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CH2MHILL

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

SM-019/03
April 7, 2003

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

ATTENTION: Robert S. Rothman

SUBJECT: Contract No. DE-AC24-03OH20152
BUILDING 89 BUILDING DATA PACKAGE, PUBLIC REVIEW DRAFT

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

04-07-03A07:07 RCVD
MIAMISBURG
LOG E-00769
CODE 7544.88

Dear Mr. Provencher:

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

- Building 89 Building Data Package, Public Review Draft

The review period will be from 09 April 2003 until 08 May 2003 and the site contractor will respond to any comments received and incorporate the responses into the final document.

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

Sincerely,

K. L. Kehler
SMPP/TFV Project Manager

KLK/DCK

Enclosures

Approved: 4/7/03
Robert S. Rothman Date
CERCLA Program Manager

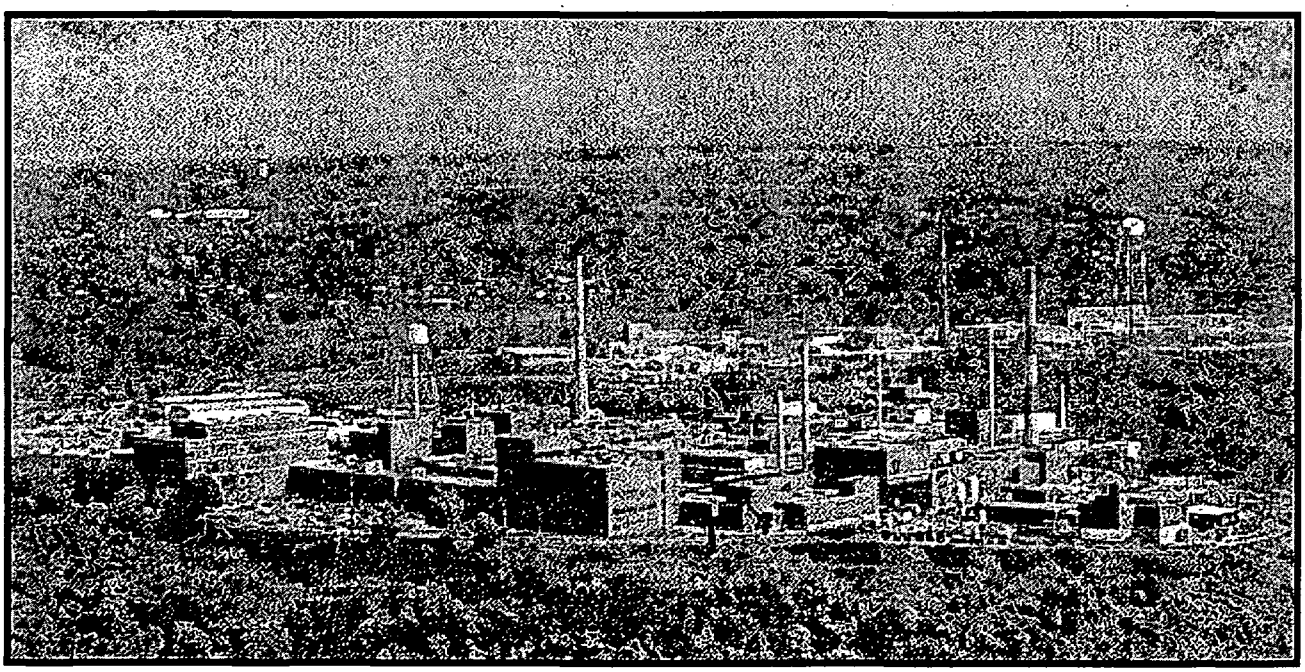
cc: Dave Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (4) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Frank Schmaltz, DOE/MCP, (1) w/attachments
Randy Tormey, DOE/OH, (1) w/attachments
Dann Bird, MMCIC, (3) w/attachments
J. D. Bonfiglio, MESH, (1) w/attachments
Bob Ransbottom, CH2M Hill, (1) w/attachments
Val Darnell, CH2M Hill, (1) w/attachments
Kurt Kehler, CH2M Hill, (1) w/attachments
Public Reading Room, (4) w/attachments
DCC (1) w/attachments

Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Building 89
(Demolition)

Public Review Draft
April 2003



MOUND

Environmental Restoration Program

MIAMISBURG CLOSURE PROJECT BUILDING DATA PACKAGE

The following Building Data Package (BDP) will be available on 9 April 2003 for your information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

BDP Building 89: Detonator Storage Facility

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

BDP Building 89

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**March 2003**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
DRAFT PROPOSED FINAL (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	The BDP was made available in the CERCLA Public Reading Room on April 9, 2003	**April 2003**
FINAL		

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1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the demolition of Building 89 (Detonator Storage 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 89 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 89, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation of Building 89 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 89 OVERVIEW

Building 89 was constructed in 1985 on the western edge of the site (Figure 1). The building is a two-story, 4,830 square-foot structure, constructed of reinforced concrete block and (in some locations) poured concrete walls. The roof structure is of a typical metal joist and ribbed deck with a built-up membrane roof. The basement or lower floor of the structure consists of one room (mechanical room) located on the southern third of the structure, with the remaining two-thirds of the area underlying the first floor being unexcavated. The first floor is a storage and processing area. Building 89 has not had any additions constructed onto it, and remains at the "as constructed" square footage. Floor plans are included as Appendix D.

The building is serviced by stormwater service lines, a fire sprinkler water main, a potable water line, and electric service of 480 volts. The building uses central steam for heating and a refrigeration unit for cooling. Heat and cooling are distributed through a central air handling unit. Building 89 has no sanitary services.

2.1 Past Uses of Building 89

Building 89 was constructed and used as a detonator storage facility. The building also contained a forge hammer operation that was used to crush detonator components. In the mid-1990s, Building 89 processes ceased, and the building was vacated and designated

for transfer to the Miamisburg Mound Community Improvement Corporation (MMCIC) as a user facility. On 19 February 1997, the Core Team binned Building 89 No Further Assessment (NFA), however, the building was not transferred to MMCIC. Subsequently, the building was put in use briefly by a small business, and later used as a storage building for equipment and furnishings belonging to MMCIC. The binning recommendation sheet is provided in Appendix P.

Even though Building 89 was previously binned NFA, this data package was issued because the building was in use for more than six years after it was binned NFA, and because the building disposition was changed from transition to demolition.

2.2 Current Uses of Building 89

Building 89 is currently being used as a storage building for equipment (such as a tensile testing machine, a laser welder, product testers, and fume hoods) and office furnishings belonging to MMCIC. The equipment and furnishings are in the process of being removed. All required equipment will be removed from the building, and any remaining equipment will be left in place and demolished/disposed of with the building.

2.3 Summary of Environmental Concerns and Findings - Building 89

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data were found pertaining to the paint coatings in Building 89. Paint coatings were observed to be largely intact. Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building (Appendix J).	If lead-based paint were present, it would not impact the demolition or disposal of the debris. Close worker disturbance of paint coatings will be avoided during demolition. If close disturbance is necessary, point of contact will be tested for lead and appropriate controls and personal protective equipment (PPE) will be used for disturbance as required.
Chemicals	There were no chemicals in the building at the time of a walk-through performed on March 10, 2003. Historical documents indicate that chemicals were not stored in Building 89. A solvent cabinet and a drum labeled "decon water" that were reported in historical documents (Appendix F) as being outside of the building had been removed. Appendix K contains additional chemical information.	N/A
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.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Air Emissions	N/A	N/A
Asbestos	A room-by-room inspection of all accessible spaces was conducted in order to prepare an inventory of the location and approximate quantities of identified asbestos-containing materials (ACMs). One type of material was identified through analysis to be asbestos-containing. This material was the grey transite panel lining contained within the two orange laboratory fume hoods that were being stored in Building 89. A copy of the asbestos survey is provided in Appendix I.	The two fume hoods, which were the property of MMCIC, were removed from the building along with other equipment and furnishings before the building was turned over to the site contractor for Safe Shutdown and demolition. The roofing-type mastic sealant, which is nonfriable, does not have to be removed prior to demolition so long as it remains nonfriable up to that point. All work will be performed in accordance with current state and federal regulations.
Drainage Sumps	There are no drainage sumps.	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Radiological materials were not normally handled within the building; however, radiological control documents contain references to a tritium-contaminated flammable storage cabinet being found in the building. These same references indicate that this cabinet, which had been located in E Building, was not properly surveyed prior to being moved to Building 89. The cabinet was removed from Building 89 and subsequent surveys found no additional contamination in Building 89. The Predemolition Survey Plan is provided in Appendix G. Radiological surveys are not yet complete.	Survey results will be documented in the Final Status Survey which will be reviewed and approved by the Core Team prior to commencement of demolition activities.
Septic System	N/A	N/A
Wastewater	There is no sanitary system.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	N/A	N/A
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	Within acceptable limits (Appendix H).	No further action required.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
HVAC	HVAC refrigerant will be drained and disposed of during Safe Shutdown.	No further action required.
Energetic Materials	Historical documentation states that the building has areas of energetic material contamination; however, this statement may be an assumption that is not based on facts. Energetic material contamination in Building 89 would be unlikely because bulk energetic material powders were not introduced into the building. Energetic materials were pelletized or otherwise encapsulated (sealed) in completed detonators before the detonators were packaged in suitcases and stored on shelves in Building 89. Detonator components crushed in the Forge Hammer Operation did not contain energetic material.	Heavy duty equipment will be used for demolition and debris handling. If necessary, demolition debris will be wet down.
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 15-feet of the Building 89 perimeter, and provides tables for all detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). Maximum exceedances to screening levels (the Core Team approved, or the most restrictive of either the 10^{-6} Risk-Based Guideline Values [RBGVs] plus background or Hazard Index = 1) are listed in Table 2. All other results are below applicable levels.	Based on the historical analytical data, post-demolition soil sampling is not planned.

N/A: Not applicable

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

Analyte	Maximum Result	Background	RBGV (10^{-6})	Screening Level
Cesium-137	0.8	0.42	0.34	0.76
Cobalt-60	0.5	N/A	0.07	0.07
Plutonium-238	61	0.13	6.1	55

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.

2.4 Radiological Characterization Summary for Building 89

A radiological assessment of Building 89 was performed by reviewing operational history and preliminary radiological survey information. Operational history indicates that the building was constructed for and used by the site contractor as a detonator storage facility. A detonator component crushing operation was later performed in the building. Later, MMCIC used the building for storage of equipment and furnishings. It is believed that no radiological process systems were ever a part of the facility and no radioactive material was used or stored there. However, radiological control documents contain references to a tritium-contaminated flammable storage cabinet found in the building. These same references indicate that this cabinet, which had been located in E Building, was not properly surveyed prior to being moved. The cabinet was removed from Building 89 and subsequent surveys found no additional contamination in Building 89.

The radiological status of all building surfaces will be determined to facilitate a free release of the structure consistent with project goals and site procedures. A Predemolition Survey Plan for Building 89 was prepared commensurate with operational history, in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), and is presented in Appendix G. The survey plan will be implemented and will provide the necessary data to dictate appropriate demolition and disposal. A Final Status Survey (FSS) will contain a summary of results from implementation of the survey plan and provide justification for the designated disposal of debris. The FSS report will be reviewed and approved by the Core Team prior to proceeding with building demolition.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 89 is located at the DOE MCP site, formerly known as Mound Plant. The MCP Site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

The Mound Plant at one time was situated on approximately 300 acres of land and contained approximately 130 buildings with a total of approximately 1.4 million square feet of floor space (the number of buildings is constantly diminishing as buildings are

decommissioned and either sold or demolished). The original 182-acre site, purchased by the Manhattan Engineering District in 1946, consisted of two hills and an intervening valley that runs approximately east and west. The 124-acre tract acquired in 1981 was an undeveloped mixture of fields and woods that undulates and slopes downward to the west, away from the main site. This area was acquired to serve as a buffer and has been used as a staging area and parking area for contractors working onsite.

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

3.2 Description of Structures, Roads, Other Improvements in Proximity to Building 89

As shown on Figures 2 and 3, Building 89 is bordered by a grassy area and a roadway on the north side, Building 56 to the south, a grassy hillside and a roadway to the east, and a grassy hillside on the west side.

3.3 Current and Past Uses of Buildings in Proximity to Building 89

Building 56 (located south of Building 89) houses a pumping station for the fire suppression system water tank next to the building. Previously, there were two other buildings (Building 92 and I Building) and a magazine (Magazine 7) in the vicinity of Building 89, but they have been demolished. Building 92, demolished in February 1996, was a 1,600 square-foot wooden modular production training facility located northeast of Building 89. I Building, demolished in April 2002, was a 25,736 square-foot facility used for radiological bioassay and environmental analysis, and later, used for the production of inert and/or plastic components of weapons devices and detonators. I Building was located northeast of Building 89. Magazine 7, demolished in January 1998, was a 387 square-foot reinforced concrete structure used for energetic materials storage in support of the conversion of I Building to an explosive-detonator facility. Magazine 7 was located east of Building 89. Building 92, I Building, and Magazine 7 are believed to have had no environmental impact on Building 89.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), the site has applied for or has received permits for its surface water

discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B Permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that no reportable chemicals are stored in Building 89.

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

4.2 Specific Record Sources for Building 89

4.2.1 Occurrence Reports

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

- pink dye tracing liquid erroneously mistaken for ethylene glycol spill,
- precautionary evacuation (false fire alarm), and
- smoke detector activation due to dust from diamond saw cutting of concrete.

4.2.2 Spills and Releases

- None

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, two are at or near Building 89, as identified in Table 3. Additional information is included in Appendix N.

Table 3: PRSs in Proximity to Building 89

PRS	CERCLA or Bldg. Related	Binning Status	Comments
91*	CERCLA	Further Assessment (FA)	Main Hill Seep 0601.
239	CERCLA	No Further Assessment (NFA)	Site Survey Project Potential Hot Spot Locations S0208.

**PRS 91, or Main Hill Seep 0601, is a site on the hillside west of and down gradient from Building 89 where subsurface groundwater exits the soil. PRS 91 was binned FA because effluent from the seep exceeds the maximum contaminant level (MCL) that is acceptable for material in drinking water. The Environmental Compliance and Analytical Services group is monitoring and will continue to monitor Main Hill Seep 0601 until the effluent falls below the MCL. PRS 91 will not have an impact on the demolition of Building 89, and conversely, the demolition of Building 89 will not affect PRS 91.*

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 1983 (prior to construction), 1994 (following construction), and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

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

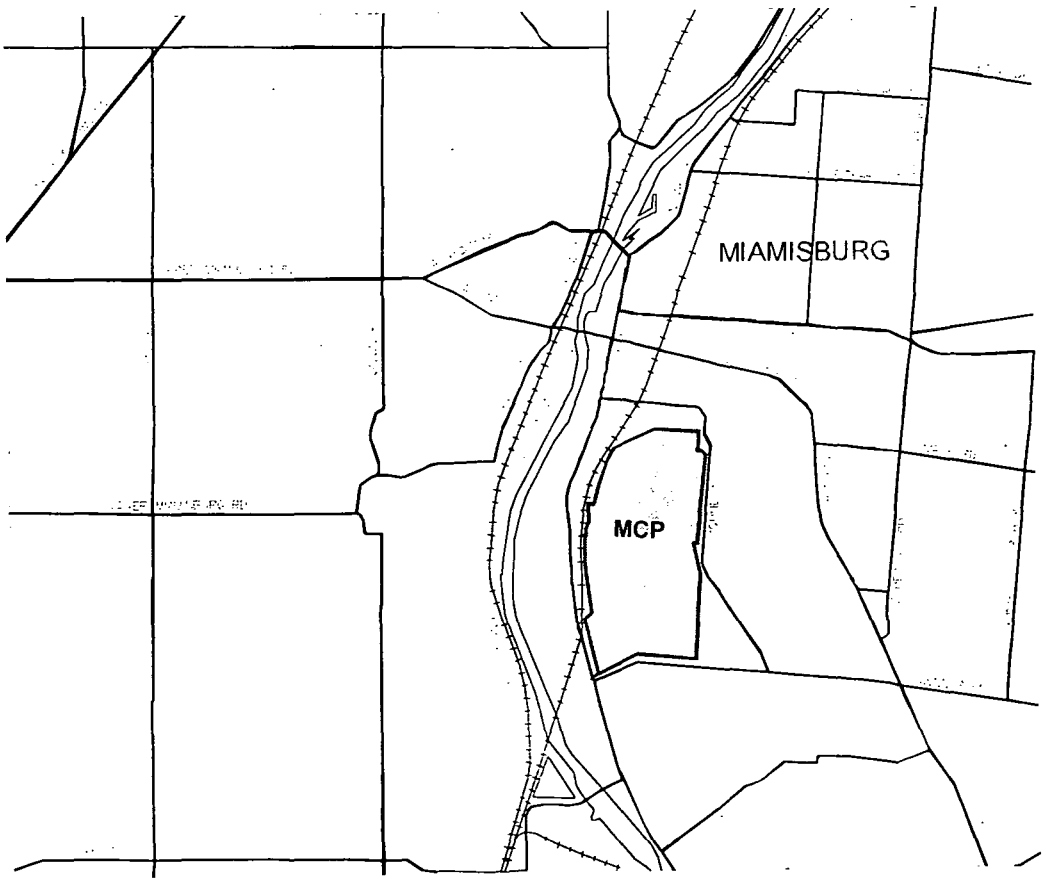
Appendix A

General Listing of Acronyms

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

Appendix B

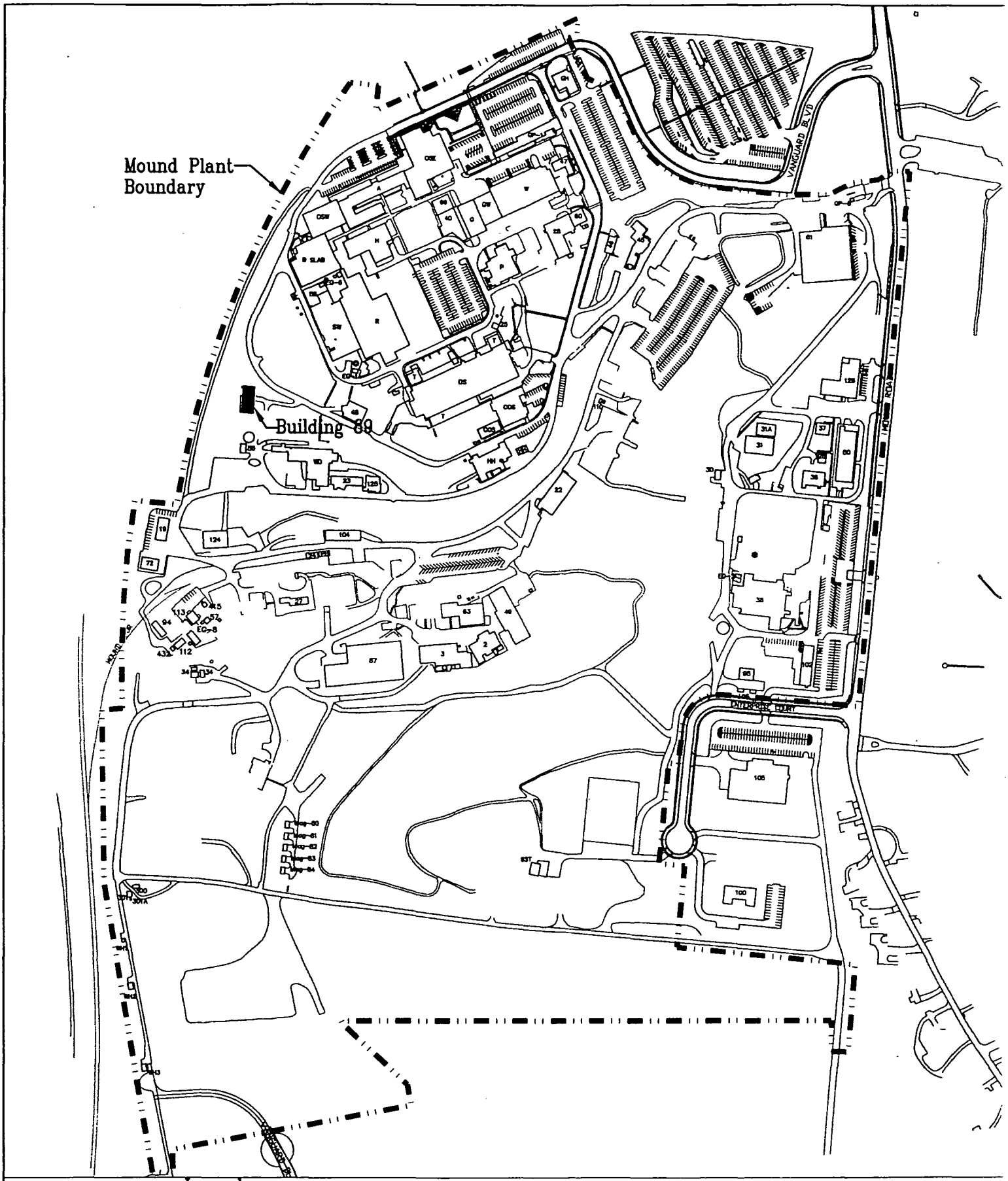
Map of Montgomery County



B 1 of 1

Appendix C

Figures



Legend

45 Structures

Roadway

Mound Plant Boundary

Mound Spur Railroad

0 225 450 900

SCALE IN FEET

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

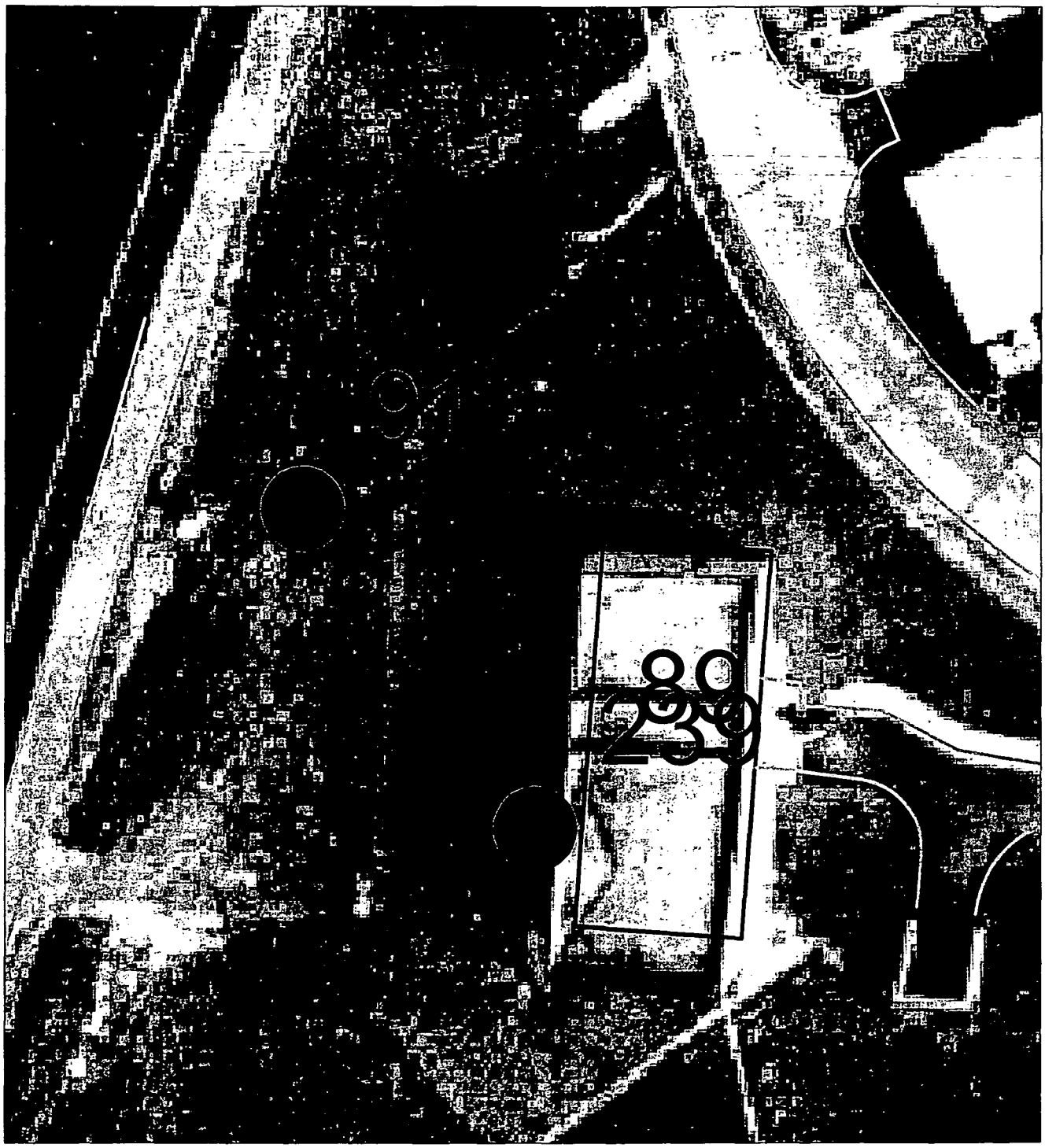
DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

Figure 1
Location of Building 89



Legend

- 46 Structures
- PRS Point
- PRS Area
- PRS Line

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

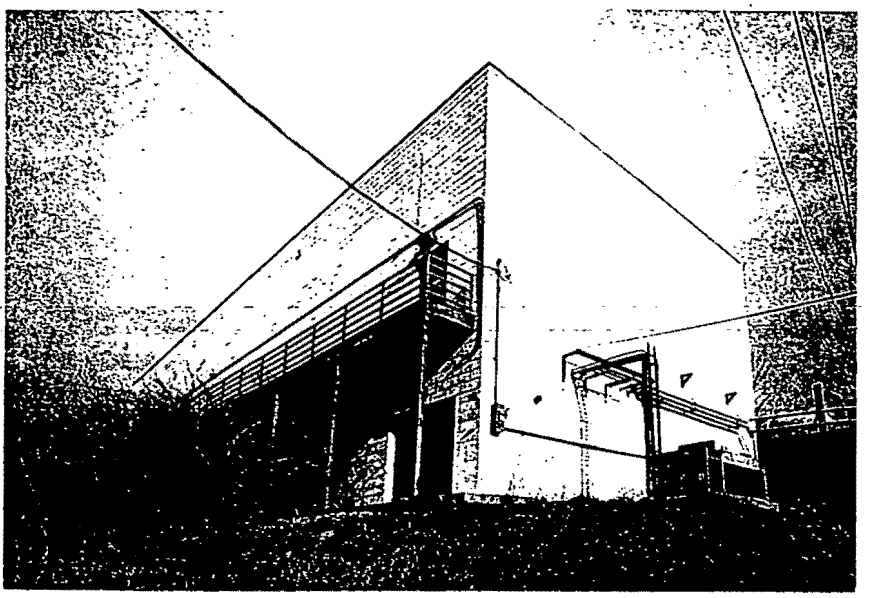
DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

Figure 2
Building 89
and Vicinity



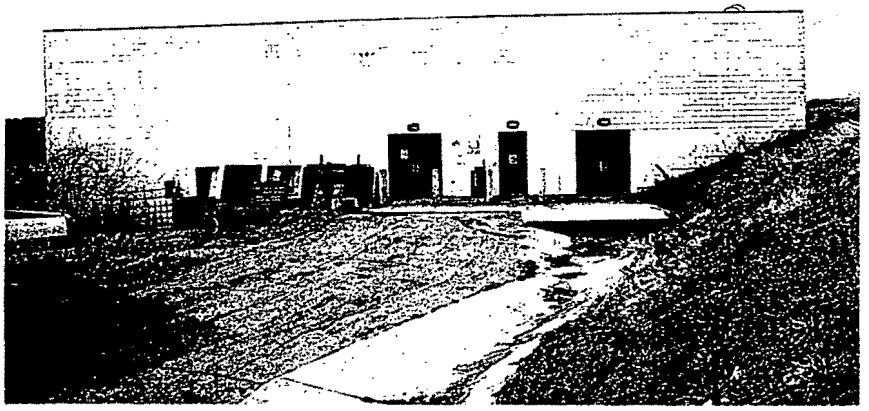
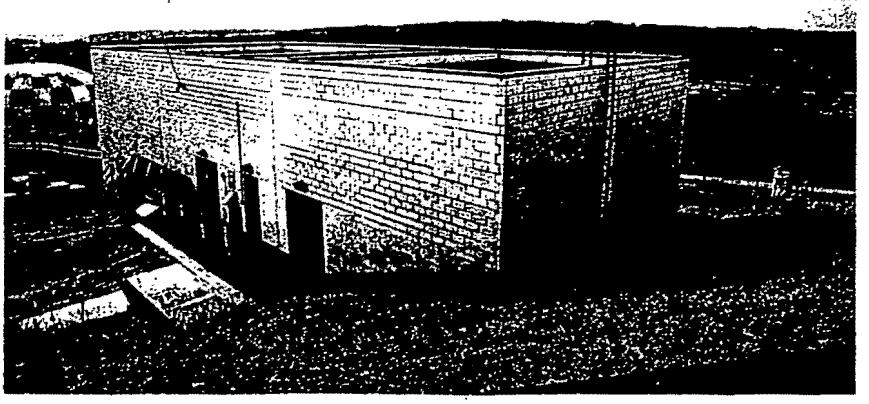
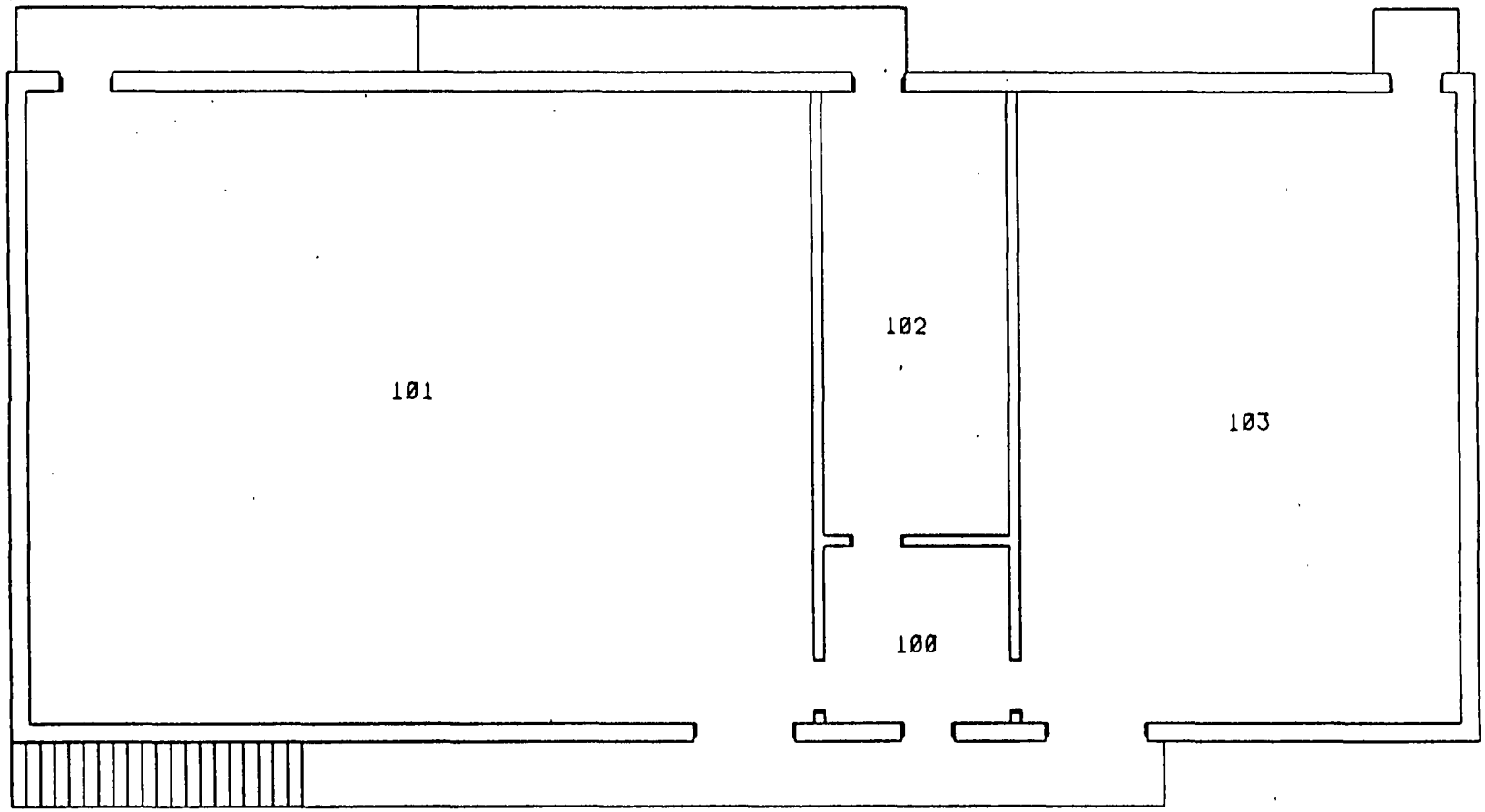


Figure 3
Building 89



Appendix D

Floor Plans



DERIVATIVE CLASSIFIER

Sr Class Anal. 2/20/96
(Title) (Date)

BLDG 889
FIRST FLOOR
BLDG CODE:3088

NOT FOR PUBLIC DISSEMINATION

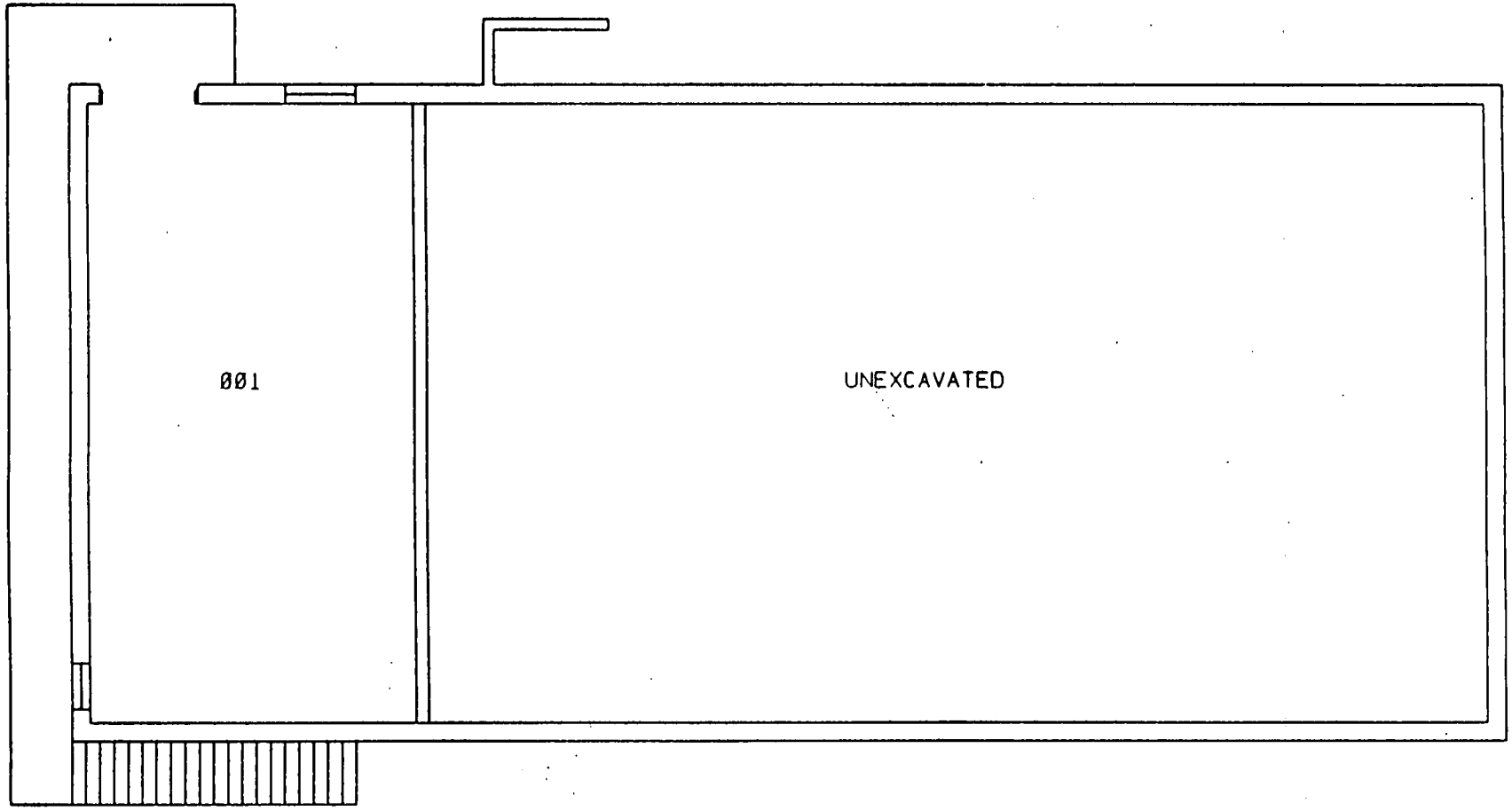
MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

DRAWING NUMBER	FSC911281
JOB NUMBER	12335
DRAWING CLASSIFICATION	UCNI
SIZE	C
LAYOUT	14065
SCALE	AS NOTED
ISSUE	B
SHEET	2
STATUS	MD-REL-12/12/91

D 2 of 2

9.96-59

ISS	DATE	REVISION	BY	CHKD	DWN	UPRD	APVD	R
B	12/12/91	ASBUILT ISSUE	DCB				DVD	



DERIVATIVE CLASSIFIER

(Title) (Date) 2/20/96

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.

BLDG #89
BASEMENT
BLDG CODE:3089

SHEET	1	2	3	4	5	6
ISSUE	B	B				

TITLE (U) TITLE CLASSIFICATION
BLDG #89
FLOOR PLANS

FINAL CLASSIFICATION
DRAWING CLASSIFICATION UCNI

SIZE C | DRAWING NUMBER FSC911281 | JOB NUMBER 12335

CAD TYPE SFP | FROM BLDG #89 | CAMEK 14865 | SCALE AS NOTED | SHEET 1 OF 2

STATUS MD-REL-12/12/91 | ORIGIN MD-BA3-V3.0

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED: ___NONE ___FUEDNC ___FEDOC ___DNOC
TECH. REVP. ___
SR. MGR. ___
FUEDNC ___
FEDOC ___
DNOC ___

DESIGN CHK | PROJ MGR
SPONS | CHG SUPV
LP & EE | PROD REV
CHG MGR
APVD | DATE

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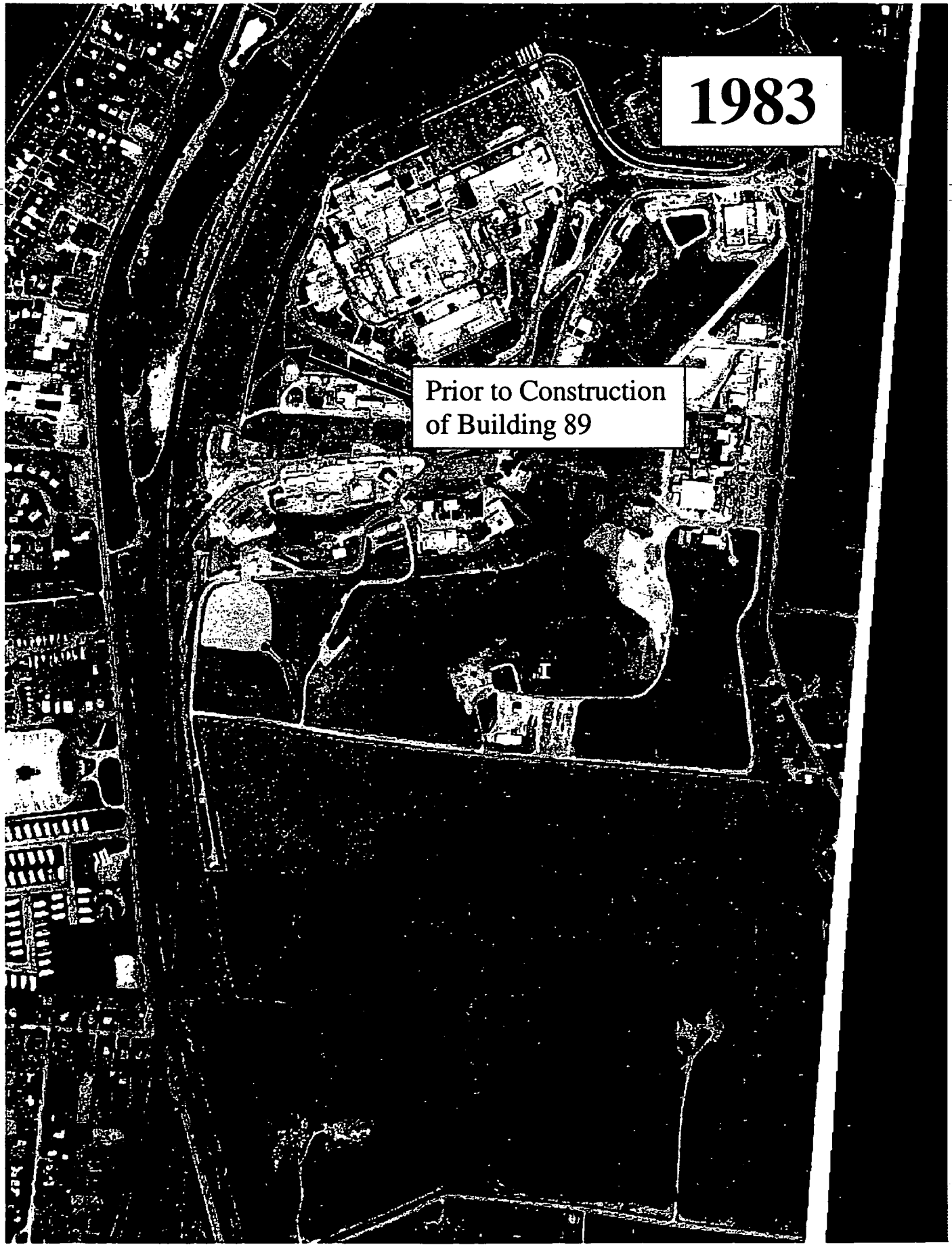
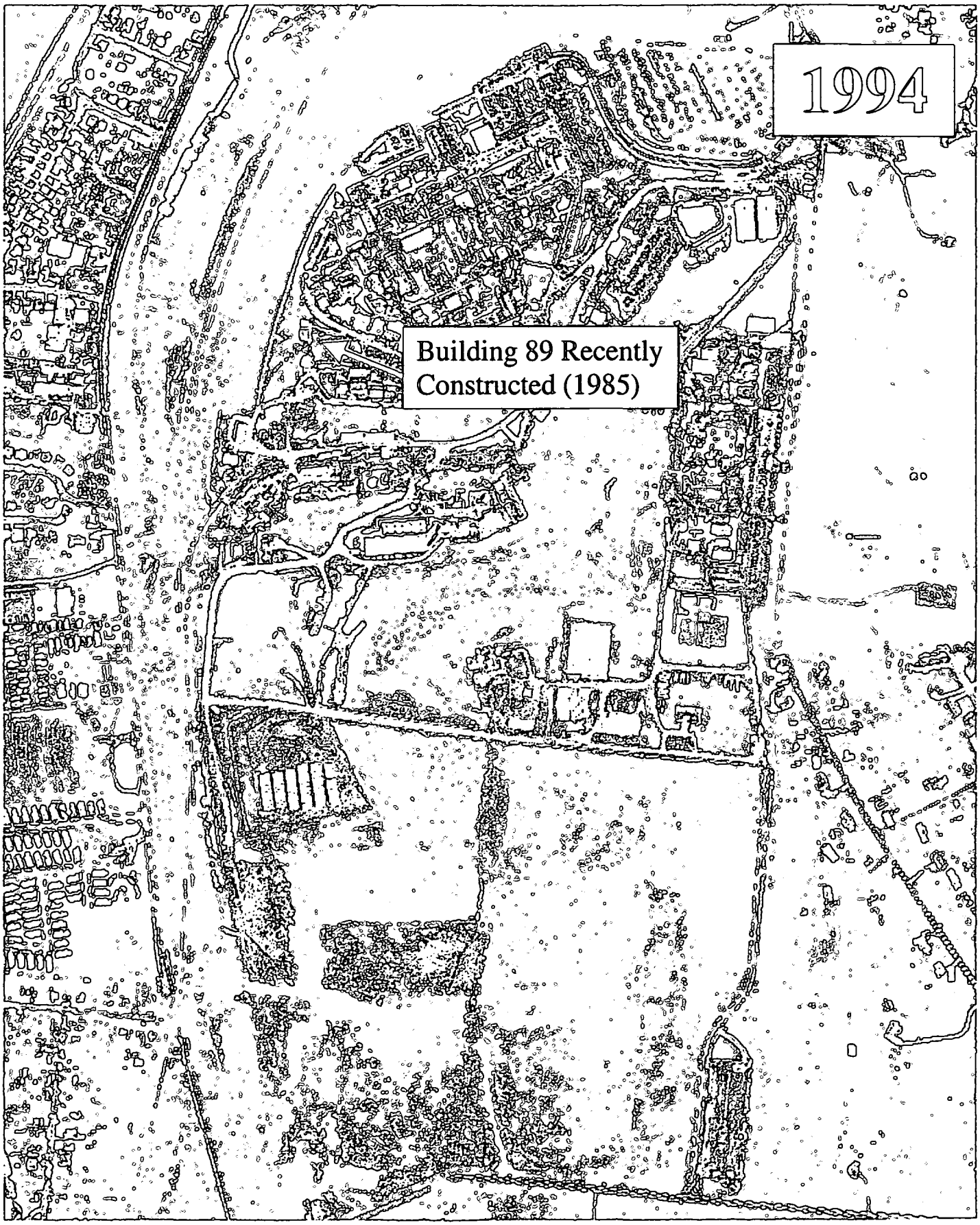
Appendix E

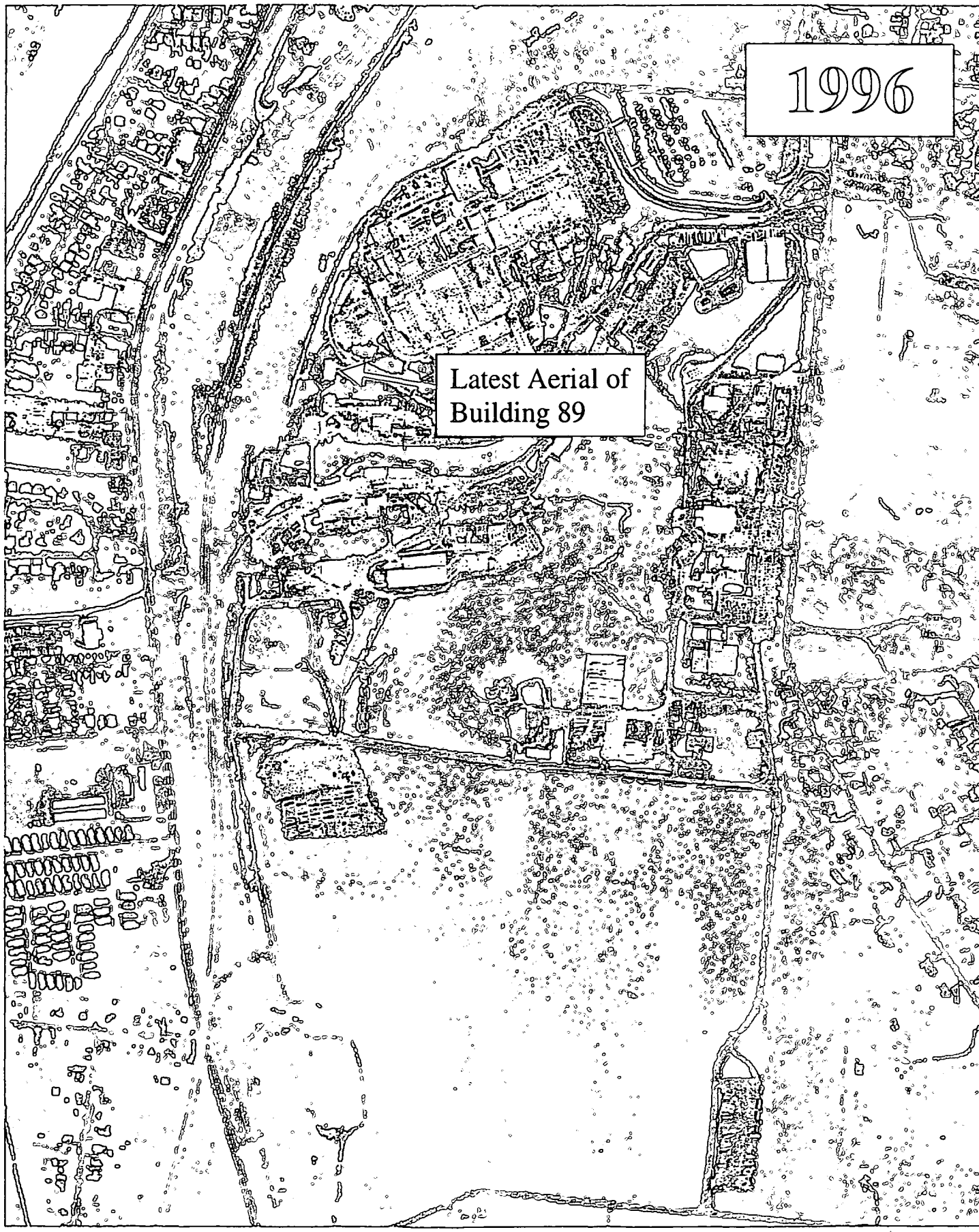
Aerial Photographs



E 1 of 3



E 2 of 3



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Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

9.96 BUILDING 89

9.96.1 Scope of Building 89 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 on the morning of February 20, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is presented as Attachment 1 (Section 9.96.6.1). The appraisers were accompanied by the building manager and process owner. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.96.6.2).

9.96.2 Description of Building

Building 89 is a two-story, 4,380-square-foot, reinforced concrete building with a built-up membrane roof. The location is shown in Attachment 3 (Section 9.96.6.3). The building is bordered by a roadway on the north, Building 56 on the south, a roadway on the east, and a hillside on the west. The first floor of the structure is a mechanical room. The second floor is a storage and process area. Floor plans are presented as Attachment 4 (Section 9.96.6.4). The building is serviced by central steam for heat, chilled water, and electrical service (*Mound Facility Physical Characterization*, 12-1-93).

Building 89 was constructed in 1985. The building has been used for the same purposes since construction. The building has areas of energetic material contamination. It is not contaminated with radioactive materials (*Mound Facility Physical Characterization*, 12-1-93).

9.96.3 Summary of Findings

Building 89 contains storage areas, a mechanical room, and a process area used to crush parts. These areas are in use. The building is well-maintained. One issue of environmental concern was identified during the walk-through and review of reference materials.

9.96.4 Observations

9.96.4.1 Air Emissions

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

9.96.4.2 Wastewater Emissions

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

9.96.4.2.1 Sanitary Wastewater

The building does not have sanitary services. According to a diagram of underground lines, presented as Attachment 5 (Section 9.96.6.5), the building is not serviced by a sanitary line. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort, therefore, neither dye tests nor smoke tests were conducted.

9.96.4.2.2 Storm Wastewater

The building is serviced by storm drains according to Attachment 5 (Section 9.96.6.5). There were interior floor drains. 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 has entered the storm drainage system.

9.96.4.2.3 Chemicals

There were several chemicals stored outside the building in an NFPA-approved flammable solvent cabinet. At the time of the walk-through there were no chemicals stored in Building 89. According to information provided in Attachment 2 (Section 9.96.6.2), the BMQ, there were no chemicals listed as stored in building 89 during the 1994 chemical inventory. Chemical storage and handling procedures are in place for proper disposal of chemicals. There is no evidence that chemicals enter the storm or sanitary drains. There have been no reported spills from Building 89.

9.96.4.3 Potable and Service Water

Potable water is not supplied to the building. Water is supplied to a fire sprinkler system in the building.

9.96.4.4 Chemical Storage and Hazardous Materials

There are no chemicals or hazardous materials stored in Building 89. There are several chemical containers stored in a NFPA approved flammable cabinet outside the building. There were Material Safety Data Sheets (MSDS's) readily available for these materials. One drum, belonging to Environmental Restoration, was labeled "decon water" and has been sitting outside the building since October 1994. Chemicals are stored outside the building in accordance with applicable standards.

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

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

The building has been tested and does contain asbestos-containing building material (MD-10391, *Asbestos Program Manual*, 9-14-95). There is no evidence of friable asbestos.

There are no capacitors or transformers containing polychlorinated biphenyls (PCB's) located in the building (1995 PCB Annual Document Log).

9.96.4.5 Solid, Hazardous, and Radioactive Wastes

Solid wastes generated are primarily scrap metal. There is paper and aluminum can recycling to minimize solid waste. Solid wastes are removed by janitorial personnel to a site collection point, then shipped offsite to a local landfill by a contractor. Aluminum cans, glass and cardboard are removed by janitorial personnel to specific collection points, then sent offsite to be recycled by a contractor. White paper is collected, compacted and sent offsite for recycling by a contractor. Scrap metal is collected at a specific site, then sent offsite to be recycled by a contractor. Lead-acid batteries are recycled by a contractor. All service contracts are maintained by Waste Management. Classified paper is collected and taken to the Montgomery County South Incinerator by Security. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

The processes that generated hazardous waste are no longer present.

9.96.4.6 Waste Minimization and Pollution Prevention

At Mound there is an active program to minimize waste streams in accordance with state and federal requirements and Executive Order 12856. Programs in Building 89 for waste minimization and pollution prevention are scrap metal, aluminum can and paper can recycling.

9.96.5 Findings and Recommendations

Photographs were taken to document inspection findings. They are included as Attachment 6 (Section 9.96.6.6). The environmental appraisal of Building 89 indicates that the following action items should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

89-1 Coordinate efforts to remove drum of "decon water" from the area and place it in an approved storage location.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 89

Appraisers:

Name Discipline

Name Discipline

Name Discipline

Name Discipline

Building Manager: J. Boston 2/22/96

Process Manager: TERRY L. HALDERMAN

Date: 2/20/96

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ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental ..aisal Checklist

Building Name: E9 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/20/96

Clean Water Act (CWA) Screening Checklist

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

CWA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 122 Appendix D Table V	If chemicals are used/stored in the building, are they on the attached list? Are they properly contained?	Y / N Y / N	N/A CHEMICALS ARE NOT STORED IN OR USED IN THE BUILDING
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	BUILDING IS CURRENTLY USED BY the City of MIAMISBURG FOR STORAGE
	Do the floor drains, sinks & toilets appear to be draining properly?	Y / N	N/A - UNPLUGGED FLOOR DRAINS NOT IN USE
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	Sanitary Storm	STORM
	Is there a sump/pit in the building? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	Y / (N) _____ _____ Y / N Y / N	 N/A N/A
	Are there any manholes, catch basins, drains, or fill pipes in or around the building? If so, are there any unusual appearances, colors, and/or odors? Describe in comment section. Can chemicals flow into the drain?	Y / (N) Y / (N) Y / N	 N/A

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

Clean Air Act (CAA) Screening Checklist

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

CAA Checklist

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

Environmental A[illegible]aisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

CAA Checklist

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

TABLE A

Process Source	Room Number	Hood Number	In Database	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Hours/Yr. Operation	Air Emissions
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					

Source:

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

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)	NOT READILY AVAILABLE
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	FLAMMABLE CABINET STORED OUTSIDE OF BUILDING 89
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

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Environmental Appraisal Checklist

Building Name: E9

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

Date: 2/20/96

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	N/A
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	Y / N	N/A
CGA P-1 3.3 & 3.3.10	All gas cylinders (full or empty) shall carry a legible label or marking identifying the contents.	Y / N	N/A
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	N/A
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	N/A
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	N/A
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	N/A
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	N/A
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	(Y) / N	
	Is there an emergency response plan available?	(Y) / N	

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

HM Checklist

Regulatory Guideline	Question	Response	Comments
	Is there a process area?	Y / N	AREA FOR PART CRUSHING
	Does it have proper containment?	Y / N	
	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
				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: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

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

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TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead

Source: _____

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Environmental Appraisal Checklist

Building Name: E9

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

Date: 2/20/96

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 charactarization 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	PROCESS KNOWLEDGE SOLID WASTE GENERATION CONSISTS OF SCRAP METAL. RECYCLING EFFORTS
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)	

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

RCRA Checklist

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

General Comments:

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Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Asbestos Screening Checklist

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

Asbestos Checklist

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

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

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Environmental Appraisal Checklist

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

9.96-22

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

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

TSCA Checklist

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

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Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

TSCA Checklist

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

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

TSCA Checklist

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

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/20/96

Low-Level Waste and Transuranic Waste Screening Checklist

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

Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

Low-Level Waste and Transuranic Waste Checklist

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

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: 89

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

Date: 2/20/96

Low-Level Waste and Transuranic Waste Checklist

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

Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Low-Level Waste and Transuranic Waste Checklist

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

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

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	WASTE MINIMIZATION IN PLACE FOR METALS, ALUMINUM, AND PAPER
	Are there solvent wastes?	Y / (N)	
	Is vehicle maintenance performed?	Y / (N)	
	Are oils used ?	Y / (N)	
	Are these corrosive wastes?	Y / (N)	
	Are there sludges?	Y / (N)	
	Are there halogenated organic (nonsolvent) wastes?	Y / (N)	
	Are metals recovered from wastewater?	Y / (N)	
	Is waste sludge generated?	Y / (N)	
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N	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	

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Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES			
	Are halogenated organic wastes used as fuel in cement kilns?	Y / N	
	Are baghouse filters used to collect pesticides and pesticide intermediates?	Y / N	
	Are solid wastes generated from the collection of baghouse dust?	Y / N	
	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	

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Environmental Appraisal Checklist

Building Name: E9 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are ion exchange resins used to remove heavy metals and cyanides from acid and base solutions?	Y / N	
	Is crystallization used to remove corrosives from solution by cooling?	Y / N	
	Is the process of evaporation of liquid wastes by heating used to leave behind a more concentrated solution?	Y / N	
CYANIDE AND REACTIVE WASTES			
	Has non-cyanide or low concentration of cyanide process replaced zinc cyanide bath ?	Y / N	
	Are any of these processes used to recycle cyanide wastes?	Y / N	
	Refrigeration/crystallization?	Y / N	
	Evaporation?	Y / N	
	Ion exchange?	Y / N	
	Membrane separation which includes reverse osmosis or electrodialysis?	Y / N	
VEHICLE MAINTENANCE			
	How are auto parts cleaned?	Y / N	
	Solvent sink?	Y / N	
	Solvent dunk bucket?	Y / N	
	Solvent dip tank?	Y / N	
	Are parts cleaning solvents used for anything else besides cleaning parts?	Y / N	
	Are spills reduced by locating sinks or dunk buckets near auto service bays?	Y / N	

Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Waste Minimization/Pollution Prevention Activities Checklist

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

Environmental Appraisal Checklist

Building Name: 89 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/20/96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

NONE

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

NONE

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

4. Provide a physical description of the building.

Building is a one-story, 4,830-ft², reinforced concrete structure with a BUM roof (asphalt). It has central steam heat and package air conditioning. It was built in 1985. Building is slightly contaminated with energetic materials, but is not contaminated with radioactive materials. The building was found to be asbestos free in May of 1993.

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

5. Provide a drawing of the building.

Attached.

6. What is the current building use?

Building is used for long- and short-term storage of energetic materials that will be analyzed later in Building 48.

Source: Mound Buildings, 5-9-95

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

Source: Mound Buildings, 5-9-95

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Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Process(es) Housed: Storage of components containing explosives

How Wastes Are Generated:

No hazardous wastes are generated in this building.

Contact:
Phone #:

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

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

10. Does the building have air emission sources? No

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

Source: Mound Air Emissions Database 11/30/95

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Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95

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

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

Source: Air Permits 2/4/95

13. Does the building have domestic water service? Yes (No)
Is there bottled water? (Yes) No

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

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

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

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

Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

17. Does the building contain transformers or capacitors? No

Source: PCB ANNUAL DOCUMENT LOG

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

Source: PCB ANNUAL DOCUMENT LOG

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

Chemical Name	State	Amount (MAX)
NONE		

Source: Chemical Inventory 1994

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Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Chemical	Amount	Clean-up Measures

Source: _____

21. Where do waste chemicals go?
WASTE management

22. What janitorial supplies are stored inside or outside of the building?
none

23. Where do excess janitorial supplies go?
N/A

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

NONE

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

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

Source: _____

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

Materials	Amount
Alumina Powder	186.9
Silica Gel	170.4

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

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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

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

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

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

Source: _____

Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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

NONE

Building Manager's Questionnaire

Building Name: 89 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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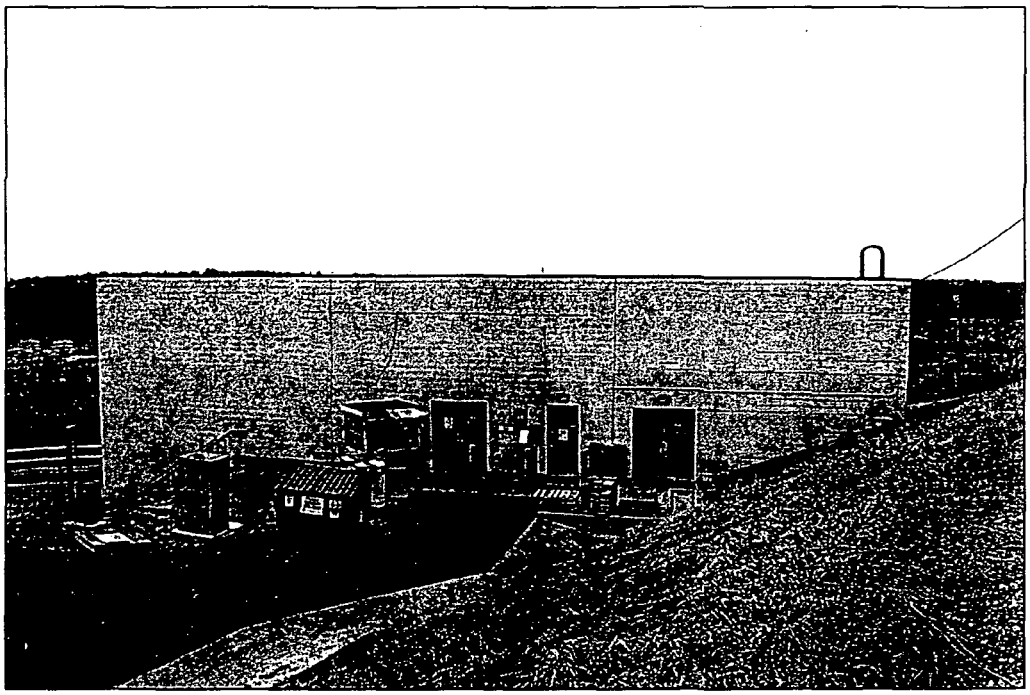
Appendix G

Radiological Information

Predemolition Survey Plan

For

Building 89



Prepared By:	**Roderick C. Case**	**Date:**	**1/29/03**
Reviewed By:	**Galen Tomlinson**	**Date:**	2-3-03
Approved By:	**Danny Riley**	**Date:**	02-03-03

1.0 Historical Overview

Building 89 is located on western edge of the "Main Hill", just to the west-southwest of the site where I Building was located. Based upon site references, Building 89 contains 4,830-ft^2, and has not had any additions or modifications. It is constructed of reinforced concrete block, and in some locations poured walls, set on footers. The reinforced block and poured walls are 8" thick, and are covered on the exterior by 4" block. A layer of 2 " insulation is sandwiched between the inner block and/or poured walls and the exterior 4" block "sheathing."

Over it's 18 year history Building 89 has been used primarily as a detonator and energetic material storage facility. Process information indicates that this building continued in this function until the mid 1990's when the building was transitioned to the Miamisburg Mound Community Improvement Corporation (MMCIC) as a "user facility." It remains as a user facility today.

Based upon the information provided in Reference 1, Building 89 has not routinely generated wastes that required handling as radioactive or as hazardous wastes. However, radiological control documents do contain references to a flammable storage cabinet found with tritium contamination in Room 101 of Building 89 (Radiological Awareness Report #2000029). These same references indicate that this cabinet, which had been located in E Building, was not properly surveyed prior to being moved. The cabinet was removed from Building 89 and subsequent surveys found no additional contamination in Building 89.

A complete history of Building 89 can be found in Reference 1.

1.1 Current Status

Building 89 is currently in the process of being vacated by MMCIC and is scheduled for demolition in accordance with the Miamisburg Closure Project goals. The radiological status of all building surfaces must be determined to facilitate a free release of the structure in accordance with site procedures. The impact of site operations on this building cannot be completely determined from available information. A thorough characterization study of the radiological condition of this building will direct the appropriate decisions of its final status.

2.0 Data Quality Objectives

The Data Quality Objectives (DQO) process is a series of planning steps that have been defined by the EPA (USEPA, 1998) to ensure that the type, quantity, and quality of survey data used in decision making are appropriate for the intended application. The DQO's for this survey plan are derived from Mound procedures and consistent with the Mound 2000 Approach for building disposition (Reference 2).

2.1 Problem Statement

Determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 89 satisfy the release criteria specified in DOE Order 4500.5.

2.2 Decision Statement

The radiological impact of site operations on Building 89 structural surfaces will be determined by hypothesis testing the survey data in accordance with Reference 5. The null hypothesis is stated as:

> N_0 = The residual radioactivity on the survey unit surfaces does not meet the release criteria.
>
> The alternate hypothesis is:
>
> N_a = The residual radioactivity on the survey unit surfaces does meet the release criteria.

If all the measurements are below the Derived Concentration Guideline Level ($DCGL_w$), the null hypothesis is rejected in favor of the alternate and the survey unit passes. Any measurement from the survey unit will be considered elevated if it exceeds the $DCGL_w$. Elevated measurement data will be statistically tested to determine if it exceeds the normal statistical variation. Elevated measurement data exceeding the normal statistical variation will be considered evidence of residual contamination above the release limits.

This survey plan will provide the necessary data to make this decision.

2.3 Inputs to the Decision

The Historical Site Assessment and current survey data are initial inputs to determine area classifications. Gross surface activity measurements for alpha and beta activity will be performed. Removable alpha, beta, and tritium activity will be counted. Sediments will be analyzed for radioisotopes and compared to site screening values.

The instrumentation selected for this survey plan will be appropriate for the radionuclides typical for the Mound site.

Surface scanning will be performed to locate anomalies that might indicate elevated areas of residual activity and that require further investigation or remedial action. A floor scan for alpha contamination will be performed using a Ludlum 2350/43-37 Floor Probe at a scan speed of 1 inch per second, with the probe located within 1/4 inch to the surface being scanned without touching it. The MDA is 85dpm/100 cm^2 with 95% detection probability, at a background level equal to or less than 10 cpm. A 30 second integrated count will be performed at locations where elevated measurements are observed. The MDA in the integrated mode is 49dpm/100 cm^2 or 286 dpm/probe.

Direct measurements of the floor surface will be made at fixed locations using a Ludlum 2350/43-20 scintillation probe (or equivalent) for alpha contamination. The integrated count time is one minute. The MDA is 45 dpm/100cm^2 (α) at a background of less than 3 cpm. Integrated beta measurements will be made at the same locations in accordance with MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3.

The presence of loose surface activity, including H^3 will be determined using coin smears. An area of 100cm^2 will be smeared at each data point. Smears will be counted in an alpha/beta counter. A liquid scintillation counter (LSC) will measure removable tritium.

Smear samples with gross activity above the $DCGL_w$ will be analyzed by alpha or gamma spectroscopy.

All field and laboratory instrumentation will be specified on the Survey Plan Form and shall be operated in accordance with the appropriate Mound procedures.

All surveys and samples collected for this survey plan will be performed in accordance with the Quality Control requirements of Reference 3. Replicate surveys, sample recounts, instrument performance checks, chain of custody for samples, control of field survey data and databases, and QC investigations provide the highest level of confidence in the data collected to support the survey outcome. The Survey Plan Form (SPF) will specify the QC requirements for this survey.

2.4 Study Boundaries

Defining the study boundaries helps ensure the data taken during the final status survey are representative of the survey unit. The area under consideration is the physical surfaces inside and outside of the Building 89 structure. Subsurface material (under-slab, footers, etc) and associated soil is not evaluated in this survey, but will be assessed at a later date as part of a larger soil remediation effort.

The majority of Building 89 surfaces are non-impacted by site operations. No radiological processes were ever used in this building and no radioactive material was routinely stored there. The greatest potential for residual radioactivity is expected on floor areas. Since radioactive material was discovered in Room 101, the floor of this room will be surveyed as a Class 3 area. The remainder of the building surfaces will be bias surveyed to confirm a non-impacted classification. A characterization Survey Plan Form will be written to specify the specific survey and sampling requirements.

Sampling of building materials will include removable loose surface contamination (smears) and sediment sampling of floor drains and ventilation units. Smears (100cm2) will be collected at survey data point locations. Any areas of elevated activity above the $DCGL_w$ will be evaluated for isotopic content by intrusive sampling or insitu analysis.

Survey data points will be randomly placed in the Class 3 survey unit to satisfy the statistic. A reference coordinate grid system is used to locate the data points in the Class 3 survey unit. The location of each data point is determined by multiplying the north-south (X) and the east-west (Y) dimensions of the survey unit by a randomly generated number for each dimension. A calculator, computer, or tables may be used to determine random numbers. For consistency, the southeast corner of the survey unit will be the origin. The data points are then located on a scaled drawing and transferred to the survey unit (See Attachment 1). Professional judgment surveys will be performed to supplement the random survey data, but will not be combined with the statistical data. Judgmental survey data will be compared directly to the release criteria. For survey planning, the number of data points ($n = 20$) in the survey unit was obtained from Table 5.5, Reference 5.

Interior walls and ceilings have no reasonable potential for residual activity and are considered to be non-impacted areas. Non-impacted surfaces will be bias surveyed in accordance with the SPF.

2.5 The Decision Rule

A decision rule relates the concentration of residual radioactivity in the survey unit to the release criterion so that decisions can be made based on the results of the final status survey. Reference 6, DOE Order 5400.5, Radiation Protection of the Public and the Environment, offers generic release criteria for building surfaces. Table 1 lists these permissible surface contamination guidelines which were adapted from NRC Regulatory Guide 1.86. Tritium at the Mound facility is an exception. For tritium, 10,000 dpm/100cm^2 was selected based on technical information presented in Reference 4. For purposes of this survey, these limits are considered to be the 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 are designated $DCGL_W$ in this plan. Biased measurements will be taken and compared directly to the release criteria to support the statistical data. The maximum activity shown in Table 1 represents the $DCGL_{EMC}$. Radionuclide-specific measurements will be made to ensure the appropriate values in Table 1 are used. If the average of the measurements is above the $DCGL_W$, the survey unit will not meet the release criterion. If the average surface activity within each survey unit is below the $DCGL_W$ and the maximum activity is less than the $DCGL_W$, then it will be accepted as the Final Status Survey and no further survey action is required. If the average of the residual activity in the survey unit is less than the $DCGL_W$, but some areas are greater than the $DCGL_W$, the Sign test will be used to determine if the release criteria have been met. Each measured value, when subtracted from the DCGL, will yield a positive or negative number. If the sum of the positive signs (S+) is greater than the Critical Value (Table I.3, Reference 5), then the null hypothesis is rejected and survey

unit passes. The power of the Sign test is given in Reference 5, I.9.1. A prospective power curve constructed using MARSSIM Power 2000 software demonstrates sufficient power exists at the LBGR to detect residual contamination (Attachment 1).

The decision rule for the elevated measurement comparison will be a two-stage process. In the first stage, areas will be flagged as potentially elevated if the direct measurement or scanning measurement indicates concentrations above the $DCGL_w$. If the flagged area is greater than the $DCGL_{EMC}$, the area will require remediation. Areas that are remediated will be reclassified as Class 1 areas and resurveyed in accordance with Reference 5. All Class 1 survey units must be bounded by Class 2 areas for the Final Status Survey.

2.6 The Limits on Decision Errors

A Type I error is made when the null hypotheses, H_0, is rejected when it is true. A Type II error is made when the null hypotheses is not rejected when it is false. The error rates are expressed as the probability that a survey unit passes when it should fail (α) or fails when it should pass (β). Because the measurement variability is expected to be small at the DCGL, the $\alpha = 0.05$ and $\beta = 0.01$ for this survey.

The concentration range between the Lower Bound of the Gray Region (LBGR) and the DCGL defines the gray region of residual radioactivity concentration in which the consequences of Type II decision errors are relatively minor. The statistical test uses the LBGR to define the level that, above which, false positive rates greater than that specified by the limits on decision errors are accepted. The LBGR is limited by the variability exhibited by the measurements and the decision errors chosen. Because the detection limits expected by the direct field measurements are low relative to the $DCGL_w$, it is estimated that an LBGR equal to one-half of the $DCGL_w$ can be achieved.

2.7 Optimizing the Design

The DQO process is neither static nor sequential. As new information is gathered it will be incorporated into the planning process. In order to facilitate this process, a Survey Plan Form (SPF) is developed for field use, to direct the specific details required by the overall survey plan. The SPF will specify the types of samples to be collected and the precise locations and analysis to be performed. It will define the specific instruments to be used for the survey and the exact location and type of surveys required. The SPF will specify the Quality Control (QC) requirements of the survey as required by Reference 3. Additional information and comments can be added to clarify or enhance the survey/sample process. The SPF is reviewed and approved prior to beginning the survey and is subsequently reviewed and approved after all data is collected to ensure completeness and accuracy. Data from initial survey efforts may result in altering area classifications. Additional SPF's may be required to complete the final status survey process for a survey unit.

Data reduction and analysis will result in graphical and numeric interpretation and lead to the acceptance or rejection of the hypotheses. A review of the DQO's will ensure that data have appropriately and adequately addressed the stated objectives, or require further investigation. If all of the survey data supports the rejection of the null hypothesis, then no further survey data will be necessary.

It is critical to the DQO process that the survey units are isolated from the potential for recontamination or disturbances that could lead to invalidating the survey results. Access shall be restricted to all areas where surveys have been completed until such time as the survey unit is released.

2.8 Final Status Survey Report

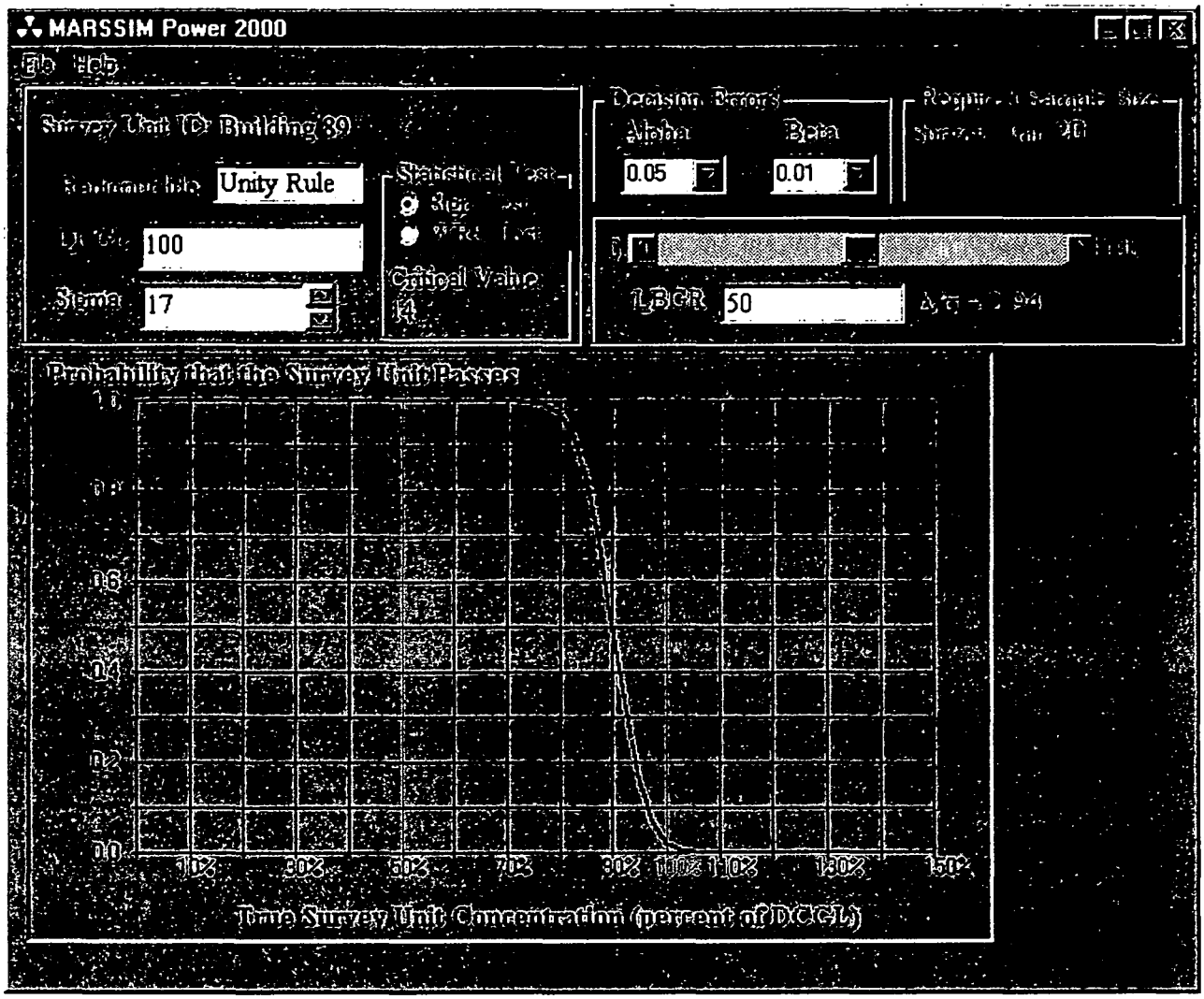
When all of the DQO's are satisfied, a report of the final status of the building is prepared and submitted for review. This report called a Final Status Survey (FSS) will summarize and document the MARSSIM survey and the final status of the building. The FSS report will be transmitted to the Mound 2000 Core Team for review and approval prior to proceeding with building demolition.

3.0 References

1. BWXTO, EC&AS Department, White Paper: *Building 89 Structural History and Process History Summary Background Document*, October 2002
2. Work Plan, *Mound 2000 Approach*, DOE/MEMP, 1995
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op 402
4. DOE, 1991, *Recommended Tritium Surface Contamination Release Guides,* DOE, EH, 0201T, March, 1991; Mound Tritium Committee, Appendix A, Health-Based Risk Assessment for Unconditional Release of Items Contaminated with Tritium
5. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
6. DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

4.0 Attachments

1. Sign Test Power Curve



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

Appendix H

Radon Information

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

UNC Geotech

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

April 12, 1990

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

Dear Mr. Murphy:

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

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

Sincerely yours,

Mark D. Pearson

Mark D. Pearson
Project Manager
UNC Geotech

cc: DOE Points of Contact

[illegible]	Bldg	Bldg Description	Room	pCi/l	pCi/l	Manid	Gupid	Date	Date	Comments
	21		ABOVE AIR SAMPLER	161.1	125.0	1670055	1666782	12/14/89	2/16/90	MET - OLD THORIUM STO
	21		ABOVE AIR SAMPLERS	116.7		1660500		12/14/89	2/16/90	MET - OLD THORIUM STO
		SM	19 MID EAST WALL	4.0		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED R
	40		114 B CLOSET ON SPRINKLER PIPE	3.2		1671292		12/12/89	2/19/90	
	19		ROOM 1	2.6		1670051		12/13/89	2/19/90	
		OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661555		12/14/89	2/19/90	
	55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/18/89	2/19/90	
	57		ROOM 1	1.9		1661565		12/12/89	2/19/90	
	87		143	1.5		1661563		12/12/89	2/19/90	
	910	FIRE STATION	ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654460		12/12/89	2/19/90	
	24		ROOM 1 PLANT NORTH WALL	1.3		1672047		12/12/89	2/19/90	
		PAINT SHOP	PS 4	1.2		1661510		12/12/89	2/16/90	
	30		ROOM 3 EAST	1.1		1671262		12/12/89	2/16/90	
	100		103 MIDDLE OF NORTH WALL	1.0		1670060		12/12/89	2/19/90	
	37		6 NORTH WALL	1.0		1670044		12/12/89	2/19/90	
	34		34 A WEST WALL	.9	.6	1672062	1672042	12/12/89	2/19/90	MET
	102		123	.9		1661577		12/14/89	2/19/90	
	61		RM 221 MIDDLE OF NORTH WALL	.8		1661545		12/12/89	2/19/90	
	67		101 M	.8		1670021		12/12/89	2/19/90	
	G-13	LOG	G-514 WEST WALL	.8		1661544		12/12/89	2/16/90	
		T	CORRIDOR 20	.8		1670039		1/15/90	2/19/90	
		T	153	.8		1670067		1/15/90	2/19/90	
		T	70	.8		1670077		1/15/90	2/19/90	
		T	30	.8		1661546		1/15/90	2/19/90	
	105	PARTS MACHINING BUILDING	STAIRWELL NEXT TO ROOM 121	.8		1661564		12/12/89	2/19/90	
	25	ARAC	3 ON BOOK CASE MIDDLE	.8		1671314		12/15/89	2/19/90	
	60		1 ON DOOR TO ROOM 3	.8		1670049		12/12/89	2/19/90	
		A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/89	2/16/90	
		C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL 3W2	.8		1672052		12/12/89	2/16/90	
		R BUILDING	68 NORTH WALL	.8		1670050		12/13/89	2/16/90	
		SM	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
		WO BLDG	WO 8	.8		1670045		12/18/89	2/16/90	
	87		124	.8		1670032		12/12/89	2/19/90	
	84		ROOM 116 ON NORHT WALL RIGHT OF CEN	.7	.5	1661524	1661635	12/12/89	2/19/90	
→	81		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666783	1666532	12/15/89	2/19/90	
	22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1670070		12/13/89	2/19/90	
	56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1670065		12/12/89	2/19/90	
		E ANNEX	E 225 EAST WALL	.7		1661552		12/18/89	2/16/90	
		POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1670040		12/12/89	2/19/90	
		M BLDG	M-135	.7		1661553		12/12/89	2/16/90	
	26		ROOM 84 SOUTH WEST WALL	.6	.9	1672040	1667150	12/13/89	2/16/90	
	69		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/89	2/19/90	
	26		ROOM 84 SOUTH WEST WALL	.6		1671279		12/13/89	2/16/90	
	35		RM 7	.6		1654450		12/14/89	2/19/90	
	38	PP BLDG	PP CORR 136	.6		1670016		12/14/89	2/19/90	
	72		ON OVERHEAD DOOR BEAM	.6		1672069		1/02/90	2/19/90	
	93		HALLWAY 107 (MIDWAY)	.6		1661629		12/13/89	2/20/90	
	90	FIRE STATION	ROOM 114 DORM	.6		1661507		12/12/89	2/19/90	
		COS	NW STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/89	2/19/90	
		OSM	120 C	.6		1661573		12/12/89	2/16/90	
		SM	150 WEST END GAS BOX	.6		1670043		12/11/89	2/16/90	
		A	34 EAST WALL	.5	.7	1672075	1672051	12/14/89	2/16/90	
	47		102 MIDDLE OF EAST WALL	.5	.5	1650110	1666010	12/12/89	2/16/90	

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Area	Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	45		WORK STATION AREA	.4		1681568		12/14/89	2/18/90	
	46		81 EAST WALL	.4		1672070		12/12/89	2/18/90	
	49		WALL OUTSIDE RM 125	.4		1670020		12/14/89	2/18/90	
	51		107 TOP OF FUME HOOD	.4		1681575		12/12/89	2/18/90	
	62		ROOM 134	.4		1672059		12/13/89	2/20/90	
	63W		RM 4	.4		1670070		12/14/89	2/18/90	
	65		ROOM 10 CONFERANCE ROOM	.4		1671284		12/14/89	2/18/90	
	66		OFFICE AREA	.4		1681554		12/12/89	2/18/90	
	68		EAST WALL CENTER BEAM	.4		1681555		12/14/89	2/18/90	
	69		RM 18A	.4		1681576		12/12/89	2/18/90	
	70		170 MEETING ROOM CENTER WALL	.4		1670041		12/12/89	2/18/90	
	80		ROOM 116	.4		1671295		12/12/89	2/18/90	
	95	SR/PP	95- BLD-ROOM41	.4		1661531		12/12/89	2/20/90	
		DS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1670071		12/13/89	2/18/90	
		I	I HALLWAY	.4		1667184		12/12/89	2/18/90	
		N BUILDING	N 21 WEST WALL	.4		1670057		12/15/89	2/20/90	
		POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1670036		12/12/89	2/18/90	
		R BUILDING	12 SOUTH WALL	.4		1681566		12/13/89	2/18/90	
	34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
	61		RM 151			1681567		12/13/89		MISSING

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Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	R BUILDING	143 NEXT TO NORTH WALL	.5	.5	1660533	1666016	12/13/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671288		12/12/89	2/19/90	
	"B" 175	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
.6		ELECTRICAL PANEL RM IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
40		100	.5		1654480		12/13/89	2/16/90	
43		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
44		ON BULLETTIN BOARD	.5		1678047		12/12/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5		1678050		12/12/89	2/16/90	
50		CELL 113	.5		1661582		12/13/89	2/19/90	
79		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1661605		12/18/89	2/16/90	
89		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
91		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1661593		12/15/89	2/16/90	
92		HALLWAY RIGHT OFF ROOM 8	.5		1661509		12/12/89	2/19/90	
94		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
	A	215 WEST WALL	.5		1661572		12/14/89	2/16/90	
	A	1040 WEST WALL	.5		1661580		12/14/89	2/16/90	
	COS	110 W WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	310 WALL CABINET TO RIGHT OF SINK	.5		1661590		12/12/89	2/19/90	
	E BUILDING	159 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.5		1678072		12/19/89	2/16/90	
	E ANNEX	E 212 NORTH WALL	.5		1661587		12/19/89	2/16/90	
	GH BUILDING	ROOM 2	.5		1678065		12/12/89	2/16/90	
	GP 81	1A MIDDLE OF WEST WALL	.5		1678054		12/12/89	2/19/90	
	H BLDG	ROOM 127	.5		1661571		12/12/89	2/16/90	
	HH	HH-6	.5		1671268		12/18/89	2/19/90	
	I BUILDING	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	N BUILDING	N 100	.5		1678056		12/15/89	2/19/90	
	OSE	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSW	4HT FLOOR	.5		1678028		12/12/89	2/16/90	
	OSE	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSW	319	.5		1678069		12/13/89	2/16/90	
	OSW	2ND FLOOR	.5		1661611		12/12/89	2/16/90	
	POWER HOUSE PH-1	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	R BUILDING	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	SW/R TRITIUM COMPLEX	128 OVER LARGE METAL FLOOR DISC	.5		1678018		12/12/89	2/16/90	
	W BLDG	W135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
	WO BLDG	WOA 110	.5		1671301		12/16/89	2/16/90	
	"B" 124	EAST WALL	.5		1667189		12/12/89	2/16/90	
	OSE	113 BULLETIN BOARD OPPOSITE ELEVATO	.5		1678027		12/15/89	2/16/90	
TF-2		114 EAST WALL CENTER OF ROOM	.4		1678064		12/12/89	2/19/90	
	MH	MH-24	.4		1667187		12/14/89	2/19/90	
	OS BUILDING	CORRIDOR 7 NEXT TO ROOM 216	.4		1661614		12/12/89	2/19/90	
	GP 81	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
27		CELL 8 - WALL	.4		1661583		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	101	.4		1672061		12/12/89	2/19/90	
29		HALLWAY	.4		1672105		12/14/89	2/19/90	
	TEST FIRE BUILDING 3	3-315	.4		1672036		12/12/89	2/19/90	
34	PP BLDG	PP CORR 16/BAY 2 WALL	.4		1661570		12/14/89	2/19/90	
39		BREAK RM	.4		1678050		12/14/89	2/19/90	
42		101 B EAST WALL	.4		1678031		12/13/89	2/19/90	

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 2/18/03 6:16PM
Subject: Building 89 Asbestos & Lead

Donald -

I have completed walk-through surveys of Building 89 for lead paint and asbestos concerns. The following is provided for your use:

Lead

No previous lead surveys or sampling data could be found for Building 89. Observed paint coatings were largely intact.

Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building. No further action would be necessary to protect occupant or worker health unless any coatings were to be disturbed by close worker contact (sanding, grinding, scraping, torch cutting, etc.). If these types of activities are planned, the affected paint coatings should be tested to verify the absence of lead. Since the building is scheduled for demolition, these restrictions should be incorporated into any work plans for which disturbance of paint is a possibility.

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

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

Asbestos

An asbestos survey was conducted by Mr. Ahlquist (an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist) in accordance with EPA NESHAP requirements prior to demolition. One type of material (transite fume hood lining panels) was found to contain asbestos which must be removed prior to demolition. The roofing (4,000 square feet) is of a built-up asphalt variety which is assumed to contain asbestos - being classified as an EPA Nonfriable Category I type of material, its removal is not necessary prior to demolition by normal heavy-duty means. A copy of the survey report is attached.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Darnell, Val; Koehmstedt, Lee

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MOUND

INTEROFFICE CORRESPONDENCE

Date: February 18, 2003

From: Christopher Ahlquist
SMPP/TFV Safety & Health

To: Lee Koehmstedt
SMPP/TFV Engineering

Re: Building 89: Asbestos-Containing Materials

During February of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2MHill Mound, Inc. (CH2M), completed a survey of Building 89 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 89 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. One (1) distinct type of material was found to contain greater than one percent (>1%) asbestos content which defines a material as asbestos-containing by EPA and OSHA regulations. No asphalt roofing materials were sampled during the course of this or previous referenced surveys, and all such materials should be assumed to contain asbestos until analysis indicates otherwise.

Sample Method

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

Analysis of Samples

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

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

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

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

Conclusions

One (1) type of material was identified through analysis to be asbestos-containing (>1%) per EPA and OSHA definition. This material was the grey transite panel lining contained within the two orange laboratory fume hoods which were being stored in Room 101 (large, open room) of Building 89. There was approximately 130 square feet of this material, and it is considered to be an EPA Nonfriable Category II material. Since the building is scheduled for demolition, this material will have to be removed prior to demolition. Removal activities must be accomplished by properly trained individuals employing appropriate work methods and engineering controls.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

Appendix J

Lead Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 2/18/03 6:16PM
Subject: Building 89 Asbestos & Lead

Donald -

I have completed walk-through surveys of Building 89 for lead paint and asbestos concerns. The following is provided for your use:

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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.

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An asbestos survey was conducted by Mr. Ahlquist (an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist) in accordance with EPA NESHAP requirements prior to demolition. One type of material (transite fume hood lining panels) was found to contain asbestos which must be removed prior to demolition. The roofing (4,000 square feet) is of a built-up asphalt variety which is assumed to contain asbestos - being classified as an EPA Nonfriable Category I type of material, its removal is not necessary prior to demolition by normal heavy-duty means. A copy of the survey report is attached.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Darnell, Val; Koehmstedt, Lee

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Appendix K

Chemical Information

Chemical Information – Building 89

The most recent site chemical inventory would not have listed chemicals in Building 89 because the building was transitioned to the MMCIC. A chemical inventory report and a building walk-through performed in the mid-1990s indicate that chemicals were not stored in Building 89. Historical documents indicate that solvents were stored outside the building in an NPFA-approved flammable solvent cabinet; however, no specific chemicals are named in those reports. Processes which involved the routine use of chemicals were not performed in Building 89 since the building was used by the site contractor primarily as a detonator storage facility and then, after transition, as a storage building for equipment and furnishings accumulated by the MMCIC.

A walk-through of the building performed on March 10, 2003, indicates that the solvent cabinet and the drum labeled "decon water" (Appendix F) were removed from outside the building and no chemicals were in the building at the time of the walk-through.

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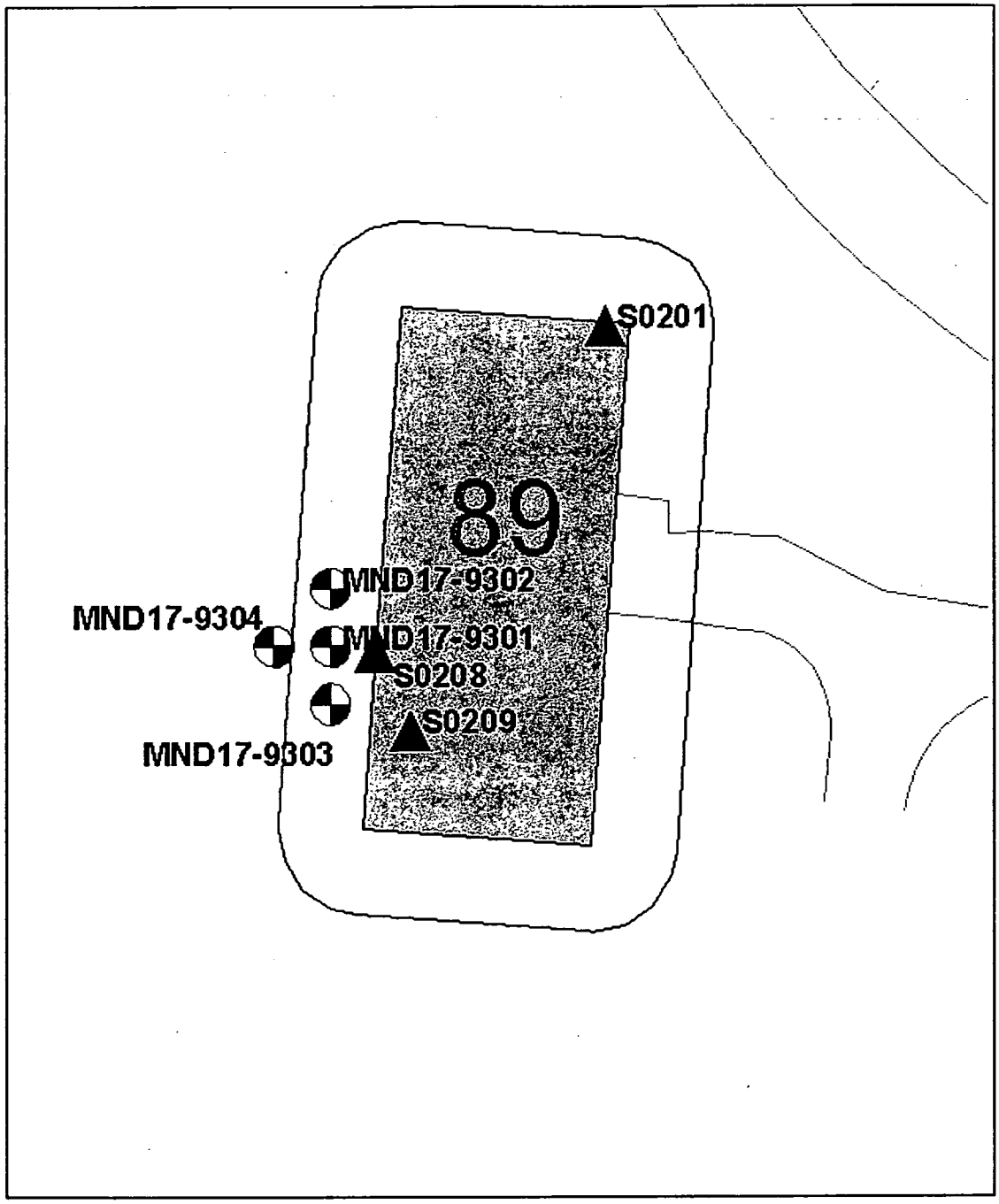
Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 feet of Building 89



25 0 25 50 75 100 Feet

Sample Detect

N
W E
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MOUND

01/23/03

L 1 of 18

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Building 89 Detects

Location _name	Sample_id	Collection_ date	Value_name	Measured _value	Value _units	Detection _limit	Chem_c lass	Start_d epth	End _depth	Lab	Data	Project_code	Media	Comments
MND17-9303	9303-5002	19950829	Antimony	10.2700	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Antimony	7.4003	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Antimony	-2.2956	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Antimony	-17.7750	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Arsenic	66.6260	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	26
MND17-9302	9302-5002	19950829	Arsenic	51.2250	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9303	9303-5002	19950829	Arsenic	40.5800	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Arsenic	38.0550	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9302	9302-5002	19950829	Barium	231.8800	MG/KG	2000.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9303	9303-5002	19950829	Barium	200.9600	MG/KG	2000.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Barium	147.3900	MG/KG	2000.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Barium	132.3100	MG/KG	2000.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Cadmium	14.7550	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Cadmium	0.1861	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Cadmium	-40.6130	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Cadmium	-43.3960	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Calcium	137515.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Calcium	111444.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Calcium	94973.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Calcium	94462.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	
S0209	9849	19850601	Cesium-137	0.8000	PCI/G	0.50	RAD	0.0	0.0			RSS	Soil	123
MND17-9302	9302-5002	19950829	Cesium-137	0.0400	PCI/G		RAD	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Chromium-HI	-403.9500	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Chromium-HI	-550.3200	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Chromium-HI	-556.6000	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Chromium-HI	-564.7500	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Chromium-LO	229.1100	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Chromium-LO	95.0860	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Chromium-LO	-28.9280	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Chromium-LO	-31.1290	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Cobalt	221.9400	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9303	9303-5002	19950829	Cobalt	137.4500	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9302	9302-5002	19950829	Cobalt	125.2100	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Cobalt	-44.9540	MG/KG		INORG	0.5	2.0			MND17	Soil	
S0209	9849	19850601	Cobalt-60	0.5000	PCI/G	0.50	RAD	0.0	0.0			RSS	Soil	13
MND17-9302	9302-5002	19950829	Copper	27.1720	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Copper	-2.8268	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Copper	-34.6110	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Copper	-37.5870	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Iron	23034.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Iron	20102.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Iron	13060.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	

Location _name	Sample_id	Collection_ date	Value_name	Measured _value	Value _units	Detection _limit	Chem_c lass	Start_d epth	End _depth	Lab	Data	Project_code	Media	Comments
MND17-9304	9304-5002	19950829	Iron	12739.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Lead	-4.9898	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Lead	-10.2660	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Lead	-10.2850	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Lead	-10.4520	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Manganese	361.9200	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Manganese	349.3500	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Manganese	190.4500	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Manganese	-172.2600	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Mercury	-0.8828	MG/KG	4.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Mercury	-34.3570	MG/KG	4.00	INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Mercury	-59.5110	MG/KG	4.00	INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Mercury	-79.1350	MG/KG	4.00	INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Molybdenum	6.6289	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Molybdenum	4.8388	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Molybdenum	3.0685	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Molybdenum	2.1198	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Nickel	89.6530	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9302	9302-5002	19950829	Nickel	23.1860	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Nickel	-19.4110	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Nickel	-22.2850	MG/KG		INORG	0.5	2.0			MND17	Soil	
S0208	3085	19831001	Plutonium-238	61.0000	PCI/G	0.01	RAD	0.0	0.0			RSS	Soil	123
S0201	6219	19840801	Plutonium-238	2.2100	PCI/G	0.01	RAD	0.0	0.0			RSS	Soil	2
MND17-9302	9302-5002	19950829	Potassium	25815.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9303	9303-5002	19950829	Potassium	22922.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Potassium	14801.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9301	9301-5002	19950829	Potassium	12904.0000	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9302	9302-5002	19950829	Radium-226	1.1900	PCI/G		RAD	0.5	2.0			MND17	Soil	1
MND17-9303	9303-5002	19950829	Radium-226	0.9600	PCI/G		RAD	0.5	2.0			MND17	Soil	1
MND17-9301	9301-5002	19950829	Radium-226	0.9000	PCI/G		RAD	0.5	2.0			MND17	Soil	1
S0209	9849	19850601	Radium-226	0.8000	PCI/G		RAD	0.0	0.0			RSS	Soil	1
MND17-9304	9304-5002	19950829	Radium-226	0.6000	PCI/G		RAD	0.5	2.0			MND17	Soil	1
MND17-9302	9302-5002	19950829	Rubidium	89.7670	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Rubidium	66.7880	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Rubidium	43.5870	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Rubidium	36.0080	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Selenium	-3.9812	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Selenium	-7.1703	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Selenium	-24.3400	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Selenium	-30.5990	MG/KG	20.00	INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Silver	58.5042	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Silver	55.9894	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9303	9303-5002	19950829	Silver	46.5469	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	2

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Location _name	Sample_id	Collection_ date	Value_name	Measured _value	Value _units	Detection _limit	Chem_c lass	Start_d epth	End _depth	Lab	Data	Project_code	Media	Comments
MND17-9302	9302-5002	19950829	Silver	41.7790	MG/KG	100.00	INORG	0.5	2.0			MND17	Soil	2
MND17-9302	9302-5002	19950829	Strontium	187.9300	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Strontium	175.7600	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Strontium	173.8700	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Strontium	152.6700	MG/KG		INORG	0.5	2.0			MND17	Soil	
S0209	9849	19850601	Thorium-228	0.8000	PCI/G		RAD	0.0	0.0			RSS	Soil	1
MND17-9302	9302-5002	19950829	Thorium-232	0.5400	PCI/G		RAD	0.5	2.0			MND17	Soil	1
MND17-9303	9303-5002	19950829	Thorium-232	0.5200	PCI/G		RAD	0.5	2.0			MND17	Soil	1
MND17-9304	9304-5002	19950829	Thorium-232	0.3000	PCI/G		RAD	0.5	2.0			MND17	Soil	1
MND17-9301	9301-5002	19950829	Thorium-232	0.2000	PCI/G		RAD	0.5	2.0			MND17	Soil	1
MND17-9303	9303-5002	19950829	Tin	-20.1670	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Tin	-22.6340	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Tin	-27.2440	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Tin	-38.4250	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Titanium	2639.7000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Titanium	2286.3000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Titanium	1401.8000	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Titanium	1180.1000	MG/KG		INORG	0.5	2.0			MND17	Soil	
S0208	3085	19831001	Tritium	0.7200	PCI/ML		RAD	0.0	0.0			RSS	Soil	
MND17-9304	9304-5002	19950829	Uranium-238	0.4000	PCI/G		RAD	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Zinc	311.6700	MG/KG		INORG	0.5	2.0			MND17	Soil	2
MND17-9304	9304-5002	19950829	Zinc	29.8110	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Zinc	18.0100	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Zinc	9.8414	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9302	9302-5002	19950829	Zirconium	176.4200	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9303	9303-5002	19950829	Zirconium	120.3400	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9304	9304-5002	19950829	Zirconium	68.6690	MG/KG		INORG	0.5	2.0			MND17	Soil	
MND17-9301	9301-5002	19950829	Zirconium	68.0690	MG/KG		INORG	0.5	2.0			MND17	Soil	

*Comments

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

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

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

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Building 89 Non-Detects

Location name	Sample_id	Collection date	Value_name	Measured value	Value units	Detection limit	Chem class	Start_ depth	End depth	Lab	Data	Project_code	Media
MND17-9303	9303-5002	19950829	Actinium	0.1400	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9302	9302-5002	19950829	Actinium	0.1400	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9304	9304-5002	19950829	Actinium	0.1000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9301	9301-5002	19950829	Actinium	0.0800	PCI/G		RAD	0.5	2.0	U		MND17	Soil
S0209	9849	19850601	Americium-241	0.5000	PCI/G	0.5000	RAD	0.0	0.0	U		RSS	Soil
MND17-9303	9303-5002	19950829	Americium-241	0.0400	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9302	9302-5002	19950829	Americium-241	0.0400	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9304	9304-5002	19950829	Americium-241	0.0300	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9301	9301-5002	19950829	Americium-241	0.0300	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9304	9304-5002	19950829	Cesium-137	0.0200	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9303	9303-5002	19950829	Cesium-137	0.0200	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9301	9301-5002	19950829	Cesium-137	0.0100	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9304	9304-5002	19950829	Cobalt-60	0.0200	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9302	9302-5002	19950829	Cobalt-60	0.0200	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9303	9303-5002	19950829	Cobalt-60	0.0100	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9301	9301-5002	19950829	Cobalt-60	0.0100	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9303	9303-5002	19950829	Plutonium-238	34.7400	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9304	9304-5002	19950829	Plutonium-238	33.6000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9302	9302-5002	19950829	Plutonium-238	30.8300	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9301	9301-5002	19950829	Plutonium-238	28.0000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9301	9301-5002	19950829	Protactinium-231	0.7000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9303	9303-5002	19950829	Protactinium-231	0.6100	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9302	9302-5002	19950829	Protactinium-231	0.5700	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9304	9304-5002	19950829	Protactinium-231	0.4000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9303	9303-5002	19950829	Thorium-230	3.5000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9302	9302-5002	19950829	Thorium-230	3.3900	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9304	9304-5002	19950829	Thorium-230	3.0000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9301	9301-5002	19950829	Thorium-230	2.6000	PCI/G		RAD	0.5	2.0	U		MND17	Soil
S0201	6219	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0208	3085	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
MND17-9302	9302-5002	19950829	Uranium-238	2.7100	PCI/G		RAD	0.5	2.0	U		MND17	Soil
MND17-9303	9303-5002	19950829	Uranium-238	2.6900	PCI/G		RAD	0.5	2.0	U		MND17	Soil
S0209	9849	19850601	Uranium-238	2.0000	PCI/G		RAD	0.0	0.0	U		RSS	Soil
MND17-9301	9301-5002	19950829	Uranium-238	2.0000	PCI/G		RAD	0.5	2.0	U		MND17	Soil

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LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

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DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

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

SUB-QUALIFIER CODES

ORGANICS

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

INORGANICS

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

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

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

Comparisons for Soil Analytical Results

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

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

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

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

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

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

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

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Appendix M

Occurrence Reports

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

- pink dye tracing liquid erroneously mistaken for ethylene glycol spill,
- precautionary evacuation (false fire alarm), and
- smoke detector activation due to dust from diamond saw cutting of concrete.

OH-MB-BWO-BWO05-2001-0001 Final Report

Occurrence Report

Utilities Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: DIXON, DONALD V
Title: BUILDING MANAGER **Telephone No.:** (937) 865-4371

(Facility Manager/Designee)

Name: DIXON, DONALD V
Title: BUILDING MANAGER **Telephone No.:** (937) 865-4371

(Originator/Transmitter)

Name: Donald Dixon **Date:** 04/12/2001

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO05-2001-0001

Glycol Spill

2. Report Type and Date: Final

	Date	Time
Notification:	03/07/2001	09:48 (MTZ)
Initial Update:	04/12/2001	15:26 (MTZ)
Latest Update:	04/12/2001	15:26 (MTZ)
Final:	05/22/2001	05:44 (MTZ)

3. Occurrence Category: Off-Normal

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

5. Division or Project: BWXTO

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Storm Water Outfall

8. UCNI?: No

9. Plant Area: Balance of Plant

10. Date and Time Discovered: 03/06/2001 15:30 (ETZ)

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11. Date and Time Categorized: 03/07/2001 07:00 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
03/06/2001	16:50 (ETZ)	Chris White	DOE-MEMP

14. Subject or Title of Occurrence:

Glycol Spill

15. Nature of Occurrence:

02) Environmental
E. Environmental Agreement/Compliance Activities

16. Description of Occurrence:

On Tuesday, March 6, 2001 between 3:30 and 4:00 p.m. there was a spill of ethylene glycol. A pink liquid was noticed going down the concrete spillway behind Bd. 89. As of this morning the source has not been determined.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

The Mound Fire Dept. Was notified and responded to the scene
Ron Paulick was contacted at approximately 4:15pm.
The sluice gates and diverter valve were closed.
Environmental Monitoring was called to collect samples at Outfall 602.
Notifications were made to DOE, the ESH & Q Director and the Site & Grounds Facility Manager.
The OEPA hot line was called to report the event

20. Direct Cause:

3) Personnel Error
C. Communication Problem

21. Contributing Cause(s):

22. Root Cause:

3) Personnel Error
C. Communication Problem

23. Description of Cause:

M 2 of 12

After discussions with Powerhouse Personnel, it seems a well intentioned operator, used some dye tablets to locate the source of water infiltration into a drainage trench under Boiler #2, late Tuesday afternoon. This could account for pink coloring in the effluent at 602, but not glycol.

24. Evaluation (by Facility Manager/Designee):

Because this incident was reported to the Ohio EPA via their Hot Line, this act warrants an occurrence report. There was no impact to the environment.

25. Is Further Evaluation Required?: No

26. Corrective Actions

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

1. Maintenance personnel to be reminded to inform their supervision prior to the use of any dye substance, so supervision is to inform the environmental group.

Target Completion Date: 03/10/2001	**Completion Date:** 03/10/2001

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

The environmental organization should be notified of any use of dye tracing so the regulators can be notified in advance and eliminate the need to notify then via a hotline.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

M 3 of 12

Approved by: DIXON, DONALD V, Facility Manager/Designee
Date: 04/12/2001
Telephone No.: (937) 865-4371

Approved by: WHITE, CHRISTOPHER A, Facility Representative/Designee
Date: 05/22/2001
Telephone No.: (937) 865-4396

Approved by: Approval delegated to FR
Date: 05/22/2001
Telephone No.:

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ALO-DA-EGGM-EGGMAT03-1992-0002 Final Report

Occurrence Report

Main Hill Facilities

(Name of Facility)

Explosive

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Fischbein, Robert A.
Title: Director, Operations **Telephone No.:** (513) 865-3727

(Facility Manager/Designee)

Name: ROBERT A. FISCHBEIN
Title: DIRECTOR, OPERATIONS **Telephone No.:** (513) 865-3727

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. **Occurrence Report Number:** ALO-DA-EGGM-EGGMAT03-1992-0002

BUILDING 89 EVACUATION; GROUP 1 FACILITY CONDITION I OFF-NORMAL SUB PARAGRAPH (F)

2. **Report Type and Date:** Final

	Date	Time
Notification:	07/09/1992	11:24 (MTZ)
Initial Update:	07/14/1992	08:46 (MTZ)
Latest Update:	07/14/1992	08:46 (MTZ)
Final:	08/03/1992	06:57 (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 89

8. **UCNI?:** No

9. **Plant Area:** LOWER PLANT AREA

10. **Date and Time Discovered:** 07/08/1992 11:09 (ETZ)

M 5 of 12

11. Date and Time Categorized: 07/08/1992 13:05 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
07/08/1992	13:10 (ETZ)	ART KLEINRATH	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

BUILDING 89 EVACUATION; GROUP I FACILITY CONDITION I OFF-NORMAL SUB PARAGRAPH (F)

15. Nature of Occurrence:

01) Facility Condition
H. Operations

16. Description of Occurrence:

"This occurrence report was originated and approved by a Derivative Classifier (Robert Fischbein, 07/09/92 @ 10:15) and contains no classified nor UNCI information."

On 7/08/92 at 1109 hours, the fire department monitored a smoke detector alarm signal from Building 89. The alarm signal was monitored at the emergency communications center.

17. Operating Conditions of Facility at Time of Occurrence:

NORMAL FIRST SHIFT OPERATING CONDITIONS. AT THE TIME OF THE OCCURENCE A HOT, HIGH HUMIDITY CONDITION EXISTED IN THE AREA.

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

The fire department responded to the alarm signal and ordered the two occupants of the building to evacuate. No abnormal condition was found in building 89.

20. Direct Cause:

1) Equipment/Material Problem

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E. Electrical or Instrument Noise

21. Contributing Cause(s):

4) Design Problem
B. Inadequate or Defective Design

22. Root Cause:

7) External Phenomena
A. Weather or Ambient Condition

23. Description of Cause:

The combination of high humidity and temperature in the locations of the smoke detector, the interface panels and the inter connect transmission lines to the alarm computer are felt to be the probable cause for the transient electrical signals to the Emergency Communications Center.

24. Evaluation (by Facility Manager/Designee):

Given the weather conditions at the time of the incident i.e., lightning alerts, high temperature and humidity that occurred in and around the time of this incident, the conclusion reached, with regard to probable cause, was that the false alarm was weather related.

25. Is Further Evaluation Required?: No

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

1.

Smoke detector in building 89 was replaced.	
Target Completion Date: 07/08/1992	**Completion Date:** 07/08/1992

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

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Transients in electrical power can cause false alarms. Some frequency of occurrence is to be expected given the state of the art of current designs.

31. Similar Occurrence Report Numbers:

1. ALO-DA-EGGMAT03-1992-0003
2. ALO-DA-EGGMAT03-1991-1001

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Fischbein, Robert A., Facility Manager/Designee
Date: 07/14/1992
Telephone No.: (513) 865-3727

Approved by: PORCO, DAVID J., Facility Representative/Designee
Date: 07/24/1992
Telephone No.:

Approved by: HAGAN, RALPH A., Program Manager/Designee
Date: 08/03/1992
Telephone No.:

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ALO-DA-EGGM-EGGMAT03-1994-0010 Final Report

Occurrence Report

Main Hill Facilities

(Name of Facility)

Explosive

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: BOSTON, JEFFREY L
Title: BLDG MGR EXPLOSIVE FACILITIES **Telephone No.:** (513) 865-3262

(Facility Manager/Designee)

Name: J. L. Boston
Title: Bldg. Mgr. Explosive Facilities **Telephone No.:** (513) 865-3262

(Originator/Transmitter)

Name: D. A. Homan **Date:** 06/29/1994

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT03-1994-0010

Activation of Safety System - Smoke Detector

2. Report Type and Date: Final

	Date	Time
Notification:	06/22/1994	14:56 (MTZ)
Initial Update:	06/30/1994	13:31 (MTZ)
Latest Update:	06/30/1994	13:31 (MTZ)
Final:	07/08/1994	05:43 (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 89

8. UCNI?: No

9. Plant Area: Main Hill Area

10. Date and Time Discovered: 06/21/1994 10:30 (ETZ)

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11. Date and Time Categorized: 06/21/1994 14:00 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
06/22/1994	14:00 (ETZ)	Fred B. Holbrook	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Activation of Safety System - Smoke Detector

15. Nature of Occurrence:

01) Facility Condition
H. Operations

16. Description of Occurrence:

On Jun 21, 1994 at approximately 1030 hours (ETZ), a smoke detector in Building 89, Surveillance Explosives Storage Facility, was activated. The Mound Fire Department responded, found no smoke present and reset the smoke detector.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (D. A. Homan, Manager) on 6/29/94 at 0845 hours (ETZ) and contains no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Construction operations existed during occurrence

18. Activity Category:

01 - Construction

19. Immediate Actions Taken and Results:

The maintenance crew and Mound Fire Department determined that the smoke detector was activated by airborne dust associated with diamond saw cutting of concrete during construction for the installation of the 10,000 lb. forge hammer. After the incident, the smoke detectors were taken out of service to prevent activation during the remaining concrete cutting operations.

20. Direct Cause:

1) Equipment/Material Problem
F. Contaminant

21. Contributing Cause(s):

M 10 of 12

22. Root Cause:

3) Personnel Error
A. Inattention to Detail

23. Description of Cause:

The Direct Cause of the activation of the Building 89 smoke detector safety system was cutting saw gasoline engine exhaust contamination of the smoke detector sensor. This occurred during maintenance operations involving cutting of the concrete. The Root Cause of the occurrence was personnel error in failure to notify the Fire Department of the Maintenance Operation in order to temporarily put the smoke detection system off line.

24. Evaluation (by Facility Manager/Designee):

operation involving cutting of the concrete floor to install the 10,000 pound force hammer was performed utilizing a gasoline-powered diamond cutting saw. The exhaust gases from the engine contaminated the smoke detector sensor resulting in activation of the alarm system.

25. Is Further Evaluation Required?: No

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

1. Building Manager to instruct area technicians to ensure maintenance operations that have the potential to activate the smoke detection system are not performed until the Fire Department is notified.

Target Completion Date: 06/22/1994	**Completion Date:** 06/22/1994

2. Facility Manager to instruct Area Engineer and Maintenance Foreman as to the importance of attention to detail with regards to their responsibilities during maintenance operations that could affect Fire Protection and other safety systems.

Target Completion Date: 06/28/1994	**Completion Date:** 06/28/1994

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Inattention to detail in thoroughly planning of maintenance

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operations can have many negative impacts to personnel, safety, facilities and the environment. Management should stress as often as possible the importance of proper and thorough planning in this area.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: BOSTON, JEFFREY L, Facility Manager/Designee
Date: 06/30/1994
Telephone No.: (513) 865-3262

Approved by: HOLBROOK, FRED B., Facility Representative/Designee
Date: 06/30/1994
Telephone No.:

Approved by: KUMAR, RAMENDRA, Program Manager/Designee
Date: 07/08/1994
Telephone No.: (301) 903-2865

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Appendix N

PRS Information

Recommendation pages are not generated for PRSs that require Further Assessment (FA) or that have been unbinned. Accordingly, there is no recommendation page included for PRS 91.

MOUND PLANT
PRS 239
SOIL CONTAMINATION - BUILDING 89

RECOMMENDATION:

This site was identified as a Potential Release Site (PRS) due to detectable plutonium-238 levels at surface soil samples, however no history of radiological processes occurred at the location of PRS 239. Additional verification sampling resulted with a plutonium-238 reading of 61 pCi/g which was below the DOE clean-up standard of 100 pCi/g. In addition, the stakeholders have been involved in developing a plutonium clean up level for the OU4 canal (which is based on a conservative recreational land use scenario) and have agreed on a clean up level of 75 pCi/g. The initial concentration was less than the offsite canal standard, therefore, PRS 239 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 2/29/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 3/4/96 (date)

OEPA: Brian K. Nickel, Project Manager — 3/4/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from ~~4/15/96~~ 3/15/96 to ~~5/15/96~~ 4/01/96.

☒ No comments were received during the comment period.

☐ Comment responses can be found on page_____ of this package.

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Appendix O

Work Plan

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

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

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

1. WORK PACKAGE TITLE: Building 89Demolition

2. WORK PACKAGE NUMBER: SMPP/TFV-*35222 - 00*

3. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Building 89. Using heavy equipment to demolish the concrete block / poured concrete walled facility (including concrete structure, slab, sidewalks, foundation and adjacent turnaround turn around concrete structure), remove and dispose of the debris, provide site restoration, grading, and erosion protection with seeding and mulch.
This is a Non-Radiological Demolition project and no RWP is required
Asbestos abatement, safe shutdown, and utilities isolation activities will have already been completed prior to demolition.

4. WORK LOCATION: Building #: 89
West Side of Main Hill Area

5. WORK PACKAGE PHASES:

1. Site Information
2. Site Preparation & Mobilization
3. Building, Slab and Adjacent Turn Around Structure Demolition
4. Site Remediation & Demobilization

List of Appendixes

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

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

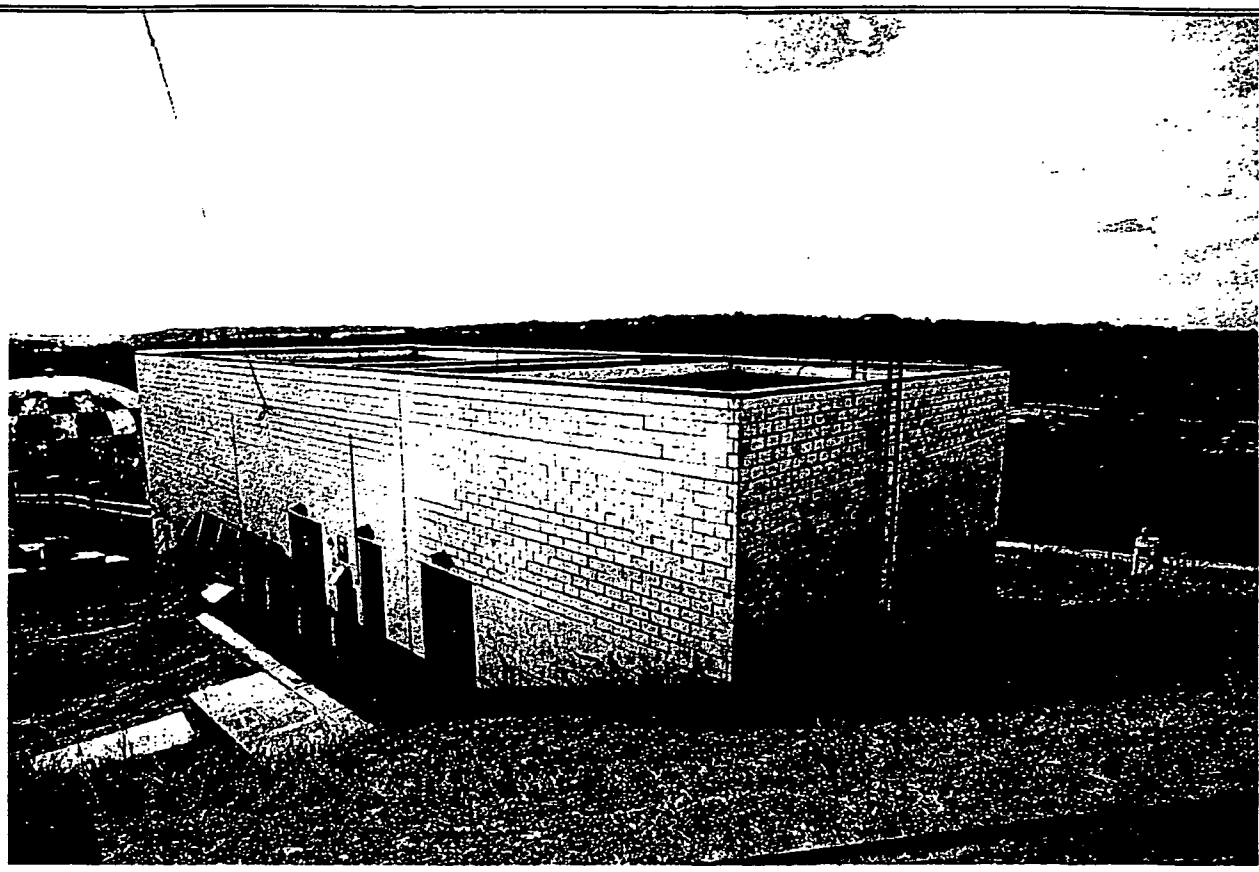
6. SPECIAL MATERIALS AND EQUIPMENT:

1. Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment.
2. Rock crusher.
3. Rubber tired and tracked front-end loaders.
4, Transport equipment for debris as required.

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

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

Project Manager:_____ Date and Time:_____



7. DETAILED WORK STEPS:

7.1 SITE INFORMATION:

Building 89 was constructed in 1985 on the western edge of the "main hill", just to the west-southwest of the SW/R building complex. The building is a two-story, 4,830 square-foot structure, constructed of reinforced concrete block and in some locations poured concrete walls. The roof structure is of a typical metal joist and ribbed deck with a built-up membrane roof. The basement or lower floor of the structure consists of one room (mechanical room) located on the eastern third of the structure, with the remaining two-thirds of the area underlying the first floor being unexcavated.

The foundation consists of reinforced concrete "grade beams, footers, and foundation walls."

The first floor slab consists of two systems, the first is a 5" thick reinforced concrete or a 12" precast concrete slab with a 2" topping slab. The basement has an on grade 5" thick reinforced concrete slab.

Exposed exterior wall construction generally consists of 4" concrete block veneer on reinforced poured concrete or block walls. Reinforcing rebar consists of #5 @ 8" for vertical wall reinforcement and continuous tie reinforcing rebar (#5). The concrete block veneer/block walls are anchored by #5 rebar at 8", set 24" in the footer.

The interior partition walls of the first floor are constructed of 8" reinforced masonry wall. The reinforcing rebar in this wall is running vertically (#5 @ 24").

The roof system consists of 28 LH steel joists with 20 gauge galvanized steel decking with built up roofing materials.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 89 is not listed as a historic structure with the Ohio Historic Preservation Office (OHPO). No mitigative documentation package is required.

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

7.3 SITE PREPARATION & MOBILIZATION

7.3.1 Site Access Control

Access to the work zone boundary will be controlled using fencing and/or with barricade tape as directed by the Project Foreman. Proper signage will be placed at all access points to the site.

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

Install sediment/storm water control fence around designated construction area. Coordinate with Environmental Compliance PoC. Leave concrete slab (splash block) at storm drain.

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.

Mark and/or protect fire prevention line in SW corner of BD89 basement. Cover with box or field grates for protection.

7.3.3 Temporary Utilities

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

7.3.4 Temporary Facilities

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

7.3.5 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.

7.3.6 Staging Areas

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

7.4 PRELIMINARY ACTIVITIES AND VERIFICATIONS

7.4.1 Verify all Building Safe Shutdown Activities have been completed per SMPP/TFV – 34621

verified by _____ date: _____

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

verified by _____ date: _____

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

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

WARNING

7.4.5 Contact DPL (Bruce Anderson contact person) to de-energize 12.4 KV line which runs to the south of building 89. Give a weeks advance notice to Bruce.

verified by _____ date: _____

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

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

7.5 BUILDING DEMOLITION SEQUENCE OF WORK

7.5.1 Structural Demolition

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

HOLD POINT: RAPCA Notification verification

Environmental Compliance PoC_____ Date to Proceed with Demo_____

Demolish the superstructure of the building's, cut and pull down the joists and roofing materials, concrete masonry block & poured concrete walls using heavy equipment.

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.

IMPORTANT: Ensure safe footing is maintained on the steep terrain around building 89.

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

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

WARNING HAZARD: Dust Control – Utilize misting & fogging during demolition & road wetting during waste hauling. **The Goal is no visible dust emissions.**

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

CAUTION HAZARD: Struck by flying debris. Establish construction boundary. Wear hard hat safety glasses, safety shoes, and reflective vest inside construction area.

CAUTION HAZARD: Struck by moving equipment.

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

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

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

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

7.5.2 Slab, Foundation, and Adjacent Turnaround Structure Demolition

Using heavy equipment, break apart the concrete slab, foundation, footers to 3 feet below grade and the adjacent turnaround concrete structure, 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: Take care to prevent damage to the fire prevention water line blanked off at SW corner of building.

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

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

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

7.6 SITE REMEDIATION & DEMOBILIZATION

7.6.1 Grading, Seeding, & Mulching

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

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

Remove any unnecessary remaining sediment/storm water control fences

7.6.2 Remove Temporary Protection Structures

Remove plywood barriers from Building 89 wooden boxes from fire water lines.

7.6.3 Demobilize Construction Equipment

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

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

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

COMMENTS:

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

9. REVIEW SIGNATURES:

Written by: _____ Date: ___/___/___ Phone: _____

Job Foreman: _____ Date: ___/___/___ Phone: _____

Superintendent/Constr. Mgr: _____ Date: ___/___/___ Phone: _____

Project Eng. Mgr: _____ Date: ___/___/___ Phone: _____

Industrial Safety & Hygiene: _____ Date: ___/___/___ Phone:

Rad. Controls: _____ Date: ___/___/___ Phone:

Environmental Compliance_____ Date: ___/___/___ Phone:

Waste Mgmt: _____ Date: ___/___/___ Phone:

Bldg. Mgr:_____ Date: ___/___/___ Phone:

Craft Review:_____ Trade_____ Date: ___/___/___ Phone:

Craft Review:_____ Trade_____ Date: ___/___/___ Phone:

Craft Review:_____ Trade_____ Date: ___/___/___ Phone:

Craft Review:_____ Trade_____ Date: ___/___/___ Phone:

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

Brief Explaination_____Building 89is not a Nuclear or Radiological Building_____

USQ Trained Person: _____ Date: ___/___/___ Phone:

10. AUTHORIZATION SIGNATURE:

Project Manager: _____ Date: ___/___/___ Phone:

11. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: ___/___/___ Phone:

Project Manager: _____ Date: ___/___/___ Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

Work Package Revision Form

Work Package Revision Form			
Work Package No.SMPP/TFV-35222-00		Revision No.	
Revision Description: (attach page revisions to form)			
	Name	Signature	Date
PREPARED BY:			
Revision Preparer:			
REVIEWED BY:			
Project Engr. Manager:			
Project Foreman:			
Project Superintendent/ Constr. Mgr.:			
Industrial Safety & Hygiene P o C:			
Radiological Point of Contact:			
Environmental Safeguards & Compliance P o C:			
Waste Management PoC:			
Building Manager:			
Other:			
Other:			
USQ Trained Person			
USQ SCREEN / DETERMINATION REQUIRED? ☐YES ☐NO Brief Explaination_____			
APPROVED BY:			
Project Manager:			

Work Package Revision History Form

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

Appendix A

PHA/JSHA

PRELIMINARY HAZARD ANALYSIS (PHA)
FOR WORK PACKAGE ACTIVITIES

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

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Blockage of exits or means of egress	No	N/A	[EGRESS]
Blockages/obstructions (Identify)	N/A	N/A	
Burning, welding, hot-work (Fire Watch)	Yes	3	[BURN] Use of cutting torch during demolition. Hot Work Permit required.
Chemical compatibility of corrosives/flammables	No	N/A	
Chemical process safety	N/A	N/A	
Compressed gas cylinders	No	N/A	
Confined space entry	N/A	N/A	[CONFINE]
Crane operations, overhead or mobile	N/A	N/A	
Critical lifts (heavy or high value loads)	N/A	N/A	[CLIFT]
Electrical hazards	No	N/A	[LIVEL] Electrical Isolation of facility is accomplished during Utilities Isolation activities. Street light circuit will be LOTO when within 10'.
Elevated work/fall protection	N/A	N/A	[ELEV]
Emergency eyewash/shower available	N/A	N/A	[EWASH]
Emergency alarms or evacuation plans required	Yes	All	[EMERG] Plant Public Address system will be used to announce any plant emergency over the plant radio channel, cell phones will be used also, no specific added hazards exist in the demolition of this building.
Explosive/flammable atmosphere	N/A	N/A	
Explosives	N/A	N/A	
Fire protection system/equipment outage	Yes	All	[FIRE/EFIRE] FAS & fire protection system isolated during Utilities Isolation activities.
Fire Hazards Analysis Required of Demolition	No	N/A	[FHA/ADJA] FHA walkthrough of facility is accomplished during Utilities Isolation activities.
Flammable liquids/gases	N/A	N/A	[FLAM]
Forklifts, aerial lifts or material handling equipment	N/A	N/A	
Grounding of electrical equipment	N/A	N/A	
Hazards due to condition of facility or terrain (Identify)	Yes	2,3 & 4	Proximity to the steep slopes that surround BD89 on three sides.
Hoisting and rigging	N/A	N/A	[HOIST]
Lighting/illumination/adequacy	N/A	N/A	[MLITE]
Excavation and Soil disturbance	Yes	3 & 4	Excavation Permit is required.

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

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

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout of hazardous sources:			[LOTO/ISO]
• Electrical	Yes	2, 3, & 4	Electrical Isolation of facility is accomplished during Utilities Isolation activities.
• Mechanical (steam, hydraulic, pneumatic)	N/A	N/A	
• Interlocks	N/A	N/A	[ILOCK]
• Chemical	N/A	N/A	
• Radiological	No	N/A	BD89is not a radiological area, no RWP is required.
Machine guards	N/A	N/A	
Modification to Fire Wall/Door	N/A	N/A	[FIREWAL]
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	No	N/A	Fire hydrant available for emergency use.
Off-shift work	No	N/A	
Outages of the plant public announcement (PA) system or the emergency notification system	N/A	N/A	[OUTAGE]
Overhead or underground utilities (Identify)	Yes	2, 3, & 4	[UITL] See attached drawings.
Penetrations into walls, floors, etc.	N/A	N/A	[PENETR]
Plastic sheeting or wood framing/enclosures	N/A	N/A	
Powder-actuated tools	N/A	N/A	
Plant utilities (Identify)	N/A	N/A	[WATER]
Repetitive work	N/A	N/A	[ERGO]
Structural Modification	Yes	2 & 3	[STRUCT] Building & slab is being demolished.
Special Fire Protection Equipment Required	N/A	N/A	[FIREQU]
Trenching/Shoring	N/A	N/A	[DIG]
Temporary heating facilities	N/A	N/A	
Temporary/portable buildings or structures	N/A	N/A	[FACIL]
Temporary service hook-ups (Identify)	Yes	All	Temp. electrical and water service (for dust control).
Traffic control/flagman	No	N/A	[TRAFIC]
Work in attics, ceilings, chases, or crawlspaces	N/A	N/A	
Work impacting adjacent normally occupied areas	No	N/A	[ADJAC/BMAPP/SIGNS/NOTIF]
Work Requiring Scaffolding, construction and inspection	N/A	N/A	[SCAFF]
Other (Specify) Building Structural Engineering Survey per OSHA 29 CFR 1926.850	Yes	2	Survey Completed by ___W. Johanan_-_letter in Appendix _D_____

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

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

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Abrasive blast (MSDS available)*	N/A	N/A	
Asbestos	No	N/A	[ASBEST]
Beryllium	N/A	N/A	
Blood-borne pathogens*	N/A	N/A	
Cadmium	N/A	N/A	
Carcinogens (MSDS available)*	N/A	N/A	[CARC]
Chemicals/solvents (☐ MSDS available)*	N/A	N/A	[CHEM/MSDS]
Chlorofluorcarbon (CFC)	N/A	N/A	[CFC]
Coal. tar or asphalt products	Yes	2	Roofing material contains tar and asphalt products; to be disposed of as construction debris.
Coating/painting (☐ MSDS available)*	N/A	N/A	
Corrosives/acids/caustics (☐ MSDS available)*	NA	N/A	
Dusty operations	Yes	2 & 3	[POWDER] Potential dust generation controlled via water misting during demolition and road wetting during waste hauling.
Hazardous Waste Operations (HAZWOPER)*	N/A	N/A	
High Pressure systems	N/A	N/A	[HIPRES]
Insulation/man-made mineral fibers (☐ MSDS available)*	N/A	N/A	
Lasers	NA	N/A	
Lead	Yes	2 & 3	Paint may contain lead, do not torch cut painted surfaces without verification by IH.
Foam in Place Operations	N/A	N/A	
Mercury	N/A	N/A	
Noise in excess of 85 dBA	Yes	2 & 3	[NOISE] Hearing protection required
Polychlorinated biphenyls (PCBs)	N/A	N/A	
Removal of ceiling tiles*	N/A	N/A	
Spraying/generation of mists*	Yes	2 & 3	Demolition dust control via water mist and road wetting during waste hauling.
Temperature extremes (heat or cold stress)	Yes	All	[CRYRO/COLD/HEAT]] discuss in Pre-job/daily briefings & monitor work.
Ventilation or Air Monitoring requirements	Yes	2 & 3	[VENTIL/IH] Air monitoring for potential silica during demolition activities will be performed as needed for annual site assessment.
Welding, brazing, or thermal cutting operations	Yes	2 & 3	[BURN] Hot Work Permit required
Other (specify)	N/A	N/A	

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

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

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

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

SECTION D. ENVIRONMENTAL COMPLIANCE - TO BE COMPLETED BY ENVIRONMENTAL COMPLIANCE REPRESENTATIVE

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

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

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

	Quantity Expected	Work Package Phase	Radiological Characterization	Packaging Requirements	Mode of Disposal
Types: Solid Waste (list types):	Total 875 yds	3	No elevated radioacitivity levels	30 Cu. Yd. Roll-Off/End Dumps	Offsite disposal via Waste Management Operations/Journey LTD
Concrete					
Steel & Copper Piping					
Metal Roofing					
PVC					
Electrical Wiring					
Fiberglass Insulation					
Wood					
RCRA Hazardous Waste (list types)	Non-hazardous				
Asbestos Waste	None				All non-regulated asbestos disposed with construction debris
Low Level Waste	N/A				
TRU Waste	N/A				
NOTE: 1. Sealed pressure vessels will need to be at <1.5 atmosphere if present. 2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal.					
Other:					

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

EMERGENCY PREPAREDNESS

- Site Notification Procedures

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

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

- Evacuation Route/Assembly Areas

Assembly area is east of Building 89 in the roadway. 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 48. See map per Appendix C.

APPLICABLE LESSONS LEARNED – See Appendix E

Project/Activity: Building 89 Demolition
Name: Lee Koehmstedt

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

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

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV – 89- 032003

DATE: 3/24/2003	_X_ NEW ___ REV	BUILDING: 89	JOB: Demolish Building 89
DEPARTMENT/COMPANY: SMPP-TFV Project/CH2M Hill Mound, Inc.			SECTION: N/A
OCCUPATIONS: : Heavy Duty Operators, Demolition Tech's, Demolition Crafts, & Electricians. Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety			

SIGNATURES

ORIGINATOR: Lee Koehmstedt
REVIEW/REV: Safety IH
REVIEW/REV: Foreman
REVIEW/REV: Bldg Mgr
APPROVED: Project Manager

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

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

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

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
1c. Clear Area and Mark/Protect Utility Equipment	Running into fire hydrants, manhole covers, or grates over field drains.	-Mark/protect fire prevention water line in BD89 basement and other utility equipment with wooden boxes, visible stakes, and/or colored flags. -Cover field grates to protect
2 Building & Slab Demolition	Vehicle Traffic Hazard	-Control traffic with flagmen as necessary
2a. Operation of heavy equipment near electric overhead lines	Shock Hazard	-All utilities to the building including electrical have been disconnected by project electricians at a point away from the building. -Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit. ***Contact DPL to de-energize 12.4 KV feeder line week in advance – (Bruce Anderson)***
2c. Demolish building, pipe stanchions, building structure and slab using excavator mounted shear, hoe ram, grapple, loader, and bobcat	Struck by flying debris Struck by moving equipment Noise Hazard	-Establish construction boundary. -Wear hard hat safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Install traffic control with sufficient flagmen -Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9 .
2d. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -Test for lead paint; do not torch cut lead paint.
2e. Working in excessive heat/cold	Heat Stress/Cold Stress	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings
2f. Slab removal	Strike underground utilities Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5 -Coordinate in-process Rad Surveys with Rad Techs
3 Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

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

SIGN-OFF SHEET

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

SIGNATURE	**Date**	**Department**

Appendix B

PRE-JOB BRIEFING/JOB STATUS LOG

PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

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

HP#	SIGNATURE	HP#	SIGNATURE

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

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

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

Job Supervisor/Foreman _____ Date _____

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

Daily Toolbox Safety Meeting

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

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

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

PRE-JOB UPDATE

Continuation Sheet for _____/_____/_____

HP#	SIGNATURE	HP#	SIGNATURE

PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

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

HP#	SIGNATURE	HP#	SIGNATURE

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

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

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

_____

Job Supervisor/Foreman Date

JOB STATUS LOG

Work Package Title: Building 89Demolition

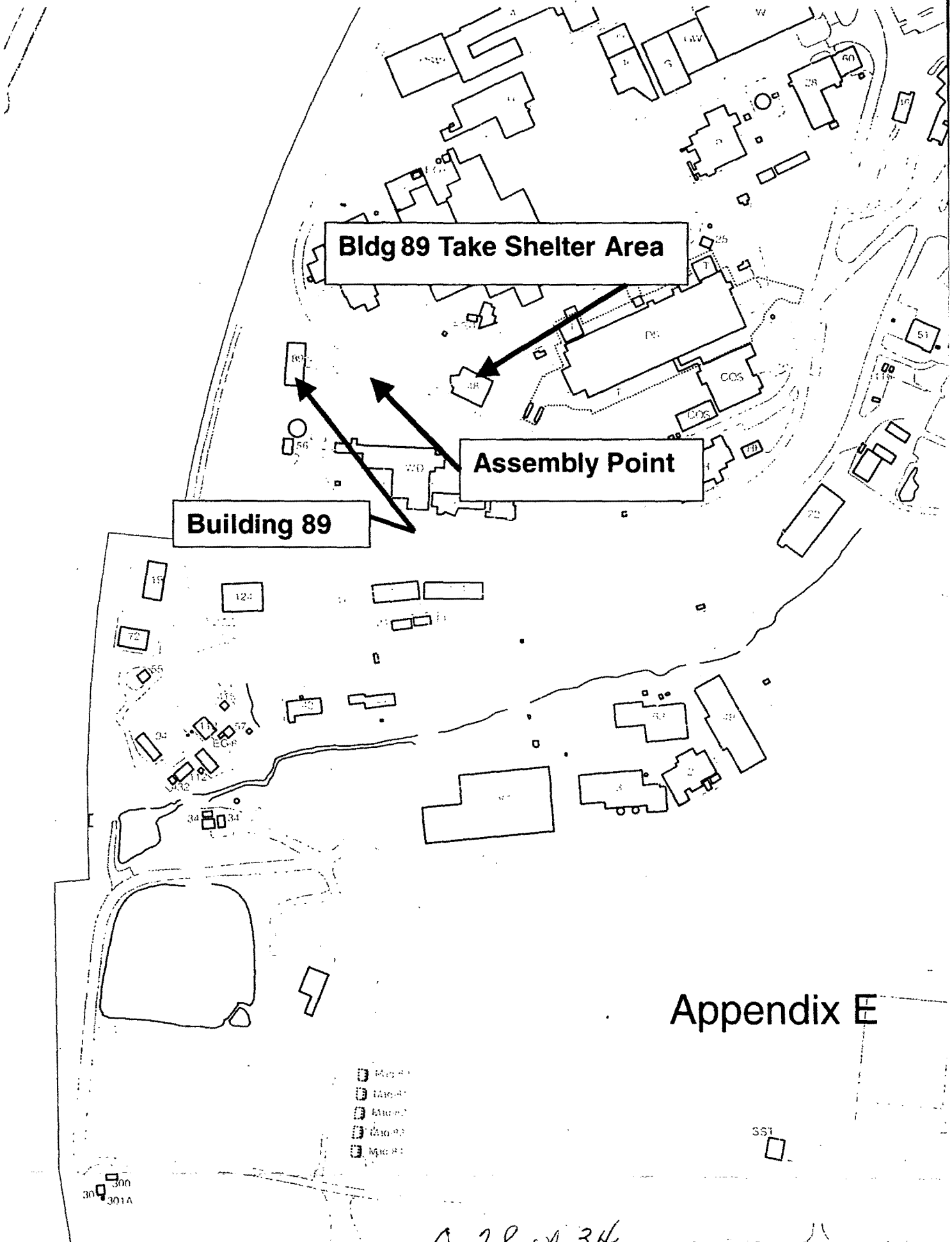
Work Package No: SMPP/TFV 35222 - 00

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

Appendix C

DRAWINGS/SKETCHES

- Evacuation Assembly Area/Take Shelter Area Sketch
- Site Utilities Demolition Area Sketch
- Foundation Plan and Wall Section
- Roof and Floor Framing Plans
- Wall Sections
- Structural Details



Appendix E

Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

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

Appendix E

POST-JOB CONFERENCE/LESSONS LEARNED

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

Lessons Learned Statement:

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

Discussion:

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

Analysis:

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

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

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

Recommended Actions:

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

Excavator Damaged During Demolition Work

Lesson Learned Statement:

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

Discussion of Activities:

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

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

Analysis

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

POST JOB CONFERENCE

5. WHAT WENT WELL?

What could be improved?

Other Comments:

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

LESSONS LEARNED INPUT FORM

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

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

Submitted by: _____ **Date:** _____

OPTIONAL

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

Appendix P

Mound Plant Recommendation

Mound Plant Recommendation
Bldg. 89

BACKGROUND:

Building 89 is a one-story concrete block structure with a partial basement. The building was constructed in 1985 as a warehouse for explosive material for the United States nuclear stockpile. The building is still used for equipment storage (nonexplosive). Although the building has no process history for radiological materials, equipment from areas with process history for radiological materials was stored in building 89. These materials were properly removed in the safe shutdown process. All radiological survey results are below criteria in the Building Data Package.

RECOMMENDATION:

After thorough review of the environmental data and the Phase I report, the Core Team agrees that all existing environmental issues associated with Building 89 have been resolved. Future use of Building 89 shall be restricted to industrial/commercial use. The Core Team hereby recommends that the U.S. Department of Energy submit a letter to the Administrator of the U.S. EPA for final approval of the lease or sale of this property, as required by Section 120(h) of CERCLA.

CONCURRENCE:

DOE/MEMP: Sam Cheng 2/19/97
Sam Cheng, D&D Team Leader (date)

USEPA: Timothy J. Fischer 2/19/97
Timothy J. Fischer, Rem. Proj. Mgr. (date)

OEPA: Brian K. Nickel 2/19/97
Brian K. Nickel, Project Manager (date)

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REMOVE THIS CONCRETE TURN AROUND STRUCTURE

LEAVE CONCRETE SIDEWALK / DRAINAGE SPLASH BLOCK AT THIS LOCATION

CONTACT DPL (BRUCE ANDERSON CONTACT PERSON) TO DE-ENERGIZE 12.4KV FEEDER 1 WEEK IN ADVANCE OF DEMOLITION

DRAFT

LEGEND

URMA
SEWERS
GAS — GAS — GAS — GAS — GAS — GAS — GAS — GAS —
WATER
ELECTRIC
SIGNAL, STEAM, AND COMMUNICATION LINES

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

Figure
Building 89
Surounding Utilities

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: bldg 94 ug utilities | JOB NUMBER: •

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

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