	If chemicals are used/stored in the building, are they on the attached list? Are they properly contained?	Y / (N) (Y) / N	
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	RTG support
	Do the floor drains, sinks & toilets appear to be draining properly?	(Y) / N	
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	(Sanitary) Storm	
	Is there a sump/pit in the building? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	(X) / (N) _____ _____ Y / N Y / N	N/A
	Are there any manholes, catch basins, drains, or fill pipes in or around the building? If so, are there any unusual appearances, colors, and/or odors? Describe in comment section. Can chemicals flow into the drain?	(Y) / N Y / (N) Y / (N)	

F8 of 47

9.59-11

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Rudick/Adkins/Parker Date: 2-26-96

Clean Air Act (CAA) Screening Checklist

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

CAA Checklist

Regulatory Guideline	Question	Response	Comments
	Are there existing air permits or applications applicable to the building?	(Y)/N	exempt. in Rm 2
OAC 3745-31,35	If yes, are the terms and conditions of the permit or the information included on the application (see air emissions database) being followed? Note any differences and update the air emissions database.	(Y)/N	rm 3 hood not being used ~~for~~ as intended.
OAC 3745-31	Are there any sources that are not included in the air emissions database? If so, note the room, hood number, active or not, POC, and applicable air emission database information on Table B.	(Y)/(N)	Vacuum pumps, ? may vent to exhaust or outside
OAC 3745-31-03	Are there sources which are lab equipment of lab fumeheads used exclusively for chemical or physical analyses and bench scale lab equipment? These sources do not require a permit. However, the air emissions database should be updated.	Y/(N)	
	Has there been any release of air contaminants from this building?	Y/(N)	

9. 59-12
F9 of 47

Environmental Appraisal Checklist

Building Name: 36

Appraisers: Paulsen / Atkins / Parker Date: 2-26-96

CAA Checklist ~~Page intentionally left blank~~ RP 3/8/96

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

TABLE A

Process Source	Room Number	Hood Number	In Database	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Hours/Yr. Operation	Air Emissions
Vac pumps	004 005		Y / (N)	(Y) / N					
	003		(Y) / N	Y / N ?	Not being used as intended. room was remodeled.				
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					

Source: _____

9.59-14

F 11 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adams/Parker Date: 2-26-96

Hazardous Materials (HM) Screening Checklist

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

HM Checklist

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

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Pauchick/Adkins/Parker Date: 2-26-96

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.106(d)(7)	All flammable/combustible storage locations have at least one 12-B portable fire extinguisher located outside and within 10 ft. of a door opening into any room for storage. No smoking signs are posted.	(Y) / N	Yes/No 12 11 fire extinguishers
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	(Y) / N	
CGA P-1 3.3 & 3.3.10	All gas cylinders (full or empty) shall carry a legible label or marking identifying the contents.	(Y) / N	
CGA P-1 3.5.3	Full and empty containers should be stored separately with the storage layout planned so that containers comprising of old stock can be removed first with a minimum handling of other containers.	(Y) / N	
CGA P-1 3.5.8	All compressed gas containers in service or in storage shall be stored standing upright and the container shall be secured.	(Y) / N	
CGA P-1 4.2.2	Oxygen cylinders shall be separated from flammable gas containers or combustible materials a minimum of 20 ft. or a noncombustible barrier 5 ft. high.	(Y) / N	
29 CFR 1910.104(2)(10)	Oxygen stored as a liquid shall be on a noncombustible surface. Asphalt is considered combustible. Wood and long dry grass shall be cut back 15 ft. from the container.	(Y) / N	
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	N/A No Bulk Storage of O_2
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	(Y) / N	
	Is there an emergency response plan available?	(Y) / N	

9.59-16

F13 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

HM Checklist

Regulatory Guideline	Question	Response	Comments
	Is there a process area?	(Y) / N	
	Does it have proper containment?	Y / N	N/A
	Is there a liquid bulk transfer area?	Y / (N)	
	Is there proper containment?	Y / N	N/A
	Is there an above ground storage tank? If so, complete Table B.	(Y) N	

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

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

Source: _____

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Hokins/Parker Date: 2-26-96

Safe Drinking Water Act (SDWA) Screening Checklist

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

SDWA Checklist

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

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
36	Room 1	W11182A	Halsey Taylor - EPA LISTED. (*)
36	Room 1	BLF1AHS-100	Oasis - Bottled water RE

(*) The water fountain suspected of lead contamination was previously removed.

Source: _____

F14 of 47

9.59-17

9.59-18

F15 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Rudick/Adkins/Parker Date: 2-26-96

RCRA Screening Checklist

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

RCRA Checklist

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

Environmenta. ppraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

RCRA Checklist

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

F16 of 47

9.59-39

9. 59-20

F17 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

RCRA Checklist

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

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Poulick/Adkins/Parker Date: 2-26-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
II. HAZARDOUS WASTE STORED IN TANKS			
OAC 3745-52-32 (B)	Has any chemical waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / (N)	No tanks
	If the answer was no, then proceed with the following:	Y / N	N/A
	Has the tank or piece of equipment had an integrity assessment?	Y / N	
	Is there a sump?	Y / N	
	Is it dry?	Y / N	
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Has any hazardous waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / N	
	If the answer was no, then proceed with the following:		
	Has the tank or piece of equipment had an integrity assessment?	Y / N	
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Is there a closure plan?	Y / N	
	If yes, then note.		
OAC 3745-67	Has any of the waste been managed in a surface impoundment? If yes, then note. Go to the next section.	Y / (N)	

F18 of 47

9.59-21

Environmental Appraisal Checklist

Building Name: 36

Appraisers: Paulick/Adkins/Parker Date: 2-26-96

RCRA Checklist

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

General Comments:

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

Asbestos Screening Checklist

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

Asbestos Checklist

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

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

F20 of 47

9-59-23

9.59-24

F21 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

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

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

TSCA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 761	Has any waste generated in, or from, this building been characterized either through process knowledge or by analyses to determine if it contains PCB's ? If the answer is no, note . If the answer is yes, proceed with next section.	Y / N	No PCB's
	Based on an inspection, are any of the materials or equipment potentially PCB contaminated? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed.	Y / N	
40 CFR 761.65 (c) (5)	Are PCB articles or containers stored in this building checked for leaks at least once every 30 days?	Y / N	
	If yes, are auditable records maintained.	Y / N	
40 CFR.30 (a) (1) (ix)	Are any PCB transformers in use, or stored for possible reuse, that contain PCB's at concentrations of 500 ppm or greater?	Y / N	
	Are they visually inspected quarterly? If yes, are auditable records maintained?	Y / N	

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

TSCA Checklist

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

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Pauldick/Adkins/Parker Date: 2-26-96

TSCA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 761.65 (c) (2)	Only non-leaking and undamaged large high voltage PCB's capacitators and PCB-containing electrical equipment are allowed to be stored outside of PCB storage areas, on pallets if stored outside, with containment for 10 percent of the volume of the equipment. Do all PCB's stored in this configuration conform with this requirement?	Y / N	No PCB's
40 CFR 761.45 and .65	Are all PCB storage areas marked with a large PCB mark as described in 40 CFR 761.45 (a)?	Y / N	
40 CFR 761.65 (c) (5)	Have all leaking PCB articles and containers been transferred to non-leaking containers?	Y / N	
40 CFR 761.65 (c) (6)	Do all PCB storage containers for the storage of liquid and non-liquid PCB's comply with DOT shipping container specifications?	Y / N	

GENERAL COMMENTS:

F23 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Pankok/Adkins/Parker Date: 2-26-96

Low-Level Waste and Transuranic Waste Screening Checklist

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

Low-Level Waste and Transuranic Waste Checklist

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

F 24 of 47

9.59-27

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A Chapter III, 3.d.	Based on field data, is the characterization of the materials in this area sufficient to assure proper segregation to assure proper segregation, treatment, storage, and disposal?	Y / N	No Rad Waste
	Based on field data does the characterization as documented at the time of generation of the waste ensure that the actual physical and chemical characteristics, and major radionuclide content of this material are recorded and known at all stages of the waste management process?	Y / N	
	Do characterization data include the following:		
	Physical and chemical characteristics of the waste?	Y / N	
	Volume of the waste (including solidification and absorbent material)?	Y / N	
	Weight of the waste (including solidification and absorbent material)?	Y / N	
	Major radionuclides and their concentrations?	Y / N	
	Packaging date, package weight, external volume?	Y / N	
	How were the concentration of radionuclides determined? Direct methods?	_____	
	How were the concentrations of radionuclides determined? Indirect methods?	_____	
DOE Order 5820.2A Chapter III, 3.h	Is the storage configuration in long term storage sufficient to meet the performance standard?	Y / N	
	Are records maintained at the facility enabling this waste to be traced from its origin?	Y / N	

F25 of 47

Environmental Appraisal Checklist

Building Name: 36

Appraisers: Paulick/Adkins/Parker Date: 2-26-96

Low-Level Waste and Transuranic Waste Checklist

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

F26 of 47

9.59-29

9.59-30

F 27 of 47

Environmental Appraisal Checklist

Building Name: 34 Appraisers: Faulkner/Atkins/Parker Date: 2-26-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A, Chapter II, 3.b	Has the TRU waste been assayed or otherwise evaluated to determine its radioactive content prior to storage?	Y / N	No TRU Waste
	Has the TRU waste been characterized or otherwise evaluated to determine if hazardous waste is present?	Y / N	
	Has classified TRU waste been treated to destroy the classified characteristics?	Y / N	
DOE Order 5820.2A, Chapter II 3.d	Has all newly generated TRU waste been packaged in non-combustible packaging that meets DOT requirements?	Y / N	
	Have all Type A TRU waste packages been equipped with a method to prevent pressure buildup?	Y / N	
	Have all TRU packages been marked, labeled and sealed in accordance with 40 CFR 261 Subpart C and 49 CFR 172 Subparts D, E and 49 CFR 173 Subpart I?	Y / N	

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Pavlock/Adkins/Parker Date: 2-26-96

Low-Level Waste and Transuranic Waste Checklist

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

GENERAL COMMENTS:

9.59-32

F29 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Atkins/Parker Date: 2-26-96

Waste Minimization/Pollution Prevention Activities Screening Checklist

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

Waste Minimiaztion/Pollution Prevention Activities Checklist

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

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Atkins/Riker Date: 2-26-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES			
	Are halogenated organic wastes used as fuel in cement kilns?	Y / N	N/A
	Are baghouse filters used to collect pesticides and pesticide intermediates?	Y / N	
	Are solid wastes generated from the collection of baghouse dust?	Y / N	
	Wet instead of dry grinding used?	Y / N	
	The output spray dried?	Y / N	
	Has baghouse emptying and recycling of baghouse fines been scheduled?	Y / N	
	Have operations been evaluated to improve procedures such as handling, storage and spill prevention for increased efficiency?	Y / N	
METAL WASTES			
	Are any technologies for the recovering of metals from waste rinsewater used?	Y / N	
	Evaporation of waste rinsewater?	Y / N	
	Reverse osmosis?	Y / N	
	Ion exchange?	Y / N	
	Electrolysis?	Y / N	
	Agglomeration?	Y / N	
CORROSIVE WASTES			
	Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals?	Y / N	

F30 of 47

9.59-33

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Atkins/Parker Date: 2-26-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES			
	Are halogenated organic wastes used as fuel in cement kilns?	Y / N	N/A
	Are baghouse filters used to collect pesticides and pesticide intermediates?	Y / N	
	Are solid wastes generated from the collection of baghouse dust?	Y / N	
	Wet instead of dry grinding used?	Y / N	
	The output spray dried?	Y / N	
	Has baghouse emptying and recycling of baghouse fines been scheduled?	Y / N	
	Have operations been evaluated to improve procedures such as handling, storage and spill prevention for increased efficiency?	Y / N	
METAL WASTES			
	Are any technologies for the recovering of metals from waste rinsewater used?	Y / N	
	Evaporation of waste rinsewater?	Y / N	
	Reverse osmosis?	Y / N	
	Ion exchange?	Y / N	
	Electrolysis?	Y / N	
	Agglomeration?	Y / N	
CORROSIVE WASTES			
	Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals?	Y / N	

F31 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

Waste Minimization/Pollution Prevention Activities Checklist

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

9.59-36

F33 of 47

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Parker/Atkins Date: 2-26-96

Waste Minimization/Pollution Prevention Activities Checklist

Page intentionally left blank

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		
	Reclaiming process to remove water and solvents by heat?	Y / N	
	Gravity setting?	Y / N	
	Screening?	Y / N	
	Centrifugation?	Y / N	
	Filtration?	Y / N	
SOLVENT WASTES			
	Has there been an attempt to reduce volume or toxicity by:		
	Eliminating solvents?	Y / N	
	Reducing the use of solvents?	Y / N	
	Reducing the loss of solvents?	Y / N	
	Increasing recyclability?	Y / N	
	Are solvents segregated?	Y / N	
	Are waste solvents free from water and garbage?	Y / N	
	Are recycled solvent containers labeled as such?	Y / N	
	Are containers kept closed?	Y / N	
	Free and sheltered from the elements?	Y / N	
	Are solvent tanks kept as free from contaminations as possible so that the waste can be recycled?	Y / N	
	Is a method used to minimize the use of new materials such as a countercurrent process?	Y / N	

Environmental Appraisal Checklist

Building Name: 36 Appraisers: Paulick/Adkins/Parker Date: 2-26-96

Waste Minimization/Pollution Prevention Activities Checklist

Page intentionally left blank

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

Building Manager's Questionnaire

Building Name: 36 Building Manager: P.C. Mollov Phone: 3869 Date: 12-07-95
Alternate: T.J. Gessner Phone: 5568

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

None

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

Some areas safety glasses req'd.

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

Clean-room 80-36 Rm 2 access with 80 operations supervisor permission.

4. Provide a physical description of the building.

corrected: 1967 DCKramer 9-17-03

Building 36 was built in ~~1968~~ and contains 4,255 ft². It is constructed of concrete blocks with a BUM roof (asphalt). HVAC systems are ~~central steam~~ and chilled water. The one-story building has asbestos in the thermal insulation systems, but there is no contamination from radiological or energetic materials.

HOT WATER (FROM BLDG. 128-PST BOILER BLDG.) Corrected DCKramer 9-17-03

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

5. Provide a drawing of the building.

Attached.

6. What is the current building use?

The building supports the GPHS testing operations. ~~Three~~ Two high-temperature bake-out ovens. ~~and a long-term temperature facility operate continuously~~. The building also houses a ~~degreasing~~ cleaning facility (Clean-room)

Source: Mound Buildings, 5-9-95

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

Source: Mound Buildings, 5-9-95

Building Name: 36 Building Manager: P.C. Moltov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Process(es) Housed: Cleaning and baking heat source components, electronics shop

How Wastes Are Generated:

In one portion of this building heat source components are baked in high-vacuum furnaces. No hazardous wastes are generated.

In another portion of the building, heat source components are cleaned. Some parts are cleaned by spraying them with Freon. The Freon usually evaporates and goes up the stack. Others are wiped clean with alcohol. The alcohol evaporates, and no liquid waste is generated. In some cases parts are cleaned in ultrasonic baths of methylene chloride. The methylene chloride is poured into waste containers and picked up by Waste Management.

Preventive Maintenance of vacuum pumps generates waste use pump oil. ~~The electronics shop does not generate any hazardous waste.~~ Ethylene Glycol in existing chilled water system potential waste.

Contact:
Phone #:

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

F 36 of 47

o 50-42

Building Manager's Questionnaire

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

All equipment in RM 4 & 5 has been removed. Future plans include new equipment for RM 5.

10. Does the building have air emission sources? Yes (No)

Process Source	Room Number	Hood Number	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Lbs./Yr. Operation	Air Emissions
RTG Assembly	002	3600 20002	Y	Acetal (Vac) Ethanol PF-5052 (perfluora) ~~Freon (113)~~ Argon		.02 .076 .01 .001	416 158.08 208 2.08	
Safe Shutdown	003	3600 30001	Y	Staging for sealed waste chemicals awaiting W.M. pickup.		3.29 .001		
RTG Assembly	002	3600 20001	Y	Ethanol ~~Freon 113~~ PF 5052		.076 .094	158.08 195.52	
Vac. pumps	004 005		(Y) / N					
			Y / N					

Source: Mound Air Emissions Database 11/30/95

F37 of 47

9.59-43

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95

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

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

Source: Air Permits 2/4/95

13. Does the building have potable water? (Yes) No

14. Does the building discharge to the storm sewer? (Yes) No
Roof conductor

15. Does the building discharge to the sanitary sewer? (Yes) No
Restrooms.

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

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

F 38 of 47

o 50-44

Building Name: 36 Building Manager: P.C. Molloy Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Source: PCB ANNUAL DOCUMENT LOG

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

Source: PCB ANNUAL DOCUMENT LOG

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

Chemical Name	State	Amount (MAX)
DUO SEAL PUMP OIL	L	5 GA
1A Cylinder Argon/Hydrogen	G	(20 EA) estimated (1A)
1A Cylinders Argon	G	8 cylinders, MAX 20 EA
Ducite SC-1008		
ACTREL 1171L		

Source: Chemical Inventory 1994

ethyl alcohol
PF 5052
Dowtherm SR-1

See HAZ MAT #27 on pg 7.

F 39 of 47

9.59-45

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Chemical	Amount	Clean-up Measures
Ethylene Glycol	~ 1 gal	Sorb-all absorbent
- Dowtherm SR-1		& soapwater mop
		~~Stop~~ clean up

Source: _____

21. Where do waste chemicals go?

Transfer excess to waste mgmt.

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

General restroom/floor cleaning supplies (inside BD)

23. Where do excess janitorial supplies go?

Transfer excess to waste mgmt.

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

F40 of 47

9.59-46

Building Manager's Questionnaire

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Registration Number	Content	Quantity	Last Inspection Date	Preventive Maintenance Performed	Inside Or Outside
~~7440-37-1~~	~~Argon~~	~~0 IC~~		~~Y/N~~	
~~7440-37-1~~	~~Argon~~	~~0 IC~~		~~Y/N~~	
	BULK LIQ N2	CK.		Y/N	Outside

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

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

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

Source: _____

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

Materials	Amount
Actrel 1171	31.1
Actrel 1171	24.1
Actrel 1171	16.1
Actrel 1171 Cleaner	32.9
Actrel 1171L	33.3
Actrell	24.3
Alumina	7.9
Aluminum Silicate	8.2
Ascorbic Acid	1.0
Calcium Carbonate	2.1
Calcium Chloride	1.2
Calcium Sulfite	3.5
Carbon	0.2
Colloidal Silica Gel	1.4
Dowtherm Antifreeze Waste	276.0
Durite SC-1008	17.2
Durite SC-1008	17.2

Building Manager's Questionnaire

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

Materials	Amount
Durite SC-1008	20.9
Durite, Graphite Mix	3.3
Ethanol	23.4
Ethanol	19.3
Ethanol	28.3
Ethyl Acetate	33.1
Ethyl Alcohol	16.2
Ethyl Alcohol	7.0
Ethylene Glycol, Water Waste	20.2
Ethylene Glycol, Water Waste	20.0
Ferric Nitrate	1.0
Freon	20.0
Freon	25.0
Freon	45.3
Freon	9.7
Freon TF	9.0
Hydrofluoric Acid	0.7
Insta Gel XF	44.6
Mercury Thermometers	0.1
Mercury Thermometers	2.2
Nitric Acid	14.7
Oil Waste	412.5
Oil Waste	464.5
Oil Waste, Hydraulic Oil	252.0
Performance Fluid PF-5052	30.7
Potassium Carbonate	1.7
Potassium Hydroxide	0.7
Sulfamic Acid	20.8
Trichloroethane	0.5

Source: Characterization of Mounds Hazardous, Radioactive, and Mixed Wastes 08/15/90

—New chemical inventory was recently completed. (See E. Howell) 02/26/96.

9 50_49

Building Manager's Questionnaire

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

29. Is waste material stored in or around the building for more than 90 days?
Yes (No)

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

31. Has any area in the building been identified as a satellite accumulation area? Yes (No)

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

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

Source: _____

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

F44 of 47

9.59-50

Building Manager's Questionnaire

Building Name: 36 Building Manager: P.C. Moltov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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

Building Name: 36 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

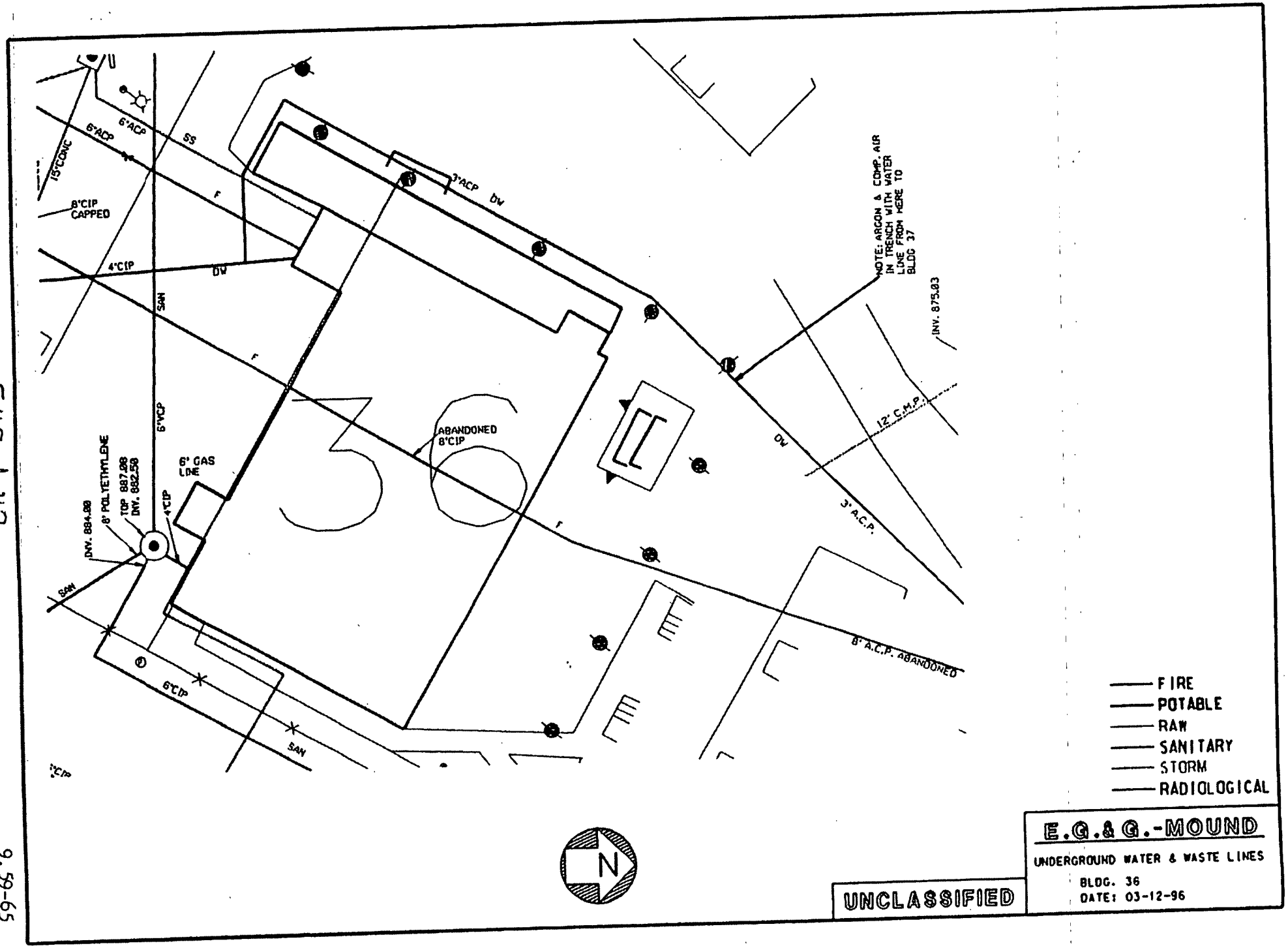
36. Is there a waste minimization program in the building? (Yes) No
Discuss your ideas about how to minimize waste.

> presently reducing excess equipment/materials from 80.

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

F46 of 47

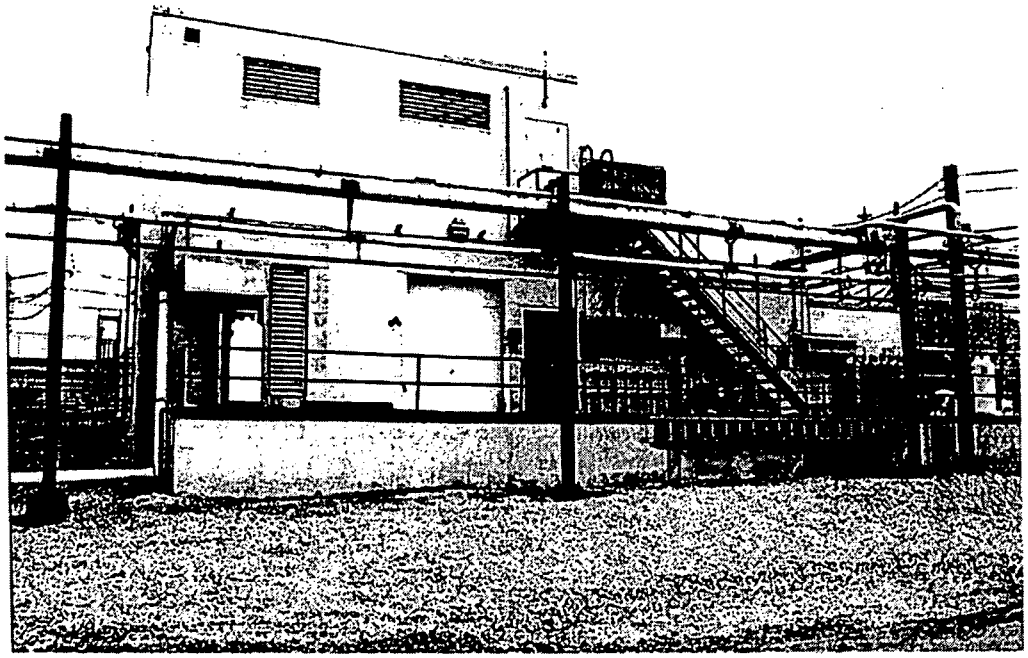
0 50 52


6"ACP
6"ACP
SS
15"CONC
8"CIP
CAPPED
4"CIP
DV
SAN
F
6"VCP
6" GAS
LINE
4"CIP
8" POLYETHYLENE
TOP 887.06
INV. 882.58
INV. 884.00
SAN
6"CIP
SAN
3"ACP
DV
ABANDONED
8"CIP
NOTE: ARGON & COMP. AIR
IN TRENCH WITH WATER
LINE FROM HERE TO
BLDG 37
INV. 875.03
12" C.M.P.
DV
3" A.C.P.
8" A.C.P. ABANDONED
FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL
N
UNCLASSIFIED
E.G.&G.-MOUND
UNDERGROUND WATER & WASTE LINES
BLDG. 36
DATE: 03-12-96

Appendix G

Radiological Information

Final Status Report
For
Building 36



Prepared by: Roderick C. Case / Date: November 26, 2003

Reviewed by: Kevin Doody / CHP Date: 12/2/03

Approved by: A. Stephen Collas / Date: 12/3/03

G1 of 78

1.0 Historical Review

Building 36 was constructed in 1967, as the "System & Capsule Design Testing Facility." The square footage of Building 36 is noted in contemporary documents as 4,255-ft^2. The building included testing equipment and testing facilities in support of the Heat Source Program, as well as for records storage and other support activities.

Building 36 has been used for the same purpose since construction and no research, development, or production activities using radioactive or energetic materials have occurred in the building. Building 36 is scheduled for demolition in accordance with Miamisburg Closure Project goals.

2.0 Survey Objectives

The objective of this survey plan was to confirm the classification of Building 36 as non-impacted. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains or ventilation systems. The survey data was compared to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined on the Survey Plan Form (see Enclosure).

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

Table 1

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

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

The average activity levels shown in Table 1 assumes that the residual contamination is uniformly distributed across the survey unit and is the $DCGL_w$ for this survey. The

maximum activity shown in Table 1 represents the Elevated Measurement Comparison ($DCGL_{emc}$) for small (<100cm^2) areas of activity that may be observed in the survey unit while scanning. Since no process activities were ever associated with Building 36, it is assumed that Pu-238 is the potential contaminant of concern and the Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta measurements.

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 – Penthouse

Survey Unit 3 – Exterior Walls

Survey Unit 4 – Dock

Survey Unit 5 - Roof

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 based on survey data from similar building surfaces 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 selected in each survey unit. Hallways and major walkways throughout the building were scanned for alpha contamination.

Sediment smear samples were collected from floor drains and ventilation units. 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 43-68 hand-held gas flow proportional (GFP) detector for alpha/beta fixed point measurements and a 43-37 GFP large area floor probe for alpha scan measurements. For safety reasons, a Ludlum 2360 with an L 43-93 scintillation probe was used for alpha/beta roof measurements in accordance with Reference 2. Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The gross alpha and beta fixed point measurements from each survey unit were collected and compared directly to the $DCGL_w$. Nine data points in Survey Unit 4 (Dock) were above the $DCGL_w$. The highest measurement observed was 259 dpm/100cm^2 alpha and the average was 105.8 dpm/100cm^2 alpha. The three highest locations were acid etched and

the results showed the presence of Pu-238 (146 dpm/sample). The distribution of elevated direct measurements indicates that the majority of the dock surface is most likely contaminated with Pu-238. The dock and associated fixtures will not be demolished with Building 36, but will be disposed of as low level radioactive waste after Building 36 is removed to prevent the possibility of any cross contamination with the building debris. Additional alpha scan surveys were performed in the rooms adjacent to the dock (Rooms 5 and 14) to ensure that no residual contamination has spread into the building (See RSDS# 03-TF-0322). No alarms were received during scanning (alarm setpoint 75 dpm/100cm^2) and the highest direct measurement was 30 dpm/100cm^2.

The initial survey results of Survey Unit 5 (Roof) included 5 data points at 99 dpm/100cm^2. The average activity was 83 dpm/100cm^2 ±7.5 and the standard deviation was 17 dpm/100cm^2. The roof was resurveyed to provide an extra measure of assurance that all data points were < DCGLw. The resurvey results are reported in the table below.

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 results of the maximum and average total (fixed and removable) alpha and beta activity for each area.

Total Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	31	12.05	3.13	2573	1428.8	191.3
Survey Unit 2	57	27.60	5.91	2113	1397.3	181.6
Survey Unit 3	83	55.00	5.96	2394	1741.2	154.2
Survey Unit 5	95	70.35	8.06	1877	1672.3	56.3

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

Removable Alpha & Beta Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	1.7	0.24	0.26	4.2	1.45	0.63
Survey Unit 2	6.0	0.93	0.83	4.4	1.08	0.70
Survey Unit 3	5.5	1.09	0.61	8.3	1.96	0.99
Survey Unit 5	6.0	0.64	0.63	3.3	0.70	0.47

The highest removable tritium activity was 10.99 dpm/100cm2 (RSDS# 03-TF-0301). The average removable tritium was 0.65 dpm/100cm2 (± 0.45).

The floors and major walkways were scanned for alpha activity. The highest activity measured was 8 dpm/100cm2 (RSDS# 03-TF-0300).

2.3 Sediment Sample Data

Sediment smear samples were obtained from accessible floor drains and ventilation units. Smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan. No smearable activity was detected above background levels. Direct alpha and beta measurements were taken at each sample location. The highest fixed activity observed was 56 dpm/100cm^2 alpha and 585 dpm/100cm^2 beta (See RSDS # 03-TF-0302).

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Twelve data points were selected at random from the sample group of 80 data points. 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). 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
SU1-13	7	5.29	23	1142	67.59	983
SU1-16	14	7.48	30	1627	80.67	1602
SU1-5	7	5.29	34	2573	101.4	2567
SU2-16	24	9.80	11	812	56.99	443
SU2-8	27	10.39	11	1142	67.59	1195
SU2-18	7	5.29	23	1730	83.19	1284
SU3-1	48	13.86	42	1713	82.78	1815
SU3-13	38	12.33	68	1457	76.34	1726
SU3-5	38	12.33	49	1678	81.93	938
SU3-3	52	14.42	38	1815	85.21	1399
SU5-16	91	19.08	42	1717	82.87	549
SU5-8	61	15.62	99	1877	86.65	540
Variance (S^2)	660.3		613.2	198,200		385,984
Ratio			1.08			0.51
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

65 of 78

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 36 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 36 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 36 Survey Results

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)
Highest Alpha Smearable Activity	03-TF-0308	Roof	6	20
Highest Alpha Fixed Activity	03-TF-0308	Roof	95	100
Highest Beta Smearable Activity	03-TF-0301	Exterior Walls	8.28	1000
Highest Beta Fixed Activity	03-TF-0300	Floor	2573	5000
Highest Tritium Smearable Activity	03-TF-0301	Exterior Walls	10.99	10,000
Note 1: DOE Order 5400.5 (DCGLw)				

3.0 Attachments and Enclosures

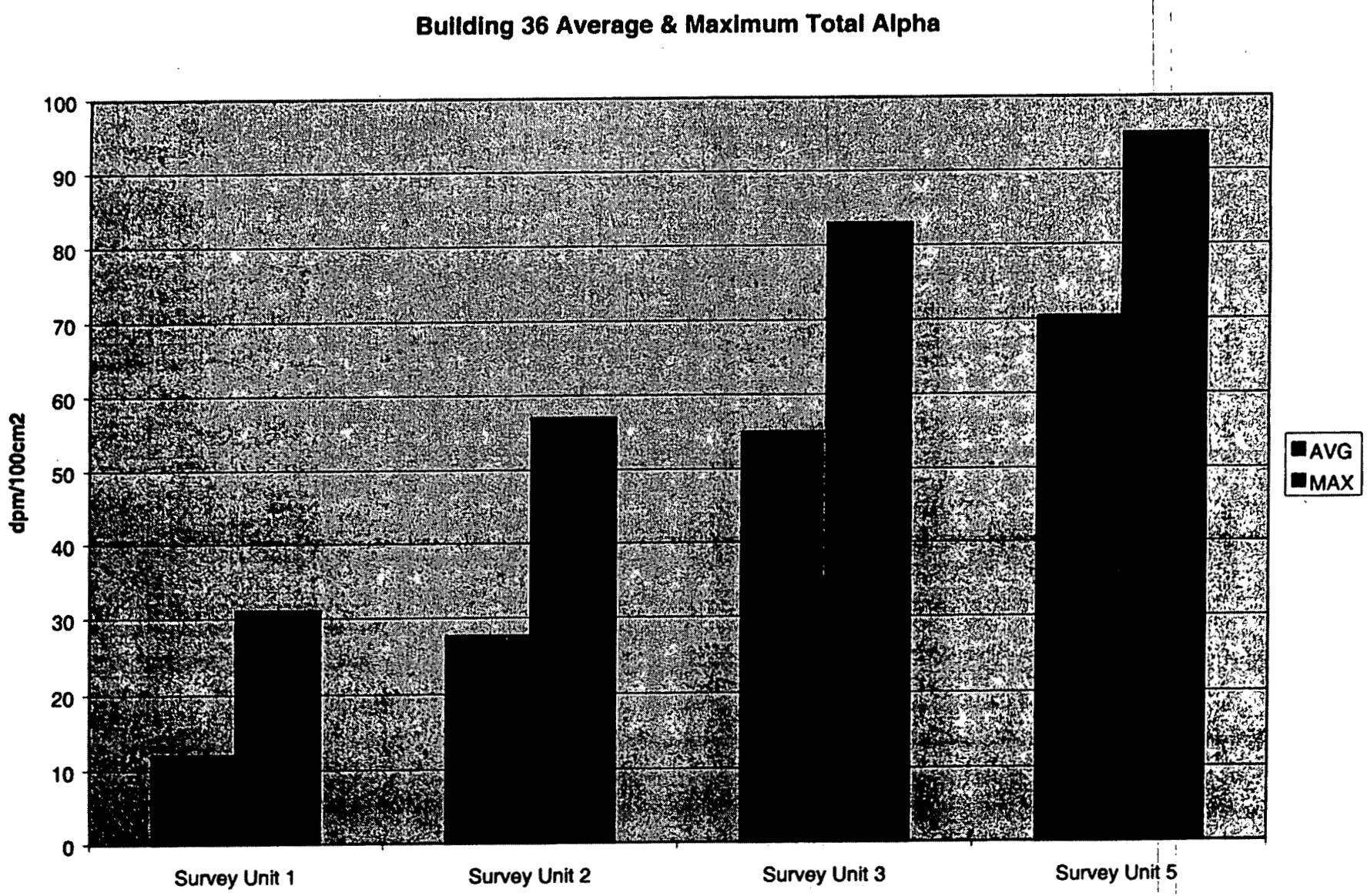
Attachment 1 – Average Total Alpha and Beta Graph

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 36-01

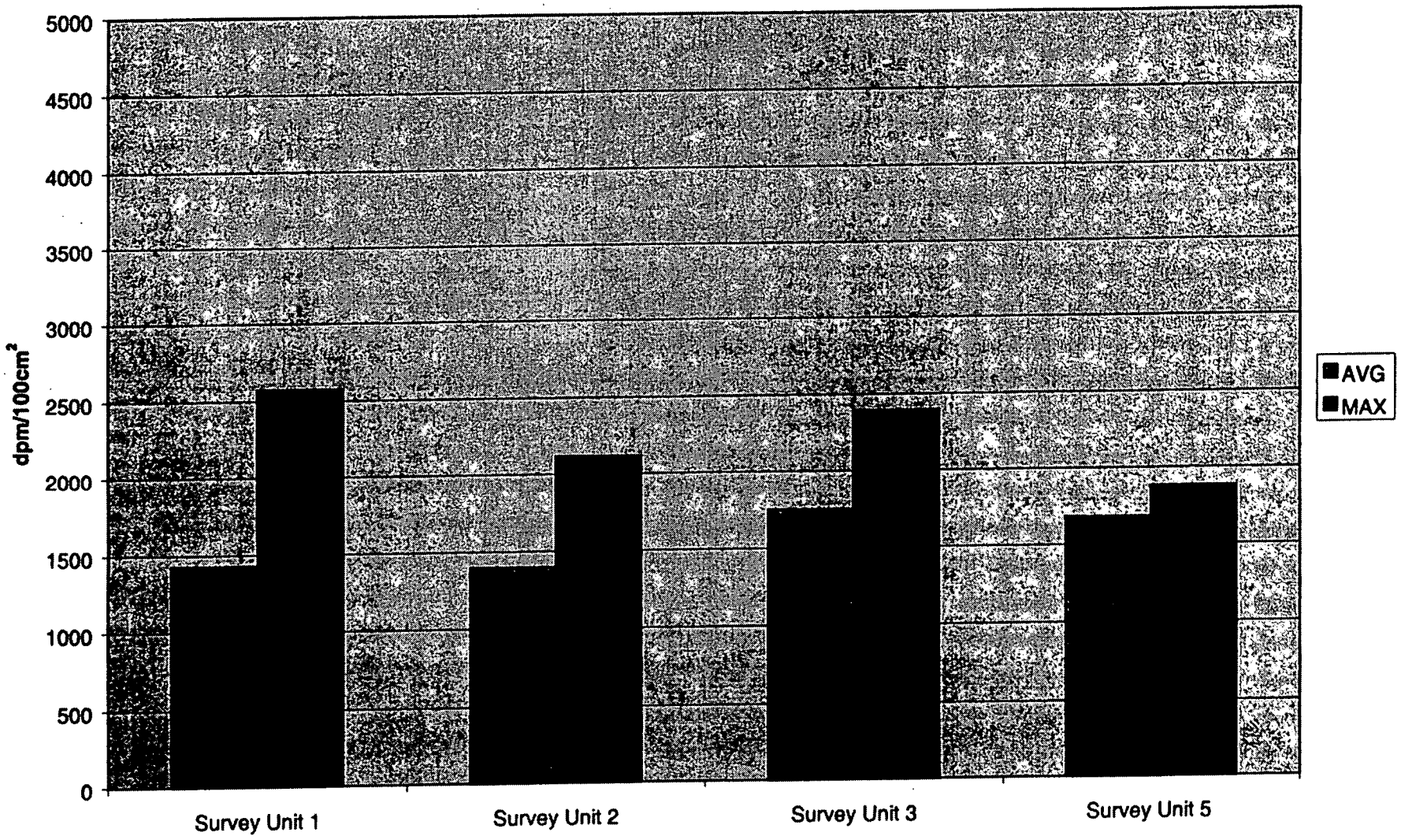
4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 36 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


Building 36 Average & Maximum Total Alpha
dpm/100cm2
100
90
80
70
60
50
40
30
20
10
0
Survey Unit 1
Survey Unit 2
Survey Unit 3
Survey Unit 5
AVG
MAX

Building 36 Final Status Report
Attachment 1

Building 36 Average and Maximum Total Beta Activity



Building 36 Survey and Sample Data
Enclosure 1

Building 36 Survey Data Collection Sheet

		Smearable			Fixed	
Location	RSDS#	α	β	H^3	α	β
SU1-01	03-TF-0300	0	0.4	0	21	1099
SU1-02	03-TF-0300	0	4.1	0	14	1099
SU1-03	03-TF-0300	0	0.6	0	7	1261
SU1-04	03-TF-0300	0	0	0	21	1091
SU1-05	[redacted]	0	0.8	0	7	2573
SU1-06	03-TF-0300	0	1.1	0	10	1210
SU1-07	03-TF-0300	0	0	0	10	1252
SU1-08	03-TF-0300	1.5	4.2	0	14	1312
SU1-09	03-TF-0300	0	0.8	0	3	1184
SU1-10	03-TF-0300	0	2.1	0	7	1082
SU1-11	03-TF-0300	1.7	2	0	21	946
SU1-12	03-TF-0300	0	1.9	0	10	1312
SU1-13	[redacted]	0	0	0	7	1142
SU1-14	03-TF-0300	0	0.5	0	7	1346
SU1-15	03-TF-0300	1.6	2.5	0	7	1917
SU1-16	[redacted]	0	1.3	0	14	1627
SU1-17	03-TF-0300	0	2.8	0	3	1133
SU1-18	03-TF-0300	0	0	0	10	1951
SU1-19	03-TF-0300	0	0	0	31	2087
SU1-20	03-TF-0300	0	3.9	0	17	1951
SU2-01	03-TF-0300	0	4.2	0	57	1248
SU2-02	03-TF-0300	0	0	0	30	1000
SU2-03	03-TF-0300	1.7	0	0	27	992
SU2-04	03-TF-0300	0	0	0	23	1346
SU2-05	03-TF-0300	0	0	0	42	1142
SU2-06	03-TF-0300	0	0	0	42	1107
SU2-07	03-TF-0300	0	0	0	19	1018
SU2-08	[redacted]	0	0.5	0	27	1142
SU2-09	03-TF-0300	3.7	0	0	30	1248
SU2-10	03-TF-0300	6	4.3	0	30	1956
SU2-11	03-TF-0300	0	0	0	49	1868
SU2-12	03-TF-0300	0	4.4	0	11	1470
SU2-13	03-TF-0300	0	2.7	0	24	1730
SU2-14	03-TF-0300	0	2.1	0	38	2096
SU2-15	03-TF-0300	1.6	1.9	0	21	2113
SU2-16	[redacted]	0	0	0	24	812
SU2-17	03-TF-0300	0	0	0	3	1125
SU2-18	[redacted]	0	0.5	0	7	1730
SU2-19	03-TF-0300	0	0	0	31	1823
SU2-20	03-TF-0300	5.5	1	0	17	980
[redacted]	[redacted]	0	0	0	48	1713
SU3-02	03-TF-0301	1.44	1.72	0	41	1585
[redacted]	[redacted]	0	0.58	0	52	1815
SU3-04	03-TF-0301	1.44	3.04	0	59	1755
[redacted]	[redacted]	0	0.58	2.26	38	1678
SU3-06	03-TF-0301	5.52	0.08	0	48	1696
SU3-07	03-TF-0301	1.44	1.72	10.99	55	1636
SU3-08	03-TF-0301	3.48	1.56	0	52	1491

69 of 78

Building 36 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β
SU3-09	03-TF-0301	1.43	6.97	3.66	41	1280
SU3-10	03-TF-0301	0	1.89	0.42	79	1397
SU3-11	03-TF-0301	0	0.58	3.79	48	1287
SU3-12	03-TF-0301	0	0	0	45	2036
SU3-13	03-TF-0301	1.44	0	7.82	38	1457
SU3-14	03-TF-0301	1.43	8.28	4.31	66	1491
SU3-15	03-TF-0301	0	3.2	0	69	1508
SU3-16	03-TF-0301	0	0.58	9.63	52	2326
SU3-17	03-TF-0301	1.43	4.35	0	79	2394
SU3-18	03-TF-0301	1.44	1.72	5.42	52	2232
SU3-19	03-TF-0301	1.44	0.41	1.51	83	1670
SU3-20	03-TF-0301	0	1.89	2.51	55	2377
SU4-01	03-TF-0301	0	1.89	0	187	1721
SU4-02	03-TF-0301	0	0	0	124	1747
SU4-03	03-TF-0301	0	0	1.43	90	1806
SU4-04	03-TF-0301	0	1.89	8.63	124	1943
SU4-05	03-TF-0301	3.48	0	6.83	145	1406
SU4-06	03-TF-0301	0	0	0.28	155	1806
SU4-07	03-TF-0301	0	0	6.48	259	2002
SU4-08	03-TF-0301	0	0	0	97	1397
SU4-09	03-TF-0301	0	0	0	111	1491
SU4-10	03-TF-0301	0	0	0	114	1764
SU4-11	03-TF-0301	0	0	0	69	1568
SU4-12	03-TF-0301	0	0	4.38	90	1483
SU4-13	03-TF-0301	0	0	3.69	90	1448
SU4-14	03-TF-0301	0	5.83	2.39	79	1363
SU4-15	03-TF-0301	3.48	0	4.68	52	1380
SU4-16	03-TF-0301	1.44	1.72	9.67	155	1431
SU4-17	03-TF-0301	3.48	1.56	0	28	1474
SU4-18	03-TF-0301	1.44	3.04	9.86	59	1278
SU4-19	03-TF-0301	0	1.89	8.31	52	1764
SU4-20	03-TF-0301	1.44	0	7.86	35	1491
SU5-01	03-TF-0308	0	0	0	53	1611
SU5-02	03-TF-0308	0	0.9	0	61	1664
SU5-03	03-TF-0308	1.6	0	0	46	1514
SU5-04	03-TF-0308	0	0.9	0	72	1700
SU5-05	03-TF-0308	0	0	0	84	1833
SU5-06	03-TF-0308	1.9	1.7	0	91	1859
SU5-07	03-TF-0308	0	0	0	80	1576
SU5-08	03-TF-0308	0	0	0	61	1877
SU5-09	03-TF-0308	0	0.4	0	91	1647
SU5-10	03-TF-0308	0	0	0	72	1655
SU5-11	03-TF-0308	0	0	0	95	1788
SU5-12	03-TF-0308	0	0	0	38	1717
SU5-13	03-TF-0308	1.7	1.9	0	57	1354

G10 8278

Location	RSDS#	α	β	H^3	α	β
SU5-14	03-TF-0308	6	1.9	0	42	1567
SU5-15	03-TF-0308	0	0	0	80	1753
SU5-16	03-TF-0308	1.5	3	0	91	1717
SU5-17	03-TF-0308	0	0	0	46	1549
SU5-18	03-TF-0308	0	3.3	0	80	1744
SU5-19	03-TF-0308	0	0	0	87	1576
SU5-20	03-TF-0308	0	0	0	80	1744
					70.35	1672.25

		α	β	H^3	α	β
	Avg	0.724125	1.296875	0.654	41.25	1559.875
	SD	1.421394	1.690501	2.043912	26.59185	378.6948
SU's	Max	6	8.28	10.99	95	2573
	#	80	80	80	80	80
	+/-	0.311477	0.370447	0.447892	5.827196	82.98516

Scans	RSDS# 0300		
36FLR SCAN	03-TF-0300		8
		Avg	8
		SD	#DIV/0!
		Max	8

Notes:

G11 of 78

Building 36 Survey and Sample Data
Enclosure 1

	Smearable			Fixed	
	α	β	H^3	α	β
Survey Unit 1					
Number	20	20	20	20	20
Avg	0.24	1.45	0	12.05	1428.75
SD	0.5870533	1.426626	0	7.141244	436.587
Max	1.7	4.2	0	31	2573
+/-	0.2572875	0.625247	0	3.129788	191.342
Survey Unit 2					
Number	20	20	20	20	20
Avg	0.925	1.08	0	27.6	1397.3
SD	1.8956668	1.605451	0	13.4884	414.264
Max	6	4.4	0	57	2113
+/-	0.8308126	0.70362	0	5.91155	181.559
Survey Unit 3					
Number	20	20	20	20	20
Avg	1.0965	1.9575	2.616	55	1741.2
SD	1.3975704	2.281278	3.459363	13.61501	351.763
Max	5.52	8.28	10.99	83	2394
+/-	0.6125122	0.999814	1.516133	5.96704	154.167
Survey Unit 4					
Number	20	20	20	20	20
Avg	0.738	0.891	3.7245	105.75	1588.15
SD	1.2908406	1.512425	3.768154	55.79179	210.822
Max	3.48	5.83	9.86	259	2002
+/-	0.5657358	0.66285	1.651466	24.45183	92.3968
Survey Unit 5					
Number	20	20	20	20	20
Avg	0.635	0.7	0	70.35	1672.25
SD	1.4372031	1.075566	0	18.37984	128.454
Max	6	3.3	0	95	1877
+/-	0.629882	0.471388	0	8.055319	56.2972

Graph Data Alpha

	Survey Unit 1	Survey Unit 2	Survey Unit 3	Survey Unit 5
AVG	12.05	27.6	55.00	70.35
MAX	31	57	83	95

Graph Data Beta

	Survey Unit 1	Survey Unit 2	Survey Unit 3	Survey Unit 5
AVG	1428.75	1397.30	1741.20	1672.25
MAX	2573	2113	2394	1877

Building 36 Survey and Sample Data
Enclosure 1

Instrument Data				α Bkg	β Bkg
Inst	SN	CDD	RSDS	(cpm)	(cpm)
1 L2350	5855/5864	6/18/04	0300	3.5	111
2 L2350	5857/5859	9/9/04	0300	1.4	130
3 L2350	5857/5859	9/9/04	0301	2.8	102
4 L2360	5833/5847	3/13/04	0302	1	117
5 L2350	5855/5864	6/18/04	0308	4.6	144
6 L2350	5855/5864	6/18/04	0308	4.6	144
7 L2350	5855/5864	6/18/04	0311	2.4	97
8 L2350	5855/5850	6/18/04	0322	5.2	

Drains and Vents

		Smearable			Fixed	
Location	RSDS#	α	β	H^3	α	β
DV-01	03-TF-0302	0	0	0	-8	315
DV-02	03-TF-0302	0	3.3	0	48	295
DV-03	03-TF-0302	1.6	0	0.77	16	265
DV-04	03-TF-0302	1.7	0.7	3.39	48	350
DV-05	03-TF-0302	0	0	0	8	230
DV-06	03-TF-0302	1.9	4.2	0	8	140
DV-07	03-TF-0302	0	0	0	8	110
DV-08	03-TF-0302	0	1.4	0	16	215
DV-09	03-TF-0302	0	2.8	0	56	585
DV-10	03-TF-0302	0	4.1	0	56	480
DV-11	03-TF-0302	0	1.7	0	-8	20
DV-12	03-TF-0302	0	0.5	0	8	280
DV-13	03-TF-0302	0	0	0	-8	240
DV-14	03-TF-0302	0	0	0	8	60
DV-15	03-TF-0302	0	1.1	0	0	165
DV-16	03-TF-0302	0	5.6	0	-8	190
DV-17	03-TF-0302	0	4.5	0	-8	220
DV-18	03-TF-0302	0	0.9	0	8	300
DV-19	03-TF-0302	0	0	0	0	-75
	Avg	0.273684	1.621053	0.218947	13.0526	230.79
	SD	0.651359	1.862966	0.787901	22.1848	152.35
	Max	1.9	5.6	3.39	56	585
	#	19	19	19	19	19
	+/-	0.292887	0.837692	0.354283	9.97549	68.503

	alpha spec dpm/sample Pu-238 - RSDS# 0306
SU4-21	146.34
SU4-26	68.66
SU4-27	43.8

G13 of 78

Replicate Fixed Point QC

		alpha (dpm/100cm2)			beta (dpm/100cm2)		
	Location #	initial	2σ	replicate	initial	2σ	replicate
1	SU1-13	7	5.29	23	1142	67.59	983
2	SU1-16	14	7.48	30	1627	80.67	1602
3	SU1-5	7	5.29	34	2573	101.45	2567
4	SU2-16	24	9.80	11	812	56.99	443
5	SU2-8	27	10.39	11	1142	67.59	1195
6	SU2-18	7	5.29	23	1730	83.19	1284
7	SU3-1	48	13.86	42	1713	82.78	1815
8	SU3-13	38	12.33	68	1457	76.34	1726
9	SU3-5	38	12.33	49	1678	81.93	938
10	SU3-3	52	14.42	38	1815	85.21	1399
11	SU5-16	91	19.08	42	1717	82.87	549
12	SU5-8	61	15.62	99	1877	86.65	540
	Variance (S2) =	660.2727		613.2424	198200		385984
	Ratio			1.076691			0.5135
	Agreement			YES			YES

QC Measurements

	Location	RSDS#	α	β		
1	SU1-13	03-TF-0311	23	983	1	16
2	SU1-16	03-TF-0311	30	1602	1	5
3	SU1-5	03-TF-0311	34	2567	1	13
4	SU2-16	03-TF-0311	11	443	2	18
5	SU2-8	03-TF-0311	11	1195	2	16
6	SU2-18	03-TF-0311	23	1284	2	8
7	SU3-1	03-TF-0311	42	1815	3	1
8	SU3-13	03-TF-0311	68	1726	3	13
9	SU3-5	03-TF-0311	49	938	3	5
10	SU3-3	03-TF-0311	38	1399	3	3
11	SU5-16	03-TF-0311	42	549	5	8
12	SU5-8	03-TF-0311	99	540	5	16

SURVEY PLAN FORM

SP NUMBER	36-01	DATE OF REQUEST	September 8, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 36		
PURPOSE	The purpose of this SP is to characterize Building 36 to support decisions on final disposition.		
SURVEY UNIT # 1	First Floor	SURVEY UNIT # 4	Dock
SURVEY UNIT # 2	Penthouse	SURVEY UNIT # 5	Roof
SURVEY UNIT # 3	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 43-68 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 43-68 Hand Probe	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Perform 2 minute counts at specified locations not more than ¼" from surface
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
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.

Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Radiological Survey Data Sheet (RSDS).

Ensure the surfaces of interest in the survey unit are dry and free of loose debris or other material that may obscure alpha measurement.

G15 D78

SP NUMBER	36-01	DATE OF REQUEST	September 3, 2003

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Safety Considerations

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

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

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

Sediment Samples

1. Collect approximately 250ml of debris from each accessible ventilation unit opening, floor drain, and any other accessible area where debris has accumulated (e.g. roof gutters).
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. Perform a static alpha and beta measurement at each sediment sample location.
6. Show sample location and static measurement results on the RSDS map.
7. Submit sediment samples to laboratory for gamma spectroscopy analysis. Submit smears for gross alpha and beta analysis.
8. Additional intrusive samples may be collected in areas of elevated activity as determined by the MARSSIM Engineer.

Static Measurements Using L 2350 with 43-68 alpha/beta probe

1. Perform an alpha and beta count on at least twenty (20) data points in each survey unit. Data points are selected by the surveyor and should be broadly representative of the entire survey unit.
2. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
3. 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.

Continued Next Page

616 of 78

Specific Survey and Sampling Instructions (continued)

Quality Control

1. QC measurements will be performed by re-surveying 16 data points. Data points selected for resurvey should be representative of the entire data set and include the highest and lowest readings.
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	September 3, 2003
Technical Reviewer	Kevin Doody CHP	DATE	9/4/03
Rad Con Manager	A. Stephen Collas	DATE	9/4/03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	DATE	11/26/03
Technical Reviewer	K. Doody CHP	DATE	12/2/03
Rad Con Manager	ASCollas	DATE	12/3/03
COMMENTS			

Sample Data Collection Sheet
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
36-01-									
36-01-									
36-01-									
36-01-									
36-01-									
36-01-				N/A					
36-01-									
36-01-									
36-01-									
36-01-									
36-01-									
36-01-									
36-01-								KCM RCMS 12/3/03	
36-01-									

RADIOLOGICAL SURVEY DATA SHEET

1 of 15

LOCATION: (BLDG./AREA/ROOM) 36	SURVEY NO. 03-TF-0300
PURPOSE: MARSSIM SURVEY PLAN 36-01 UNITS 1,2 AND 5 PLUS FLOOR SCAN	RWP NO. N/A
	DATE: 11-10-03
	TIME: 1630

MAP/DRAWING

SEE ATTACHED

COPY

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
= mrem/hr neutron
= air sample number
= swipe number
α/β = direct cont. measurement in dpm/100cm²

[redacted]

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855/5864/5850	6-18-04
2350	5857/5859	9-9-04
2360	5833/5847	3-13-04
	N/A	

HP # 6178 5214	Date: 11-13-03
[redacted]	
HP #	Date:
ED	
HP # 7492	Date: 11-17-03

ML-9620 (2-88)

Survey No. 03-TF-0300

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTACHED		UNIT 5
21-40	↓	↓	↓	UNIT 2
41-60	↓	↓	↓	UNIT 1
		N	A	

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

COMMENTS: N/A

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

ML-9620A (4-98)

36-Building Characterization Survey Unit 2 and 5

RSDS# 03-TF-0300 RCT: JGH RCT: JKR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector #: 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	6178	5864	1		11/10/03	8:07	17	300	26
ALPHA	SRC CHECK	5855	6178	5864	1		11/10/03	8:17	2040	60	15486
ALPHA	SRC CHECK	5855	6178	5864	1		11/10/03	8:18	2054	60	15592
ALPHA	SRC CHECK	5855	6178	5864	1		11/10/03	8:20	2011	60	15266
ALPHA	SRC CHECK	5855	6178	5864	1		11/10/03	8:22	1955	60	14841
ALPHA	U-5 01	5855	6178	5864	1	1	11/10/03	9:42	16	120	61
ALPHA	U-5 02	5855	6178	5864	1	2	11/10/03	9:46	8	120	30
ALPHA	U-5 03	5855	6178	5864	1	3	11/10/03	9:50	18	120	68
ALPHA	U-5 04	5855	6178	5864	1	4	11/10/03	9:53	26	120	99
ALPHA	U-5 05	5855	6178	5864	1	5	11/10/03	9:57	21	120	80
ALPHA	U-5 06	5855	6178	5864	1	6	11/10/03	10:00	20	120	76
ALPHA	U-5 07	5855	6178	5864	1	7	11/10/03	10:04	25	120	95
ALPHA	U-5 08	5855	6178	5864	1	8	11/10/03	10:08	26	120	99
ALPHA	U-5 09	5855	6178	5864	1	9	11/10/03	10:11	19	120	72
ALPHA	U-5 10	5855	6178	5864	1	10	11/10/03	10:17	24	120	91
ALPHA	U-5 11	5855	6178	5864	1	11	11/10/03	10:21	26	120	99
ALPHA	U-5 12	5855	6178	5864	1	12	11/10/03	10:24	22	120	84
ALPHA	U-5 13	5855	6178	5864	1	13	11/10/03	10:27	25	120	95
ALPHA	U-5 14	5855	6178	5864	1	14	11/10/03	10:30	24	120	91
ALPHA	U-5 15	5855	6178	5864	1	15	11/10/03	10:39	26	120	99
ALPHA	U-5 16	5855	6178	5864	1	16	11/10/03	10:42	26	120	99
ALPHA	U-5 17	5855	6178	5864	1	17	11/10/03	10:46	21	120	80
ALPHA	U-5 18	5855	6178	5864	1	18	11/10/03	10:50	22	120	84
ALPHA	U-5 19	5855	6178	5864	1	19	11/10/03	12:34	25	120	95
ALPHA	U-5 20	5855	6178	5864	1	20	11/10/03	12:38	20	120	76
ALPHA	U-2 01	5855	6178	5864	1	21	11/10/03	12:55	15	120	57
ALPHA	U-2 02	5855	6178	5864	1	22	11/10/03	12:59	8	120	30
ALPHA	U-2 03	5855	6178	5864	1	23	11/10/03	13:03	7	120	27
ALPHA	U-2 04	5855	6178	5864	1	24	11/10/03	13:07	6	120	23
ALPHA	U-2 05	5855	6178	5864	1	25	11/10/03	13:10	11	120	42
ALPHA	U-2 06	5855	6178	5864	1	26	11/10/03	13:14	11	120	42
ALPHA	U-2 07	5855	6178	5864	1	27	11/10/03	13:18	5	120	19
ALPHA	U-2 08	5855	6178	5864	1	28	11/10/03	13:24	7	120	27
ALPHA	U-2 09	5855	6178	5864	1	29	11/10/03	13:27	8	120	30
ALPHA	U-2 10	5855	6178	5864	1	30	11/10/03	13:31	8	120	30
ALPHA	U-2 11	5855	6178	5864	1	31	11/10/03	13:35	13	120	49
ALPHA	U-2 12	5855	6178	5864	1	32	11/10/03	13:39	3	120	11
BETA	SRC BKG	5855	6178	5864	2		11/10/03	8:28	557	300	986

36-Building Characterization Survey Unit 2 and 5

RSDS# 03-TF-0300 RCT: 29H RCT: SR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
BETA	SRC CHECK	5855	6178	5864	2		11/10/03	8:32	2401	60	21255
BETA	SRC CHECK	5855	6178	5864	2		11/10/03	8:34	2260	60	20007
BETA	SRC CHECK	5855	6178	5864	2		11/10/03	8:35	2267	60	20069
BETA	SRC CHECK	5855	6178	5864	2		11/10/03	8:37	2090	60	18502
BETA	U-5 01	5855	6178	5864	2	1	11/10/03	9:43	131	60	1160
BETA	U-5 02	5855	6178	5864	2	2	11/10/03	9:47	138	60	1222
BETA	U-5 03	5855	6178	5864	2	3	11/10/03	9:51	133	60	1177
BETA	U-5 04	5855	6178	5864	2	4	11/10/03	9:54	150	60	1328
BETA	U-5 05	5855	6178	5864	2	5	11/10/03	9:58	149	60	1319
BETA	U-5 06	5855	6178	5864	2	6	11/10/03	10:01	150	60	1328
BETA	U-5 07	5855	6178	5864	2	7	11/10/03	10:05	141	60	1248
BETA	U-5 08	5855	6178	5864	2	8	11/10/03	10:09	156	60	1381
BETA	U-5 09	5855	6178	5864	2	9	11/10/03	10:12	173	60	1532
BETA	U-5 10	5855	6178	5864	2	10	11/10/03	10:18	168	60	1487
BETA	U-5 11	5855	6178	5864	2	11	11/10/03	10:22	171	60	1514
BETA	U-5 12	5855	6178	5864	2	12	11/10/03	10:36	164	60	1452
BETA	U-5 13	5855	6178	5864	2	13	11/10/03	10:28	131	60	1160
BETA	U-5 14	5855	6178	5864	2	14	11/10/03	10:31	168	60	1487
BETA	U-5 15	5855	6178	5864	2	15	11/10/03	10:40	175	60	1549
BETA	U-5 16	5855	6178	5864	2	16	11/10/03	10:44	151	60	1337
BETA	U-5 17	5855	6178	5864	2	17	11/10/03	10:47	186	60	1647
BETA	U-5 18	5855	6178	5864	2	18	11/10/03	10:51	196	60	1735
BETA	U-5 19	5855	6178	5864	2	19	11/10/03	12:35	207	60	1833
BETA	U-5 20	5855	6178	5864	2	20	11/10/03	12:39	210	60	1859
BETA	U-2 01	5855	6178	5864	2	21	11/10/03	12:56	141	60	1248
BETA	U-2 02	5855	6178	5864	2	22	11/10/03	13:00	113	60	1000
BETA	U-2 03	5855	6178	5864	2	23	11/10/03	13:04	112	60	992
BETA	U-2 04	5855	6178	5864	2	24	11/10/03	13:08	152	60	1346
BETA	U-2 05	5855	6178	5864	2	25	11/10/03	13:12	129	60	1142
BETA	U-2 06	5855	6178	5864	2	26	11/10/03	13:15	125	60	1107
BETA	U-2 07	5855	6178	5864	2	27	11/10/03	13:19	115	60	1018
BETA	U-2 08	5855	6178	5864	2	28	11/10/03	13:25	129	60	1142
BETA	U-2 09	5855	6178	5864	2	29	11/10/03	13:28	141	60	1248
BETA	U-2 10	5855	6178	5864	2	30	11/10/03	13:32	221	60	1956
BETA	U-2 11	5855	6178	5864	2	31	11/10/03	13:36	211	60	1868
BETA	U-2 12	5855	6178	5864	2	32	11/10/03	13:40	166	60	1470

36-Building Characterization Survey Unit 1 and 2

RSDS# 03-TF-0300 RCT: DJH RCT: SR

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	5214	5859	1		11/11/03	7:56	7	300	10
ALPHA	SRC CHECK	5857	5214	5859	1		11/11/03	8:40	1977	60	13662
ALPHA	SRC CHECK	5857	5214	5859	1		11/11/03	8:42	2053	60	14187
ALPHA	SRC CHECK	5857	5214	5859	1		11/11/03	8:44	1992	60	13765
ALPHA	SRC CHECK	5857	5214	5859	1		11/11/03	8:45	2019	60	13952
ALPHA	U-1 01	5857	5214	5859	1	41	11/11/03	9:08	6	120	21
ALPHA	U-1 02	5857	5214	5859	1	42	11/11/03	9:12	4	120	14
ALPHA	U-1 03	5857	5214	5859	1	43	11/11/03	9:16	2	120	7
ALPHA	U-1 04	5857	5214	5859	1	44	11/11/03	9:20	6	120	21
ALPHA	U-1 05	5857	5214	5859	1	45	11/11/03	9:23	2	120	7
ALPHA	U-1 06	5857	5214	5859	1	46	11/11/03	9:28	3	120	10
ALPHA	U-1 07	5857	5214	5859	1	47	11/11/03	9:32	3	120	10
ALPHA	U-1 08	5857	5214	5859	1	48	11/11/03	9:36	4	120	14
ALPHA	U-1 09	5857	5214	5859	1	49	11/11/03	9:43	1	120	3
ALPHA	U-1 10	5857	5214	5859	1	50	11/11/03	9:47	2	120	7
ALPHA	U-1 11	5857	5214	5859	1	51	11/11/03	9:50	6	120	21
ALPHA	U-1 12	5857	5214	5859	1	52	11/11/03	9:54	3	120	10
ALPHA	U-1 13	5857	5214	5859	1	53	11/11/03	9:59	2	120	7
ALPHA	U-1 14	5857	5214	5859	1	54	11/11/03	10:06	2	120	7
ALPHA	U-1 15	5857	5214	5859	1	55	11/11/03	10:09	2	120	7
ALPHA	U-1 16	5857	5214	5859	1	56	11/11/03	10:14	4	120	14
ALPHA	U-1 17	5857	5214	5859	1	57	11/11/03	10:18	1	120	3
ALPHA	U-1 18	5857	5214	5859	1	58	11/11/03	10:22	3	120	10
ALPHA	U-1 19	5857	5214	5859	1	59	11/11/03	10:28	9	120	31
ALPHA	U-1 20	5857	5214	5859	1	60	11/11/03	10:33	5	120	17
ALPHA	U-2 13	5857	5214	5859	1	33	11/11/03	13:19	7	120	24
ALPHA	U-2 14	5857	5214	5859	1	34	11/11/03	13:23	11	120	38
ALPHA	U-2 15	5857	5214	5859	1	35	11/11/03	13:27	6	120	21
ALPHA	U-2 16	5857	5214	5859	1	36	11/11/03	13:31	7	120	24
ALPHA	U-2 17	5857	5214	5859	1	37	11/11/03	13:35	1	120	3
ALPHA	U-2 18	5857	5214	5859	1	38	11/11/03	13:39	2	120	7
ALPHA	U-2 19	5857	5214	5859	1	39	11/11/03	13:43	9	120	31
ALPHA	U-2 20	5857	5214	5859	1	40	11/11/03	13:46	5	120	17
BETA	SRC BKG	5857	5214	5859	2		11/11/03	8:52	649	300	1106
BETA	SRC CHECK	5857	5214	5859	2		11/11/03	8:55	2185	60	18617
BETA	SRC CHECK	5857	5214	5859	2		11/11/03	8:57	2255	60	19213
BETA	SRC CHECK	5857	5214	5859	2		11/11/03	8:58	2303	60	19622
BETA	SRC CHECK	5857	5214	5859	2		11/11/03	8:59	2282	60	19443

36-Building Characterization Survey Unit 1 and 2

RSDS# 03-TF-0300 RCT: DJH RCT: DR

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
BETA	U-1 01	5857	5214	5859	2	41	11/11/03	9:09	129	60	1099
BETA	U-1 02	5857	5214	5859	2	42	11/11/03	9:13	129	60	1099
BETA	U-1 03	5857	5214	5859	2	43	11/11/03	9:18	148	60	1261
BETA	U-1 04	5857	5214	5859	2	44	11/11/03	9:21	128	60	1091
BETA	U-1 05	5857	5214	5859	2	45	11/11/03	9:25	302	60	2573
BETA	U-1 06	5857	5214	5859	2	46	11/11/03	9:29	142	60	1210
BETA	U-1 07	5857	5214	5859	2	47	11/11/03	9:33	147	60	1252
BETA	U-1 08	5857	5214	5859	2	48	11/11/03	9:37	154	60	1312
BETA	U-1 09	5857	5214	5859	2	49	11/11/03	9:44	139	60	1184
BETA	U-1 10	5857	5214	5859	2	50	11/11/03	9:48	127	60	1082
BETA	U-1 11	5857	5214	5859	2	51	11/11/03	9:52	111	60	946
BETA	U-1 12	5857	5214	5859	2	52	11/11/03	9:55	154	60	1312
BETA	U-1 13	5857	5214	5859	2	53	11/11/03	10:00	134	60	1142
BETA	U-1 14	5857	5214	5859	2	54	11/11/03	10:07	158	60	1346
BETA	U-1 15	5857	5214	5859	2	55	11/11/03	10:10	225	60	1917
BETA	U-1 16	5857	5214	5859	2	56	11/11/03	10:15	191	60	1627
BETA	U-1 17	5857	5214	5859	2	57	11/11/03	10:19	133	60	1133
BETA	U-1 18	5857	5214	5859	2	58	11/11/03	10:23	229	60	1951
BETA	U-1 19	5857	5214	5859	2	59	11/11/03	10:30	245	60	2087
BETA	U-1 20	5857	5214	5859	2	60	11/11/03	10:34	229	60	1951
BETA	U-2 13	5857	5214	5859	2	33	11/11/03	13:20	203	60	1730
BETA	U-2 14	5857	5214	5859	2	34	11/11/03	13:24	246	60	2096
BETA	U-2 15	5857	5214	5859	2	35	11/11/03	13:29	248	60	2113
BETA	U-2 16	5857	5214	5859	2	36	11/11/03	13:32	107	60	912
BETA	U-2 17	5857	5214	5859	2	37	11/11/03	13:36	132	60	1125
BETA	U-2 18	5857	5214	5859	2	38	11/11/03	13:40	203	60	1730
BETA	U-2 19	5857	5214	5859	2	39	11/11/03	13:44	214	60	1823
BETA	U-2 20	5857	5214	5859	2	40	11/11/03	13:47	115	60	980

36-Building Characterization Survey Floor Scan Unit 1

RSDS# 03-TF-0300 RCT: DJH RCT: SJR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SCAN	SRC BKG	5855	5214	5850	3		11/11/03	9:16	30	300	10	
SCAN	SRCCHECK	5855	5214	5850	3		11/11/03	9:18	2161	60	3567	
SCAN	SRCCHECK	5855	5214	5850	3		11/11/03	9:20	2185	60	3606	
SCAN	SRCCHECK	5855	5214	5850	3		11/11/03	9:22	2311	60	3814	
SCAN	SRCCHECK	5855	5214	5850	3		11/11/03	9:23	2169	60	3580	
SCAN	SRCCHECK	5855	5214	5850	3		11/11/03	9:25	2218	60	3661	
SCAN	SRCCHECK	5855	5214	5850	3		11/11/03	9:27	2186	60	3608	
SCAN	36FLR SCAN	5855	5214	5850	3		11/11/03	13:53	5	60	8	

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 11/11/2003 15:58
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0300 H REYNOLDS A/B (60) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	0.0	1.9		0.0	1.2	
A2	2	0.0	1.9		0.9	2.1	
A3	3	1.6	1.9		0.0	1.7	
A4	4	0.0	1.9		0.9	1.6	
B1	5	0.0	2.0		0.0	2.3	
B2	6	1.9	2.2		1.7	2.2	
B3	7	0.0	2.0		0.0	1.8	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.4	1.7	
C2	10	0.0	1.9		0.0	1.2	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.8		0.0	1.2	
D1	13	1.7	2.1		1.9	2.2	
D2	14	6.0	3.6		1.9	2.1	
D3	15	0.0	2.0		0.0	1.2	
D4	16	1.5	2.0		3.0	2.4	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	1.9		3.3	2.7	
A3	19	0.0	1.8		0.0	1.2	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	2.0		4.2	3.4	
B2	22	0.0	2.1		0.0	1.3	
B3	23	1.7	2.0		0.0	2.2	
B4	24	0.0	1.9		0.0	1.3	
C1	25	0.0	2.0		0.0	1.2	
C2	26	0.0	1.9		0.0	1.2	
C3	27	0.0	1.9		0.0	1.2	
C4	28	0.0	1.8		0.5	1.6	
D1	29	3.7	2.9		0.0	1.3	
D2	30	6.0	3.7		4.3	2.7	
D3	31	0.0	2.0		0.0	1.2	

DJH DJH

8 of 15

~~Page 1 of 2~~

G26 of 78

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 11/11/2003 15:58
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0300 H REYNOLDS ~~A/B (60)~~ AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
D4	32	0.0	2.0		4.4	2.7	
A1	33	0.0	2.0		5.7	3.0	
A2	34	0.0	1.9		2.1	2.4	
A3	35	1.6	1.9		1.9	2.4	
A4	36	0.0	1.9		0.0	1.2	
B1	37	0.0	2.0		0.0	2.3	
B2	38	0.0	2.1		0.5	1.8	
B3	39	0.0	2.0		0.0	1.3	
B4	40	5.5	3.4		1.0	2.2	
C1	41	0.0	2.0		0.4	1.7	
C2	42	0.0	2.0		4.1	2.6	
C3	43	0.0	1.9		0.6	1.7	
C4	44	0.0	1.8		0.0	1.2	
D1	45	0.0	2.0		0.8	1.8	
D2	46	0.0	2.1		1.1	1.7	
D3	47	0.0	2.0		0.0	1.2	
D4	48	1.5	2.0		4.2	2.7	
A1	49	0.0	1.9		0.8	1.7	
A2	50	0.0	1.9		2.1	2.4	
A3	51	0.0	1.9		2.0	2.4	
A4	52	1.7	1.9		1.9	2.0	
B1	53	0.0	2.0		0.0	1.9	
B2	54	0.0	2.1		0.5	1.8	
B3	55	0.0	2.0		2.5	2.8	
B4	56	1.6	2.0		1.3	2.2	
C1	57	0.0	2.0		2.8	2.4	
C2	58	0.0	1.9		0.0	1.2	
C3	59	0.0	1.9		0.0	1.2	
C4	60	0.0	1.8		3.9	2.6	

DgH DgH

9 of 15
~~Page 2 of 9~~
DgH 11-13-03

G27 of 78

Protocol #: 2 Name:pW h3 101068 11-Nov-2003 20:03
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
REYNOLDS 03-TF-0300 1-60 JD
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	11	B	7.60	7.00	6.00	558.		0.00
0	2.00	1		643.90	610.00	0.00	481.	1330.87	125.90
1	2.00	24		0.00	0.00	0.00	531.	0.00	0.00
2	2.00	0		0.90	1.00	0.00	525.	1.77	8.82
3	2.00	44		0.00	0.00	0.00	315.	0.00	0.00
4	2.00	0		0.00	0.00	0.00	531.	0.00	0.00
5	2.00	10		0.00	0.00	0.00	576.	0.00	0.00
6	2.00	0		0.00	0.00	0.00	605.	0.00	0.00
7	2.00	38		0.00	0.00	0.00	460.	0.00	0.00
8	2.00	0		0.00	0.00	0.00	514.	0.00	0.00
9	2.00	33		0.00	0.00	0.00	403.	0.00	0.00
10	2.00	10		0.00	0.00	0.00	539.	0.00	0.00
11	2.00	9		0.00	0.00	0.00	561.	0.00	0.00
12	2.00	0		0.00	0.00	0.00	539.	0.00	0.00
13	2.00	0		0.00	0.00	0.00	582.	0.00	0.00
14	2.00	20		0.00	0.00	0.00	572.	0.00	0.00
15	2.00	45		0.00	0.00	0.00	537.	0.00	0.00
16	2.00	13		0.00	0.00	0.00	553.	0.00	0.00
17	2.00	11		0.00	0.00	0.00	587.	0.00	0.00
18	2.00	17		0.00	0.00	0.00	596.	0.00	0.00
19	2.00	11		0.00	0.00	0.00	593.	0.00	0.00
20	2.00	0		0.00	0.00	0.00	573.	0.00	0.00
21	2.00	33		0.00	0.00	0.00	394.	0.00	0.00
22	2.00	24		0.00	0.00	0.00	322.	0.00	0.00
23	2.00	40		0.00	0.00	0.00	461.	0.00	0.00
24	2.00	0		0.00	0.00	0.00	458.	0.00	0.00
25	2.00	0		0.00	0.00	0.00	409.	0.00	0.00
26	2.00	0		0.00	0.00	0.00	415.	0.00	0.00
27	2.00	10		0.00	0.00	0.00	375.	0.00	0.00
28	2.00	100		0.00	0.00	0.00	280.	0.00	0.00
29	2.00	10		0.00	0.00	0.00	381.	0.00	0.00
30	2.00	27		0.00	0.00	0.00	516.	0.00	0.00
31	2.00	0		0.00	0.00	2.00	586.	0.00	0.00
32	2.00	13		0.00	0.00	0.00	595.	0.00	0.00
33	2.00	14		0.00	0.00	0.00	555.	0.00	0.00
34	2.00	0		0.00	0.00	3.00	572.	0.00	0.00
35	2.00	17		0.00	0.00	0.00	583.	0.00	0.00
36	2.00	0		0.00	0.00	0.00	327.	0.00	0.00
37	2.00	0		0.00	0.00	0.50	416.	0.00	0.00
38	2.00	7		0.00	0.00	0.50	582.	0.00	0.00
39	2.00	17		0.00	0.00	0.00	403.	0.00	0.00
40	2.00	0		0.00	0.00	0.00	575.	0.00	0.00
41	2.00	0		0.00	0.00	2.50	443.	0.00	0.00
42	2.00	24		0.00	0.00	0.50	536.	0.00	0.00
43	2.00	9		0.00	0.00	0.00	459.	0.00	0.00
44	2.00	0		0.00	0.00	0.00	540.	0.00	0.00

29#

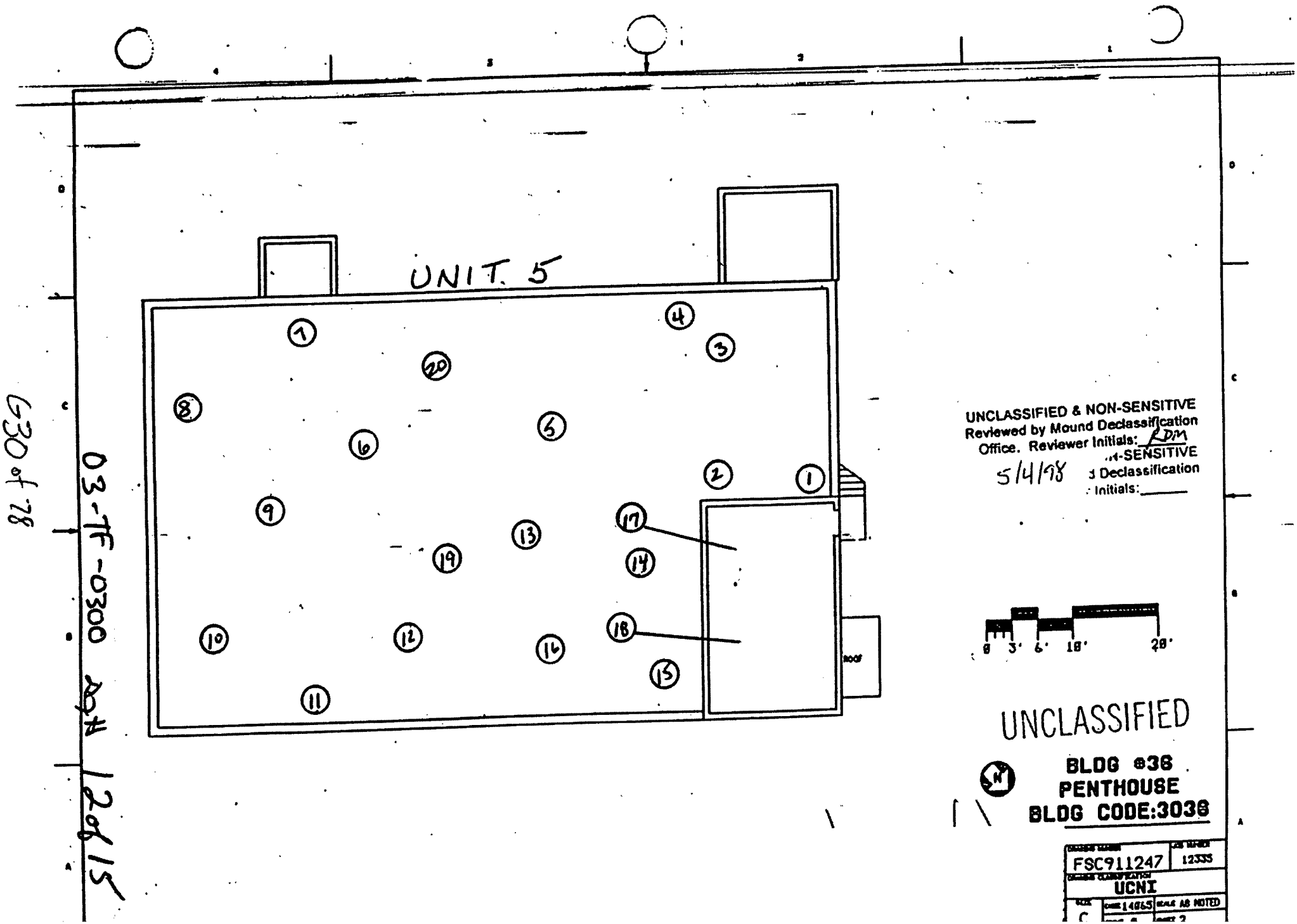
10 of 15

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	20		0.00	0.00	0.00	400.	0.00	0.00
46	2.00	20		0.00	0.00	0.00	535.	0.00	0.00
47	2.00	17		0.00	0.00	0.00	467.	0.00	0.00
48	2.00	0		0.00	0.00	0.00	451.	0.00	0.00
49	2.00	0		0.00	0.00	0.00	546.	0.00	0.00
50	2.00	0		0.00	0.00	1.00	437.	0.00	0.00
51	2.00	0		0.00	0.00	0.00	427.	0.00	0.00
52	2.00	0		0.00	0.00	0.00	440.	0.00	0.00
53	2.00	37		0.00	0.00	0.00	462.	0.00	0.00
54	2.00	0		0.00	0.00	0.00	458.	0.00	0.00
55	2.00	12		0.00	0.00	1.00	595.	0.00	0.00
56	2.00	9		0.00	0.00	0.00	575.	0.00	0.00
57	2.00	12		0.00	0.00	0.00	588.	0.00	0.00
58	2.00	9		0.00	0.00	0.00	604.	0.00	0.00
59	2.00	0		0.00	0.00	0.00	606.	0.00	0.00
60	2.00	17		0.00	0.00	0.00	600.	0.00	0.00

29#

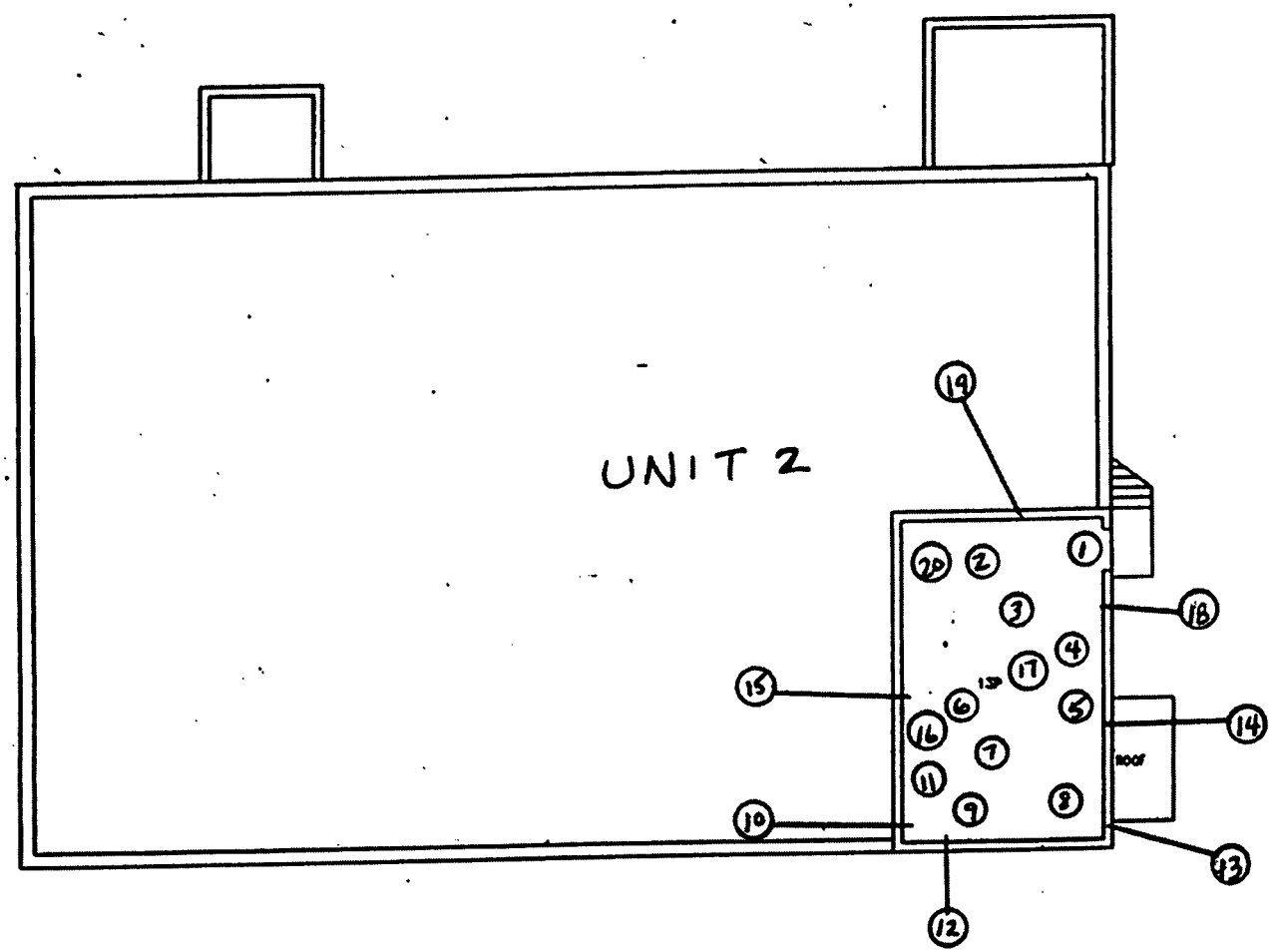
03-TF-0300

11 of 15

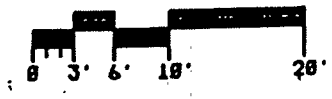


03-TF-0300 Att #12 of 15

G30 of 78



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



UNCLASSIFIED

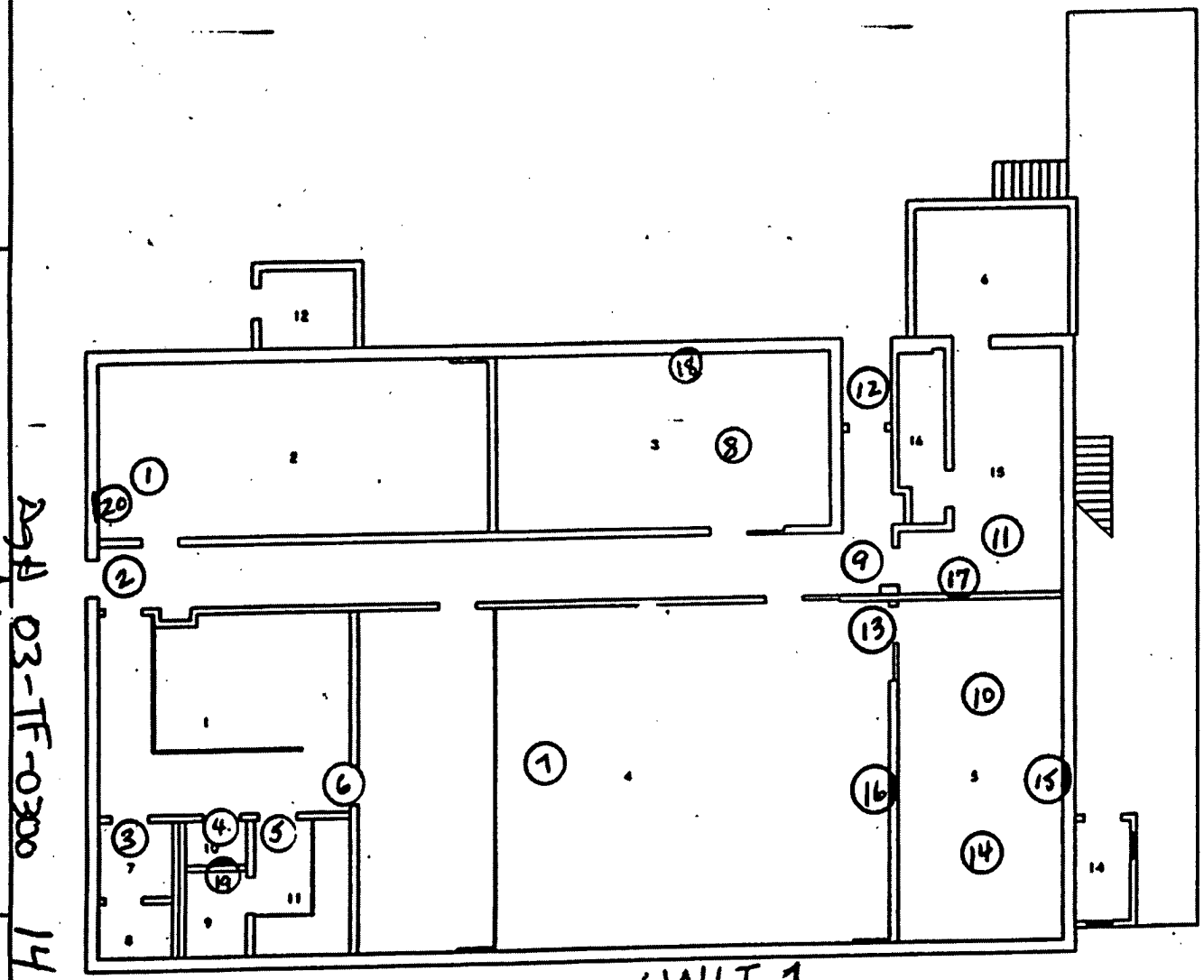
BLDG #38
PENTHOUSE
BLDG CODE:3038

FSC911247	12335
UCNI	
C	14645 / SCALE AS NOTED
	SHEET 2
MO-REL.-12/12/91	

G31 of 78

03-TF-0300 Doc 13 of 15

REV	DATE	REVISION	BY	CHKD	DWG	APVD	B
8	12/12/91	ASBUILT ISSUE	DEW			DVO	



UNIT 1
03-TF-0300

.LU & NON-SENSITIVE
by Mound Declassification
.:oviewer Initials: [illegible]
5/4/98

UNCLASSIFIED

0 3' 6' 18' 28'

BLDG #38
FIRST FLOOR
BLDG CODE:3038

SHEET	1	2	3	4	5	6
SIZE	8	8				

TITLE (U) TITLE CLASSIFICATION
BLDG #34
FLOOR PLANS

UCNI

SIZE C | DRAWING NUMBER FSC911247 | DWG NUMBER 12335

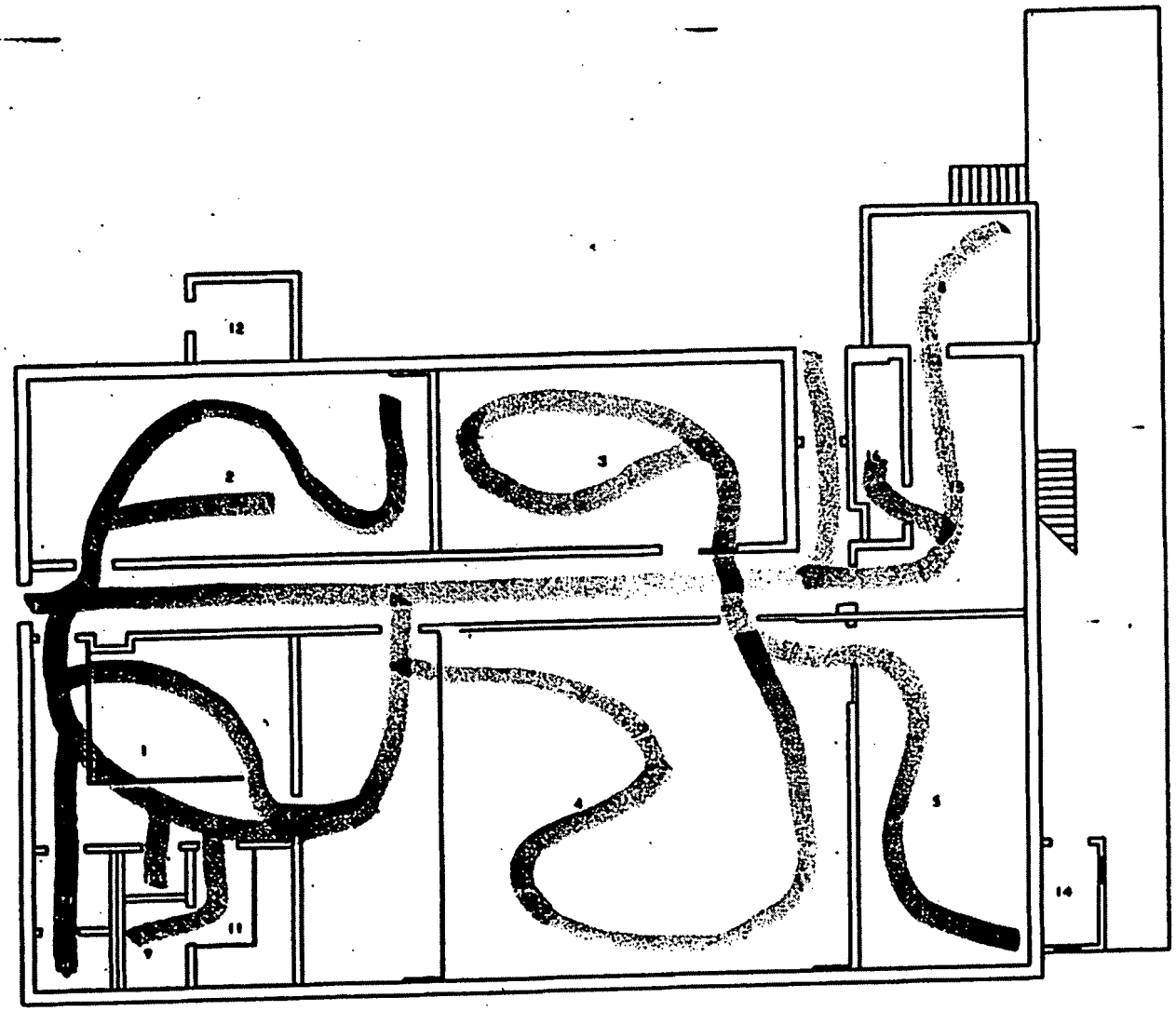
DWG TYPE GFP | FROM BLDG #34 | SCALE AS NOTED | SHEET 1 OF 2

APPROVALS
SAFETY DIRECTOR REVIEWER: DATE:
___ UNC ___ UNUNC ___ UCNI ___ OUNC
TECH. REVIEW
ADM. REVIEW

Doc 03-TF-0300 14 of 15

Page 22 of 78

REV	DATE	REVISION	BY	CHKD	DWG	APVD	APVD	N
0	12/12/91	ASBUILT ISSUE	DEM			DVD		



.LD & NON-SENSITIVE
by Mound Declassification
.:oviewer Initials: [illegible]
5/4/98

UNCLASSIFIED

8 3' 6' 18' 28'

BLDG #38
FIRST FLOOR
BLDG CODE:3038

SHEET	1	2	3	4	5	6	TITLE (U) TITLE CLASSIFICATION: BLDG #34 FLOOR PLANS
SCALE	0	0					
FOUO CLASSIFICATION							
UCNI							C FSC911247 12333
CAD TYPE GFP							FROM BLDG #34 CODE 14843 SCALE AS NOTED SHEET 1 OF 2
STATUS MD-REL.-12/12/91							VERSION MD-BR3-V3.8

G33 of 78

03-TF-0300 DAN 15 of 15

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 36	SURVEY NO. 03-TF-0311
PURPOSE: MARSSIM SURVEY PLAN 3601 QC CHECKS OF UNITS 1, 3, 2 & 5	RWP NO. N/A
	DATE: 11-13-03
	TIME: 1400

MAP/DRAWING

COPY

SEE ATTACHED RESULTS

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
= mrem/hr neutron
= air sample number
= swipe number
#/α or/β = direct cont. measurement in dpm/100cm²

[redacted]

HP #	Date:
5214	11-18-03
[redacted]	
HP #	Date:
HP #	Date:
6178	11-18-03

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
	N/A	

ML-0620 (2-88)

Survey No.
03-TF-0311

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: DIRECT ALPHA / BETA ONLY

NOTES:

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

ML-9620A (4-98)

36-Building CHARACTERIZATION Survey QC's

RSDS# 03-TF-0311 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	SRC BKG	5855	5214	5864	1		11/13/03	13:37	12	300	18
ALPHA	SRC BKG	5855	5214	5864	1		11/13/03	13:40	1952	60	14818
ALPHA	SRC BKG	5855	5214	5864	1		11/13/03	13:41	1902	60	14438
ALPHA	SRC BKG	5855	5214	5864	1		11/13/03	13:43	1954	60	14833
ALPHA	SRC BKG	5855	5214	5864	1		11/13/03	13:45	2006	60	15228
ALPHA	QCU-1 05	5855	5214	5864	1		11/13/03	14:18	9	120	34
ALPHA	QCU-1 13	5855	5214	5864	1		11/13/03	14:22	6	120	23
ALPHA	QCU-1 16	5855	5214	5864	1		11/13/03	14:29	8	120	30
ALPHA	QCU-3 01	5855	5214	5864	1		11/13/03	14:34	11	120	42
ALPHA	QCU-3 03	5855	5214	5864	1		11/13/03	14:39	10	120	38
ALPHA	QCU-3 13	5855	5214	5864	1		11/13/03	14:44	18	120	68
ALPHA	QCU-3 05	5855	5214	5864	1		11/13/03	14:48	13	120	49
ALPHA	QCU-2 08	5855	5214	5864	1		11/13/03	14:56	3	120	11
ALPHA	QCU-2 16	5855	5214	5864	1		11/13/03	15:00	3	120	11
ALPHA	QCU-2 18	5855	5214	5864	1		11/13/03	15:04	6	120	23
ALPHA	QCU-5 08	5855	5214	5864	1		11/13/03	15:07	26	120	99
ALPHA	QCU-5 16	5855	5214	5864	1		11/13/03	15:11	11	120	42
BETA	SRC BKG	5855	5214	5864	2		11/13/03	13:52	483	300	855
BETA	SRC BKG	5855	5214	5864	2		11/13/03	13:56	2038	60	18042
BETA	SRC BKG	5855	5214	5864	2		11/13/03	13:57	2166	60	19175
BETA	SRC BKG	5855	5214	5864	2		11/13/03	14:00	2033	60	17998
BETA	SRC BKG	5855	5214	5864	2		11/13/03	14:03	1902	60	16838
BETA	QCU-1 05	5855	5214	5864	2		11/13/03	14:19	290	60	2567
BETA	QCU-1 13	5855	5214	5864	2		11/13/03	14:23	111	60	983
BETA	QCU-1 16	5855	5214	5864	2		11/13/03	14:30	181	60	1602
BETA	QCU-3 01	5855	5214	5864	2		11/13/03	14:35	205	60	1815
BETA	QCU-3 03	5855	5214	5864	2		11/13/03	14:40	158	60	1399
BETA	QCU-3 13	5855	5214	5864	2		11/13/03	14:46	195	60	1726
BETA	QCU-3 05	5855	5214	5864	2		11/13/03	14:49	106	60	938
BETA	QCU-2 08	5855	5214	5864	2		11/13/03	14:57	22	60	195
BETA	QCU-2 16	5855	5214	5864	2		11/13/03	15:01	50	60	443
BETA	QCU-2 18	5855	5214	5864	2		11/13/03	15:05	145	60	1284
BETA	QCU-5 08	5855	5214	5864	2		11/13/03	15:09	61	60	540
BETA	QCU-5 16	5855	5214	5864	2		11/13/03	15:12	62	60	549

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLDG 36 RMS 5 AND 14	SURVEY NO. 03 TF-0322
PURPOSE: MARSSIM SURVEY PLAN 36-01 FLOOR SCAN ROOM 5 INTEGRATED COUNTS ROOM 14	RWP NO. NA
	DATE: 11/26/03
	TIME: 1230

MAP/DRAWING

SEE ATTACHED MAP

COPY

NOTE! SCANNED 100% OF ALL ACCESSIBLE AREAS IN ROOM 5.

TWO INTEGRATED COUNTS IN ROOM 14 AS INDICATED ON ATTACHED MAP.

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855/5850	6-18-04

[redacted]

HP #	Date:
5760	11-26-03
HP #	Date:
HP #	Date:
6178	11-26-03

ML-8620 (2-88)

Survey No. 03-TF-0322

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

NA

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

NA

COMMENTS: N/A

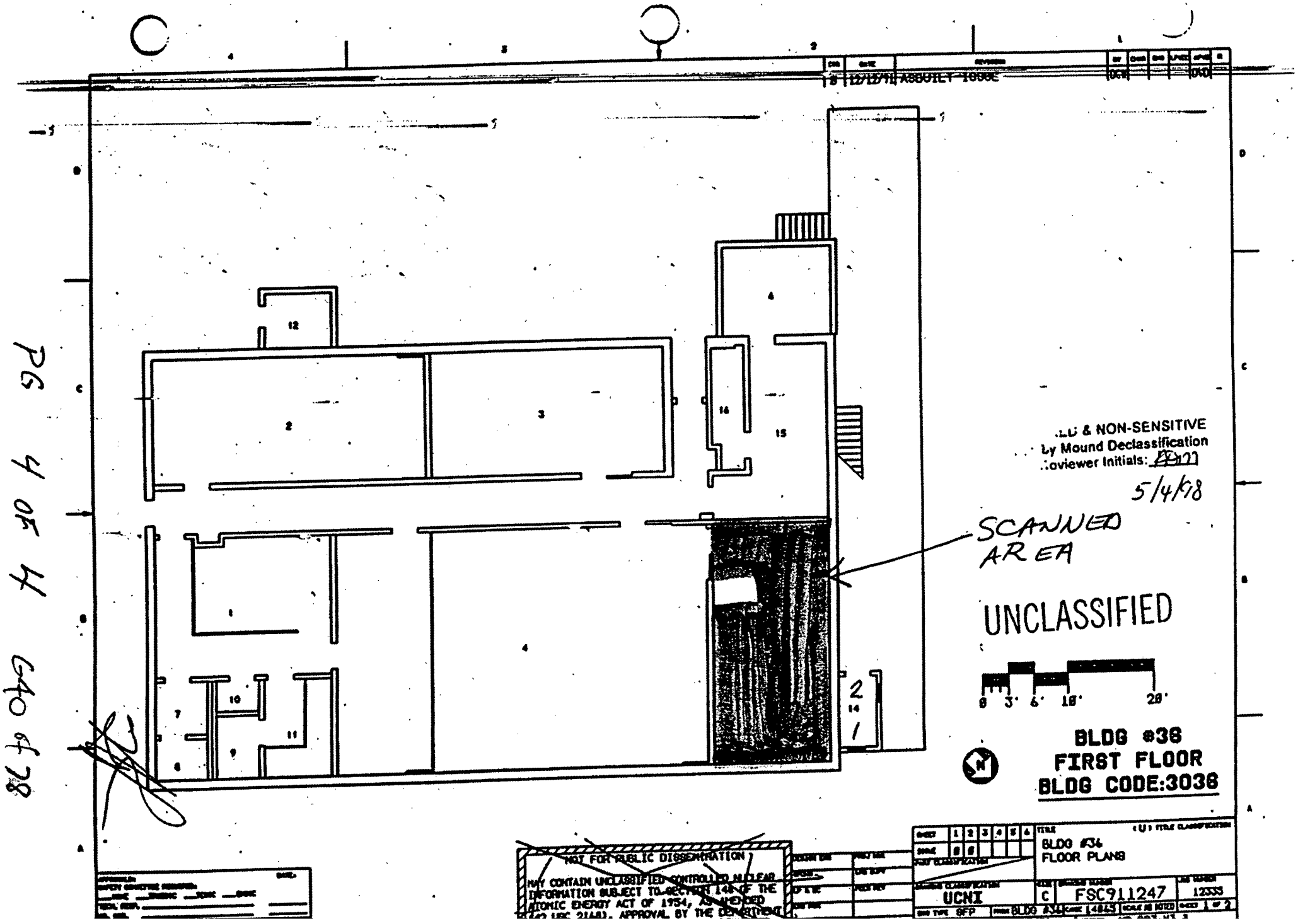
NOTES:
1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

Building 36 Characterization Floor Scans

RSDS# 03-TF-0322 RCT: [illegible] RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.0179	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCAN	SRC BKG	5855	5214	5850	3		11/26/03	6:48	26	300	9
SCAN	SRCCHECK	5855	5214	5850	3	0	11/26/03	6:58	2109	60	3481
SCAN	SRCCHECK	5855	5214	5850	3	0	11/26/03	7:01	2245	60	3705
SCAN	SRCCHECK	5855	5214	5850	3	0	11/26/03	7:03	1941	60	3203
SCAN	SRCCHECK	5855	5214	5850	3	0	11/26/03	7:05	1895	60	3128
SCAN	SRCCHECK	5855	5214	5850	3	0	11/26/03	7:09	2097	60	3461
SCAN	SRCCHECK	5855	5214	5850	3	0	11/26/03	7:10	2200	60	3631
SCAN	RM-14 01	5855	5214	5850	3	1	11/26/03	9:24	12	60	20
SCAN	RM-14 02	5855	5214	5850	3	2	11/26/03	9:28	18	60	30



& NON-SENSITIVE
by Mound Declassification
Reviewer Initials: 5/4/98

PG 4 OF 4

040 of 98

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 36	SURVEY NO. 03-TF-0301
PURPOSE: MARSSIM SURVEY PLAN 36-01 UNITS 3 + 4	RWP NO. N/A
	DATE: 11-10-03
	TIME: 1630

MAP/DRAWING

SEE ATTACHED

COPY

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) = α/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857/5859	9-9-04
2360	5853/5847	3-13-04
	N/A	

[redacted]

HP #	Date:
7474	11-10-03
HP #	Date:
hed	
HP # 6178	Date: 11-12-03

ML-0620 (2-98)

Survey No. 03-TF-0301

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTACHED		UNIT 3
21-40	↓	↓	↓	UNIT 4
		N	A	

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

COMMENTS: N/A

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

ML-0620A (4-98)

36-Building Characterization Survey Unit 3 and 4

RSDS# 03-TF-0301 RCT: KA RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7474	5859	1		11/10/03	8:07	14	300	19
ALPHA	SRC CHECK	5857	7474	5859	1		11/10/03	8:11	2031	60	14035
ALPHA	SRC CHECK	5857	7474	5859	1		11/10/03	8:12	2056	60	14208
ALPHA	SRC CHECK	5857	7474	5859	1		11/10/03	8:14	2126	60	14691
ALPHA	SRC CHECK	5857	7474	5859	1		11/10/03	8:16	2095	60	14477
ALPHA	U-3 01	5857	7474	5859	1	1	11/10/03	9:43	14	120	48
ALPHA	U-3 02	5857	7474	5859	1	2	11/10/03	9:49	12	120	41
ALPHA	U-3 03	5857	7474	5859	1	3	11/10/03	9:57	15	120	52
ALPHA	U-3 04	5857	7474	5859	1	4	11/10/03	10:01	17	120	59
ALPHA	U-3 05	5857	7474	5859	1	5	11/10/03	10:05	11	120	38
ALPHA	U-3 06	5857	7474	5859	1	6	11/10/03	10:09	14	120	48
ALPHA	U-3 07	5857	7474	5859	1	7	11/10/03	10:13	16	120	55
ALPHA	U-3 08	5857	7474	5859	1	8	11/10/03	10:16	15	120	52
ALPHA	U-3 09	5857	7474	5859	1	9	11/10/03	10:22	12	120	41
ALPHA	U-3 10	5857	7474	5859	1	10	11/10/03	10:26	23	120	79
ALPHA	U-3 11	5857	7474	5859	1	11	11/10/03	10:30	14	120	48
ALPHA	U-3 12	5857	7474	5859	1	12	11/10/03	13:23	13	120	45
ALPHA	U-3 13	5857	7474	5859	1	13	11/10/03	13:28	11	120	38
ALPHA	U-3 14	5857	7474	5859	1	14	11/10/03	13:32	19	120	66
ALPHA	U-3 15	5857	7474	5859	1	15	11/10/03	13:36	20	120	69
ALPHA	U-3 16	5857	7474	5859	1	16	11/10/03	13:40	15	120	52
ALPHA	U-3 17	5857	7474	5859	1	17	11/10/03	13:44	23	120	79
ALPHA	U-3 18	5857	7474	5859	1	18	11/10/03	13:48	15	120	52
ALPHA	U-3 19	5857	7474	5859	1	19	11/10/03	13:52	24	120	83
ALPHA	U-3 20	5857	7474	5859	1	20	11/10/03	13:57	16	120	55
ALPHA	U-4 01	5857	7474	5859	1	21	11/10/03	14:03	54	120	187
ALPHA	U-4 02	5857	7474	5859	1	22	11/10/03	14:07	36	120	124
ALPHA	U-4 03	5857	7474	5859	1	23	11/10/03	14:10	26	120	90
ALPHA	U-4 04	5857	7474	5859	1	24	11/10/03	14:14	36	120	124
ALPHA	U-4 05	5857	7474	5859	1	25	11/10/03	14:17	42	120	145
ALPHA	U-4 06	5857	7474	5859	1	26	11/10/03	14:22	45	120	155
ALPHA	U-4 07	5857	7474	5859	1	27	11/10/03	14:25	75	120	259
ALPHA	U-4 08	5857	7474	5859	1	28	11/10/03	14:27	28	120	97
ALPHA	U-4 09	5857	7474	5859	1	29	11/10/03	14:32	32	120	111
ALPHA	U-4 10	5857	7474	5859	1	30	11/10/03	14:35	33	120	114
ALPHA	U-4 11	5857	7474	5859	1	31	11/10/03	14:40	20	120	69
ALPHA	U-4 12	5857	7474	5859	1	32	11/10/03	14:44	26	120	90
ALPHA	U-4 13	5857	7474	5859	1	33	11/10/03	14:48	26	120	90
ALPHA	U-4 14	5857	7474	5859	1	34	11/10/03	14:52	23	120	79

36-Building Characterization Survey Unit 3 and 4

RSDS# 03-TF-0301 RCT: KA RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	U-4 15	5857	7474	5859	1	35	11/10/03	14:56	15	120	52
ALPHA	U-4 16	5857	7474	5859	1	36	11/10/03	15:00	45	120	155
ALPHA	U-4 17	5857	7474	5859	1	37	11/10/03	15:04	8	120	28
ALPHA	U-4 18	5857	7474	5859	1	38	11/10/03	15:08	17	120	59
ALPHA	U-4 19	5857	7474	5859	1	39	11/10/03	15:11	15	120	52
ALPHA	U-4 20	5857	7474	5859	1	40	11/10/03	15:15	10	120	35
BETA	SRC BKG	5857	7474	5859	2		11/10/03	8:21	512	300	872
BETA	SRC CHECK	5857	7474	5859	2		11/10/03	8:23	2147	60	18293
BETA	SRC CHECK	5857	7474	5859	2		11/10/03	8:25	2371	60	20201
BETA	SRC CHECK	5857	7474	5859	2		11/10/03	8:26	2113	60	18003
BETA	SRC CHECK	5857	7474	5859	2		11/10/03	8:28	2143	60	18259
BETA	U-3 01	5857	7474	5859	2	1	11/10/03	9:44	201	60	1713
BETA	U-3 02	5857	7474	5859	2	2	11/10/03	9:50	186	60	1585
BETA	U-3 03	5857	7474	5859	2	3	11/10/03	9:58	213	60	1815
BETA	U-3 04	5857	7474	5859	2	4	11/10/03	10:02	206	60	1755
BETA	U-3 05	5857	7474	5859	2	5	11/10/03	10:06	197	60	1678
BETA	U-3 06	5857	7474	5859	2	6	11/10/03	10:10	199	60	1696
BETA	U-3 07	5857	7474	5859	2	7	11/10/03	10:14	192	60	1636
BETA	U-3 08	5857	7474	5859	2	8	11/10/03	10:17	175	60	1491
BETA	U-3 09	5857	7474	5859	2	9	11/10/03	10:23	149	60	1270
BETA	U-3 10	5857	7474	5859	2	10	11/10/03	10:27	164	60	1397
BETA	U-3 11	5857	7474	5859	2	11	11/10/03	10:31	151	60	1287
BETA	U-3 12	5857	7474	5859	2	12	11/10/03	13:24	239	60	2036
BETA	U-3 13	5857	7474	5859	2	13	11/10/03	13:29	171	60	1457
BETA	U-3 14	5857	7474	5859	2	14	11/10/03	13:33	175	60	1491
BETA	U-3 15	5857	7474	5859	2	15	11/10/03	13:37	177	60	1508
BETA	U-3 16	5857	7474	5859	2	16	11/10/03	13:41	273	60	2326
BETA	U-3 17	5857	7474	5859	2	17	11/10/03	13:45	281	60	2394
BETA	U-3 18	5857	7474	5859	2	18	11/10/03	13:50	262	60	2232
BETA	U-3 19	5857	7474	5859	2	19	11/10/03	13:54	196	60	1670
BETA	U-3 20	5857	7474	5859	2	20	11/10/03	13:58	279	60	2377
BETA	U-4 01	5857	7474	5859	2	21	11/10/03	14:04	202	60	1721
BETA	U-4 02	5857	7474	5859	2	22	11/10/03	14:08	205	60	1747
BETA	U-4 03	5857	7474	5859	2	23	11/10/03	14:11	212	60	1806
BETA	U-4 04	5857	7474	5859	2	24	11/10/03	14:15	228	60	1943
BETA	U-4 05	5857	7474	5859	2	25	11/10/03	14:18	165	60	1406
BETA	U-4 06	5857	7474	5859	2	26	11/10/03	14:23	212	60	1806
BETA	U-4 07	5857	7474	5859	2	27	11/10/03	14:27	235	60	2002
BETA	U-4 08	5857	7474	5859	2	28	11/10/03	14:33	164	60	1397

36-Building Characterization Survey Unit 3 and 4

RSDS# 03-TF-0301 RCT: KA RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	U-4 09	5857	7474	5859	2	29	11/10/03	14:35	175	60	1491	
BETA	U-4 10	5857	7474	5859	2	30	11/10/03	14:37	207	60	1764	
BETA	U-4 11	5857	7474	5859	2	31	11/10/03	14:41	184	60	1568	
BETA	U-4 12	5857	7474	5859	2	32	11/10/03	14:45	174	60	1483	
BETA	U-4 13	5857	7474	5859	2	33	11/10/03	14:49	170	60	1448	
BETA	U-4 14	5857	7474	5859	2	34	11/10/03	14:53	160	60	1363	
BETA	U-4 15	5857	7474	5859	2	35	11/10/03	14:57	162	60	1380	
BETA	U-4 16	5857	7474	5859	2	36	11/10/03	15:01	168	60	1431	
BETA	U-4 17	5857	7474	5859	2	37	11/10/03	15:05	173	60	1474	
BETA	U-4 18	5857	7474	5859	2	38	11/10/03	15:09	150	60	1278	
BETA	U-4 19	5857	7474	5859	2	39	11/10/03	15:13	207	60	1764	
BETA	U-4 20	5857	7474	5859	2	40	11/10/03	15:16	175	60	1491	

Alpha/Beta Analysis

Batch ID: REYNOLDS 03-TF-0301 [40] JC

Batch File: Smear Unit 1 - 200311110709
Group: E
Device: Unit 1
Selected: Swipe/Smear
Serial Number: 31575-1

Acquisition Date: 11/11/0
Count Time (min): 1.5
Recalibration Date: 4/30/2004

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
1	64	0.00	0.82	0.00	3.19
2	107	1.44	4.16	1.72	5.56
3	144	0.00	0.82	0.58	4.89
4	73	1.44	4.16	3.04	6.15
5	74	0.00	0.82	0.58	4.89
6	52	5.52	7.10	0.08	4.93
7	126	1.44	4.16	1.72	5.56
8	4	3.48	5.82	1.56	5.57
9	118	1.43	4.16	6.97	7.65
10	15	0.00	0.82	1.89	5.55
11	114	0.00	0.82	0.58	4.89
12	134	0.00	0.82	0.00	4.13
13	54	1.44	4.16	0.00	3.21
14	121	1.43	4.16	8.28	8.09
15	32	0.00	0.82	3.20	6.14
16	28	0.00	0.82	0.58	4.89
17	26	1.43	4.16	4.35	6.69
18	61	1.44	4.16	1.72	5.56
19	64	1.44	4.16	0.41	4.90
20	123	0.00	0.82	1.89	5.55
21	115	0.00	0.82	1.89	5.55
22	50	0.00	0.82	0.00	3.19
23	33	0.00	0.82	0.00	3.19
24	75	0.00	0.82	1.89	5.55
25	144	3.48	5.82	0.00	4.16
26	39	0.00	0.82	0.00	3.19
27	19	0.00	0.82	0.00	3.19

Alpha/Beta Analysis

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
28	32	0.00	0.82	0.00	3.19
29	71	0.00	0.82	0.00	3.19
30	43	0.00	0.82	0.00	4.13
31	17	0.00	0.82	0.00	4.13
32	10	0.00	0.82	0.00	3.19
33	87	0.00	0.82	0.00	3.19
34	127	0.00	0.82	5.83	7.18
35	65	3.48	5.82	0.00	1.87
36	149	1.44	4.16	1.72	5.56
37	125	3.48	5.82	1.56	5.57
38	72	1.44	4.16	3.04	6.15
39	125	0.00	0.82	1.89	5.55
40	131	1.44	4.16	0.00	4.14
		KA		KA	

G47 of 78

7889

REYNOLDS 03-TF-0301 [40] JC

Protocol #: 1 Name:PW H3 #401388 11-Nov-2003 11:17
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
~~Region C: LL-UL~~=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
REYNOLDS 03-TF-0301 1-40 JC
~~Conventional~~ DPM
Nuclide 1 = 207149
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	3.18	4.35	4.50	B	62	658.		35.49
0	2.00	627.07	612.54	5.50		1	488.	1441.82	5.72
1	2.00	0.00	0.00	2.56		100	561.	0.00	0.00
2	2.00	0.00	0.00	1.00		100	592.	0.00	0.00
3	2.00	0.00	0.00	0.00		72	537.	0.00	0.00
4	2.00	0.00	0.00	0.50		65	532.	0.00	0.00
5	2.00	1.05	0.00	7.50		44	546.	2.26	450.9
6	2.00	0.00	0.00	0.00		43	578.	0.00	0.00
7	2.00	5.39	3.42	0.50		16	596.	10.99	92.29
8	2.00	0.00	0.00	5.50		63	512.	0.00	0.00
9	2.00	1.76	0.52	1.50		18	576.	3.66	222.9
10	2.00	0.20	0.00	1.00		40	539.	0.42	2078.
11	2.00	1.76	0.29	0.50		18	544.	3.79	223.0
12	2.00	0.00	0.00	0.50		69	611.	0.00	0.00
13	2.00	3.81	1.31	2.00		14	589.	7.82	115.9
14	2.00	2.07	2.36	5.08		46	576.	4.31	259.0
15	2.00	0.00	0.00	3.00		49	502.	0.00	0.00
16	2.00	4.49	2.78	0.50		30	547.	9.63	120.7
17	2.00	0.00	0.00	0.50		36	518.	0.00	0.00
18	2.00	2.67	1.06	8.00		32	598.	5.42	182.1
19	2.00	0.62	0.00	6.00		47	454.	1.51	744.9
20	2.00	1.10	0.98	2.50		48	493.	2.51	454.0
21	2.00	0.00	0.00	0.00		100	578.	0.00	0.00
22	2.00	0.00	0.00	1.50		82	563.	0.00	0.00
23	2.00	0.70	0.00	2.00		36	591.	1.43	599.4
24	2.00	4.13	2.67	0.50		31	572.	8.63	129.5
25	2.00	3.27	2.85	0.00		40	571.	6.83	170.9
26	2.00	0.13	0.00	1.00		50	576.	0.28	3380.
27	2.00	3.17	1.57	0.00		30	592.	6.48	156.6
28	2.00	0.00	0.00	0.50		70	540.	0.00	0.00
29	2.00	0.00	0.00	0.00		100	578.	0.00	0.00
30	2.00	0.00	0.00	2.00		72	579.	0.00	0.00
31	2.00	0.00	0.00	4.00		89	549.	0.00	0.00
32	2.00	2.07	0.11	3.00		46	559.	4.38	259.2
33	2.00	1.70	1.44	0.50		31	534.	3.69	260.7
34	2.00	1.10	0.68	0.50		48	535.	2.39	452.3
35	2.00	2.20	1.10	0.00		29	553.	4.68	206.3
36	2.00	4.19	3.36	1.50		27	487.	9.67	123.1
37	2.00	0.00	0.00	0.00		82	524.	0.00	0.00
38	2.00	4.67	2.07	2.50		26	561.	9.86	112.6
39	2.00	3.95	3.36	3.50		13	564.	8.31	112.7
40	2.00	3.73	0.32	5.00		19	563.	7.86	124.2

KA

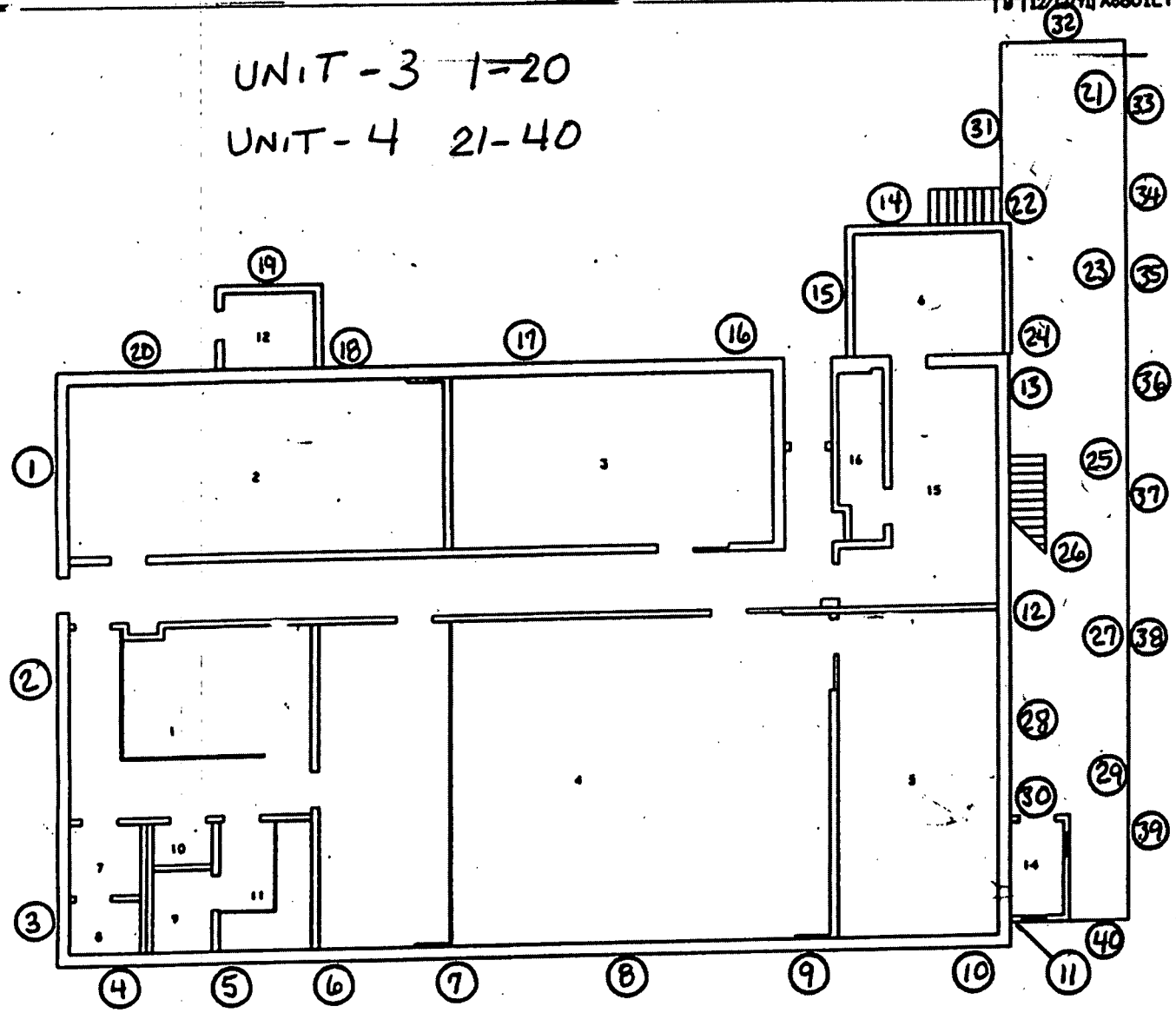
J. Cordero

UNIT-3 1-20

UNIT-4 21-40

03-TF-0301

KA



.LU & NON-SENSITIVE
by Mound Declassification
Reviewer Initials: [illegible]
5/4/98

UNCLASSIFIED

8 3' 6' 18' 28'

BLDG #36
FIRST FLOOR
BLDG CODE:3036

TITLE	BLDG #36 FLOOR PLANS
UCNI	C FSC911247
SFP	BLDG #36
NO-REL-12/12/91	NO-REL-V0.3

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 36	SURVEY NO. 03-TF-0302
PURPOSE: MARSSIM SURVEY 36-01 FLOOR DRAINS AND VENTILATION	RWP NO. N/A
	DATE: 11/11/03
	TIME: 1630

MAP/DRAWING

COPY

SEE ATTACHED MAP AND RESULTS

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or/β = direct cont. measurement in dpm/100cm²

[redacted]

RP # 6760	Date: 11-17-03
RP #	Date:
RP # 6178	Date: 11-17-03

INSTRUMENTS USED

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

ML-9620 (2-98)

Survey No. 03-TF-0302

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-10	SEE	ATTACHED		DRAINS
11-19	SEE	ATTACHED		VENTS
			N/A	

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

COMMENTS:

NOTES:

1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR006
Batch Ended: 11/12/2003 10:29
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0302 REYNOLDS A/B (19) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	0.0	1.9		0.0	1.2	
A2	2	0.0	1.9		3.3	2.7	
A3	3	1.6	1.9		0.0	1.7	
A4	4	1.7	1.9		0.7	1.6	
B1	5	0.0	2.0		0.0	1.3	
B2	6	1.9	2.2		4.2	2.9	
B3	7	0.0	2.0		0.0	2.2	
B4	8	0.0	2.0		1.4	2.2	
C1	9	0.0	2.0		2.8	2.4	
C2	10	0.0	2.0		4.1	2.6	
C3	11	0.0	1.9		1.7	2.1	
C4	12	0.0	1.8		0.5	1.6	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		1.1	1.7	
D4	16	0.0	2.0		5.6	2.9	
A1	17	0.0	2.0		4.5	2.7	
A2	18	0.0	1.9		0.9	2.1	
A3	19	0.0	1.9		0.0	1.7	

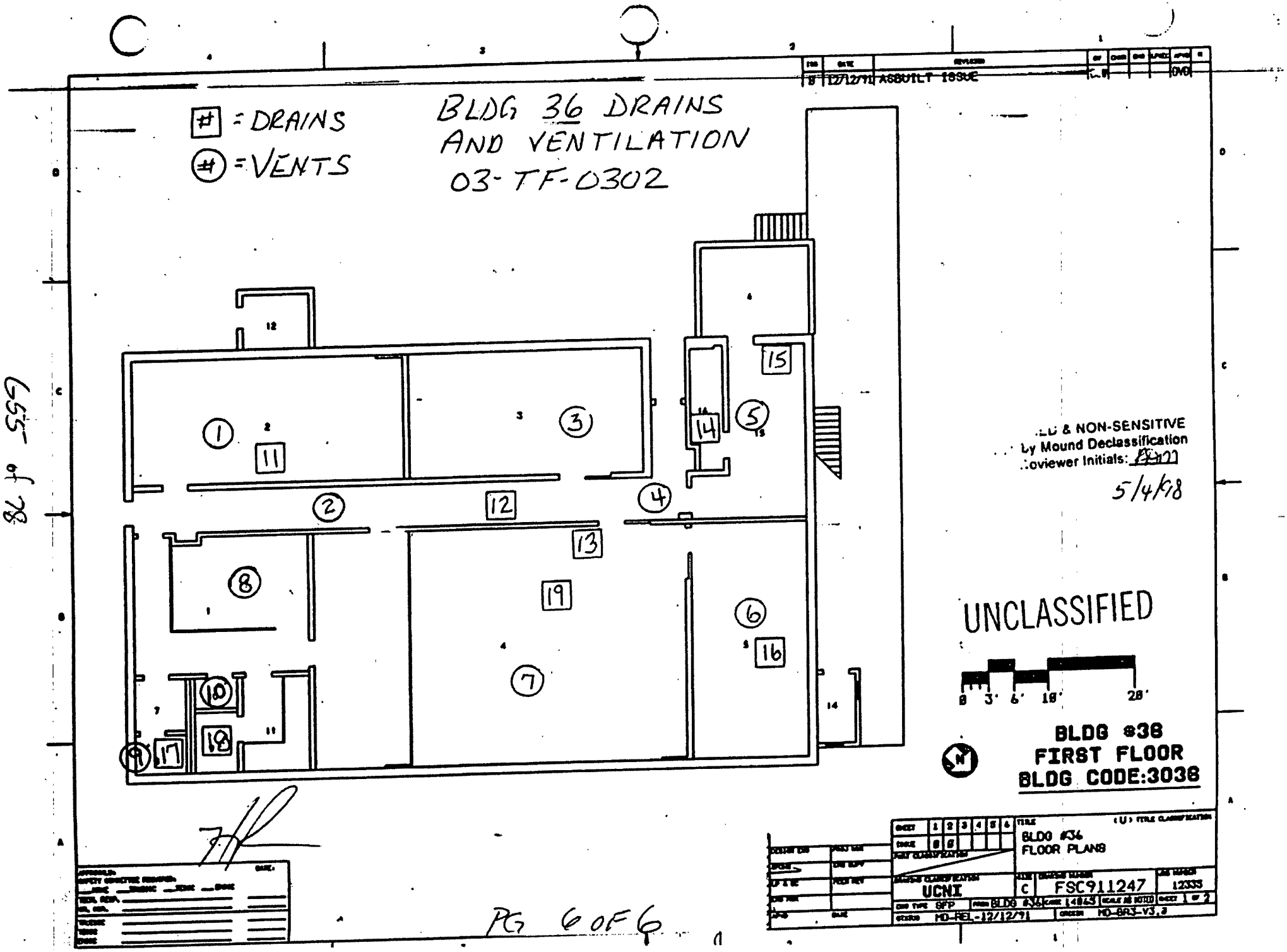
Protocol #: 2 Name:pW h3 101068 12-Nov-2003 12:21
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
03-SW-TF-0302 REYNOLDS (19) AG
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	8	B	7.60	6.80	6.70	553.		0.00
0	2.00	1		641.40	608.20	0.00	474.	1336.85	127.07
1	2.00	24		0.00	0.00	0.00	615.	0.00	0.00
2	2.00	13		0.00	0.00	1.30	459.	0.00	0.00
3	2.00	0		0.40	0.00	0.00	548.	0.77	8.39
4	2.00	0		1.40	1.70	0.00	372.	3.39	11.10
5	2.00	0		0.00	0.00	0.00	597.	0.00	0.00
6	2.00	34		0.00	0.00	5.30	377.	0.00	0.00
7	2.00	17		0.00	0.00	0.00	575.	0.00	0.00
8	2.00	0		0.00	0.00	0.00	553.	0.00	0.00
9	2.00	69		0.00	0.00	0.00	572.	0.00	0.00
10	2.00	0		0.00	0.00	0.30	570.	0.00	0.00
11	2.00	12		0.00	0.00	0.00	409.	0.00	0.00
12	2.00	0		0.00	0.00	0.00	549.	0.00	0.00
13	2.00	12		0.00	0.00	0.00	506.	0.00	0.00
14	2.00	0		0.00	0.00	0.00	543.	0.00	0.00
15	2.00	17		0.00	0.00	0.00	543.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	512.	0.00	0.00
17	2.00	12		0.00	0.00	0.00	463.	0.00	0.00
18	2.00	22		0.00	0.00	0.80	549.	0.00	0.00
19	2.00	11		0.00	0.00	0.00	500.	0.00	0.00

36-BLDG CHARACTERIZATION ALPHA and BETA SURVEY Drains and Ventilation

RSDS# 03-TF-0302 RCT: HK RCT: N/A

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	5760	5847	1	11/11/03	180	60	315	0	60	-8
2	5833	5760	5847	2	11/11/03	176	60	295	7	60	48
3	5833	5760	5847	3	11/11/03	170	60	265	3	60	16
4	5833	5760	5847	4	11/11/03	187	60	350	7	60	48
5	5833	5760	5847	5	11/11/03	163	60	230	2	60	8
6	5833	5760	5847	6	11/11/03	145	60	140	2	60	8
7	5833	5760	5847	7	11/11/03	139	60	110	2	60	8
8	5833	5760	5847	8	11/11/03	160	60	215	3	60	16
9	5833	5760	5847	9	11/11/03	234	60	585	8	60	56
10	5833	5760	5847	10	11/11/03	213	60	480	8	60	56
11	5833	5760	5847	11	11/11/03	121	60	20	0	60	-8
12	5833	5760	5847	12	11/11/03	173	60	280	2	60	8
13	5833	5760	5847	13	11/11/03	165	60	240	0	60	-8
14	5833	5760	5847	14	11/11/03	129	60	60	2	60	8
15	5833	5760	5847	15	11/11/03	150	60	165	1	60	0
16	5833	5760	5847	16	11/11/03	155	60	190	0	60	-8
17	5833	5760	5847	17	11/11/03	161	60	220	0	60	-8
18	5833	5760	5847	18	11/11/03	177	60	300	2	60	8
19	5833	5760	5847	19	11/11/03	102	60	-75	1	60	0
BETA BACKGROUND FOR 11-11-2003 WAS---------->								117			
ALPHA BACKGROUND FOR 11-11-2003 WAS---------->								1			


BLDG 36 DRAINS
AND VENTILATION
03-TF-0302
= DRAINS
= VENTS
UNCLASSIFIED
BLDG #36
FIRST FLOOR
BLDG CODE:3036
BLDG #36
FLOOR PLANS
UCNI
FSC911247
MD-REL-12/12/91
PG 6 OF 6
5/4/98

RADIOLOGICAL SURVEY DATA SHEET

1068

LOCATION: (BLDG./AREA/ROOM) BUILDING 36	SURVEY NO. 03-TF-0306
PURPOSE: ACID ETCH DOCK LOCATIONS 1,6 & 7	RWP NO. N/A
	DATE: 11-17-03
	TIME: 1600

MAP/DRAWING

SEE ATTACHED DRAWING AND RESULTS

COPY

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
= mrem/hr neutron
= air sample number
= swipe number
#/α = α/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

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

[redacted]

HP #	Date:
5760	11-25-03
[redacted]	
HP #	Date:
CHED	
HP #	Date:
6178	11-25-03
[redacted]	

ML-8620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE ATTACHED RESULTS			36-01 PRE
2				36-06 PRE
3				36-07 PRE
4				36-01 POST
5				36-06 POST
6				36-07 POST
N/A				

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

COMMENTS: LOCATIONS PER RSDS 03-TF-0301 #21=#01 #26=#06 #27=#07

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

ML-9620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR019
Batch Ended: 11/18/03 7:51

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: ABERCROMBIE 03-TF-0306 (6) CYR

Detector ID	Sample ID	Alpha Activity DPM	σ	flags	Beta Activity DPM	σ	flags
A3	1	0.48	1.96		0.00	1.70	
A4	2	0.00	1.97		0.00	1.18	
B1	3	0.00	1.97		0.00	1.17	
B2	4	0.00	2.00		0.00	1.17	
B3	5	0.00	1.84		0.86	2.08	
B4	6	0.00	1.91		2.54	2.54	

18 Nov 2003 09:31 ALPHA/BETA - 1.09
Protocol #: 1 PW H3 #410462 User : 2138

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	6.89
Region B:	2.0 -	18.6	0	0.0	6.86
Region C:	40.0 -	2000	0	0.0	8.90

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0306 K. ABERCROMBIE (6) AG
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
Spectrum Data Drive & Path: C:\DATA

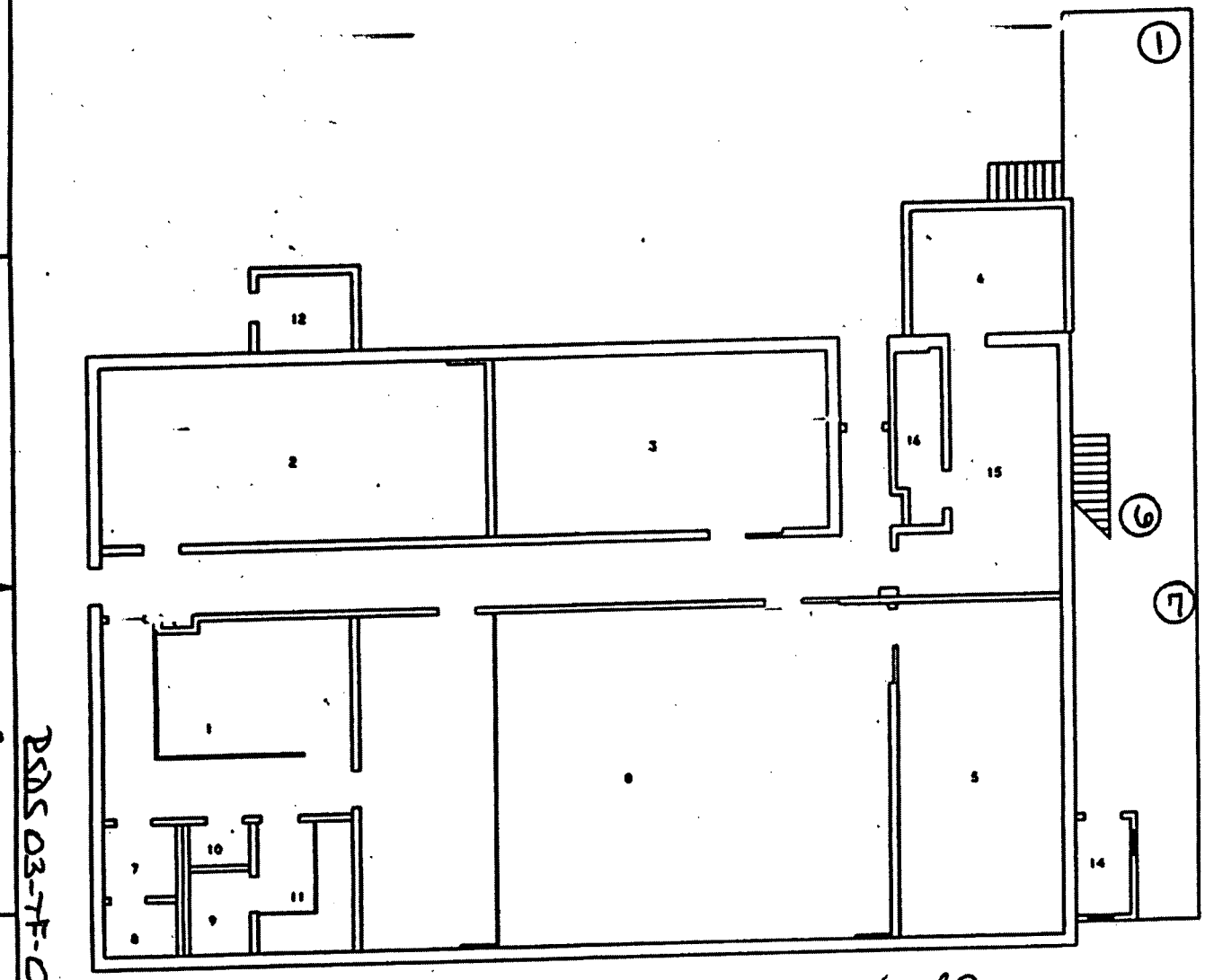
S#	SMPL_ID	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1		10.00	6.89	7	B	656.43		0.00	8.90
0		2.00	366.05	0		474.53	793.72	73.32	4.60
1		2.00	4.61	0		624.33	8.67	9.58	0.00
2		2.00	3.11	0		597.92	5.98	9.21	4.60
3		2.00	0.00	0		614.54	0.00	0.00	0.00
4		2.00	0.00	0		613.74	0.00	0.00	0.00
5		2.00	0.61	7		601.93	1.17	8.11	2.10
6		2.00	0.00	9		630.90	0.00	0.00	1.10

36-BLDG CHARACTERIZATION ALPHA/BETA SURVEY ACID ETCH

RSDS#03-TF-0306 RCT: HR RCT:_____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
36-01 pre	5833	5760	5847	7	11/17/03	202	60	485	18	60	170
36-06 pre	5833	5760	5847	8	11/17/03	168	60	315	11	60	100
36-07 pre	5833	5760	5847	9	11/17/03	310	60	1025	35	60	340
36-01 aft	5833	5760	5847	10	11/17/03	209	60	520	11	60	100
36-06 aft	5833	5760	5847	11	11/17/03	165	60	300	10	60	90
36-07 aft	5833	5760	5847	12	11/17/03	274	60	845	2	60	10
BETA BACKGROUND FOR 11-17-2003 WAS---------->								105			
ALPHA BACKGROUND FOR 11-17-2003 WAS---------->								1			

HR



.LU & NON-SENSITIVE
by Mound Declassification
Reviewer Initials: [illegible]
5/4/98

UNCLASSIFIED

0 3' 6' 18' 28'

BLDG #38
FIRST FLOOR
BLDG CODE:3038

6 of 8

PSDS 03-TF-0306

61 of 78

SHEET	1	2	3	4	5	6
SHEET	0	0				

TITLE (U) TITLE CLASSIFICATION
BLDG #34
FLOOR PLANS

UCNI

C | FSC911247 | 123335

GRID TYPE GFP | BLDG #34 | 14845 | SHEET 1 OF 2

STATUS MD-REL.-12/12/91 | MD-BR3-V3.3

0	12/12/91	ASBUILT ISSUE

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
11-18-03	Acid Etch	HUP	3

PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:	MAIL STOP:
BoSS	DAN HARVEY 3320	

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
EA554A	11-17-03		

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0310419	Bldg. 36	21	
0310420	↓	26	
0310421	↓	27	

COMMENTS:

03-TF-0306 7 of 8

ANALYZED BY: J.C. Hogle

DATE: 11-25-03

ML-5222 (1-01)

Laboratory ID#: 0310419- 0310421
Project/function: Building 36
Submitted: Nov 18, 2003
Submitted by: L. Hopkins
Point of Contact: D. Harvey x3320
RSDS#: N/A
Date: Nov 25, 2003

Lab ID 0310419
Sample Location Bldg. 36 #21

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	146.34	12.33	0.31

Lab ID 0310420
Sample Location Bldg. 36 #26

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	68.66	6.81	1.20

Lab ID 0310421
Sample Location Bldg. 36 #27

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	43.80	4.68	0.45

[redacted]

1585 11-25-03
HP # Date

7783 11/25/03
HP # Date

8 of 8
03-TF-0306

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 36	SURVEY NO. 03-TF-0308
PURPOSE: BUILDING 36 MARSSIM SURVEY PLAN 36-01 UNIT 5 (RESURVEY DIRECT)	RWP NO. N/A
	DATE: 11-17-03
	TIME:

MAP/DRAWING

COPY

SEE ATTACHED DRAWING AND RESULTS

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact

△# = mrem/hr neutron

(#) = swipe number

or/β = direct cont.
asurement in dpm/100cm²

[redacted]

HP #	Date:
5214	11-18-03
[redacted]	
HP #	Date:
HP #	Date:
6178	11-18-03
[redacted]	

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
	N/A	

ML-9620 (2-98)

Survey No. 03-TF-0308

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: DIRECT ALPHA AND BETA ONLY

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

ML-9620A (4-98)

36-Building Characterization Re-Survey Unit 5

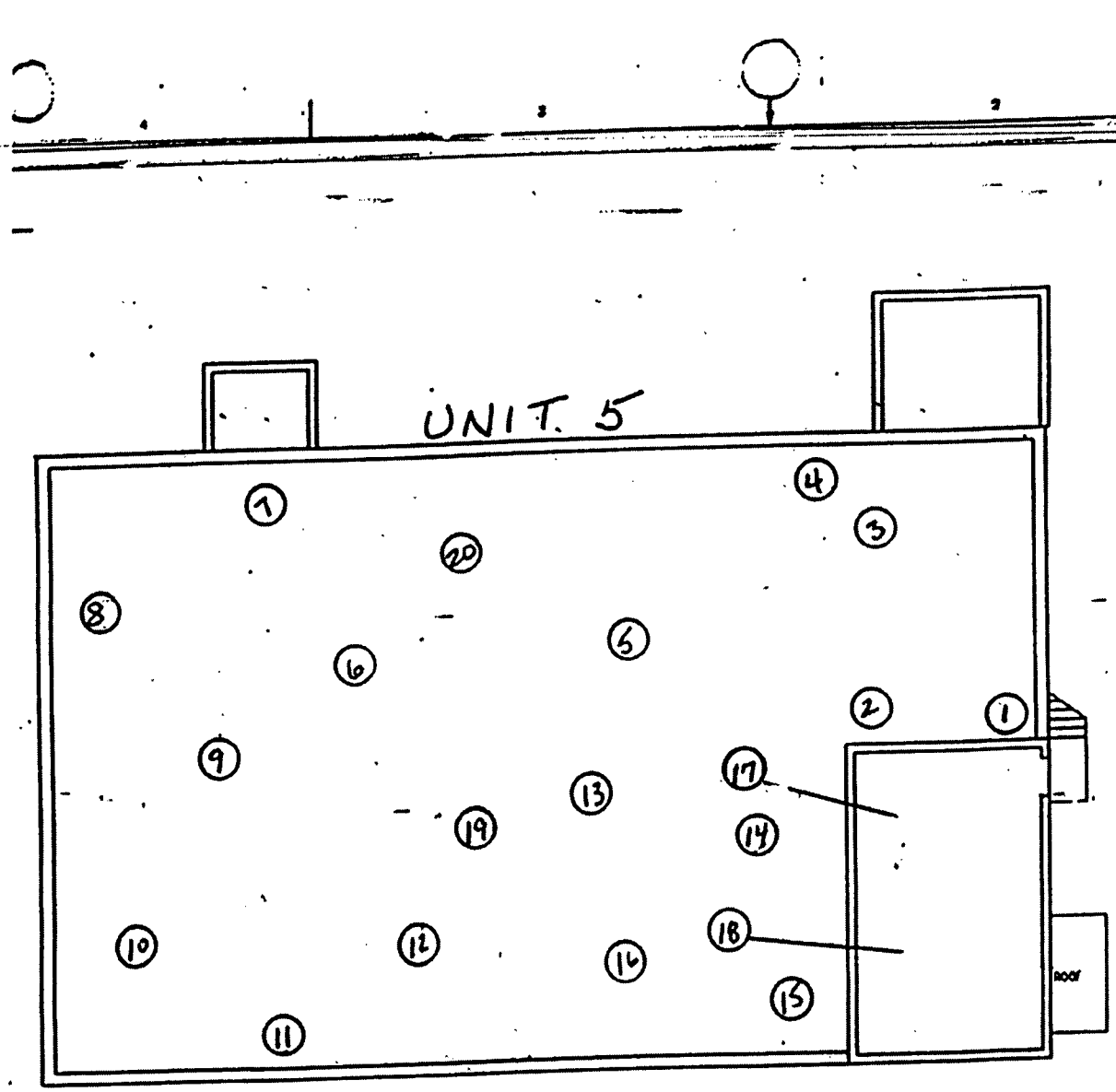
RSDS# 03-TF-0308 RCT: DR RCT: MA

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	SRC BKG	5855	5214	5864	1		11/17/03	8:43	23	300	35
ALPHA	SRCCHECK	5855	5214	5864	1		11/17/03	8:47	1859	60	14112
ALPHA	SRCCHECK	5855	5214	5864	1		11/17/03	8:49	1954	60	14833
ALPHA	SRCCHECK	5855	5214	5864	1		11/17/03	8:51	1976	60	15000
ALPHA	SRCCHECK	5855	5214	5864	1		11/17/03	8:52	1957	60	14856
ALPHA	U-5 01	5855	5214	5864	1		11/17/03	13:16	14	120	53
ALPHA	U-5 02	5855	5214	5864	1		11/17/03	13:20	16	120	61
ALPHA	U-5 03	5855	5214	5864	1		11/17/03	13:23	12	120	46
ALPHA	U-5 04	5855	5214	5864	1		11/17/03	13:27	19	120	72
ALPHA	U-5 05	5855	5214	5864	1		11/17/03	13:31	22	120	84
ALPHA	U-5 06	5855	5214	5864	1		11/17/03	13:35	24	120	91
ALPHA	U-5 07	5855	5214	5864	1		11/17/03	13:38	21	120	80
ALPHA	U-5 08	5855	5214	5864	1		11/17/03	13:43	16	120	61
ALPHA	U-5 09	5855	5214	5864	1		11/17/03	13:48	24	120	91
ALPHA	U-5 10	5855	5214	5864	1		11/17/03	13:53	19	120	72
ALPHA	U-5 11	5855	5214	5864	1		11/17/03	13:58	25	120	95
ALPHA	U-5 12	5855	5214	5864	1		11/17/03	14:02	10	120	38
ALPHA	U-5 13	5855	5214	5864	1		11/17/03	14:08	15	120	57
ALPHA	U-5 14	5855	5214	5864	1		11/17/03	14:11	11	120	42
ALPHA	U-5 15	5855	5214	5864	1		11/17/03	14:14	21	120	80
ALPHA	U-5 16	5855	5214	5864	1		11/17/03	14:18	24	120	91
ALPHA	U-5 17	5855	5214	5864	1		11/17/03	14:21	12	120	46
ALPHA	U-5 18	5855	5214	5864	1		11/17/03	14:26	21	120	80
ALPHA	U-5 19	5855	5214	5864	1		11/17/03	14:30	23	120	87
ALPHA	U-5 20	5855	5214	5864	1		11/17/03	14:33	21	120	80
BETA	SRC BKG	5855	5214	5864	2		11/17/03	10:37	721	300	1277
BETA	SRCCHECK	5855	5214	5864	2		11/17/03	10:21	2122	60	18786
BETA	SRCCHECK	5855	5214	5864	2		11/17/03	10:23	2071	60	18334
BETA	SRCCHECK	5855	5214	5864	2		11/17/03	10:26	2259	60	19998
BETA	SRCCHECK	5855	5214	5864	2		11/17/03	10:31	2420	60	21424
BETA	U-5 01	5855	5214	5864	2		11/17/03	13:17	182	60	1611
BETA	U-5 02	5855	5214	5864	2		11/17/03	13:21	188	60	1664
BETA	U-5 03	5855	5214	5864	2		11/17/03	13:24	171	60	1514
BETA	U-5 04	5855	5214	5864	2		11/17/03	13:28	192	60	1700
BETA	U-5 05	5855	5214	5864	2		11/17/03	13:32	207	60	1833
BETA	U-5 06	5855	5214	5864	2		11/17/03	13:36	210	60	1859
BETA	U-5 07	5855	5214	5864	2		11/17/03	13:39	178	60	1576
BETA	U-5 08	5855	5214	5864	2		11/17/03	13:44	212	60	1877

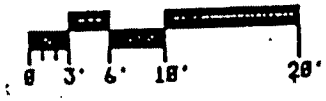
36-Building Characterization Re-Survey Unit 5

RSDS# 03-TF-0308 RCT: SLR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-5 09	5855	5214	5864	2		11/17/03	13:49	186	60	1647
BETA	U-5 10	5855	5214	5864	2		11/17/03	13:54	187	60	1655
BETA	U-5 11	5855	5214	5864	2		11/17/03	13:59	202	60	1788
BETA	U-5 12	5855	5214	5864	2		11/17/03	14:03	194	60	1717
BETA	U-5 13	5855	5214	5864	2		11/17/03	14:09	153	60	1354
BETA	U-5 14	5855	5214	5864	2		11/17/03	14:12	177	60	1567
BETA	U-5 15	5855	5214	5864	2		11/17/03	14:16	198	60	1753
BETA	U-5 16	5855	5214	5864	2		11/17/03	14:19	194	60	1717
BETA	U-5 17	5855	5214	5864	2		11/17/03	14:22	175	60	1549
BETA	U-5 18	5855	5214	5864	2		11/17/03	14:27	197	60	1744
BETA	U-5 19	5855	5214	5864	2		11/17/03	14:31	178	60	1576
BETA	U-5 20	5855	5214	5864	2		11/17/03	14:34	197	60	1744



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



UNCLASSIFIED

BLDG 036
PENTHOUSE
BLDG CODE:3036

FSC911247	12335
UCNI	
C	14845 SCALE AS NOTED

2585 03-TF-0308

668 of 78

R585

Final Status Report for Building 36, Addendum 1

The Final Status Report (FSR) documents the methodology and data that support the conclusion that the building meets radiological surface release criteria established by DOE Order 5400.5, and thereby the demolition debris meets waste acceptance criteria for disposal.

All survey units in the Building 36 FSR met the surface release criteria.

The Survey Plan for Building 36 designated five separate survey units. Survey Unit 4 was the dock. The Final Status Report does not include Survey Unit 4, the dock, because the dock did not meet the surface release criteria.

Accordingly, the dock was demolished separately from the building structure and the resulting demolition debris was disposed of as low level waste. After its removal, surveys were performed on the newly exposed portion of the building exterior and samples were obtained of the dock fill material. All direct measurements were <100dpm/100cm2 alpha and <5,000dpm/100cm2 beta. Loose surface activity was <20dpm/100cm2 alpha and <1,000dpm/100cm2 beta. FIDLER survey of dock backfill area found no measurements above background. Soil samples from under the dock fill material were all less than soil screening levels (RSDS# 03-TF-0352). Because the dock debris was not considered for free release, that Survey Unit is not included in the Final Status Report.

Confirmation that the activities within Building 36 or the Building 36 dock did not impact the soil in the building footprint and 15-foot perimeter around the building will be accomplished via the Contingent Action Memorandum. Any contamination above acceptable levels will be managed per the Contingent Action Memorandum.

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 36	SURVEY NO. 03-TF-0352
PURPOSE: SURVEY WEST END OF BUILDING 36 AFTER REMOVAL OF DOCK.	RWP NO. N/A
	DATE: 12-18-03
	TIME: 1450

MAP/DRAWING

SEE ATTACHED RESULTS AND DRAWING.

COPY

SCANNED WEST WALL LOWER 2 FEET

INTEGRATED COUNT TAKEN IF AUDIBLE DETECTED. NO AUDIBLE DETECTED.

ALL DIRECT READINGS INDICATE <100DPM/100CM² ALPHA, <5000 ~~DPM/100CM²~~ ~~BETA~~ DPM/100CM² BETA

PERFORMED FIDLER SURVEY OVER BACKFILL AREA.
FIDLER USED FOR INDICATION ONLY. NO READINGS ABOVE BACKGROUND

(#) = SOIL SAMPLE

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5833/5847	03-13-04
FIDLER	3815/3846	09-23-04

[redacted]

HP #	Date:
5214	12-18-03
[redacted]	
HP #	Date:
HP #	Date:
6178	12-18-03
[redacted]	

ML-9620 (2-88)

Survey No. 03-TF-0352

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-12	SEE ATTACHED RESULTS		N/A	WEST WALL

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

N/A

COMMENTS: SOIL SAMPLES 36-01, 36-02, 36-03

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

ML-9620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 12/18/03 7:53
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: RILEY 03-TF-0352 (12) CYR

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.00		0.00	1.30	
A2	2	0.00	1.96		0.16	1.61	
A3	3	0.00	2.16		0.00	1.26	
A4	4	0.00	2.02		1.50	1.99	
B1	5	2.56	2.71		0.00	1.27	
B2	6	0.00	1.94		0.00	1.17	
B3	7	0.00	2.05		0.00	1.28	
B4	8	0.00	1.96		0.00	1.17	
C1	9	0.00	2.01		2.08	2.13	
C2	10	0.00	1.81		0.26	1.59	
C3	11	0.00	2.08		0.00	1.27	
C4	12	0.00	1.99		0.22	1.64	

SR SR

Carol G. Robinson

Copy

 SR 12-18-03

72 of 78

RSDS 03-TF-0352

R3367

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: GL00659
File ID: MG102692.s0
Priority: Yes

Description\Location
Building 36-1 Dock Backfill
Long Count

Collector: 5214
Date Received: 12/17/03
Date Collected: 12/17/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.07	45,000
Cs-137	*	0.03	0.06	45,000
Pb-210	*	0.43	0.86	45,000
Ra-226	*	0.71	0.97	800
Ac-227 (D)	*	0	0.38	40
Th-230	*	0	7.31	800
Th-232 (D)		0.27	0.18	130
Pu-238	*	5.54	15.6	500
Am-241	*	0	0.08	500

COPY

Other Nuclides

Radionuclide	Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)

Σ_{DOT} 0.03 nCi/g $\Sigma_{Respirator}$ 0.05

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

Σ_{DOT} 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments:

Date: 12/18/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RDS 03-TF-0352

G73 of 78

Pg 467

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: GL00660
File ID: MG500473.s0
Priority: Yes

Description\Location
Building 36-2 Dock Backfill
Long Count

Collector: 5214
Date Received: 12/17/03
Date Collected: 12/17/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60		0.07	0.02	45,000
Cs-137		0.05	0.04	45,000
Pb-210		1.04	0.69	45,000
Ra-226		1.34	0.7	800
Ac-227 (D)	*	0.09	0.24	40
Th-230	*	0	7.88	800
Th-232 (D)		0.37	0.13	130
Pu-238	*	0	24.73	500
Am-241	*	0.03	0.08	500

COPY

Other Nuclides

Radionuclide	Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)

Σ_{DOT} 0.04 nCi/g $\Sigma_{Respirator}$ 0.07

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

Σ_{DOT} 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments:

Date: 12/18/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSS 03-TF-0352

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: GL00661
File ID: MG102693.s0
Priority: Yes

Description\Location
Building 36-3 Dock Backfill
Long Count

Collector: 5214
Date Received: 12/17/03
Date Collected: 12/17/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.03	0.05	45,000
Cs-137	*	0.02	0.07	45,000
Pb-210		0.79	0.68	45,000
Ra-226		1.36	0.9	800
Ac-227 (D)	*	0	0.32	40
Th-230	*	0	8.09	800
Th-232 (D)		0.6	0.17	130
Pu-238	*	14.22	15.38	500
Am-241	*	0	0.08	500

COPY

Other Nuclides

Radionuclide	Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)

Σ_{DOT} 0.03 nCi/g $\Sigma_{Respirator}$ 0.06

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

Σ_{DOT} 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

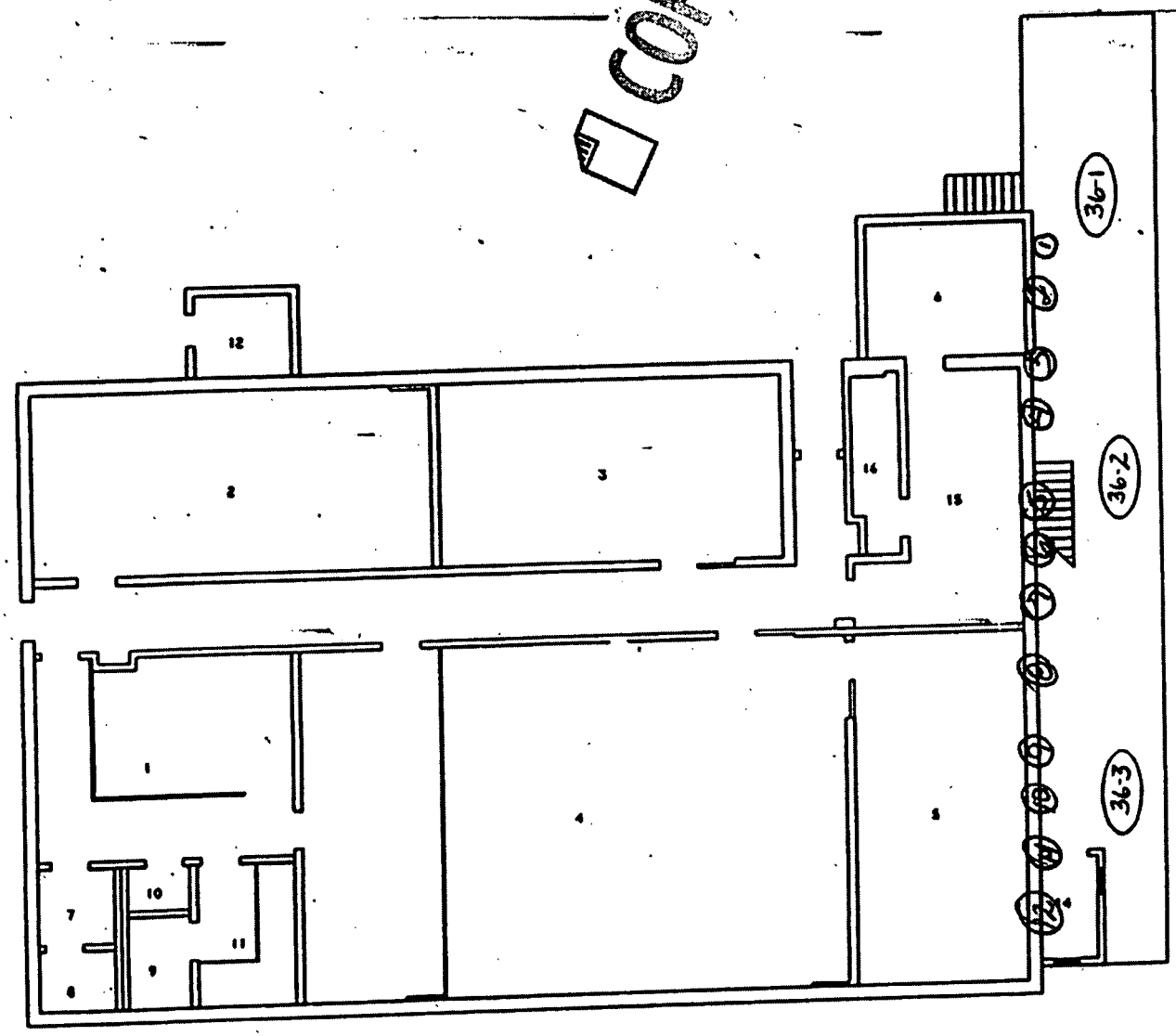
Comments:

Date: 12/18/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

PSDS 03-TF-0352
Pg 6 of 7

REV	DATE	REVISION	BY	CHKD	APPD	DWG
8	12/12/91	ASBUILT ISSUE				

COPY



.LD & NON-SENSITIVE
by Mound Declassification
.:oviewer Initials: [illegible]
5/4/98

UNCLASSIFIED

0 3' 6' 18' 28'

BLDG #36
FIRST FLOOR
BLDG CODE:3036

SHEET	1 2 3 4 5 6
SHEET	8 8
TITLE	BLDG #36 FLOOR PLANS
(U) TITLE CLASSIFICATION	
MATERIAL CLASSIFICATION	UCNI
SIZE	C
DRAWING NUMBER	FSC911247
CAD NUMBER	12555
DWG TYPE	SFP
FROM	BLDG #36
SCALE	1:48
SHEET	1 of 2
DRAWN	MD-REL.-12/12/91
CHECKED	MD-REL.-VS.2

APPROVALS
SAFETY CRITICAL DRAWING
DATE
ENG ___ MAINT ___ TECH ___ QMC
TECH. REP.
ES. MGR.
TRACING
TECH
CHECK

RSDS 03-TF-036
PS 7/98
G76 8/98

Final Status Report for Building 36, Revised Addendum 1

The Final Status Report (FSR) documents the methodology and data that support the conclusion that the building meets radiological surface release criteria established by DOE Order 5400.5, and thereby the demolition debris meets waste acceptance criteria for disposal.

All survey units in the Building 36 FSR met the surface release criteria.

The Survey Plan for Building 36 designated five separate survey units. Survey Unit 4 was the dock. The Final Status Report does not include Survey Unit 4, the dock, because the dock did not meet the surface release criteria.

Accordingly, the dock was demolished separately from the building structure and the resulting demolition debris was disposed of as low level waste. After its removal, surveys were performed on the newly exposed portion of the building exterior and samples were obtained of the dock fill material. All direct measurements were <100dpm/100cm2 alpha and <5,000dpm/100cm2 beta. Loose surface activity was <20dpm/100cm2 alpha and <1,000dpm/100cm2 beta. FIDLER survey of dock backfill area found no measurements above background. Soil samples from under the dock fill material were all less than soil screening levels (RSDS# 03-TF-0352). Because the dock debris was not considered for free release, that Survey Unit is not included in the Final Status Report.

The Building 36 Dock Fact Sheet details the plan for further action.

PUBLIC FACT SHEET

Building 36 Dock: Plutonium 238 Contamination

This Fact Sheet is intended to notify the public of the removal of a radiologically contaminated dock from the Miamisburg Closure Project (MCP) site.

Background. The Building 36 Dock was located in the eastern central portion of the site as shown on Figure 1, immediately adjacent to the west side of the former Building 36 (Power Systems Technologies Assembly and Testing Support Facility). The dock measured approximately 10.5 feet by 75 feet. During the Building 36 pre-demolition surveys, radiological contamination above surface release criteria was discovered on the top surface of the dock. The interior and exterior surfaces of Building 36 were also radiologically surveyed, and all surfaces met release criteria. Accordingly, it was believed that the contamination did not originate in Building 36 or as a result of Building 36 processes; it is unknown how the top surface of the dock became contaminated.

Characterization. The top surface of the dock was radiologically surveyed and a number of locations exceeded surface release criteria (which is 100 dpm/100cm^2). The location with the highest alpha fixed activity measured 259 dpm/100cm^2. The locations of the three highest measurements were acid etched and the results showed the presence of plutonium-238 (146 dpm/sample).

Based on the above, the Department of Energy and the Core Team requested that the public be notified of the contamination and its removal.

Actions Taken. The removal of the dock was in accordance with the Building 36 Demolition Work Plan, Rev 4K, 06/25/03 (Appendix O of Final BDP). Erosion and runon/runoff controls were managed in accordance with the Storm Water Pollution Prevention Plan. Following removal of the contaminated dock, the newly exposed portion of the Building 36 exterior wall was radiologically surveyed, and all results met surface release criteria. The fill material located below the dock was radiologically surveyed, and no elevated readings were detected. Three biased surface soil samples were collected from below the former dock location and analyzed onsite for gamma spec. All soil results met the Cleanup Objective; the highest result is shown in the table below (all units pCi/g).

Analyte	Bkgd*	Maximum Concentration	Cleanup Objective**
Pu-238	0.13	14.22***	55
*background soil concentration **risk criteria ***result below MDA			

Schedule. This Fact Sheet will be in public review for 30 days, ending June 4, 2004.

Further Actions Planned. To ensure that the soil in the vicinity of the former dock location had not been impacted by the dock contamination, additional soil samples will be collected as prescribed in a Core Team approved sampling plan. The data collected will be included in the Building 36 Closeout Report and the Building 50 Red Drain Line On-Scene Coordinator (OSC) Report. The documents will be placed in the public reading room: the Closeout Report after DOE approval, and the OSC Report after Core Team approval. These data will also be presented to the Core Team to determine the appropriate path forward. If the data indicates results above the cleanup objective, the contaminated soil will be removed under the contingent removal action process and the area will be verified to ensure a complete cleanup. These activities will be conducted under a Core Team approved Removal Work Plan and Verification Sampling and Analysis Plan (VSAP).

Additional information will be made available in the public reading room in the Final Building 36 Building Data Package, or by contacting Frank Schmaltz at 937-847-8350 ext. 304.

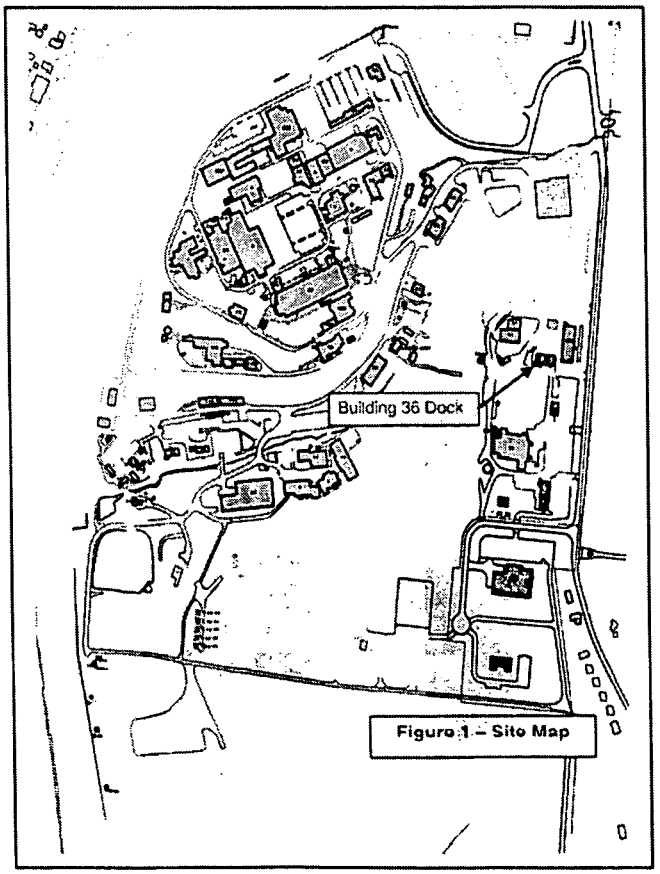


Figure 1 – Site Map

Appendix H

Radon Information

Radon level is not applicable for open air demolitions.

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Darnell, Val; Kramer, Donald
Date: 10/2/03 4:54PM
Subject: Bldg 36

Val -

For **Building 36** asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos surveys for Building 36 were completed in 1989 and 1993. These surveys were intended to identify all reasonably accessible asbestos-containing materials within the building for the purposes of identifying damaged material and managing asbestos in place. Asbestos pipe insulation, transite cement board in fume hoods, laboratory counter tops, and floor tiles were previously identified.

During September of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of Building 36 in order to identify all asbestos-containing materials prior to demolition of the facility. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. 450 square feet of sheet vinyl flooring, 204 square feet of laboratory counter tops, and 120 square feet of transite cement board were identified. These materials will be removed by a licensed asbestos hazard abatement contractor under contract to CH2M Hill Mound in accordance with NESHAP requirements prior to commencement of demolition activities.

The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category II material in accordance with NESHAP it will remain in place during demolition and be disposed of as construction waste. One variety of floor tile within the building was found to be asbestos-containing, but it is also classified as a Category II Nonfriable and need not be removed.

Lead

No previous lead surveys or sampling data could be found for Buildings 36, and paint coatings observed within the building appeared to be intact. Since no significantly degraded paint was seen, no sampling of paint for lead was accomplished.

Although untested paint coatings must be assumed to contain lead, the observed condition of the untested paint indicates that there are currently no lead paint hazards within the buildings. No further action would be necessary to protect 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 will be tested to verify the absence of lead. Since the building is scheduled for demolition, these restrictions have been incorporated into work plans for which disturbance of paint is a possibility.

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

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

Let me know if I can be of further assistance,

Chris Ahlquist

Date: September 25, 2003

From: Christopher Ahlquist
BOSS Project Team, Safety & Health

To: Jeff Boston
BOSS Project Team, Engineering

Re: Building 36: Asbestos-Containing Materials

During September of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc. (CH2M), completed a survey of Building 36 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 36 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. Five (5) distinct types of regulated 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

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

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

Conclusions

The locations of asbestos-containing materials identified, material descriptions, quantities, and other pertinent information can be found on *Table: Inventory of Asbestos-Containing Materials* attached with this report. Five (5) different materials (each represented by a unique assigned homogeneous area number) were identified through analysis to be regulated asbestos-containing material (>1%) per EPA and OSHA definition. Since the quantity of friable material is less than 50 square feet, neither the EPA nor the Ohio Department of Health requires notification prior to removal. However, since the nonfriable materials identified are considered Nonfriable Category II which are likely to become friable during demolition in accordance with EPA, these materials must be removed before demolition can occur. Removal activities must be accomplished by properly trained individuals employing appropriate work methods and engineering controls.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS
BUILDING 36
SEPTEMBER 25, 2003

Location of ACM	Material Description	Homo-geneous Area No.	Type ACM	Material Quantity (approx.)
Room 2, floor	Vinyl flooring, pebble pattern	1	Misc.	450 sf
Room 2, table tops	Laboratory counter top and back splash, black	2	Misc.	120 sf
Room 2, fume hood	Fume hood lining, grey (transite)	3	Misc.	60 sf
Room 2, fume hood	Fume hood counter top, black	4	Misc.	12 sf
Room 2, fume hood drawer	Fire-rated gloves, white	5	Misc.	1 pair
Room 3, fume hood	Fume hood lining, grey (transite)	3	Misc.	60 sf
Room 3, fume hood	Fume hood counter top, black	4	Misc.	12 sf
Room 4, table tops	Laboratory counter top and back splash, black	2	Misc.	60 sf

Notes:

Misc. = Miscellaneous Material
sf = Square feet

Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val; Kramer, Donald
Date: 10/2/03 4:54PM
Subject: Bldg 36

Val -

For **Building 36** asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos surveys for Building 36 were completed in 1989 and 1993. These surveys were intended to identify all reasonably accessible asbestos-containing materials within the building for the purposes of identifying damaged material and managing asbestos in place. Asbestos pipe insulation, transite cement board in fume hoods, laboratory counter tops, and floor tiles were previously identified.

During September of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of Building 36 in order to identify all asbestos-containing materials prior to demolition of the facility. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. 450 square feet of sheet vinyl flooring, 204 square feet of laboratory counter tops, and 120 square feet of transite cement board were identified. These materials will be removed by a licensed asbestos hazard abatement contractor under contract to CH2M Hill Mound in accordance with NESHAP requirements prior to commencement of demolition activities.

The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category II material in accordance with NESHAP it will remain in place during demolition and be disposed of as construction waste. One variety of floor tile within the building was found to be asbestos-containing, but it is also classified as a Category II Nonfriable and need not be removed.

Lead

No previous lead surveys or sampling data could be found for Buildings 36, and paint coatings observed within the building appeared to be intact. Since no significantly degraded paint was seen, no sampling of paint for lead was accomplished.

Although untested paint coatings must be assumed to contain lead, the observed condition of the untested paint indicates that there are currently no lead paint hazards within the buildings. No further action would be necessary to protect 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 will be tested to verify the absence of lead. Since the building is scheduled for demolition, these restrictions have been incorporated into work plans for which disturbance of paint is a possibility.

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

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

Let me know if I can be of further assistance,

Chris Ahlquist

Appendix K

Chemical Information

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

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

BWXT of Ohio, Inc.

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

March 2002

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

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

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

STAPLE

Emergency and Hazardous Chemical Inventory Form

K2846

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

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

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

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

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

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

Richard B Provencher — SIGNATURE

2/27/02 — DATE SIGNED

EPA 0317 Revised 5/3/89

K3 of 4

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

STAPLE

Emergency and Hazardous Chemical Inventory Form

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

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

Tank T02 is adjacent to Bldg 36. VKO 9/25/03

5.0	Chemical Description									Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	S, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7782-37-9	nitrogen	X					X	X		X				X	T02			A	2,7		04	04	C	365
[redacted]																									
[redacted]																									
[redacted]																									
[redacted]																									
[redacted]																									

CERTIFICATION (READ AND SIGN AFTER COMPLETING ALL SECTIONS)

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

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

SIGNATURE

2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/89

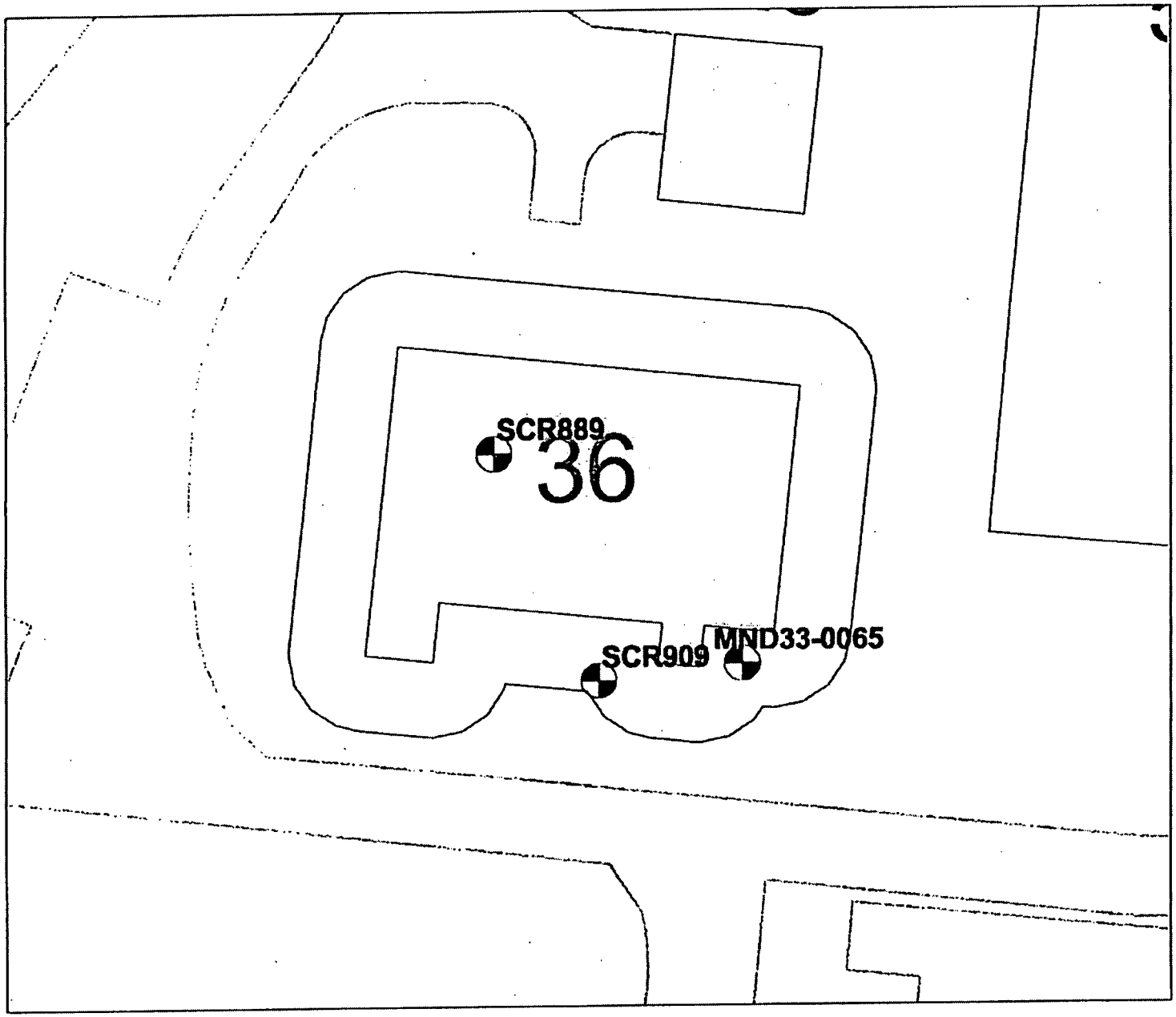
Chemicals and Products Previously Used or Stored in Building 36

Acetone
Actrel
Actrel 1171
Actrel 1171 cleaner
Actrel 1171L
Alumina
Aluminum Silicate
Argon
Argon 94%/hydrogen 6%
Argon 96%/hydrogen 4%
Ascorbic acid
Calcium carbonate
Calcium chloride
Calcium sulfite
Carbon
Chlorodifluoromethane
Colloidal silica gel
Dichlorodifluoromethane
Dowtherm antifreeze waste
Dowtherm SR-1
Durite SC-1008
Durite, graphite mix
Epoxy paint
Ethanol
Ethyl acetate
Ethyl alcohol
Ethylene glycol antifreeze
Ethylene glycol, water waste
Ferric nitrate
Freon
Freon TF
Helium
HF-E-71DA
Hydrofluoric acid
Insta Gel XF
Isopropanol
Mercury thermometers
Nitric acid
Nitrogen
Oil waste
Oil waste, hydraulic oil
Oxygen 96%/hydrogen 4%
Performance fluid PF-5052
PF 5052
Potassium carbonate
Potassium hydroxide
Prestone container
Propylene glycol
Sulfamic acid
Trichloroethane

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 feet of Building 36



Sample Detect

Borehole

N
W
E
S

MOUND
Environmental Restoration Geographic Information System

25 0 25 50 75 100 Feet

04/30/03

L1 of 14

Building 36 Detects

Location_ name	Sample_id	Collection_ date	Value_name	Measured_ value	Value_ units	Detection _limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media	Comments
MND33-0065	0065-0001	19911121	2-Butanone	1.0000	UG/KG	11.0000	ORVOA	4.5	8.0	J	J	MND33	Soil	
SCR909	8812213-A	19881221	Plutonium-238	27.0000	PCI/G		RAD	2.0	2.0			SCRDATA	Soil	12
SCR889	8812279	19881227	Plutonium-238	26.0000	PCI/G		RAD	1.0	1.0			SCRDATA	Soil	12
SCR909	88122113	19881221	Plutonium-238	26.0000	PCI/G		RAD	2.0	2.0			SCRDATA	Soil	12
SCR909	9405939	19940608	Thorium-232	2.9000	PCI/G		RAD	0.0	0.0			SCRDATA	Soil	123
SCR909	8812213-A	19881221	Thorium-232	2.1000	PCI/G		RAD	2.0	2.0			SCRDATA	Soil	123

*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

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

L2414

Building 36 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_co de	Media
MND33-0065	0065-0001	19911121	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	2-Hexanone	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	4-Methyl-2-pentanone	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Acetone	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	JB	U	MND33	Soil
MND33-0065	0065-0001	19911121	Benzene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Bromoform	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Bromomethane	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Chlorobenzene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Chloroethane	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Chloroform	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Chloromethane	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Dichloromethane (Methylene Chloride)	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	JB	U	MND33	Soil
MND33-0065	0065-0001	19911121	Ethylbenzene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
SCR889	8812275	19881227	Plutonium-238	24.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR909	9405622	19940601	Plutonium-238	23.0000	PCI/G		RAD	4.5	4.5	U		SCRDATA	Soil
SCR889	88122710	19881227	Plutonium-238	20.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	8812278	19881227	Plutonium-238	16.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil

L 3 of 14

Location_name	Sample_id	Collection _date	Value_name	Measured _value	Value_ units	Detection _limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_co de	Media
SCR889	8812271	19881227	Plutonium-238	14.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR889	8812274	19881227	Plutonium-238	12.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR889	8812277	19881227	Plutonium-238	11.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	8812276	19881227	Plutonium-238	11.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR889	8812272	19881227	Plutonium-238	10.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	8812273	19881227	Plutonium-238	10.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR909	9405939	19940608	Plutonium-238	9.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR909	9405928	19940607	Plutonium-238	7.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR909	9405940	19940608	Plutonium-238	7.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR889	88122711	19881227	Plutonium-238	6.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR909	9405620	19940601	Plutonium-238	2.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR909	9405621	19940601	Plutonium-238	0.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
MND33-0065	0065-0001	19911121	Styrene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
SCR909	9405621	19940601	Thorium-232	1.9000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR909	9405940	19940608	Thorium-232	1.8000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR909	88122113	19881221	Thorium-232	1.7000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	8812279	19881227	Thorium-232	1.6000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR889	8812271	19881227	Thorium-232	1.6000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR909	9405622	19940601	Thorium-232	1.5000	PCI/G		RAD	4.5	4.5	U		SCRDATA	Soil
SCR889	8812275	19881227	Thorium-232	1.4000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	88122710	19881227	Thorium-232	1.3000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	8812272	19881227	Thorium-232	1.2000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	8812278	19881227	Thorium-232	1.2000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR889	88122711	19881227	Thorium-232	1.1000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR909	9405620	19940601	Thorium-232	1.1000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR909	9405928	19940607	Thorium-232	1.1000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR889	8812276	19881227	Thorium-232	0.9000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR889	8812274	19881227	Thorium-232	0.8000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR889	8812273	19881227	Thorium-232	0.6000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR889	8812277	19881227	Thorium-232	0.6000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
MND33-0065	0065-0001	19911121	Toluene	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Trichloroethylene (TCE)	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil

Location_name	Sample_id	Collection _date	Value_name	Measured _value	Value_ units	Detection _limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_co de	Media
MND33-0065	0065-0001	19911121	Vinyl Acetate	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Vinyl Chloride	11.0000	UG/KG	11.0000	ORVOA	4.5	8.0	U	U	MND33	Soil
MND33-0065	0065-0001	19911121	Xylenes, Total	6.0000	UG/KG	6.0000	ORVOA	4.5	8.0	U	U	MND33	Soil

Lab and data qualifiers are defined on the pages immediately following the non-detects table in this appendix.

LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

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

SUB-QUALIFIER CODES

ORGANICS

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

INORGANICS

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

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

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

Comparisons for Soil Analytical Results

10^{-6} Risk-Based Guideline Values			
79-00-5	1,1,2-Trichloroethane	1.90E+00	MG/KG
79-34-5	1,1,2,2-Tetrachloroethane	8.90E-01	MG/KG
75-35-4	1,1-Dichloroethene	1.20E-01	MG/KG
107-06-2	1,2-Dichloroethane	7.60E-01	MG/KG
78-87-5	1,2-Dichloropropane	4.38E+01	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.91E+02	MG/KG
72-55-9	4,4'-DDE	9.00E+00	MG/KG
50-29-3	4,4'-DDT	9.00E+00	MG/KG
309-00-2	Aldrin	1.80E-01	MG/KG
5103-71-9	Alpha Chlordane	8.50E+00	MG/KG
12672-29-6	Aroclor-1248	3.85E-01	MG/KG
11096-82-5	Aroclor-1260	3.85E-01	MG/KG
7440-38-2	Arsenic	1.20E+03	MG/KG
71-43-2	Benzene	1.45E+00	MG/KG
56-55-3	Benzo(a)anthracene	4.10E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.10E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.10E+00	MG/KG
207-08-9	Benzo(k)fluoranthene	4.10E+01	MG/KG
7440-41-7	Beryllium	7.00E-01	MG/KG
319-85-7	Beta-BHC	1.65E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.15E+02	MG/KG
75-27-4	Bromodichloromethane	4.80E+01	MG/KG
75-25-2	Bromoform	3.75E+02	MG/KG
7440-43-9	Cadmium	1.00E+04	MG/KG
56-23-5	Carbon Tetrachloride	5.38E-01	MG/KG
67-66-3	Chloroform	5.20E-01	MG/KG
74-87-3	Chloromethane	2.71E+00	MG/KG
7440-47-3	Chromium	1.50E+03	MG/KG
218-01-9	Chrysene	4.10E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.10E-01	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane	2.03E+01	MG/KG
60-57-1	Dieldrin	1.85E-01	MG/KG
5103-74-2	Gamma Chlordane	8.50E+00	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.30E+00	MG/KG
76-44-8	Heptachlor	0.66	MG/KG
1024-57-3	Heptachlor Epoxide	0.33	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.10E+00	MG/KG
78-59-1	Isophorone	3.15E+03	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.00E+02	MG/KG
87-86-5	Pentachlorophenol	2.50E+01	MG/KG
121-82-4	RDX	2.70E+01	MG/KG
127-18-4	Tetrachloroethene	1.87E+01	MG/KG
79-01-6	Trichloroethene	5.09E+00	MG/KG
75-01-4	Vinyl Chloride	4.10E-01	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	1.10E-02	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	1.40E-03	MG/L

14952-40-0	Actinium-227	4.50E-01	PCI/G
14596-10-2	Americium-241	6.30E+00	PCI/G
13982-38-2	Bismuth-207	1.60E-01	PCI/G
10045-97-3	Cesium-137	3.40E-01	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	6.20E-01	PCI/G
13981-16-3	Plutonium-238	6.10E+00	PCI/G
15117-48-3	Plutonium-239	6.00E+00	PCI/G
PU239/240	Plutonium-240	6.00E+00	PCI/G
13982-10-0	Plutonium-242	6.33E+00	PCI/G
13966-00-2	Potassium-40	1.42E+00	PCI/G
14331-85-2	Protactinium-231	3.90E-01	PCI/G
13982-63-3	Radium-226	9.00E-02	PCI/G
10098-97-2	Strontium-90	9.40E+00	PCI/G
14274-82-9	Thorium-228	1.10E-01	PCI/G
14269-63-7	Thorium-230	9.00E-02	PCI/G
7440-29-1	Thorium-232	7.00E-02	PCI/G
10028-17-8	Tritium	2.35E+04	PCI/G
13968-55-3	Uranium-233	9.68E-01	PCI/G
13966-29-5	Uranium-234	1.05E+01	PCI/G
15117-96-1	Uranium-235	1.60E+00	PCI/G
7440-61-1	Uranium-238+D	1.00E-01	PCI/G
14596-10-2	Americium-241	4.90E-01	PCI/L
14331-79-4	Bismuth-210	2.20E+01	PCI/L
15262-20-1	Radium-228	3.30E-01	PCI/L
13967-73-2	Strontium-85	1.10E+02	PCI/L
10098-97-2	Strontium-90	3.90E+00	PCI/L
15623-47-9	Thorium-227	4.00E+00	PCI/L
14274-82-9	Thorium-228	6.90E-01	PCI/L
14269-63-7	Thorium-230	1.20E-01	PCI/L
7440-29-1	Thorium-232	3.10E-01	PCI/L
7440-61-1	Uranium-238	1.10E-01	PCI/L
	OU9 Soil Background Value		
72-54-8	4,4'-DDD	4.2	MG/KG
72-55-9	4,4'-DDE	4.3	MG/KG
50-29-3	4,4'-DDT	13	MG/KG
309-00-2	Aldrin	ND	MG/KG
5103-71-9	Alpha Chlordane	ND	MG/KG
319-84-6	Alpha-BHC	ND	MG/KG
7429-90-5	Aluminum	19000	MG/KG
14596-10-2	Americium-241	ND	MG/KG
12672-29-6	Aroclor-1248	ND	MG/KG
11097-69-1	Aroclor-1254	58	MG/KG
11096-82-5	Aroclor-1260	ND	MG/KG
7440-38-2	Arsenic	8.6	MG/KG
7440-39-3	Barium	180	MG/KG
7440-41-7	Beryllium	1.3	MG/KG
319-85-7	Beta-BHC	ND	MG/KG
7440-69-9	Bismuth	ND	MG/KG

13982-38-2	Bismuth-207	ND	MG/KG
14331-79-4	Bismuth-210m	ND	MG/KG
7440-43-9	Cadmium	2.1	MG/KG
7440-70-2	Calcium	310000	MG/KG
7440-47-3	Chromium	20	MG/KG
7440-48-4	Cobalt	19	MG/KG
7440-50-8	Copper	26	MG/KG
57-12-5	Cyanide	ND	MG/KG
60-57-1	Dieldrin	ND	MG/KG
959-98-8	Endosulfan I	ND	MG/KG
1031-07-8	Endosulfan Sulfate	ND	MG/KG
72-20-8	Endrin	ND	MG/KG
7421-93-4	Endrin Aldehyde	ND	MG/KG
53494-70-5	Endrin Ketone	ND	MG/KG
5103-74-2	Gamma Chlordane	ND	MG/KG
58-89-9	Gamma-BHC (Lindane)	ND	MG/KG
76-44-8	Heptachlor	ND	MG/KG
1024-57-3	Heptachlor Epoxide	ND	MG/KG
77-47-4	Hexachlorocyclopentadiene	ND	MG/KG
7439-89-6	Iron	35000	MG/KG
7439-92-1	Lead	48	MG/KG
7439-93-2	Lithium	26	MG/KG
7439-95-4	Magnesium	40000	MG/KG
7439-96-5	Manganese	1400	MG/KG
7439-97-6	Mercury	ND	MG/KG
72-43-5	Methoxychlor	30	MG/KG
7439-98-7	Molybdenum	27	MG/KG
7440-02-0	Nickel	32	MG/KG
7440-09-7	Potassium	1900	MG/KG
7782-49-2	Selenium	ND	MG/KG
7440-22-4	Silver	1.7	MG/KG
7440-23-5	Sodium	240	MG/KG
7440-28-0	Thallium	0.46	MG/KG
7440-31-5	Tin	20	MG/KG
7440-62-2	Vanadium	25	MG/KG
7440-66-6	Zinc	140	MG/KG
14952-40-0	Actinium-227	1.10E-01	PCI/G
10045-97-3	Cesium-137	0.42	PCI/G
14255-04-0	Lead-210	1.20E+00	PCI/G
13981-16-3	Plutonium-238	0.13	PCI/G
15117-48-3	Plutonium-239	1.80E-01	PCI/G
PU239/240	Plutonium-240	1.80E-01	PCI/G
13966-00-2	Potassium-40	37	PCI/G
14331-85-2	Protactinium-231	1.10E-01	PCI/G
13982-63-3	Radium-226	2	PCI/G
10098-97-2	Strontium-90	0.72	PCI/G
14274-82-9	Thorium-228	1.5	PCI/G
14269-63-7	Thorium-230	1.9	PCI/G
7440-29-1	Thorium-232	1.4	PCI/G
10028-17-8	Tritium	1.6	PCI/G

13966-29-5	Uranium-234	1.1	PCI/G
15117-96-1	Uranium-235	0.11	PCI/G
7440-61-1	Uranium-238	1.2	PCI/G
Core Team Determined Screening Level			
7439-92-1	Lead	4.00E+02	MG/KG
14952-40-0	Actinium-227	5.60E-01	PCI/G
14596-10-2	Americium-241	6.30E+00	PCI/G
13982-38-2	Bismuth-207	1.75E-01	PCI/G
10045-97-3	Cesium-137	7.60E-01	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	1.80E+00	PCI/G
13981-16-3	Plutonium-238	5.50E+01	PCI/G
14331-85-2	Protactinium-231	4.00E+00	PCI/G
13982-63-3	Radium-226	2.10E+00	PCI/G
14274-82-9	Thorium-228	1.61E+00	PCI/G
14269-63-7	Thorium-230	2.00E+00	PCI/G
7440-29-1	Thorium-232	1.47E+00	PCI/G
15117-96-1	Uranium-235	1.70E+00	PCI/G
7440-61-1	Uranium-238+D	1.30E+00	PCI/G
Maximum Contaminant Level for Drinking Water			
71-55-6	1,1,1-Trichloroethane	0.2	MG/L
79-00-5	1,1,2-Trichloroethane	0.005	MG/L
75-35-4	1,1-Dichloroethene	0.007	MG/L
120-82-1	1,2,4-Trichlorobenzene	0.07	MG/L
156-59-2	1,2-cis-Dichloroethene	0.07	MG/L
106-93-4	1,2-Dibromoethane	0.00005	MG/L
95-50-1	1,2-Dichlorobenzene	0.6	MG/L
107-06-2	1,2-Dichloroethane	0.005	MG/L
78-87-5	1,2-Dichloropropane	0.005	MG/L
156-60-5	1,2-trans-Dichloroethene	0.01	MG/L
106-46-7	1,4-Dichlorobenzene	0.075	MG/L
95-95-4	2,4,5-Trichlorophenol	0.05	MG/L
94-75-7	2,4-D	0.07	MG/L
7440-36-0	Antimony	0.0006	MG/L
7440-38-2	Arsenic	0.05	MG/L
7440-39-3	Barium	2	MG/L
71-43-2	Benzene	0.005	MG/L
50-32-8	Benzo(a)pyrene	0.002	MG/L
7440-41-7	Beryllium	0.004	MG/L
117-81-7	bis(2-ethylhexyl)phthalate	0.006	MG/L
75-27-4	Bromodichloromethane	0.008	MG/L
75-25-2	Bromoform	0.008	MG/L
7440-43-9	Cadmium	0.005	MG/L
56-23-5	Carbon Tetrachloride	0.005	MG/L
57-74-9	Chlordane	0.002	MG/L
108-90-7	Chlorobenzene	0.1	MG/L
67-66-3	Chloroform	0.008	MG/L
7440-47-3	Chromium	0.1	MG/L

7440-50-8	Copper	1.3	MG/L
57-12-5	Cyanide	0.2	MG/L
96-12-8	Dibromochloropropane	0.0002	MG/L
75-09-2	Dichloromethane (Methylene Chloride)	0.005	MG/L
88-85-7	Dinoseb	0.007	MG/L
1746-01-6	Dioxin	0.00000003	MG/L
72-20-8	Endrin	0.002	MG/L
100-41-4	Ethylbenzene	0.07	MG/L
16984-48-8	Flouride	4	MG/L
58-89-9	Gamma-BHC (Lindane)	0.0002	MG/L
76-44-8	Heptachlor	0.0004	MG/L
1024-57-3	Heptachlor Epoxide	0.0002	MG/L
118-74-1	Hexachlorobenzene	0.001	MG/L
77-47-4	Hexachlorocyclopentadiene	0.05	MG/L
7439-92-1	Lead	0.015	MG/L
7439-97-6	Mercury	0.002	MG/L
72-43-5	Methoxychlor	0.04	MG/L
7440-02-0	Nickel	0.1	MG/L
NO3	Nitrate	10	MG/L
14797-65-0	Nitrite	1	MG/L
87-86-5	Pentachlorophenol	0.001	MG/L
7782-49-2	Selenium	0.05	MG/L
100-42-5	Styrene	0.1	MG/L
127-18-4	Tetrachloroethene	0.005	MG/L
7440-28-0	Thallium	0.002	MG/L
108-88-3	Toluene	1	MG/L
8001-35-2	Toxaphene	0.003	MG/L
79-01-6	Trichloroethene	0.005	MG/L
75-01-4	Vinyl Chloride	0.002	MG/L
1330-20-7	Xylenes, Total	10	MG/L
14952-40-0	Actinium-227	0.4	PCI/L
14596-10-2	Americium-241	1.2	PCI/L
13982-38-2	Bismuth-207	1200	PCI/L
10045-97-3	Cesium-137	120	PCI/L
10198-40-0	Cobalt-60	400	PCI/L
13981-16-3	Plutonium-238	1.6	PCI/L
13982-63-3	Radium-226	4	PCI/L
10098-97-2	Strontium-90	40	PCI/L
14274-82-9	Thorium-228	16	PCI/L
14269-63-7	Thorium-230	12	PCI/L
7440-29-1	Thorium-232	2	PCI/L
10028-17-8	Tritium	20000	PCI/L
13968-55-3	Uranium-233	20	PCI/L
13966-29-5	Uranium-234	20	PCI/L
15117-96-1	Uranium-235	24	PCI/L
7440-61-1	Uranium-238	24	PCI/L
Guideline Values Based on the Hazard Index			
71-55-6	1,1,1-Trichloroethane	3.31E+03	MG/KG
79-00-5	1,1,2-Tricloroethane	8.52E+02	MG/KG

76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	7.00E+04	MG/KG
75-34-3	1,1-Dichloroethane	2.13E+04	MG/KG
75-35-4	1,1-Dichloroethene	1.92E+03	MG/KG
120-82-1	1,2,4-Trichlorobenzene	2.04E+04	MG/KG
156-59-2	1,2-cis-Dichloroethene	2.13E+03	MG/KG
78-87-5	1,2-Dichloropropane	2.16E+01	MG/KG
156-60-5	1,2-trans-Dichloroethene	4.30E+03	MG/KG
99-65-0	1,3-Dinitrobenzene	2.00E+02	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.00E+03	MG/KG
78-93-3	2-Butanone	9.30E+03	MG/KG
95-57-8	2-Chlorophenol	1.06E+03	MG/KG
108-10-1	2-Methyl-4-pentanone	7.00E+02	MG/KG
50-29-3	4,4'-DDT	1.10E+02	MG/KG
106-44-5	4-Methylphenol	1.10E+03	MG/KG
67-64-1	Acetone	2.10E+04	MG/KG
309-00-2	Aldrin	6.4	MG/KG
5103-71-9	Alpha Chlordane	110	MG/KG
7429-90-5	Aluminum	210000	MG/KG
120-12-7	Anthracene	6.40E+04	MG/KG
7440-36-0	Antimony	8.50E+01	MG/KG
11097-69-1	Aroclor-1254	4.30E+00	MG/KG
7440-38-2	Arsenic	6.40E+01	MG/KG
7440-39-3	Barium	1.50E+04	MG/KG
71-43-2	Benzene	2.36E+01	MG/KG
65-85-0	Benzoic Acid	8.50E+05	MG/KG
7440-41-7	Beryllium	1.10E+03	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	4.30E+03	MG/KG
75-27-4	Bromodichloromethane	4.26E+03	MG/KG
75-25-2	Bromoform	4.30E+03	MG/KG
74-83-9	Bromomethane	1.26E+01	MG/KG
85-68-7	Butyl Benzyl Phthalate	4.30E+04	MG/KG
7440-43-9	Cadmium	2.10E+02	MG/KG
75-15-0	Carbon Disulfide	1.16E+03	MG/KG
56-23-5	Carbon Tetrachloride	5.62E+00	MG/KG
108-90-7	Chlorobenzene	4.89E+02	MG/KG
75-00-3	Chloroethane	1.60E+02	MG/KG
67-66-3	Chloroform	1.50E+03	MG/KG
74-87-3	Chloromethane	1.58E+02	MG/KG
7440-47-3	Chromium	1.10E+03	MG/KG
18540-29-9	Chromium-VI	6.39E+02	MG/KG
7440-48-4	Cobalt	1.28E+04	MG/KG
7440-50-8	Copper	7.90E+03	MG/KG
57-12-5	Cyanide	4.30E+03	MG/KG
124-48-1	Dibromochloromethane	4.26E+03	MG/KG
75-09-2	Dichloromethane	1.00E+03	MG/KG
60-57-1	Dieldrin	1.10E+01	MG/KG
84-74-2	Di-n-butyl Phthalate	2.10E+04	MG/KG
117-84-0	Di-n-octyl Phthalate	4.30E+03	MG/KG
959-98-8	Endosulfan I	1300	MG/KG
33213-65-9	Endosulfan II	1300	MG/KG

100-41-4	Ethylbenzene	4.80E-01	MG/KG
86-73-7	Flourene	8.50E+03	MG/KG
206-44-0	Fluoranthene	8.50E+03	MG/KG
5103-74-2	Gamma Chlordane	110	MG/KG
58-89-9	Gamma-BHC (Lindane)	64	MG/KG
76-44-8	Heptachlor	110	MG/KG
1024-57-3	Heptachlor Epoxide	2.8	MG/KG
110-54-3	Hexane	9.10E+01	MG/KG
78-59-1	Isophorone	4.30E+04	MG/KG
7439-96-5	Manganese	2.70E+04	MG/KG
7439-97-6	Mercury	6.40E+01	MG/KG
72-43-5	Methoxychlor	1100	MG/KG
7440-02-0	Nickel	4.30E+03	MG/KG
87-86-5	Pentachlorophenol	6.40E+03	MG/KG
108-95-2	Phenol	1.30E+05	MG/KG
129-00-0	Pyrene	6.40E+03	MG/KG
7782-49-2	Selenium	1100	MG/KG
7440-22-4	Silver	1.10E+03	MG/KG
100-42-5	Styrene	1.45E+04	MG/KG
127-18-4	Tetrachloroethene	2.13E+03	MG/KG
79-01-6	Trichloroethene	6.39E+01	MG/KG
7440-28-0	Thallium	17	MG/KG
7440-31-5	Tin	130000	MG/KG
108-88-3	Toluene	2.50E+02	MG/KG
75-69-4	Trichlorofluoromethane	7.30E+02	MG/KG
7440-62-2	Vanadium	1.50E+03	MG/KG
75-01-4	Vinyl Chloride	1.19E+02	MG/KG
1330-20-7	Xylenes, Total	4.26E+05	MG/KG
7440-66-6	Zinc	6.40E+04	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	2.90E-01	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	2.50E-01	MG/L
71-55-6	1,1,1-Trichloroethane	1.80E+00	MG/L
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	2.50E+03	MG/L
7429-90-5	Aluminum	100	MG/L
7440-42-8	Boron	9.00E+00	MG/L
18540-29-9	Chromium-VI	3.00E-01	MG/L
7440-48-4	Cobalt	6	MG/L
7440-50-8	Copper	4.00E+00	MG/L
7439-98-7	Molybdenum	0.5	MG/L
7782-49-2	Selenium	0.5	MG/L
7440-28-0	Thallium	0.008	MG/L
7440-31-5	Tin	60	MG/L
2691-41-0	HMX	1.10E+04	UG/KG
121-82-4	RDX	6.40E+04	UG/KG

Appendix M

Occurrence Reports

A search of the occurrence reporting system revealed two reports, both of which were minor and without environmental impact:

- discovery of fixed alpha contamination on vacuum gage being surveyed for release for unrestricted use (copy attached), and
- Building 36, 37, and 50 fire alarm system failure.

ALO-DA-EGGM-EGGMAT02-1991-1003 Final Report

Occurrence Report

Nuclear Energy Facilities

(Name of Facility)

Plutonium Processing and Handling

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Woltermann, H. Anthony
Title: Director, Technology Telephone No.: (513) 865-3415

(Facility Manager/Designee)

Name: L. M. Coco
Title: Manager, Radiological & Ind. Safety Telephone No.: (513) 865-3928

(Originator/Transmitter)

Name: Date:

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT02-1991-1003

Discovery of fixed alpha contamination on vacuum gage being surveyed for release for unrestricted use.

2. Report Type and Date: Final

	Date	Time
Notification:	06/05/1991	15:49 (MTZ)
Initial Update:	06/19/1991	13:15 (MTZ)
Latest Update:	06/19/1991	13:15 (MTZ)
Final:	05/15/1992	11:45 (MTZ)

3. Occurrence Category: Off-Normal

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

5. Division or Project: EG&G MOUND APPLIED TECHNOLOGIES

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: BUILDING 19

8. UCNI?: No

9. Plant Area: TEST FIRE

10. Date and Time Discovered: 04/15/1991 08:00 (ETZ)

M 1 of 5

11. Date and Time Categorized: 06/05/1991 09:00 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
06/05/1991	12:00 (ETZ)	I. H. Schmidt	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Discovery of fixed alpha contamination on vacuum gage being surveyed for release for unrestricted use.

15. Nature of Occurrence:

02) Environmental
C. Hazardous Material Contamination

16. Description of Occurrence:

On April 15, 1991, a large vacuum gage transferred from Building 36, a non-radiologically controlled facility, to Building 19, also a non-radiologically controlled facility, was discovered to have fixed only alpha contamination present on the external case. The contamination was discovered during a routine survey of excess equipment scheduled for lot sale. A small area on the side of the gauge read approximately 15,000 dpm/100 cm2 fixed alpha contamination. Decontamination attempts were unsuccessful in removing the source of the reading. The item was transferred to the Environmental Laboratory for alpha pulse height analysis. The large size of the unit (18 inches in diameter) required the construction of a special vacuum chamber and modification of alpha spectrometry equipment. The contamination has been determined to be Pu-238. The cause of the contamination is unknown. An investigation was conducted to determine the origin of the gauge. Its origin prior to its use in Building 36, could not be determined. The gauge was secured in the health physics office in

M2 of 5

Building 30 pending further decontamination and release.

Group 2C; Off-Normal; page G2-5.

This occurrence report was reviewed by an authorized derivative classifier (J. F. Lemming) and contains no classified nor UCNI information.

17. Operating Conditions of Facility at Time of Occurrence:

Building 19 is a warehouse for storage of excess equipment.

18. Activity Category:

01 - Construction

19. Immediate Actions Taken and Results:

Upon discovery of the fixed contamination, the item was isolated, subsequently transferred to the Analytical Laboratory, and remained secured in the Health Physics Laboratory. An investigation was conducted to determine the origin of contamination. The origin of the gauge prior to its use in Building 36 could not be determined.

20. Direct Cause:

3) Personnel Error
D. Other Human Error

21. Contributing Cause(s):

3) Personnel Error
D. Other Human Error

22. Root Cause:

3) Personnel Error
A. Inattention to Detail

23. Description of Cause:

Because of the length of time this gage has been stored, the documentation history is not clear. There is no positive evidence that the gage was ever used in a radiation control area. In

M3 of 5

any case, proper care in monitoring this gage was not taken.

24. Evaluation (by Facility Manager/Designee):

The discovery of the fixed contamination on an item improperly released for unrestricted use on site several years before the current planned release, is evidence of our improved health physics monitoring program. The current procedures in place along with heightened environment, safety and health awareness precludes a similar incident from occurring in the future. The present system in place prevents the shipping of contaminated equipment off site.

25. Is Further Evaluation Required?: No

26. Corrective Actions

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

1. 1. This incident was discussed with all Health Physics personnel within two weeks after the incident. A copy of this final report will be sent to all managers with responsibility for equipment in radiation control areas to further heighten awareness of the need to follow wipe procedures and to discuss the need to follow procedures with their staffs.

Target Completion Date: 03/19/1992	**Completion Date:** 03/10/1992

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

30. Lessons Learned:

Current Health Physics survey practices are adequate to assure that materials released for unrestricted use from the Mound Plant site are acceptable for release.

31. Similar Occurrence Report Numbers:

1. ALO-DA-EGGM-EGGMAT-OF-91-01 and
2. ALO-DA-EGGM-EGGMAT-TR-91-04

32. User-defined Field #1:

M 4 of 5

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Woltermann, H. Anthony, Facility Manager/Designee
Date: 03/18/1992
Telephone No.: (513) 865-3415

Approved by: GARTRELL, GEORGE R., Facility Representative/Designee
Date: 04/28/1992
Telephone No.:

Approved by: HAGAN, RALPH A., Program Manager/Designee
Date: 05/15/1992
Telephone No.:

M5of5

Appendix N

PRS Information

MIAMISBURG CLOSURE PROJECT
PRS 267

RECOMMENDATION:

Potential Release Site (PRS 267) is identified as one of the site's historic thorium redrumming areas. It became a PRS based on historic operations and sample results above screening levels. Further Assessment was performed and confirmed that limited plutonium-238 (historic) and thorium-232 (historic results & recent results) remains at isolated locations at levels that exceed the cleanup objectives (10^{-5} Risk-Based Guideline Values plus background).

Additionally, two locations southwest of PRS 267 (historic location SCR626 and SCR660) have historic elevated results of thorium-232 and plutonium-238 above cleanup objectives. Excavation of SCR660 was attempted but ceased when a corrugated metal pipe was found with thorium-232 in excess of cleanup objective in the sediment. Neither of the two locations is within a PRS nor identified as a PRS, but will be addressed as part of the PRS 267 removal.

Therefore, the Core Team recommends a **Removal Action** for PRS 267, the corrugated metal pipe at SCR660, and SCR626.

A PRS Package recommendation page for a Removal Action signed by the Core Team constitutes the final step in the PRS Package process. Successful completion of the Removal Action will be documented via an On-Scene Coordinator (OSC) Report signed by the Core Team, which will be placed in the Public Reading Room.

CONCURRENCE:

DOE/MCP: 4/30/03
Robert S. Rothman, Remedial Project Manager (date)

USEPA: 5/21/03
David P. Seely, Remedial Project Manager (date)

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

N 1 of 6

MIAMISBURG CLOSURE PROJECT
PRS 269

RECOMMENDATION:

Potential Release Site (PRS) 269 is an area of land where two underground fuel storage tanks were shown to be located in support of original plant construction in a 1948 construction drawing that indicated a fueling facility existed near the northwest corner of Building 50. No documentation of the tanks having been removed has been found, although it is believed that they were removed as part of construction demobilization. PRS 269 was binned Further Assessment (FA) by the Core Team in December 1996 based on the suspected presence of the tanks. FA included an assessment to locate the tanks, and if the tanks were found to be present, sampling should be conducted. If the tanks were determined to be no longer present, PRS 269 would be re-binned.

FA has been successfully completed by means of a ground penetrating radar (GPR) survey that did not identify any underground tanks at PRS 269.

Therefore, the Core Team recommends **No Further Assessment** for PRS 269.

A PRS Package with an NFA recommendation signed by the Core Team will be placed in the Public Reading Room for a 30-day review period. Upon closure of the public review comments, if any, the PRS Package will be issued as a final document and made available in the Public Reading Room.

CONCURRENCE:

DOE/MCP: _____ 3/19/03
Robert S. Rothman, Remedial Project Manager (date)

USEPA: David P. Seely 3/26/03
David P. Seely, Remedial Project Manager (date)

OEPA: _____ 3/19/03
Brian K. Nickel, Project Manager (date)

N 2 of 6

RECOMMENDATION

PRS 31-36, 125, & 270 Package

Potential Release Sites (PRSs) 31-36, 125, and 270 were identified as PRSs as a result of breaks and/or separations in Mound's sanitary sewer lines, identified during a 1982 video survey of the lines. Radionuclides were not considered contaminants of concern. The concern was the potential release of non-radioactive contaminants into the environment from the identified breaks in the lines. A subsequent project repaired these lines by replacing them or by extruding a liner at the point of the breaks. Soil sampling was performed and results for all non-radioactive analytes were below 10^{-5} Risk-Based Guideline Values.

Therefore, the Core Team recommends <u>No Further Assessment</u> for PRSs 31-36, 125, and 270.

11-27-02

Rob Rothman, OSC
U.S. Department of Energy
Miamisburg, Ohio

11/26/02

Tim Fischer, RPM
USEPA
Chicago, Illinois

11/27/02

Brian Nickel
OEPA
Dayton, Ohio

9. RECOMMENDATION

This decision document represents the selected removal action for the Building 38 site, developed in accordance with CERCLA as amended by SARA, and not inconsistent with the NCP. This decision is based on the administrative record for the site.

Conditions at the site meet the NCP Section 300.415 (b)(2) criteria for a removal and we recommend initiation of the response action.

Approved:

Della Hughes for Art Kleinrath		7/1/99
Art Kleinrath, On-Scene Coordinator	DOE/MEMP	Date
Timothy J. Fischer		7/7/99
Timothy J. Fischer, Remedial Project Manager	USEPA	Date
Brian K. Nickel		7/12/99
Brian K. Nickel, Project Manager	OEPA	Date

Table 5.1 PRSs to be Dispositioned Soil Removals

PRS	Description	COCs	Cleanup Objective
267	Area 9, Former Thorium Storage/Redrumming Area	Pu-238 & Th-232	(pCi/g) Pu-238 = 55 Th-232 = 2.1 Po-210=7.4** Sr-90 = 94.7 Cs-137 = 3.8
273	Area 12, Thorium-contaminated Soil form Area 1	Pu-238 & Th-232	
303	Warehouse 14 Foundation	Pu-238 & Th-232	
77	Former Warehouse 10 Footprint	Po-210	
78	Former Warehouse 11 Footprint	Reactor waste, Sr-90 & Cs-137)	
285	Area 11, Contamination from SM Bldg. Operations	Pu-238	
287	SM Bldg. Historic Septic Tank (tank 241) -removed	Pu-238	
288	Area 17, SM Bldg. Soils	Pu-238 & Th-232	
289-292	SM Bldg. Alpha Wastewater Sumps (tanks 210-213) - all four removed	Pu-238	
293	Footprint of Former SM Bldg. Solidification Unit	Pu-238	
296	Bldg. 38 West Dock Sump (tank 25)*	Pu-238	
299	EG-2 Diesel UST (tank 121). Tank removal and soil sampling is regulated under AOC 1301:7-9-13. The required BUSTR (Bureau of Underground Storage Tank Regulations) Remedial Action Plan contains COCs and action levels related to this tank. Plan pending approval by the state fire marshal.		

* The location of PRS 296 was improperly identified as the out-of-service concrete stormwater holding tank across the roadway. The location has been corrected. Although not a PRS, the stormwater tank sediment, if any, will be sampled to confirm it does not contain unacceptable levels of contaminants. Following confirmation via sampling, the tank will be demolished and the area backfilled to grade.

** Assumes Po-210 & Pb-210 present.

MOUND PLANT
PRS 389/392
SOIL CONTAMINATION

RECOMMENDATION:

PRSs 389 and 392 are located in the eastern sector of the original Mound plant. These soil locations were identified as PRSs due to qualitative hydrocarbon detections found during the PETREX soil gas portion of the ***OU5, Non Area of Concern*** investigation.

In 1996, the Soil Gas Confirmation sampling effort sampled the locations with the highest ion counts (confirmation sample locations 5, 6 and 9) in the eastern sector and discovered no contamination above the 2×10^{-6} risk range. PRSs 389 and 392 were not sampled as part of the *Soil Gas Confirmation Sampling* but the PRSs had lower ion counts than confirmation sample locations 5, 6, and 9. This implies that these PRSs will have similar or lower health risk.

All radiological samples collected near these PRSs indicate that radionuclides are below their applicable 10^{-5} Risk Based Guideline Criteria or regulatory levels. Therefore, NO FURTHER ASSESSMENT is recommended.

CONCURRENCE:

DOE/MB: Arthur Wm Kleinrath 11/20/96
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J Fischer 11/20/96
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 11/20/96
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 12/19/96 to 1/23/97

☒ No comments were received during the comment period.

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

Appendix O

Work Plan

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

~ Office Master Copy ~ Field Working Copy ~ Review Copy ~ Other Copy

(Original Approval Signatures) (Original Field Sign -Offs) [Note: Mark this section in color]

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

1. WORK PACKAGE TITLE: **Demolition of Building 36**

2. WORK PACKAGE NUMBER: **BOSS-36952 - 00.**

3. WORK PACKAGE SCOPE:

- The purpose of this project is the demolition of Building 36, using heavy equipment to demolish the building superstructure, concrete slab, foundations and underground utility piping and remove and dispose of the debris.
- All Safe Shutdown, Utility Isolation, and Asbestos Abatement activities will have been completed before initiation of this project.

4. WORK LOCATION:

Building 36 – SM/PP Area

5. WORK PACKAGE PHASES:

1. Site Information
2. Site Preparation & Mobilization
3. Building Demolition & Debris Disposal
4. Area Radiological Evaluation, Site Remediation, & Demobilization

LIST OF APPENDIXES:

A – PHA/JSHA

B – Pre-Job Briefing/Job Status Log

C – Drawings/Sketches/Photographs

D – Miscellaneous (RWP, USQ, etc.)

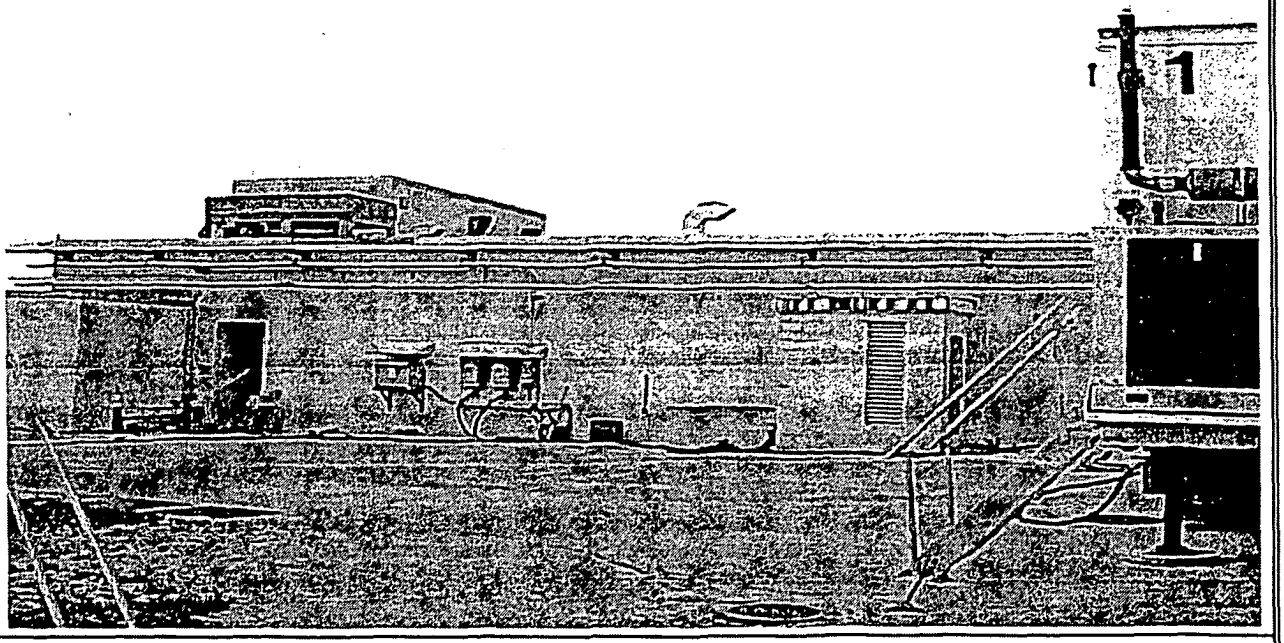
E – Post-Job Conference/Lessons Learned

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

6. SPECIAL MATERIALS AND EQUIPMENT:

1. Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment
2. Rock crusher
3. Rubber tired and tracked front-end loaders
4. Transport equipment for debris as required
5. Fog Cannon
6. Torch Equipment
7. Volvo Dump Truck

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:

The footer/foundation on the building is set at approximately 4'+/- below grade. The foundation is constructed of reinforced concrete, that under most walls consist of #4 rebar @ 12 O.C., set on a footer, using a #4 rebar dowel set in the footer. The footing and foundations under the building columns are constructed of horizontal and vertical rebar. Steps in the footing include rebar reinforcing, using a #5 bar bent to conform to the step. I Beams sit atop the columns The floor on the lower or first floor is a 6" thick reinforced concrete slab, set on a 6 +/- thick gravel bed.

The floor of the penthouse is a 2-1/2" thick concrete slab on a truss.

Wall construction as depicted by the engineering drawings of reinforced concrete block on most interior and exterior walls. Exterior walls are 11+ inches thick, while the interior walls, and the walls of the penthouse are 12" thick.

The roof is a built-up type on a metal frame truss, with a suspended ceiling.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 36 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.

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.

7.3 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. Natural barriers, such as, waterways, spillways, etc. may be used to control access to the site.

Proper signage will be placed at all access points to the site.

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

7.3.2 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.

Verify/Mark/Protect fire hydrant and other above grade utility equipment to prevent damage during demolition activities.

Install storm drain protection by utilizing a grating slipcover. Utilize GPS shoot-in locations of all outside grate drains that may be covered and difficult to re-locate.

Provide silt fencing and other measures to control/prevent storm water run-off and soil erosion in accordance with Environmental Compliance PoC instructions. Periodically reevaluate effectiveness.

7.3.3 Cover and Protect Dock Area

If removal of dock cap, dock structure, and dock foundation cannot be accomplished before building demolition, utilize plywood or metal sheeting to protect radiologically contaminated concrete dock area to prevent contamination of demolition structure debris, equipment, or personnel.

7.3.4 Temporary Utilities

Water is required to control dust emissions. Ensure backflow prevention is present for domestic water source. Coordinate with site Radiological , Safety and Health and Environmental Compliance PoCs.

7.3.5 Temporary Facilities

This project will use the existing BOSS 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 Utility Isolation Activities have been completed per FTS – 36953, Mechanical Utilities Isolation Work Package and FTS – 37642 Electrical Utilities Isolation Work Package, and verify the following have been disconnected:

- Fire Alarm Pull Boxes
- Fire Suppression Water Flow Alarms
- Smoke Detector Alarms
- Security Systems
- DDC signals

HOLD POINT: Utility Isolation Activity Completion Verification

_____ Date/Time_____

Project Supervisor signature or email confirmation

7.4.2 The *Pre-Job Briefing Record,* per PP-1045/PP-1045A must be completed and signed.

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

7.4.4 Review the following DOE Lessons Learned prior to starting work. The full Lessons Learned may be found in Appendix E:

- DOE Operating Experience Summary 2003-15
- Transporting Portable Fuel Tanks L03-012
- Refueling Vehicles Safely L02-037(2002-RL-HNF-0040)

7.4.5 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

_____ Date to Proceed with Demo_____

Environmental Compliance PoC signature or email confirmation

7.4.6 The "Cold & Dark" Implementation Requirements Document requires a Review Team tour, per D&D Requirements Implementation Plan, of the facility & scope of the project prior to Project Manager authorizing the start of work.

HOLD POINT: 'COLD & DARK' Review Team Walkdown Completed &

Project Manager Authorizes Work to Start:

Project Manager _____ Date & Time : _____

WARNING HAZARD: Dust Control – Utilize dust control measures for demolition activities as described in Table 1 in Appendix A. The Goal is no visible dust emissions. Controls will be evaluated routinely to determine their effectiveness.

CAUTION ELECTRICAL HAZARD: Contact of 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. Note locations on 'Cold & Dark' Safety Sketch

CAUTION HAZARD: Struck by flying debris. Establish construction boundary. Wear hard hat, safety glasses, safety shoes, and reflective vest or high visibility clothing 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
- Block access/egress to Building 50

WARNING NOISE HAZARD: If noise surveys indicate the need, hearing protection will be worn while operating heavy-duty equipment. Follow the requirements of MD-10286 D9.

CAUTION LEAD HAZARD: Exposure to airborne lead during torch cutting. Contact Industrial Hygiene to verify absence of lead in paint prior to torch cutting.

CAUTION ASBESTOS HAZARD: Asphalt roof and floor tiles may contain asbestos – do not render friable or conduct invasive activities involving close worker contact. Contact Chris Ahlquist x3737 with any questions

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

IMPORTANT: All Field Changes to this Work Package Must be Documented in the Job Status Log!

7.5 BUILDING DEMOLITION SEQUENCE OF WORK

NOTE: -RWP is not required for demolition & disposal of Building 36 structure & concrete slab.
-The RWP is required and all workers must be signed onto the RWP during demolition & disposal of the concrete dock.
-Take care not to disturb asphalt or soil located ~13 feet South of Building 36 during demolition. See Cold & Dark Safety Sketch. Historical Sampling Bore Data location of Thorium 232 contamination

7.5.1 Demolish the Upper Section of the structure's concrete block walls using heavy equipment. Utilize debris to build a ramp to allow equipment to reach the higher level penthouse to weaken the structure to allow upper section to collapse onto lower level for demolition and to reach the built-up metal roof & 2 1/2 – inch thick concrete slab on corruform utility room for dismantlement. Demolition includes the Baltimore Chiller located on North end of building.

CAUTION: Utilize caution to prevent damage to protected radiologically contaminated dock area to prevent contamination of Building 36 structure & concrete slab demolition debris, equipment, or personnel.

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

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

7.5.2 Slab and Foundation Demolition

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

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

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.

7.5.3 Concrete Dock Demolition

HOLD POINT (Step 7.5.3):
Radiological Contaminated Material & Airborne Contamination Hazardous Work
Ensure all Workers are signed onto RWP for this phase of project
Follow all requirements of RWP for PPE, Monitoring, and Contamination Control

_____ Date/Time_____
Project Supervisor signature

Using heavy equipment, break apart the concrete dock, foundation, and footers to 3 feet below grade to support demolition and downsizing.

Place debris in appropriate LSA waste containers for disposal.

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 Remove Temporary Protection Structures
Remove barriers and/or wooden boxes from fire hydrants, fire prevention water lines.

7.6.3 Demobilize Construction Equipment
Remove dust control water distribution system, temporary power and water, 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.

Work Package /Preliminary Hazard Analysis (Continued)

8.COMMENTS:

Note: Comments, to identify activities/hazards that are common to multiple phases of the project (example: Wear leather gloves when handling cut pipe). Identification of these items will facilitate the addressing the items once in the pre-job briefing.

9. REVIEW SIGNATURES:

Written by:	J. Boston	Date: 12/02/03	Phone: 3262
Superintendent:		Date: 12/11/03	Phone: 3866
Foreman:		Date: 12/12/03	Phone: 3663
Project Eng. Mgr:	R.C. Ragualbottom	Date: 12/3/03	Phone: 4220
Industrial Safety & Hygiene:		Date: 12/11/03	Phone: 3269
Rad. Controls:		Date: 12/13/03	Phone: 4522
ES&C:	Ronald Paulick	Date: 12/14/03	Phone: 4080
Waste Mgmt:		Date: 12/03/03	Phone: 4132
Bldg. Mgmt:	Gary J Weidenbach	Date: 12/15/03	Phone: 608 8257
Classification: : N/A		Date: / /	Phone:
Other:		Date: / /	Phone:

Note: Project Manager has the authority to N/A signatures if review is not applicable.

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

Brief Explaination_ Building 36 is not categorized as a Radiological or Nuclear Facility and the work scope will not affect other Radiological or Nuclear Facilities

USQ Trained Person: J. Boston Date: 12/02/03 Phone: 3262

11. AUTHORIZATION SIGNATURE:

Project Manager: Date: 12/12/03 Phone: 4169

12. WORK PACKAGE CLOSURE:

Job Supervisor: Date: / / Phone:

Project Manager: Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

APPROVAL CONTINUATION SHEET

Reviews:

Name	Signature	Date	Department
Jim Thomas	[illegible]	12-10-03	[illegible]
[illegible]	[illegible]	12-10-03	[illegible]
[illegible]	[illegible]	12-10-03	[illegible]

Reference Drawings	Rev.	Reference Procedures	Rev.

WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: Demolition of Building 36
2. WORK PACKAGE NUMBER: BOSS-36952 - 00.

[Note: Mark this section in color]

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

Revision Description: (attach page revisions to form)

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

Approved by:

CH2M Hill Project Manager

Name Signature

Date

REVISION LOG

1. WORK PACKAGE TITLE: Demolition of Building 36

2. WORK PACKAGE NUMBER. BOSS-36952 - 00.

Revision	Reason	By	Date

Appendix A

Preliminary Hazards Analysis (PHA)

Job Specific Hazards Analysis (JSHA)

APPENDIX A

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 F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Access/Blockage:			
Blockage of exits or means of egress	Yes	All	[EGRESS] Building 50 during equipment operations Still available for emergency egress
Blockages/obstructions (Identify)	No		
Confined space entry (permit)	No		[CONFINE]
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.
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	Yes	All	Fire hydrant will be protected, but still available for emergency use.
Traffic control/flagman	Yes	All	[TRAFFIC] Provide sufficient flagmen and signage to ensure safe traffic control
Flammable/Explosive:			
Burning, welding, hot-work (Fire Watch) (permit)	Yes	2 & 3	[BURN] Obtain & follow Hot Work Permit per MD-10444. Paint may contain lead, do not torch cut painted surfaces without verification by IH or Safety PoC.
Chemical compatibility of corrosives/flammables	No		
Explosive/flammable atmosphere	No		
Explosives	No		
Fire protection system/equipment outage	No		[FIRE/EFIRE]
Fire Hazards Analysis/Fire Engineer Approval	Yes	N/A	[FHA/ADJA] Completed in Utilities Isolation Package
Flammable liquids/gases	Yes	2 & 3	[FLAM] Acetylene & oxygen – Utilize proper tank restraints. Follow Mound Procedure MD-10286, H1
Powder-actuated tools (permit)	No		
Special Fire Protection Equipment Required	No		[FIREQU]
Chemicals:			
Chemical process safety	No		
Compressed gas cylinders	Yes	2 & 3	Acetylene & oxygen Follow Mound Procedure MD-10286, H1
Emergency eyewash/shower available	No		[EWASH]
Elevated/Aerial Work:			
Crane operations, overhead or mobile	No		
Critical lifts (heavy or high value loads)	No		[CLIFT]
Elevated work/fall protection	Yes	All	[ELEV] Follow Mound Procedure MD-10286, M8
Forklifts, aerial lifts or material handling equipment	Yes	All	Trained operators only
Hoisting and rigging	No		[HOIST]
Overhead utilities (Identify)	No		[UITL]

APPENDIX A

Preliminary Hazard Analysis (PHA)For Work Package Activities (Continued)

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 F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout, outages, disconnects (permit)			[LOTO/ISO]
• Electrical	No		Electrical isolation of the facility is accomplished during Utilities Isolation Activities.
• Mechanical (steam, hydraulic, pneumatic, gravity)	No		Utility isolation of the facility is accomplished during Utilities Isolation Activities.
• Interlocks	No		[ILOCK]
• Chemical	No		
• Radiological	No		
Outages of the plant public announcement (PA) system or the emergency notification system	No		[OUTAGE]
Building Systems Alarms - Ensure systems are not functional by contacting: Fire Department Security Facilities Services.	Yes	2	-Fire Alarm Pull Boxes -Fire Suppression Water Flow Alarms -Smoke Detector Alarms -Security Systems -DDC signals
Alarm Disable/Disconnect	No		
Structure Related:			
Modification to Fire Wall/Door	No		[FIREWAL]
Penetrations into walls, floors, etc. (permit)	No		[PENETR]
Plastic sheeting or wood framing/enclosures	No		
Structural Modification	No		[STRUCT]
Work impacting adjacent normally occupied areas	Yes	All	[ADJAC/BMAPP/SIGNS/NOTIF]
Building Structural Engineering Survey per OSHA 29 CFR 1926.850	Yes	N/A	Survey Completed by __W._Johanan__-letter in Appendix D_____ Date:
Temporary Requirements:			
Temporary heating facilities	No		
Temporary/portable buildings or structures	No		[FACIL]
Temporary service hook-ups (Identify)	Yes	All	Water hydrant for misting, including backflow prevention, if required or fog cannon & self contained water tanks
Public utilities (Identify)	No		[WATER]
Lighting/illumination/adequacy	No		[MLITE]
Miscellaneous:			
Machine guards	No		
Off-shift work	Yes	All	As determined by Project Manager
Repetitive work	No		[ERGO]
Other (Specify)	None		
Work in attics, ceilings, chases, or crawlspaces	No		
Work Requiring Scaffolding (inspection required)	No		[SCAFF]
Electrical:			
Electrical hazards	No		[LIVEL]

APPENDIX A

Preliminary Hazard Analysis (PHA)For Work Package Activities (Continued)

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 F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Grounding of electrical equipment	No		
Soils/Excavation:			
Underground utilities (Identify)	Yes	3 & 4	[UITL] Utilize Excavation/Soil Disturbance Permit, MD_10286, O5 before slab demolition or site remediation
Trenching/Shoring (permit)	No		[DIG]
Hazards due to condition of facility or terrain (Identify)	No		
Any soil disturbance	Yes	3 & 4	[DIG] (Note: Check for URMAs) Obtain & follow Excavation/Soil Disturbance Permit, MD_10286, O5 before slab demolition or site remediation

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 F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Asbestos/Fibers:			
Asbestos	Yes	3	[ASBEST] Asphalt roof and floor tiles may contain asbestos – do not render friable or conduct invasive activities involving close worker contact
Removal of ceiling tiles*	No		
Insulation/man-made mineral fibers (☐ MSDS available)*	No		
Hazardous Materials:			
Beryllium	No		
Cadmium	No		
Chlorofluorocarbon (CFC)	No		[CFC]
Coal, tar or asphalt products	Yes	3	Roofing material contains tar and asphalt products; to be disposed of as construction debris.
Lead	No		
Mercury	No		
Polychlorinated biphenyls (PCBs)	No		
Carcinogens (☐ MSDS available)*	No		[CARC]
Chemical/Corrosives:			
Chemicals/solvents (☐ MSDS available)*	No		[CHEM/MSDS]
Corrosives/acids/caustics (☐ MSDS available)*	No		

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

APPENDIX A

Preliminary Hazard Analysis (PHA)For Work Package Activities (Continued)

FOR Work Packages

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 F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Ventilation/Air:			
Abrasive blast (☐ MSDS available)*	No		
Coating/painting (☐ MSDS available)*	No		
Dusty operations	Yes	3 & 4	[POWDER] Utilize dust control measures as appropriate from Table 1 (OPA980014).
Foam in Place Operations	No		
Spraying/generation of mists*	Yes	3 & 4	Demolition dust control water misting during demolition and road wetting during waste hauling.
Ventilation or Air Monitoring requirements	Yes	3 & 4	[VENTIL/IH] Air monitoring for potential silica during demolition activities wil be performed as needed for annual site assessment.
Miscellaneous:			
High Pressure systems	No		[HIPRES]
Lasers	No		
Noise in excess of 85 dBA	Yes	3	[NOISE] Hearing protection required during noise hazard activities.
Blood-borne pathogens*	No		
Temperature extremes (heat or cold stress)	Yes	All	[CRYRO/COLD/HEAT] discuss in daily pre-job briefings & monitor per MD-10286 Operations D13/D16
Welding, brazing, or thermal cutting operations (permit)	Yes	2, 3,& 4	[BURN] Hot Work Permit Required. Paint may contain lead, do not torch cut painted surfaces without verification by IH.
Hazardous Waste Operations (HAZWOPER)*	No		
Other (specify)	None		-

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

APPENDIX A

Preliminary Hazard Analysis (PHA)For Work Package Activities (Continued)

FOR Work Packages

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 F if additional space is needed.)

Item		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Location:	Controlled Areas (Specify)			
	Building 36 Dock Area is posted: Radiologically Controlled Area	Yes	All	Dock is to be protected with plywood/metal sheeting during building structure & concrete slab demolition & disposal.
	Other (Specify)	None		
Activities:	Digging/Soil Removal (permit)	Yes	3 & 4	[DIG] Excavation permit required for slab/foundation removal and site remediation activities
	• URMA	No		No URMA located with in project site boundary
	Welding, burning, grinding, hammering, chipping, or scraping of contaminated materials	Yes	2, 3 & 4	Precautions to be taken to prevent physical disturbance of contaminated areas
	Decontamination	No		
	- Site Remediation	Yes	4	None Required
	Waste Disposal	Yes	3	See Waste Disposal Plan Section E
	Other (Specify)			
Sources:	X-Ray equipment, sealed, or unsealed sources	No		
Controls:	Radiological Work Permit	Yes	3	[RWP/RWP=JS/RWP=N/R/RPGEN] RWP to be issued before initiating concrete dock demolition
	ALARA Plan	No		[ALARA] No
	Other	None		

Preliminary Hazard Analysis (PHA)For Work Package Activities (Continued)

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.)

		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Conditions:	Fugitive Dust (refer to Table 1 below)	Yes	All	OPA 980014 Section 2.11
	Storm Water Runoff	Yes	All	Install sediment/storm water protective "slip cover" around storm drain grating & silt fencing.
	Erosion Control	Yes	All	Grading, seeding, and mulching
	NESHAPS Calculation	Yes	N/A	Emission Levels determined to be below requirement. No US EPA approval required for this building.
	National Historic Preservation	No	N/A	Building 36 is not listed as a historic structure with the Ohio Historic Preservation Office (OHPO). No mitigative documentation package is required.
	• Artifacts found			If any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified @ extension 3691. Work will be temporarily suspended until which time the items or artifacts have been recovered.
	Safe Drinking Water Act	No	N/A	All Utilities were isolated with Utility Isolation Work Package FTS-35838
	• Potable water	No	N/A	Potable water was disconnected for building during Utilities Isolation Work Package FTS-35838.
	• Backflow preventers for misting	Yes	All	Install backflow prevention for water misting source as directed by Environmental Compliance PoC
	Emergency Spill Response Materials (Confirm process lines are drained)	Yes	All	Ensure spill kits are available
	Locate Monitoring Wells	No	N/A	No monitoring wells located within project site boundary
Notifications:	RAPCA Notification for Asbestos	No	N/A	All regulated asbestos material was removed during a previous phase of this project
	RAPCA Notification for Demolition	Yes	3	Required 10 business days before beginning demolition activity
	Emergency Spill Response Notification	Yes	All	911 or 865-4040
	Other	None		

Table 1 Airborne Contaminant Protection Methods

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Building Demolition	• Applying dust control materials such as water and surfactants
Hauling Material and Equipment	• Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Vehicle and Equipment Traffic	• Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Wetting roads used for transport • Minimizing unnecessary traffic on roadways, parking areas, and areas around field activities
Excavation	• Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides • Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Trenching	• Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides

Table 1 Airborne Contaminant Protection Methods (continued)

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Trenching (Continued)	• Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Material Loading and Unloading	• Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Storage Piles	• Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover to storage pile areas at completion of project
Wind Erosion from Work Sites	• Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover or asphalt to project work area at completion of project

Preliminary Hazard Analysis (PHA)For Work Package Activities (Continued)

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:					
Sanitary Landfill Waste: • Concrete • Steel & Copper Piping • Metal Roofing • PVC • Electrical Wiring • Fiberglass Insulation • Wood	30,330 Cu.Ft.	3	No elevated radioactivity levels	30 Cu. Yd. Roll-Off/End Dumps	Offsite Disposal via Waste Management Operations/Journey LTD.
Hazardous Waste: • RCRA Hazardous Waste • Asbestos • Other	None				
Mixed Waste	None				
Low Level Radiological Waste: • Building Debris • Below grade	1,000 Cu.Ft.	3	TBD during Demolition	LSA Boxes	Nevada Test Site or Envirocare
Transuranic (TRU) Waste	None				
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:					
Material sent off-site Fill out MD-20180 Attachment 1 (see below)					
Material sent to concrete crusher Fill out MD-20180 Attachments 1 & 2 (see below)					

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 or NEXTEL AA911**. 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: Continuous air horn blasts
  Take Shelter: Two air horn blasts – pause – two air horn blasts

- Evacuation Route/Assembly Areas
  Assembly area is West of Building 36 outside the Site Boundary Fence. 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 Building 126.

APPLICABLE LESSONS LEARNED – See Appendix E

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
BOSS – 36 - 081403

SIGNATURES

ORIGINATOR:	J. Boston 12.02.03
REVIEW/REV:	12.05.03
REVIEW/REV:	
REVIEW/REV:	12/15/03
APPROVED:	12/15/03

DATE: 12/2/2003	_X_ NEW ___ REV	BUILDING: 36	JOB: Demolish Building 36 MSR #36952
DEPARTMENT/COMPANY: BOSS 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, Building/Facility Manager, RAD Control, Ind. Hygiene, and Safety

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

MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:

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 1B - 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 to 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), an ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed.
1. Site Preparation & Mobilization	Standard construction hazards.	-Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel.
1a. Site Access Control	Struck by equipment, debris	-Once the work area is defined, only authorized personnel are permitted in the construction perimeter. -Unescorted, Non-project and Non-emergency personnel, must have acceptance of the BOSS Project Project Manager for entry. -Emergency access to the work zone will be maintained to the extent possible.
1b. Clear Area and Mark/Protect Utility Equipment	Running into fire hydrants, manhole covers, or grates over field drains.	-Mark/protect hydrant and other utility equipment with wooden boxes, visible stakes, and/or colored flags. -Cover field grates to protect

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2 Building Structure, Foundation, Slab, and Concrete Dock Demolition & Debris Disposition	Vehicle Traffic Hazard	-Control traffic with flagmen and signage as necessary
2a. Demolish building 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
2b. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint fume exposure Compressed Gas Cylinders (CGCs)	-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. -Follow Mound Procedure MD-10286, H1
2c. Working in excessive heat/cold	Heat Stress/Cold Stress	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings
2d. Debris Characterization & Disposal	Radiological Contamination	-Have RCTs survey underside of concrete slab before disposal
2e. Slab & Foundation Demolition & Removal	Underground Utility Contact – Electrical/Water Pressure Exposure Radiological Contamination	-Evaluate & Mark area per Excavation/Soil Disturbance Permit, MD_10286, O5 for Underground Utilities. - Have RCTs survey bottom of concrete slab before disposal
2f. Concrete Dock Demolition & Removal	Radiolgical Contamination	- All Workers to be signed onto RWP & follow requirements

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
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. 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	-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 Briefings/Job Status Log

JOB STATUS LOG

ACKAGE TITLE: Demolition of Building 36

ACKAGE NUMBER.

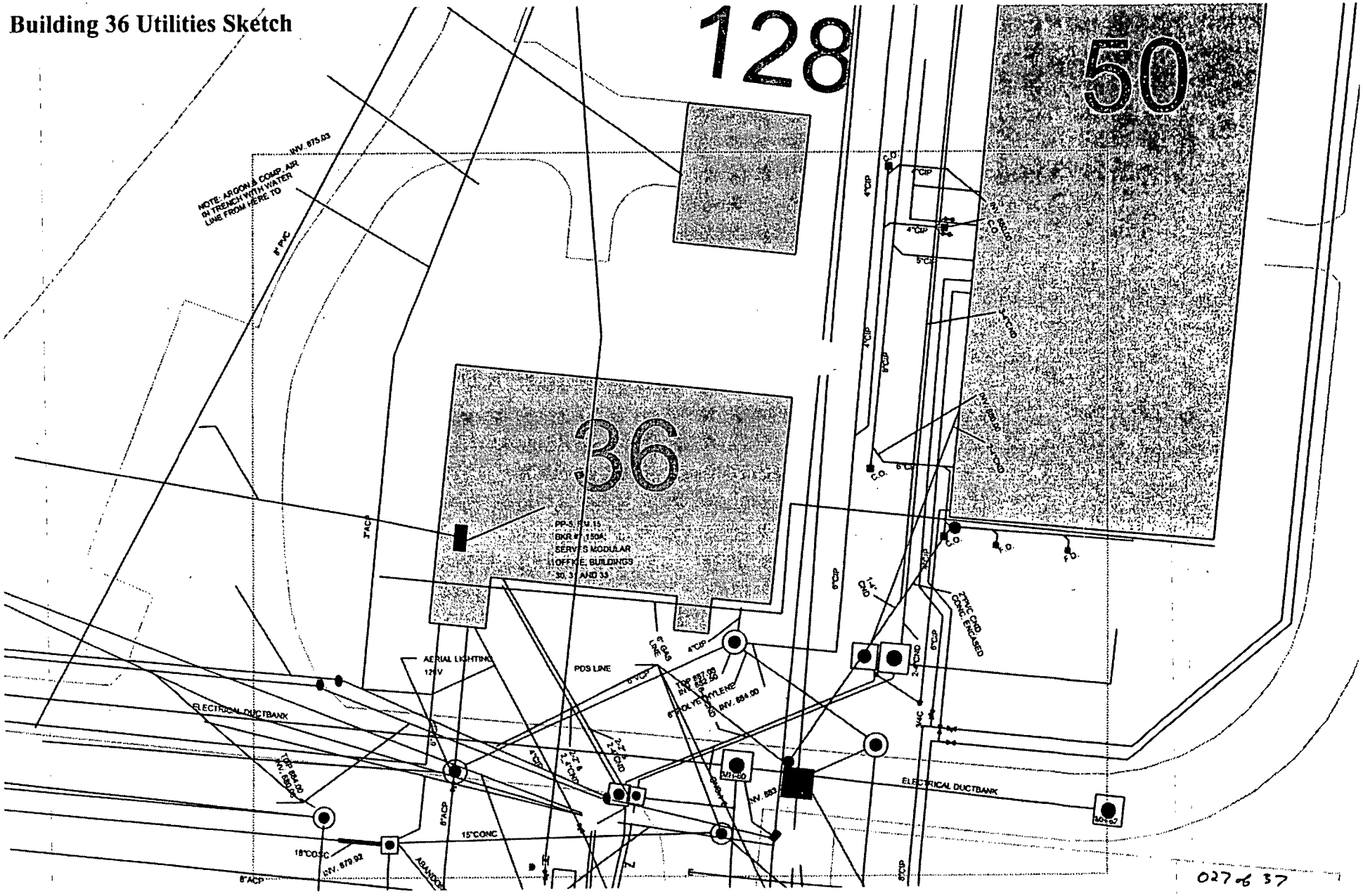
DATE	TIME	WORK PKG. SECTION	% Complete	BY	STATUS

Appendix C

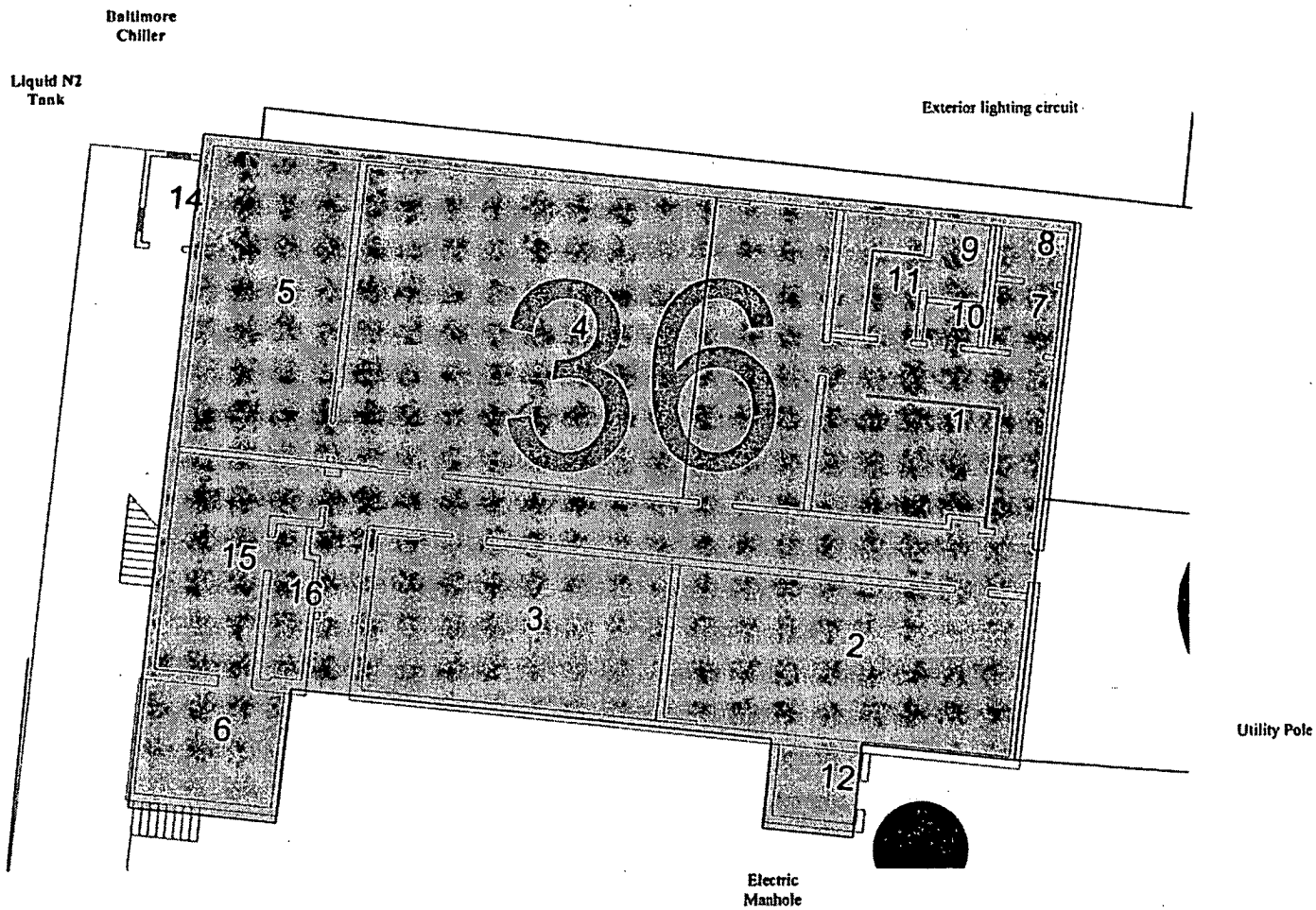
Drawings/Sketches/Photographs

- **Building 36 Cold & Dark Safety Plan**
- **Building 36 Underground Utilities Sketch**
- **Building 36 Foundation Plan, Dwg 303600-02001**
- **Building 36 Floor Plan & Room Finish Schedule, Dwg 303600-02002**
- **Building 36 Roof Framing & Upper Floor Plan, Dwg 303600-02003**
- **Building 36 Roof Plan Lintel, Column, & Beam Details, Dwg 303600-02004**
- **Building 36 Wall Sections, Dwg 303600-02006**

Building 36 Utilities Sketch



Building 36 Cold & Dark Safety Sketch



EMERGENCY HORN BLASTS:
EVACUATION: CONTINUOUS HORN BLAST
TAKE SHELTER: 2 HORN BLASTS – PAUSE – 2 HORN BLASTS

Appendix D

Miscellaneous

- No USQ required for this Work Package
- No RWP# required for this Work Package
- Structural Engineering Survey letter, per OSHA CFR1926.
- MSR 36952
- Request To Stage Clean Hard Fill Debris at Construction Spoils Area
- ML-9987 – D & D Solid Waste Free Release Declaration

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

Work Location/ Source of material Builiding 36 Approximate Volume 2837 cu ft.

Requestor Project Group BOSS Project Project Point of Contact Jeffrey Boston

Name/Phone Ext 865-3262

MSR # 369532 Charge # EE050J

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

PRS # PRS Binning Status: NFA RA FA NFA Pending Stakeholder Review

Binning remarks

Clean up criteria for soils

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

Note:

Radionuclides of Concern for verification sampling:

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

Survey Results: <PP-1059F, Table 2-2 criteria > PP-1059F, Table 2-2 criteria

In Process monitoring of excavating equipment: <PP-1059F, Table 2-2 criteria > PP-1059F, Table 2-2 criteria

Activation Concerns: No Yes If yes, explain

Material is released for recycle /reuse Yes No

Sending Rad POC Signature	**Date**
Sending Project Manager Signature	**Date**

Work Location/ Source of material

Final material use:

On-site Unrestricted Removed as LLW to disposal

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

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

The ____BOSS_____ Project has determined that all solid waste streams resulting from safe shutdown, decontamination, and/or demolition of Building(s) ___36_____ have been free released in accordance with DOE Order 5400.5, MCP procedural manual MD-80043, and direction from the DOE Miamisburg Environmental Management Project (MEMP) office (letter from Provencher to Baker, MB 423-99, dated April 27, 1999). Data supporting this free release determination may be found by contacting ____Jeffrey Boston_____, Project Manager, at ___865-3262_____. This data may include radiological surveys and data sheets and/or process knowledge utilized according to the above procedures.

_____ _____

Waste Coordinator Date

Appendix E

POST-JOB CONFERENCE/LESSONS LEARNED

Transporting Portable Fuel Tanks

(L03-012)

Lessons Learned Statement:

When moving portable fuel tanks, care should be taken to adjust lifting forks to the proper width required by the item being lifted. Setting of the forks into available lifting slots should be verified and spill kits should be readily available at the job site where portable fuel tanks are being used.

Discussion:

Oh March 26, 2003, a Heavy Duty operator attempted to lift a 550 gallon portable diesel fuel day tank, with a John Deere 644G loader equipped with forks. The tank assembly was equipped with two lifting slots; however the operator did not take time to adjust the loader forks to match their spacing. He attempted to pick up the tank by engaging only one lifting slot (a common practice) and placing the other fork under the lower tank support rails. In his haste to complete the job, the operator proceeded to lift the tank without first verifying that the fork had engaged the slot; the fork had missed the intended slot. As the tank was lifted it became unstable, rolled off of the forks, and tipped onto its end. At this point, diesel fuel began to pour out of the vent pipe. After three attempts, the operator was able to right the tank and stop the spill. Immediately, the Fire Department was called and several people in the area began to take measures to contain the spill. Through teamwork by the involved organizations, the spill was prevented from flowing into the adjacent stream. A total of approximately 24 gallons of fuel spilled from the tank onto a paved parking lot.

Analysis:

Failure to take the time necessary to adjust the loader forks and to verify that they were set into the tank lifting slots prior to lifting resulted in the spill of diesel fuel. Contributing to the event was the common practice of transporting the tank with only one fork set in the lifting slot. Additionally, work plans did not consider special precautions though the tank was being manipulated while in close proximity to a body of water.

Recommended Actions:

1. Operators must take the required time to adjust lifting forks to the proper width required by the item being lifted. The practice of moving the portable tanks with only one fork set into the lifting slots should be discontinued. Further, setting of the forks into both lifting slots must be verified prior to beginning the lift.
2. Spill kits should be located at the job site where portable fuel tanks are being used.
3. Work plans should provide special precautions when using or transporting portable fuel tanks near bodies of water.

Refueling Vehicles Safely

L02-037 (2002-RL-HNF-0040)

Lessons Learned Statement:

Static electricity sparks near gasoline pump nozzles can ignite vapors, causing serious fires. The person pumping the gas should avoid reentering the vehicle while refueling. If reentering is absolutely necessary, the person must touch a metal part of the vehicle well away from the fuel fill spout before touching the hose nozzle.

Discussion of Activities:

See a graphic depiction of what can happen if someone ignores this warning at:

http://www.hanford.gov/lessons/sitell/ll02/burnout.jpg.

Analysis:

Between January and April 2000 the Petroleum Equipment Institute researched 81 cases of fires caused by "static electricity" at gas pumps, similar to the one that caused the damage shown above. Many more cases of fires have been reported since then but were not analyzed in that study. Results of that research show that:

- Twenty reports described fires before the refueling process began, when the fueler touched the gas cap or the area close to it after leaving the vehicle.
- Twenty nine fires occurred when vehicles of various makes and models were reentered and the nozzle was touched during refueling. Some resulted in extensive damage to the vehicle, to the station, and to the customer, including one fatality.
- Fifteen fires did not involve either of these two situations. In all but one of these 15 cases the fueler was not the source of the electrical discharge and the source of ignition cannot easily be determined.
- PEI received insufficient information on seventeen fires reported by NHTSA to confidently categorize them.
- Ninety four per cent of the people involved in fires where footwear was identified had on rubber-soled shoes.

Recommended Actions:

Avoid getting back into your vehicle while filling it with gasoline. If you absolutely must get into your vehicle while the gas is pumping, make sure that when you get out you close the door and TOUCH METAL before pulling the nozzle out.

Estimated Savings/Cost Avoidance: Up to $30,000 for a vehicle fire and hundreds of thousands of dollars to treat severe burns.

Priority Descriptor: YELLOW/Caution

Work / Function: Business and Support Services; Driving; Fire Protection; Transportation

Hanford Functional Categories: N/A

Hazard: Fire

ISM Core Function: Analyze hazards; Develop/Implement Controls

Originator: Bob Renkes, Petroleum Equipment Institute, (918) 494-9696, fax (918) 491-9895, rrenkes@pei.org. Passed to Fluor Hanford Lessons Learned by Rex Jordan, Hanford Fire Marshall, (509) 373-4022

Contact: Fluor Hanford Lessons Learned Coordinator; (509) 373-7664; FAX 372-3950; e-mail: PHMC_Lessons_Learned@rl.gov

Authorized Derivative Classifier: Not required

Reviewing Official: John Bickford

Keywords: fire, refueling, static discharge, gasoline

References: "Stop Static" report by PEI (http://www.pei.org/static/index.htm)

POST JOB CONFERENCE

WORK PACKAGE TITLE: Demolition of Building 36
WORK PACKAGE NUMBER. BOSS-36952 - 00.

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

Title: (This is a brief descriptive title)

Lessons Learned Statement: (This is a brief, two or three sentence, summary of the lesson that was learned)

Discussion: (This is background and detail of what happened)

Analysis: (Discussion of what went wrong, or right and what should be done in the future)

Recommended Actions: (Identify specific corrective actions)

Submitted by: _____ Date: _____

OPTIONAL

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

037637