3001-9911300002

**BWX Technologies, Inc.**
Babcock & Wilcox, a McDermott company

**Babcock & Wilcox of Ohio, Inc.**
1 Mound Road
P.O. Box 3030
Miamisburg, Ohio 45343-3030
(937) 865-4020

ESC-181/99
November 10, 1999

99-TC/11-10

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

ATTENTION: Dewain Eckman

SUBJECT: Contract No. DE-AC24-97OH20044
**M BUILDING: DELIVERY OF FINAL BUILDING DATA PACKAGE**

REFERENCE: Statement of Work Requirement C.7.1e -- Regulator Reports

Dear Mr. Provencher:

The M Building Data Package has completed public review. Comments were received from MMCIC. Responses to these comments have been incorporated into the document. The document is now Final, Rev. 1. Frank Schmaltz of MEMP has authorized the release of this document to USEPA, OEPA, and ODH. Copies will also be distributed to the MMCIC and the Public Reading Room.

Please advise if additional copies are required for distribution within DOE. If you require further information, please contact Dave Rakel at extension 4203.

Sincerely,

JSStapleton

Jeffrey S. Stapleton
Acting Manager, Environmental Safeguards & Compliance

JSS/nmg

Enclosures as stated

cc: Tim Fischer, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Art Kleinrath, MEMP, (1) w/attachments
Terrence Tracy, DOE/HQ, (1) w/attachments
Budd Thompson, BWO, (2) w/attachments
Dann Bird, MMCIC, (1) w/attachments
Public Reading Room, (5), w/attachments
Administrative Record, (2), w/attachments
DCC

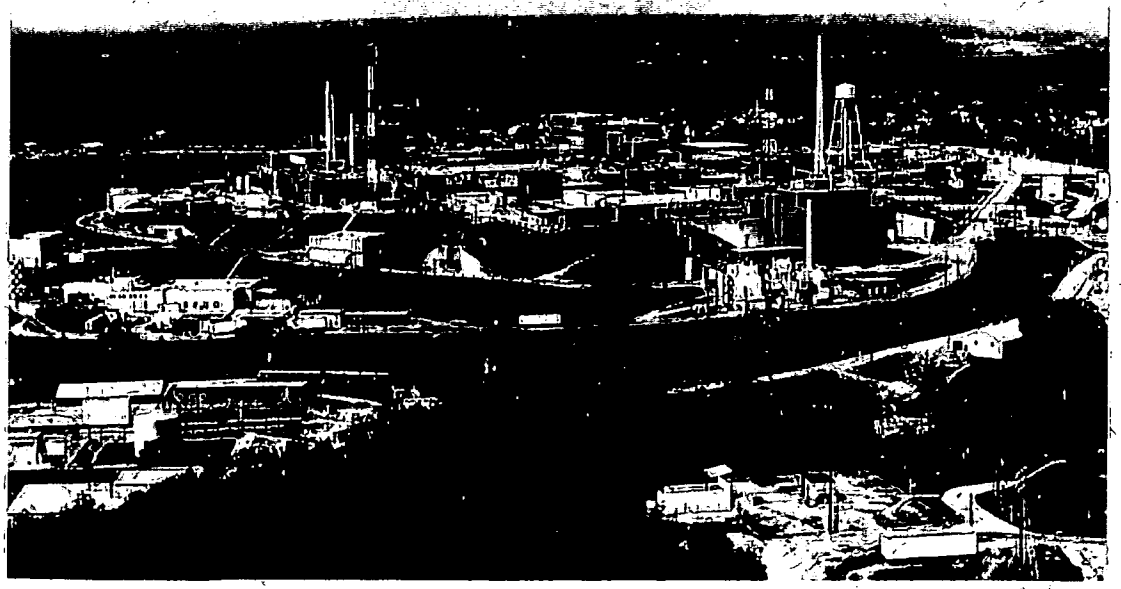
3001-9911300002

MOUND

Environmental Restoration Program

OhioEPA

# MOUND PLANT
## Building Data Package
### M Building



# BDP M Building

| REV | DESCRIPTION | DATE |
|---|---|---|
| **WORKING DRAFT** | | **July 13, 1999** |
| **DRAFT** | DOE comments incorporated. External building radiological data incorporated. | **July 14, 1999** |
| **DRAFT PROPOSED FINAL** | | **July 14, 1999** |
| **PUBLIC REVIEW DRAFT** | | **July 14, 1999** |
| **FINAL** | | **July 14, 1999** |
| **FINAL, Rev. 1** | MMCIC comments received. Comments and responses incorporated. | **Nov. 1, 1999** |

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

Mr. Daniel Bird, AICP
Planning Manager
Miamisburg Mound Community Improvement Corporation
720 Mound Road
COS Bldg. 4221
Miamisburg, Ohio 45342-6714

Dear Mr. Bird:

The Core Team, consisting of the U.S. Department of Energy Miamisburg Environmental Management Project (DOE-MEMP), U.S. Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA), appreciates your comments on M Building demolition. Attached are our responses.

Should the responses to comments require additional detail, please contact Art Kleinrath at (937) 865-3597, and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MEMP: Art Kleinrath
Art Kleinrath, Remedial Project Manager

DOE/MEMP: Timothy J. Fischer
Timothy J. Fischer, Remedial Project Manager

DOE/MEMP: Brian K. Nickel
Brian K. Nickel, Project Manager

**MMCIC Comments Received**
**on**
**M Building - Building Data Package, July 14, 1999 - Final**

Substantive Comments:

1. Section 8.6 of the Draft Work Plan included in Appendix O states that "soil samples will be taken through the slab around the Plating Shop sumps and other areas of potential contamination to determine if any contamination has leached out into the surrounding soils. The Draft Work Plan does not specify whether these other areas of potential contamination would include the M Building soil hotspots (PRS 118, for copper cyanide, silver cyanide, machine oils, solvents; and the borehole location BH0021 and surface sample locations S0141, S0161, S0162, and S0163 for elevated levels of plutonium-238, as reported in Appendix L). We request that these areas of potential contamination do be included in the Final Work Plan. We realize that some areas of potential soil contamination may be identified during demolition activities.

Response:

*Biased sampling will be conducted in the areas you have mentioned. In addition, systematic grid sampling will be conducted under the remainder of the M Building footprint + 15 feet. The Work Plan and Sampling and Analysis Plan for this phase of the work has not been fully developed yet. MMCIC will be notified when these are available.*

2. Section 8.6 of the Draft Work Plan mentioned above does not specify the analytical parameters that will be evaluated in the M Building soils samples collected following demolition. We recommend that a fairly comprehensive suite of parameters be evaluated, based on the historical analytical data: heavy metal parameters to evaluate for the plating compounds, volatile organic compounds to evaluate for the solvents, semivolatile compounds to evaluate for the machine oils, and radionuclides.

Response:

*Thank you for expressing your analysis of parameters to be considered during the sampling event. A field sampling plan for M Building soils has not yet been developed. The suite of parameters will be reflective of PRS history in M Building. It is anticipated that M Building PRS sampling and sampling of the soils below the high bay area (M-8) will be conducted in accordance with the following table:*

| PRS | VOC's | Semi Volatiles | TAL Metals | Cyanide | Radionuclides |
|---|---|---|---|---|---|
| Method | A-001 | A-003 | A-031 | A-006 | * |
| 118 | ● | ● | ● | ● | ● |
| 119 | ● | ● | ● | ● | ● |
| 120 | NA | NA | NA | NA | NA |
| 121 | NA | NA | NA | NA | ● |
| M-8 | ● | ● | ● | ● | ● |
| Remainder | ● | ● | ● | ● | ● |

3. If possible, MMCIC would appreciate knowing the schedule for Building M demolition as soon as it is available. In order to secure its second U.S. Economic Development Administration (EDA) Grant for the Main Hill parking lot and roadway improvements, MMCIC is required to provide documentation to EDA that all environmental contamination issues with regard to Building M have been resolved upon completion of the Building M demolition. MMCIC has to provide this documentation prior to the project going out for bid to the contractors. In order to efficiently plan the construction schedule for this second phase of Mound improvements, MMCIC would greatly appreciate any schedule information that DOE can provide.

Response:

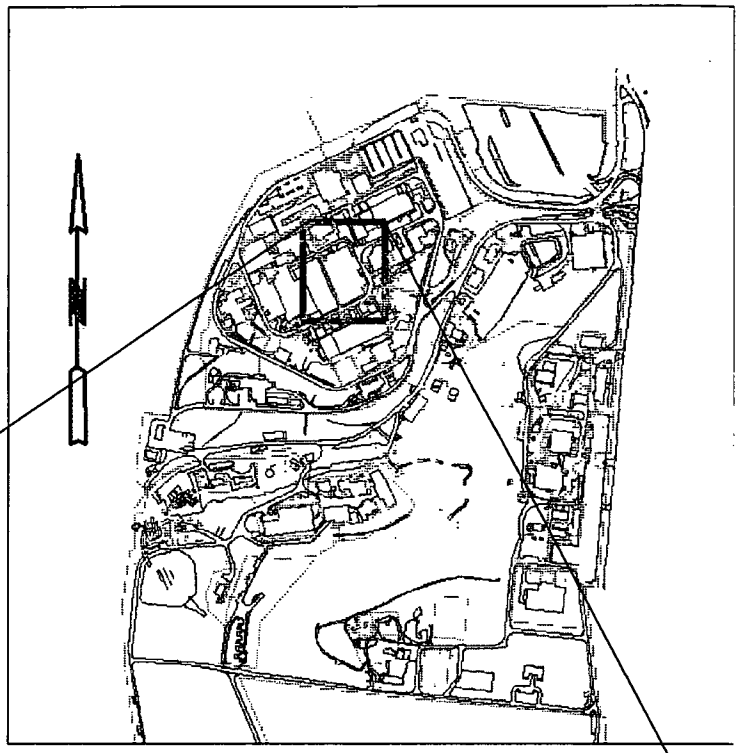
*The restoration of the area of M Building is currently scheduled to start in April 2000. At that time, all data needed to determine the acceptability of the site will have been reviewed by the Core Team. Assuming no new problems are identified, we can provide assurances in regards to environmental acceptability with respect to M Building in April 2000. However, it is not determined whether DOE will need to use all or part of the area until the transfer date of 2003. In addition, the RRE will not be completed until that time.*

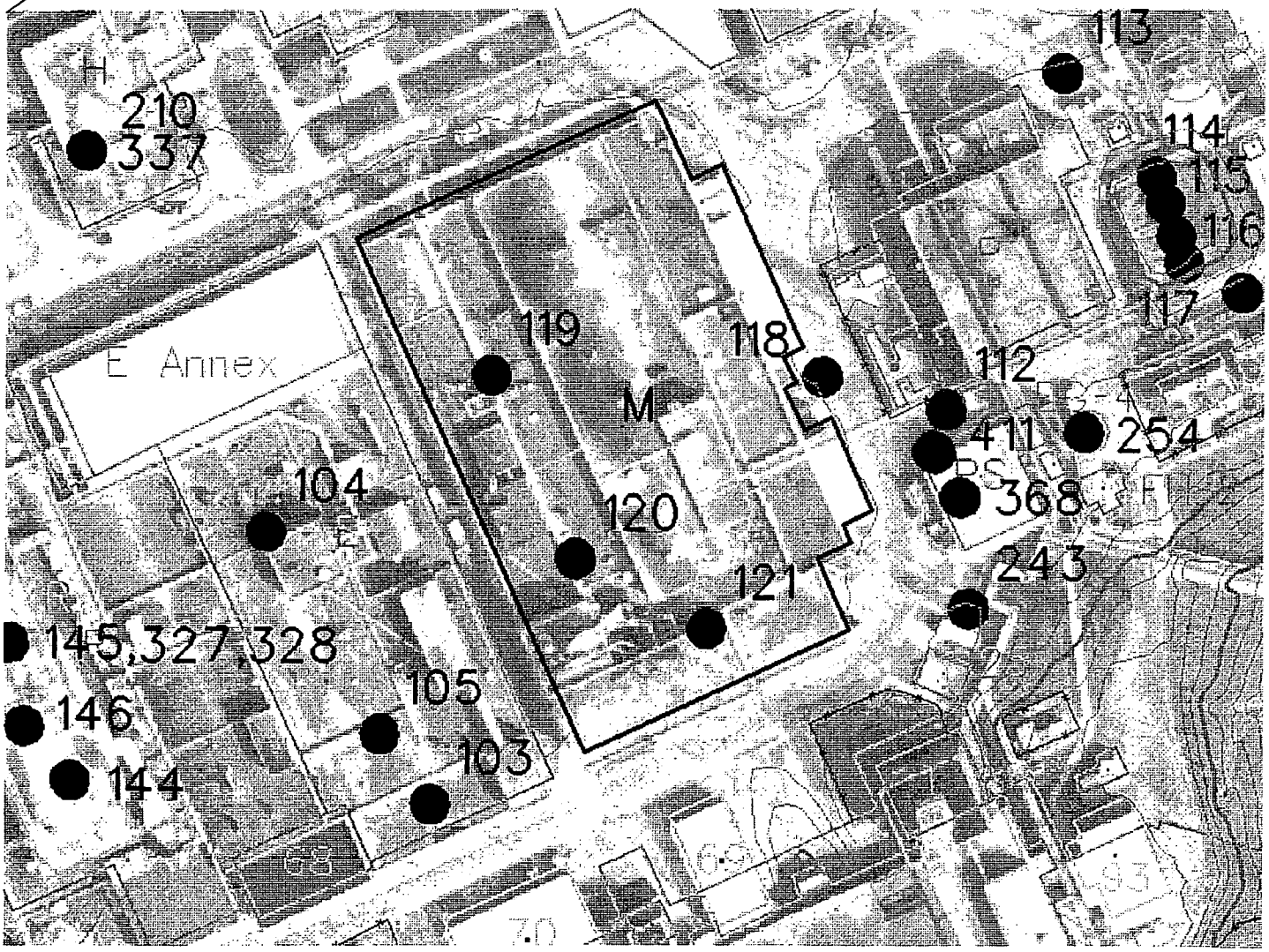
# Mound Plant
# Building Data Package
# M BUILDING

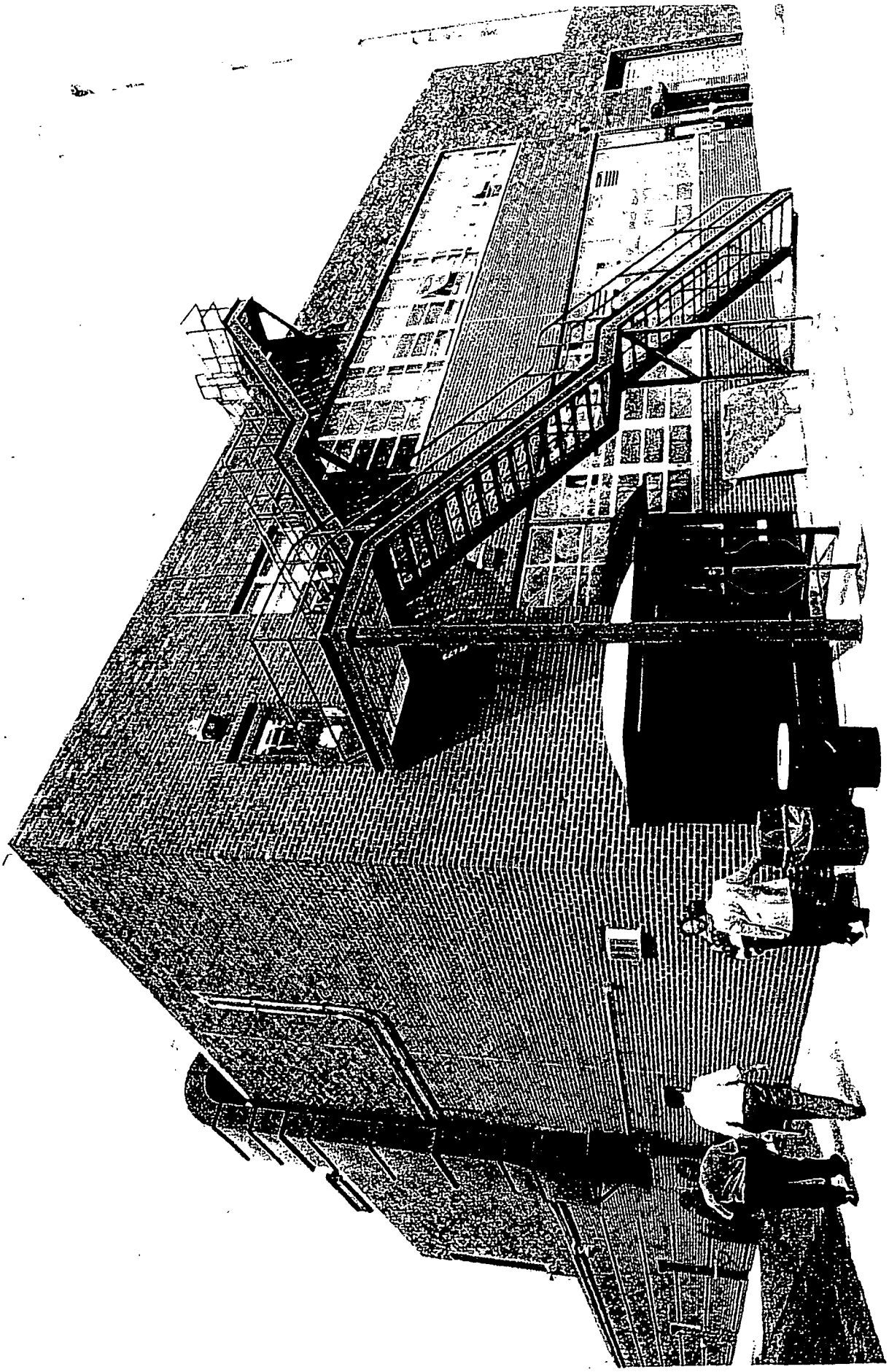
# Mound Plant
# M Building

## Machine Shops, Electronic Shop, Plating Facility

On the map below:
- Building number and location shown in black
- PRS locations and numbers shown in blue
- Surrounding buildings shown in tan
- Fencing shown in red
- Elevation contours shown in brown







Mound Plant Building M

9.18-97

# BUILDING DATA PACKAGE (BDP)

## M BUILDING

## (Non-CERCLA Demolition)

## DOE MOUND PLANT

## MIAMISBURG, OHIO 45343

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Appendix N PRS/REC Information
Appendix O Work Plan
Appendix P Operable Unit 9, Site Scoping Report: Volume 11 - Spills and Response Actions

# 1.0 General Overview

## 1.1 Introduction

The purpose of this Building Data Package is to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property.

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, ground water, 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*. It is a Building Data Package of M Building located at the DOE Mound Plant in Miamisburg, Ohio. This investigation was performed to support procedures as 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 the building, the soil beneath, and a 15-foot wide perimeter border around the building. Soil sampling results are noted in Appendix L. This perimeter includes roadways, sidewalks, pavement, and grass covered areas. The investigation of M Building included the following.

1) A building and perimeter inspection.
2) An examination of historical aerial photographs and maps.
3) A review of federal and state regulatory agency records.
4) Personnel interviews.
5) A review of Mound Plant records for:
   A) History of spills and releases
   B) Past sampling data
      - Radiological survey
      - Soil sampling
      - Lead paint
      - Asbestos
      - Radon

Building investigations were conducted by BWO personnel.

This report used a variety of previous assessments completed by BWO and/or its subcontractors. The reports used were as follows:

- OU-9 Site Scoping Report, Volumes 1-12
- Mound Facility Physical Characterization, December 1992
- Active Underground Storage Plan, November 1994.
- EDR Report - Radius Map
- Building Prints
- MD-222153, Mound Site Radionuclides By Location, July 1995
- Contaminant Surveys
- Environmental Appraisal Report of the Mound Plant, March 1996
- Appropriate Potential Release Site (PRS) Documents
- Title Search
- Phase I Environmental Site Assessment of DOE Mound, M Building
- M Building Historic American Building Survey
- Operable Unit 9, Site Scoping Report: Volume 11 - Spills and Response Actions

## 2.0 Building Specific Overview

Mound Plant is located in the southern portion of the corporation limits of Miamisburg, Ohio. The entire Mound Plant facility is situated on approximately 300 acres of land and contains approximately 130 buildings. The subject property consists of Mound Plant M Building, the soil beneath, and a 15-foot wide perimeter around the Building. M Building contains 56,000 square feet. It was constructed in 1948.

### 2.1 Current Uses of M Building

M Building is currently inactive.

### 2.2 Past Uses of M Building

M Building is the former machine shop and housed electroplating operations. These functions are no longer accomplished in M Building. Most recently, the building served as an excess material staging and storage area. No research activities using radioactive or energetic materials have occurred in the building. However, Uranium (U-238) was machined in M Building.

## 2.3 Summary of Environmental Concerns and Findings - M Building

| DESCRIPTION | COMMENT | RESOLUTION |
|---|---|---|
| Lead Paint | Due to the age of the building, lead paint is expected. | Leave the paint intact on the building surfaces. When structure is demolished the debris which has the lead paint will not be hazardous waste and will therefore be disposed of as construction debris at a local landfill. |
| Chemicals | Plating shop and machining chemicals were used in the building. | All chemicals were removed from the building. |
| Fluorescent Lamps | Fluorescent lamps were utilized in the building. | All fluorescent lamps will be removed prior to demolition. |
| Asbestos | The building does contain asbestos-containing materials. | Abatement of ACMs has been accomplished. |
| Drainage Sumps | Sediment in M-38 plating shop sump had elevated radiological and heavy metal readings. | Sump will be removed during demolition and surrounding soils will be characterized. |
| Lead | Lead Electrical Conduit | Will be removed as construction debris. |
| HVAC | N/A | |
| Mercury | N/A | |
| Radiological | Several fixed contamination areas were identified. | Fixed contamination removed/will be removed as part of decontamination/demolition process. |
| Septic Systems | N/A | |
| Waste Water | N/A | |
| Stains & Corrosion | N/A | |
| Space | N/A | |
| Storage Tanks | N/A | |
| Solid Waste Disposal | N/A | |
| Migratory Hazards | N/A | |
| Radon | N/A | |
| REC - See Appendix N. PRS 118 - M Building Soils | Elevated VOCs - Soil Gas Survey. Copper cyanide, silver cyanide, machine oils, solvents. | Soils will be characterized and disposed of accordingly. |

| | | |
|---|---|---|
| REC - See Appendix N.<br>PRS 119 - Room M-38<br>Metal Plating Rinse Water Sump Tank (Tank 225) | Rinse water from plating operations. Inactive tank still connected to sanitary sewer system. | Tank will be removed and surrounding areas will be characterized and handled accordingly. |
| REC - See Appendix N.<br>PRS 120 - Room M-108<br>Metal Plating Rinse Water Tank (Tank 119) | Rinse water from plating operations. Inactive tank still connected to sanitary sewer system. | Tank will be removed and surrounding areas will be characterized and handled accordingly. |
| PRS 121 - Vapor Degreasers<br>See Appendix N. | Plating Shop Parts Cleaning | Degreasers cleaned. Will be removed and surrounding areas will be characterized and handled accordingly. |
| REC - See Appendix N.<br>Oil leaks on wood block floor | Possible saturation of floor and concrete with machine oils and solvents. | Wood block floor removed. |
| REC - See Appendix N.<br>Integrity of concrete slab beneath the oil quench tank | Possible fractured slab and resultant soil contamination | Slab will be removed and surrounding areas will be characterized and handled accordingly. |
| REC - See Appendix N.<br>Ventilation/exhaust duct work and related equipment | Potential residual plating compounds, machine oils, and milled metal dust | Inspection revealed no contamination. Duct work to be removed. |
| REC - See Appendix N.<br>Stored Cylinders | Should be checked for proper storage and labeling procedures. Verify content. | Cylinders properly marked and stored. Will be removed. |
| REC - See Appendix N.<br>PCB containing electrical transformers/fluorescent light ballasts | Should be inspected and cleaned as required and disposed of as required. | Items will be removed and disposed of as required. |
| REC - See Appendix N.<br>Room 42 beryllium copper plating and/or milling | Exhaust collector may contain residual beryllium dust. Safety and health protocols should be followed. | Safety and health protocols will be followed. Inspection reveals no beryllium dust. |
| REC - See Appendix N.<br>Uranium milling or machining, exact location unknown. | D&D activities must be researched. Appropriate actions must be taken. | Uranium found on wood block floor. Floor removed. |
| REC - See Appendix N.<br>Pressing/canning of lithium deuteride | D&D activities must be researched. Appropriate actions must be taken. | Inspection revealed no evidence of this contamination. |
| REC - See Appendix N.<br>Reported lithium hydride deuteride and tritide operations. | D&D activities must be researched. Appropriate actions must be taken. | Inspection revealed no evidence of this contamination. |

REC: Recognized Environmental Condition. Note paragraph 1.1 and Appendix N.

## 2.4 Radiological Characterization Summary For M Building

| Interior | | | | | |
|---|---|---|---|---|---|
| TYPE | RSDS | LOCATION | SURVEY RESULTS (dpm/100 cm²) | Surface Contamination Guidelines (dpm/100 cm²) (Note 2) | COMMENTS |
| Highest Alpha Smearable Activity | 98-M-005 | Room 8 High Bay (N) | 17.42 | 20 | |
| Highest Alpha Fixed Activity | Note 1 | Note 1 | <100 | 100 | |
| Highest Beta Smearable Activity | 98-M-013 | Room 8 High Bay (S) | 156.55 | 1,000 | |
| Highest Beta Fixed Activity | Note 1 | Note 1 | <5,000 | 5,000 | |
| Highest Tritium Smearable Activity | 99-M-060 | Room 31 | 1,383 | 10,000 | |

| Exterior | | | | | |
|---|---|---|---|---|---|
| TYPE | RSDS | LOCATION | SURVEY RESULTS (dpm/100 cm²) | Surface Contamination Guidelines (dpm/100 cm²) (Note 2) | COMMENTS |
| Highest Alpha Smearable Activity | 99-M-264 | High Bay Roof Area 2 | 8.84 | 20 | |
| Highest Alpha Fixed Activity | Note 1 | Note 1 | <100 | 100 | |
| Highest Beta Smearable Activity | 99-M-290 | Roof Area 5 P.H. 250 P | 12.60 | 1,000 | |
| Highest Beta Fixed Activity | Note 1 | Note 1 | <5,000 | 5,000 | |
| Highest Tritium Smearable Activity | 99-M-288 | High Bay Roof Area 2 | 41.04 | 10,000 | |

Note 1: All RSDS associated with the confirmatory survey were <100 dpm/100 cm² alpha and <5,000 dpm/100 cm² beta.

Note 2: Core Team determined values.

RSDS: Data sheet that provides radiological monitoring survey results.

Comment:: See Appendix G, Attachments 1 and 2 (interior) for RSDS associated with building release. See Appendix G, Attachments 3 and 4 (exterior) for RSDS associated with building release.

## 2.5 Associated PRS Table for M Building

| PRS # | CERCLA or BLDG. RELATED | BINNING STATUS | COMMENTS |
|---|---|---|---|
| PRS 118 | M Building related | TBD | M Building soils |
| PRS 119 | M Building related | TBD | Room M-38 Metal Plating Rinse Water Sump (Tank 225) |
| PRS 120 | M Building related | TBD | Room M-108 Metal Plating Rinse Water Tank (Tank 119) |
| PRS 121 | M Building related | TBD | Vapor Degreasers |

## 3.0 Site Description

### 3.1 Site/Vicinity Location and Characteristics

M Building is located at the U.S. Department of Energy Facility known as Mound Plant. Mound is situated in the city of Miamisburg, Miami Township, Montgomery County, state of Ohio.

The Mound facility is situated on approximately 300 acres of land and contains 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 Engineer District in 1946, consists of two hills and an intervening valley that runs approximately east and west. M Building is located on the Main Hill of the Plant site. The 124-acre tract acquired in 1981 is 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 on-site. See introductory maps and Appendix C.

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 against the facility along Mound Road. Benner Road forms the southern property line of the Mound Plant, with agricultural fields and farms occupying the lands beyond.

### 3.2 Description of Structures, Roads, Other Improvements Related to M Building

The subject property consists of the Mound Plant M Building footprint, the soil beneath, and a 15-foot wide perimeter around the building. M Building contains 56,000 square feet. It was constructed in 1948.

There are no other structures, roads, or improvements that would impact the environmental condition of the building. Above ground brine and electrical lines are in proximity to the building. They will remain in place. Also remaining in place is an electrical substation located at the north end of the building.

## 3.3 Current and Past Uses of Buildings In Proximity To M Building

See Introductory Maps and Appendix C.

| Proximity to M Building | Building Area (Sq. Ft.) | Current Use | Past Use | Direction From Building |
|---|---|---|---|---|
| E Building (and E Annex) | 47,755 | Offices | Analytical Services, Production, Offices | W |
| PS Building | 2,288 | Removed | Paint Shop | E |
| P Building | 15,143 | Power House (Steam, Brine, Air) | Power House (Steam, Brine, Air) | E |
| Building 40 | 12,227 | Print Shop | Print Shop | NE |

# 4.0 Records Review

## 4.1 General/Historical CERCLA Information

In compliance with permit requirements under RCRA, the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. Mound Plant is currently operating a hazardous waste storage facility under a RCRA Part B permit dated October 18, 1996. Mound Plant also maintains a NPDES surface water discharge permit with Facility I.D. number OH 009857. Permits for the open burning of wastes involving explosives and other fuels have been issued by the Regional Air Pollution Control Agency (RAPCA). Other operations that produce particulate or vaporous emissions are registered with RAPCA and OEPA. Mound Plant also submits annual Emergency and Hazardous Chemical Inventory forms to the OEPA, pursuant to SARA, Title III, the Emergency Planning and Community Right-to-Know Act. The 1998 version of this report indicated that no chemicals are stored in M Building in quantities above the regulatory thresholds.

The Mound Plant was identified as a contaminated site on the National Priority List under CERCLA (Superfund) in 1989. The Mound Plant site was originally listed as a consequence of VOC contamination in the western end of the lower valley area. The clean-up of the Mound 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 clean-up areas. As the clean-up effort went forward, it became apparent that the Mound Site did not fit the profile for a clean-up strategy based on the operable units. The Department of Energy (DOE), the United States Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA) designed a new decision making process for the clean-up of Mound. 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 Mound into 19 Release Blocks containing over 400 Potential Release Sites (PRSs) with approximately 200 concerned with potentially contaminated soils, and the balance with potential contamination in or associated primarily with building operations.

## 4.2 Specific Record Sources

### 4.2.1 Occurrence Reports

Six occurrence reports were generated against M Building. No occurrences resulted in negative impacts on environmental safety and health. See Appendix M.

### 4.2.2 Spills and Releases

Two events involving fire protection/suppression systems occurred: one in 1990 and one in 1995. See occurrence reports ALO-DA-EGGM-EGGMAT04-1990-0012 and OH-MB-EGGM-EGGMAT04-1995-0003 in Appendix M. Additionally, reference is made to Appendix P, Operable Unit 9, Site Scoping Report: Volume 11 - Spills and Response Actions. M Building events are noted on pages 2-8, 2-9, 2-10, 2-16, and 2-17.

### 4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the FFA/DOE ER program, DOE and BWO have tabulated all the Potential Release Sites identified under the various regulatory programs in effect at the site. Of these 420 PRSs, PRSs 118, 119, 120, and 121 are attributed to M Building. See paragraph 2.5 and Appendix N.

## 4.3 Review of Building Prints

Building prints were reviewed and are included in Appendix D.

## 4.4 Aerial Photographs

Aerial photographs from 1994, 1983, 1973, 1968, 1965, 1959, and 1949 were reviewed and copies are found in Appendix E.

## 4.5 Interviews

The Building Manager, Gary Weidenbach, was interviewed using a building manager questionnaire. See Appendix F.

# Appendix A

## General Listing of Acronyms

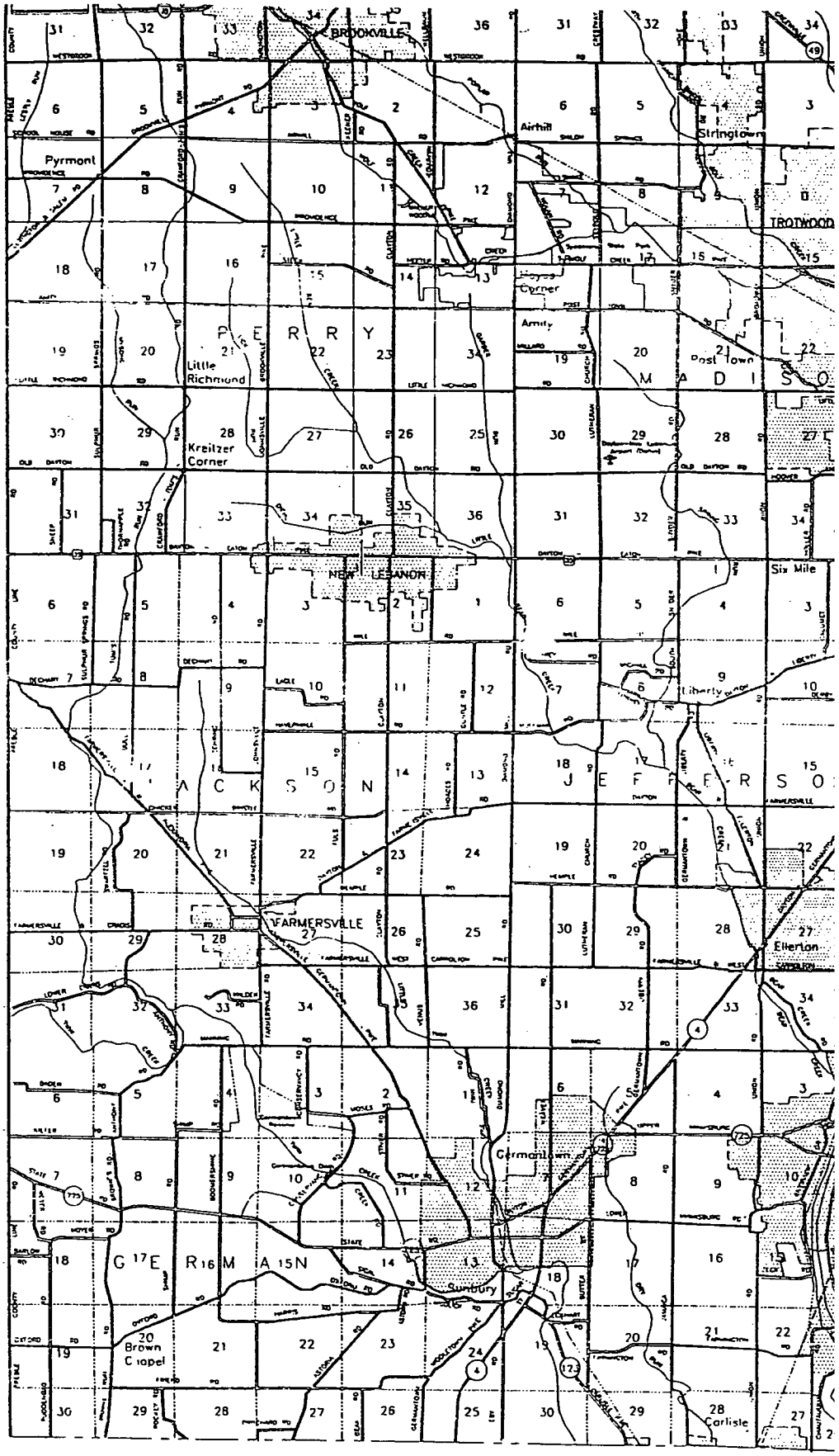
| | |
|---|---|
| AEA | Atomic Energy Act of 1954 |
| AEC | Atomic Energy Commission |
| ACM | Asbestos Containing Materials |
| AL | Action Level |
| ASTM | American Society for Testing and Materials |
| BDP | Building Data Package |
| BUSTR | Bureau of Underground Storage Tank Regulations |
| BWO | Babcock and Wilcox of Ohio |
| CAA | Clean Air Act |
| CEG | Conditionally Exempt Generator |
| CERCLA | Comprehensive Environmental Response, Compensation & Liability Act |
| COD | Chemical Oxygen Demand |
| CWA | Clean Water Act |
| D&D | Decontamination and Decommissioning |
| DOE | U.S. Department of Energy |
| DPM | Disintegrations Per Minute |
| EMF | Electromagnetic Field |
| EPA | U.S. Environmental Protection Agency |
| ER | Environmental Restoration (Program) |
| ERDA | Energy Research and Development Administration |
| ERNS | Emergency Response Notification System |

| | |
|---|---|
| FFA | Federal Facility Agreement |
| FINDS | Facility Index System |
| FS | Feasibility Study |
| GSA | General Services Administration |
| HEPA | High Efficiency Particulate Air |
| LQG | Large Quantity Generator |
| LUST | Leaking Underground Storage Tank |
| M&O | Maintenance and Operations |
| MAT | Mound Applied Technologies |
| MCC | Monsanto Chemical Company |
| MEMP | Mound Environmental Management Project |
| MMCIC | Miamisburg Mound Community Improvement Corporation |
| MRC | Monsanto Research Corporation |
| NPDES | National Pollutant Discharge Elimination System |
| OEPA | Ohio Environmental Protection Agency |
| ORPS | Occurrence Reporting and Processing System |
| OU | Operable Unit |
| PADS | PCB Activity Database |
| PCB | Polychlorinated Biphenyls |
| PRS | Potential Release Site |
| RAPCA | Regional Air Pollution Control Agency |

| | |
|---|---|
| RCRA | Resource Conservation and Recovery Act |
| REC | Recognized Environmental Condition |
| RI | Remedial Investigation |
| RSDS | Radiological Survey Data Sheet |
| SARA | Superfund Amendments and Reauthorization Act |
| SDWA | Safe Drinking Water Act |
| SQG | Small Quantity Generator |
| SWMU | Solid Waste Management Unit |
| TRIS | Toxic Chemical Release Inventory System |
| TSD | Treatment, Storage, & Disposal Facility |
| USEPA | United States Environmental Protection Agency |
| UST | Underground Storage Tank |
| VOC | Volatile Organic Compound |

Appendix B

Map of Montgomery County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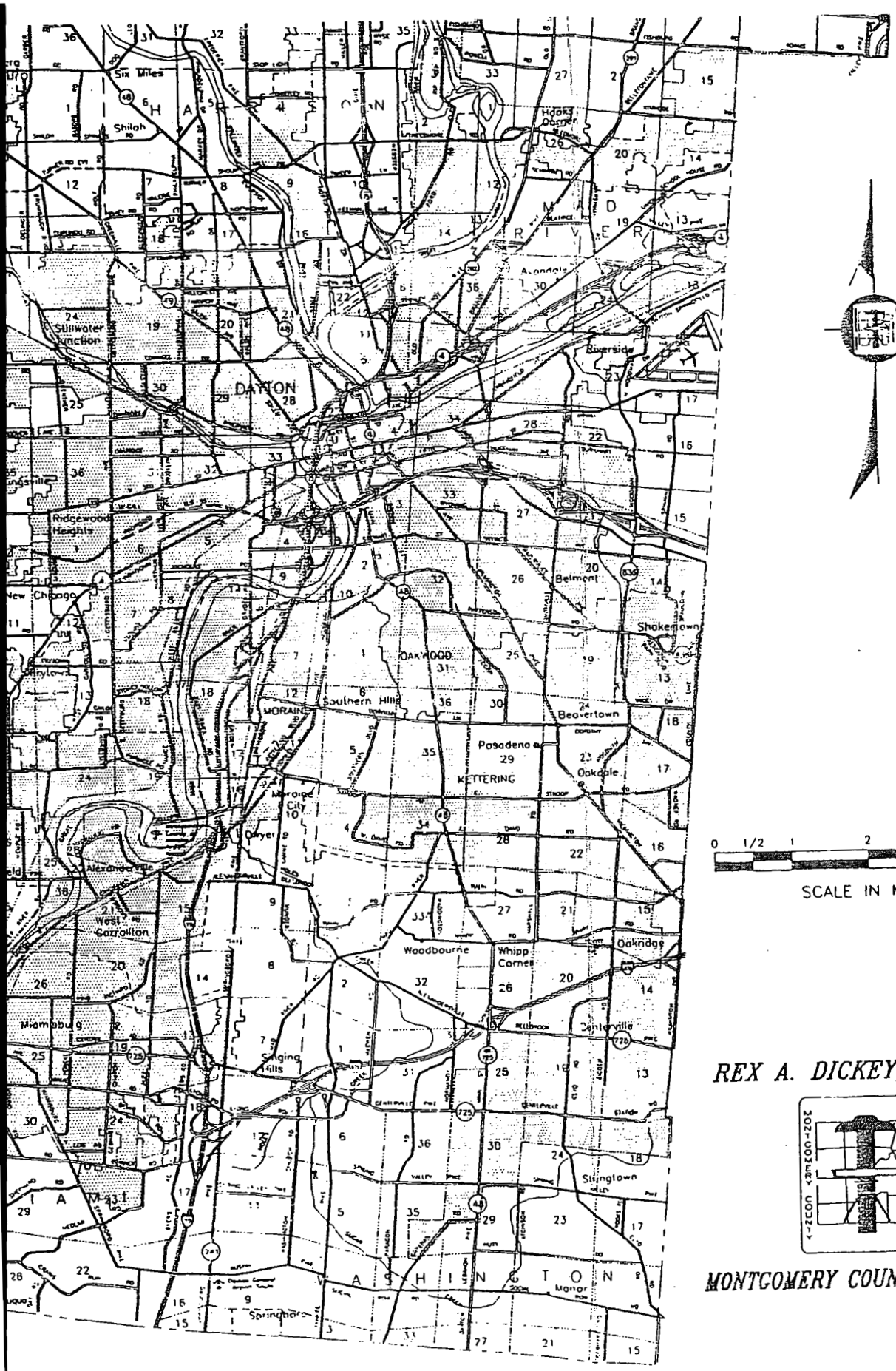
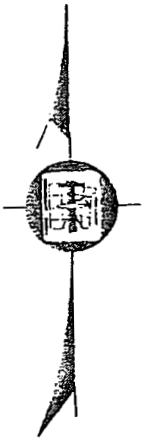
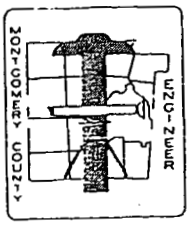
Stringtown
TROTWOOD
Hoyt Corner
Amity
Post Town
Little Richmond
Kreitzer Corner
NEW LEBANON
Six Mile
Liberty
FARMERSVILLE
Ellerton
Germantown
Sunbury
Brown Chapel
Carlisle



SCALE IN MILES

*REX A. DICKEY, P.E.,P.S.*

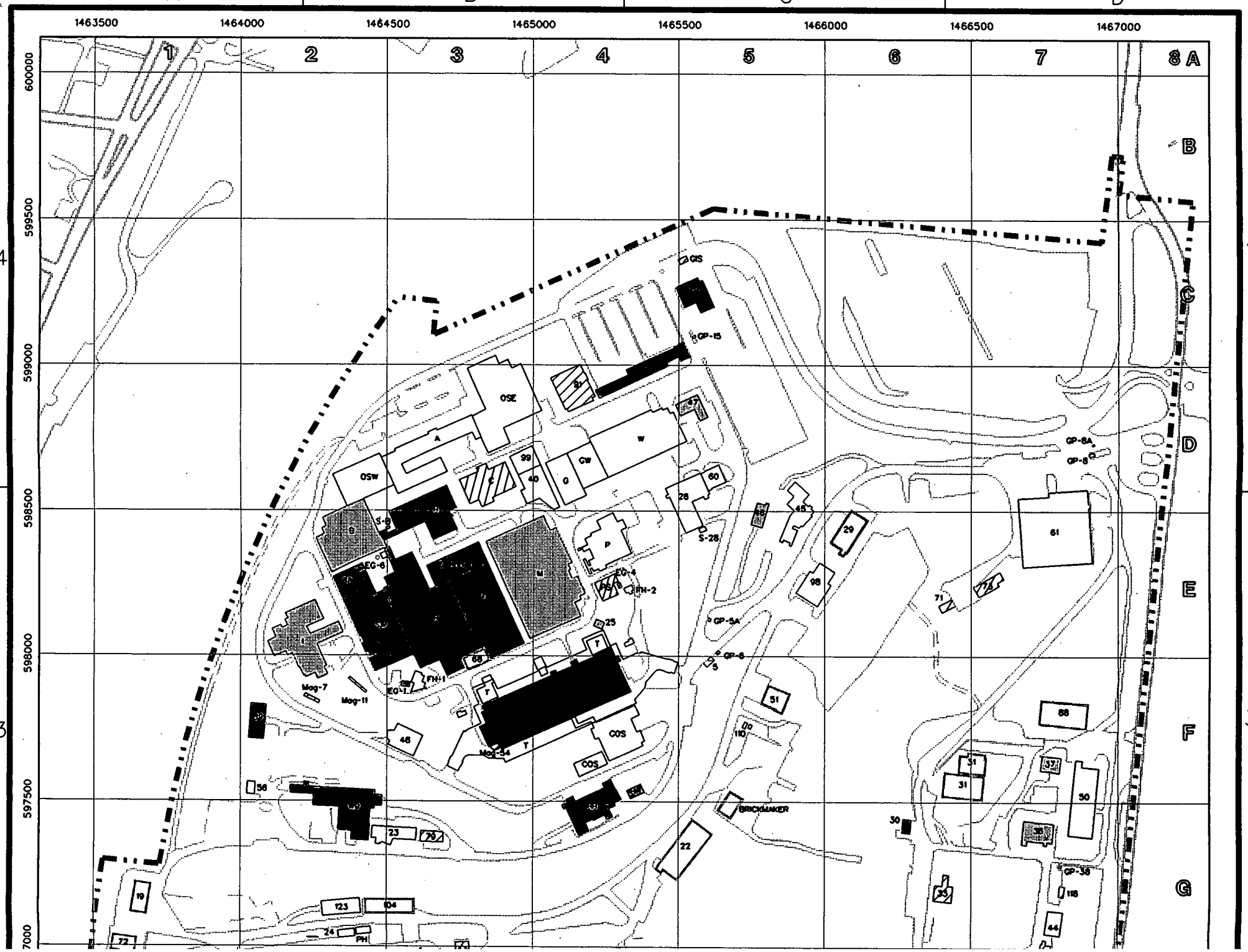



*MONTGOMERY COUNTY ENGINEER*

FEBRUARY, 199

Appendix C

Site Plan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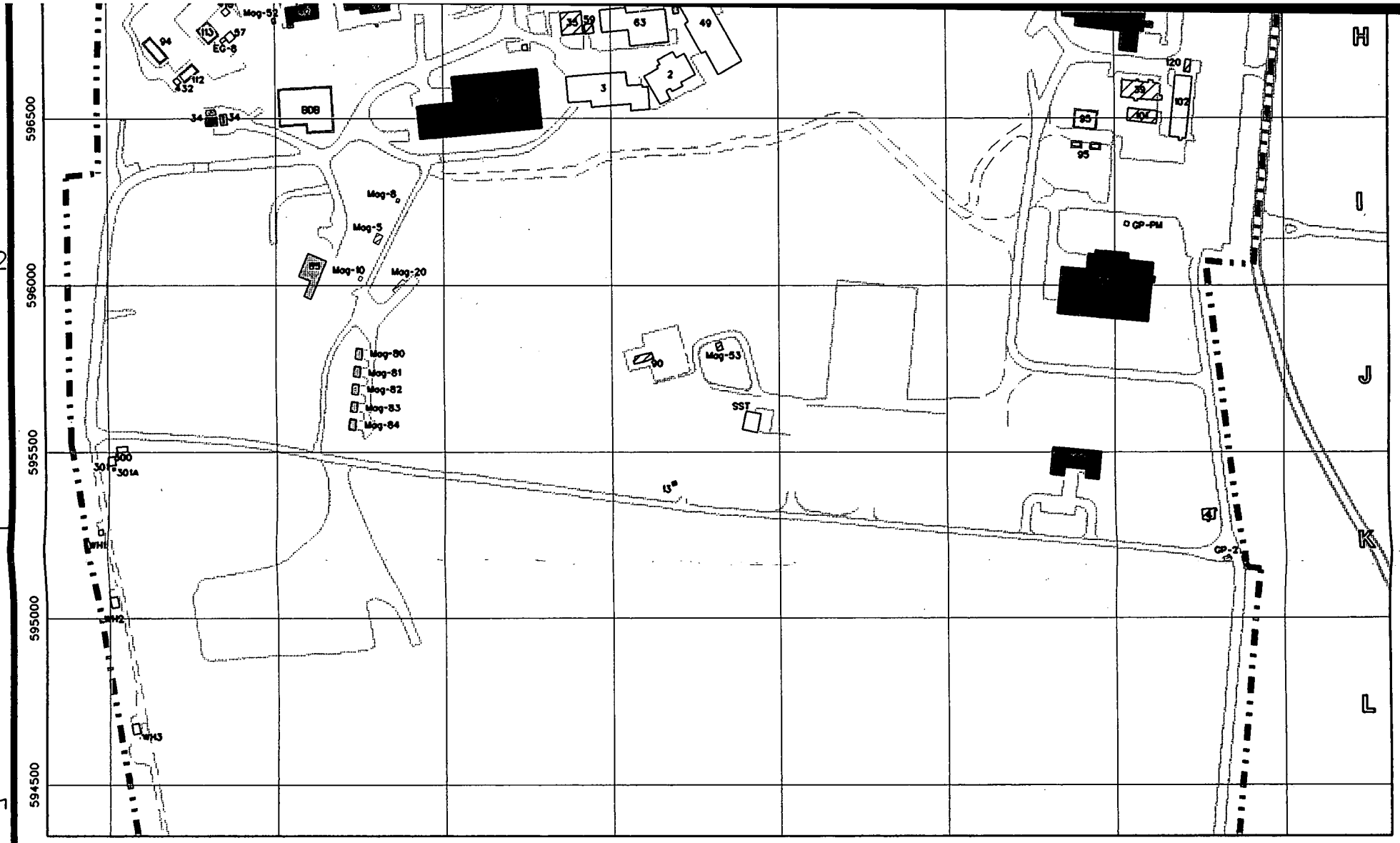
OSE
OSW
W
GW
P
COS
GP-15
GP-8A
GP-8
GP-5A
GP-6
GP-36
S-28
EG-6
EG-4
FH-2
FH-1
Mag-7
Mag-11
Mag-34
BRICKMAKER
PH




Legend

- To Be Demolished (CERCLA)
- To Be Demolished (Construction)
- Personal Property
- Hatch: Removed/Demolished
- Transfer (Waiting Evaluation)
- Transfer (NFA)
- Transfer (FA)
- Transfer (RA)

TN
GN
MN

0 100 200 400 600 800 1000
Scale in Feet

| ISS | DATE | REVISION | BY | CHKR | ENG | M |
|---|---|---|---|---|---|---|
| | 05/25/99 | UPDATE | MR | | | |

DRAWING NUMBER

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

(U) TITLE CLASSIFICATION

# Building Disposition Core Team

***05/25/99***

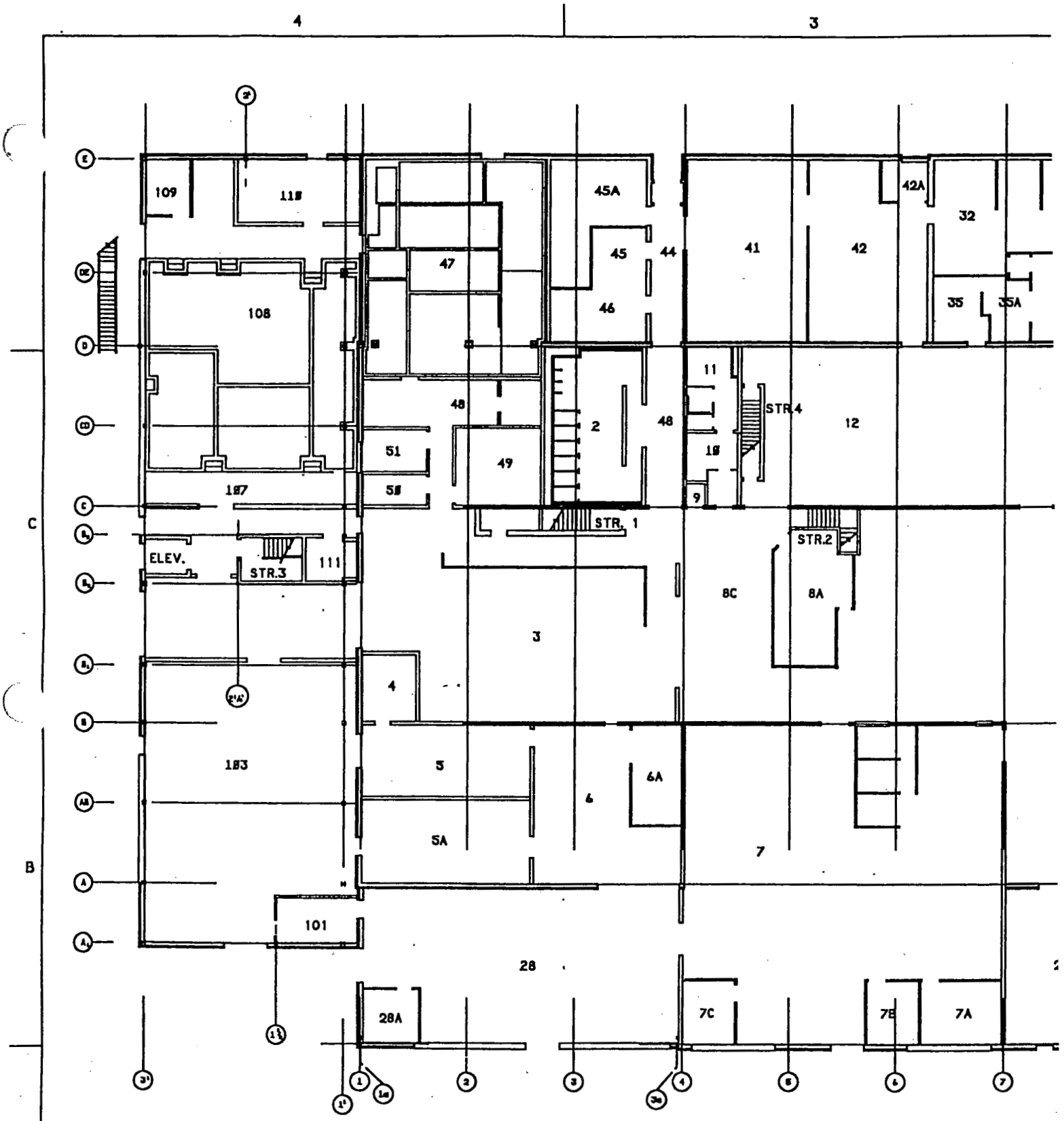
| DRAWING CLASSIFICATION | SIZE | DRAWING NUMBER | JOB NUMBER |
|---|---|---|---|
| UNCLASSIFIED | D | bldg_disp.dgn | |

| DWG TYPE | PRMG | CAGEC | SCALE | SHEET 1 OF |
|---|---|---|---|---|
| STATUS | | ORIGIN | MSTATION 5.0 | |

A B C D

# Appendix D

## Building Drawings




UNCLASSIFIED

DERIVATIVE CLASSIFIER

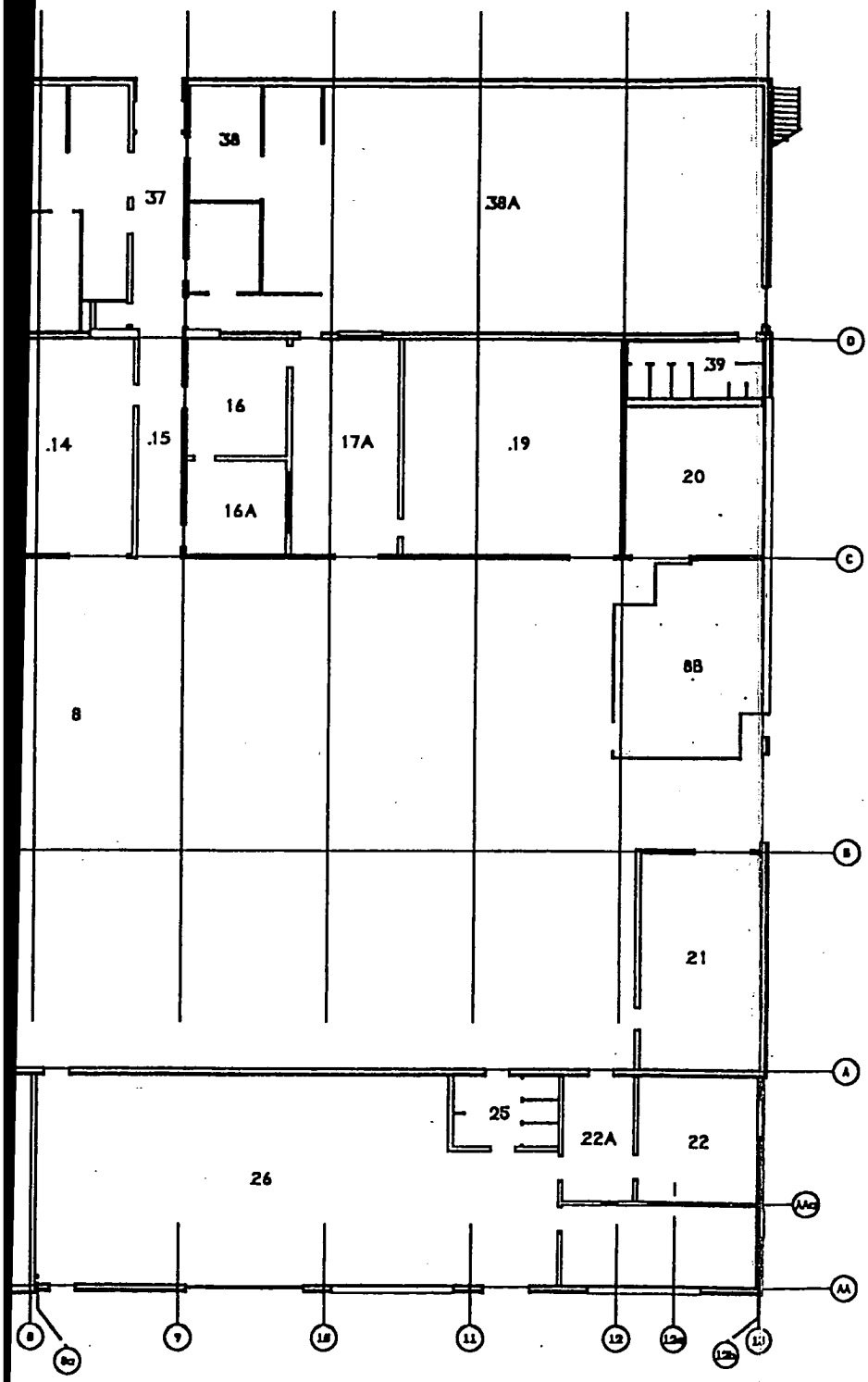
Name

Sr. Class Anal 2/20/96

(Title) (Date)

| APPROVALS: | DATE: |
|---|---|
| SAFETY COMMITTEE REQUIRED: | |
| NONE TRUEBOC TEBOC EMBOC | |
| TECH. REBP. | |
| GR. MGR. | |
| TRUEBOC | |
| TEBOC | |
| EMBOC | |

| ISS | DATE | REVISION | BY | CHKR | ENG | LPAEC | APVD | M |
|---|---|---|---|---|---|---|---|---|
| Ø | 12/12/91 | ASBUILT ISSUE | DCW | | | | DVD | |




# M BLDG
# FIRST FLOOR
# BLDG CODE:3508

NOT FOR PUBLIC DISSEMINATION

CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR
RMATION SUBJECT TO SECTION 148 OF THE
MIC ENERGY ACT OF 1954, AS AMENDED
USC 2168). APPROVAL BY THE DEPARTMENT
ENERGY PRIOR TO RELEASE IS REQUIRED.

| | |
|---|---|
| DESIGN ENG | PROJ MGR |
| SPONS | ENG SUPV |
| LP & EC | PEER REV |
| ENG MGR | |
| APVD | DATE |

| | | | | | | |
|---|---|---|---|---|---|---|
| SHEET | 1 | 2 | 3 | 4 | 5 | 6 |
| ISSUE | Ø | Ø | | | | |

TITLE (U) TITLE CLASSIFICATION
M BLDG
FLOOR PLANS

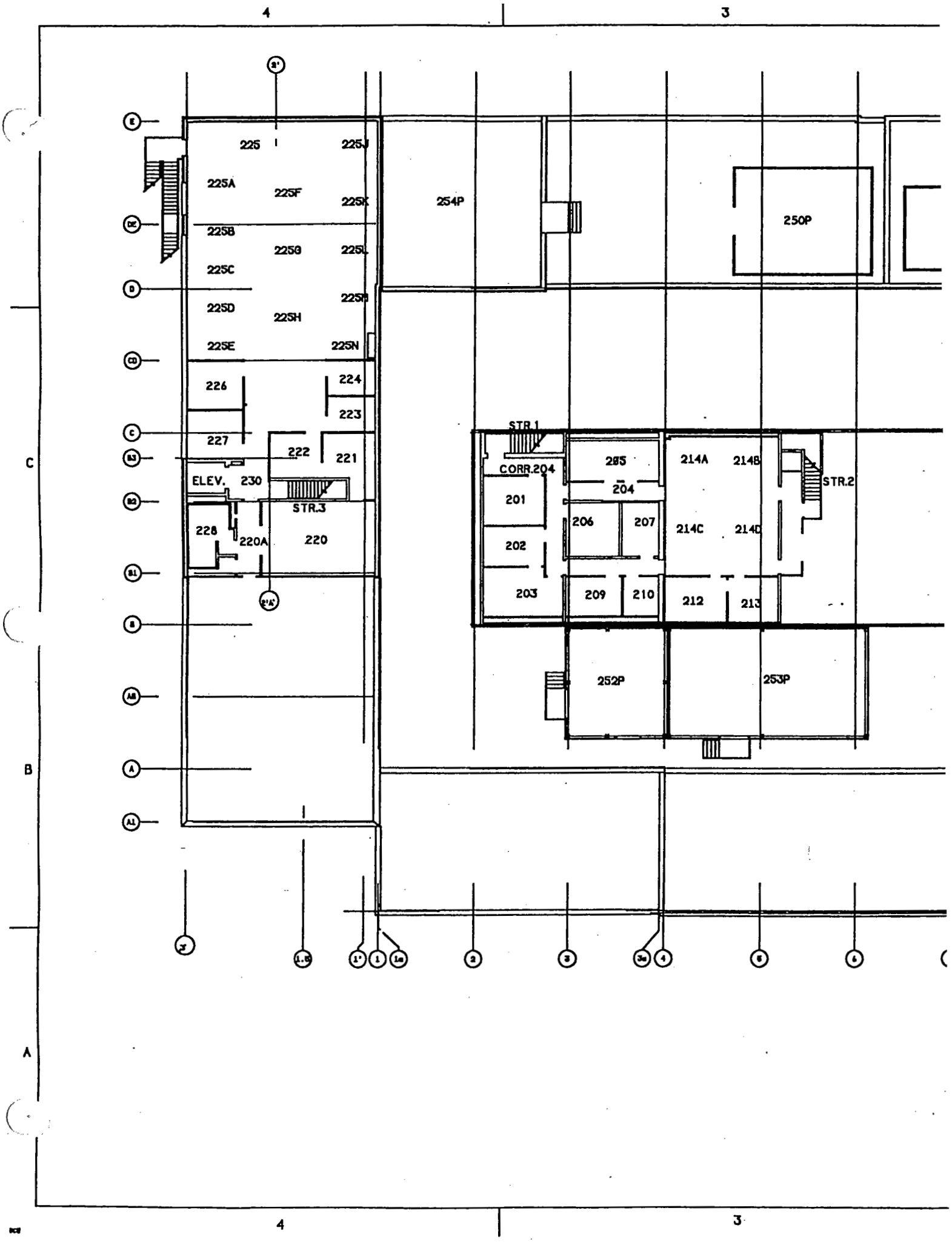
PART CLASSIFICATION

DRAWING CLASSIFICATION UCNI

SIZE D | DRAWING NUMBER FSD911314 | JOB NUMBER 12335

DWG TYPE SFP | PRGM M BLDG | CASE: 14065 | SCALE AS NOTED | SHEET 1 OF 2

STATUS MD-REL-12/12/91 | ORIGIN MD-BR3-V3.Ø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225J
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225K
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250P
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225L
225C
225M
225D
225H
225E
225N
226
224
223
227
222
221
ELEV.
230
STR.3
228
220A
220
STR.1
CORR.204
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214A
214B
STR.2
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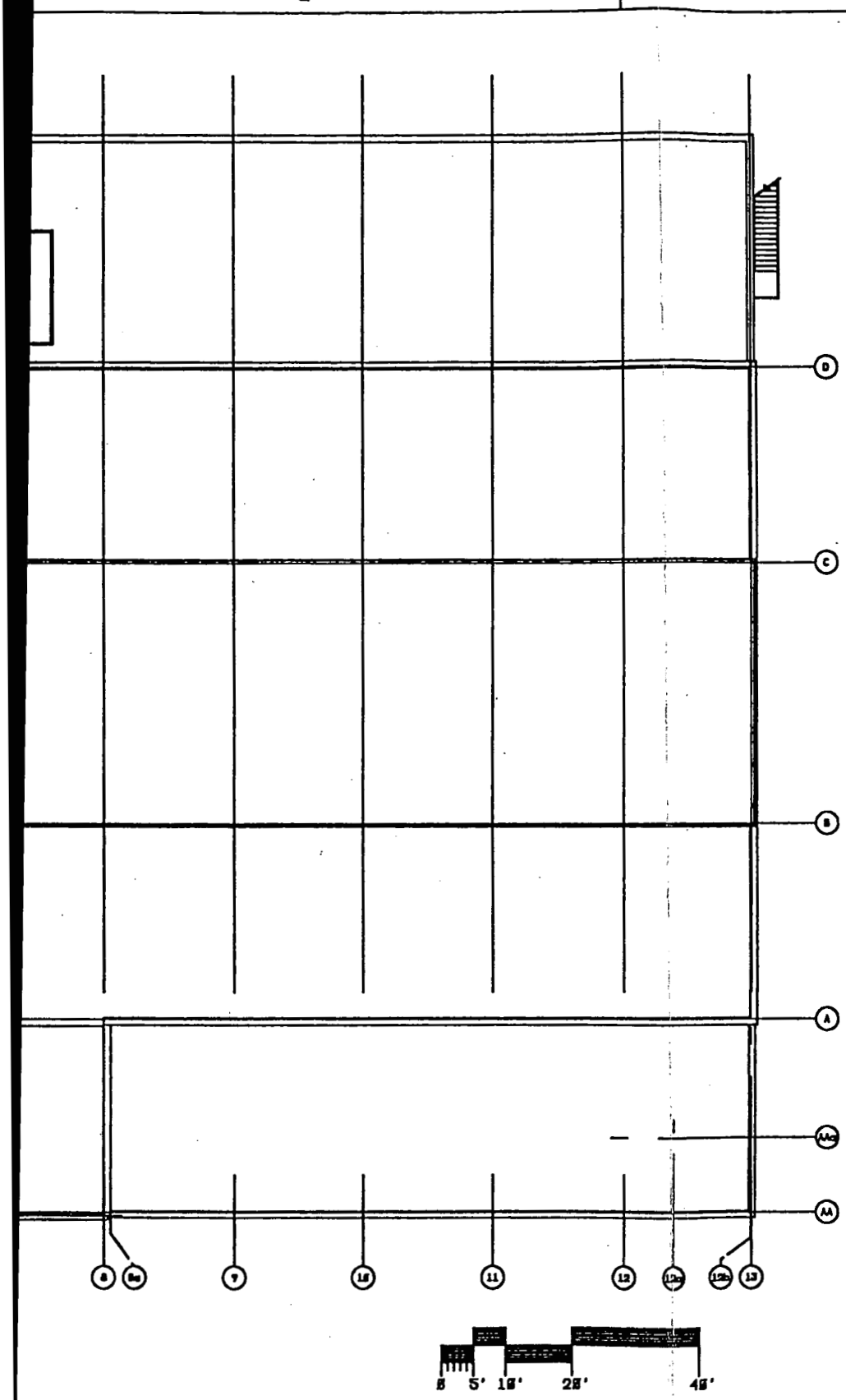
252P
253P




# M BLDG
# SECOND FLOOR
# BLDG CODE:3508

| | | |
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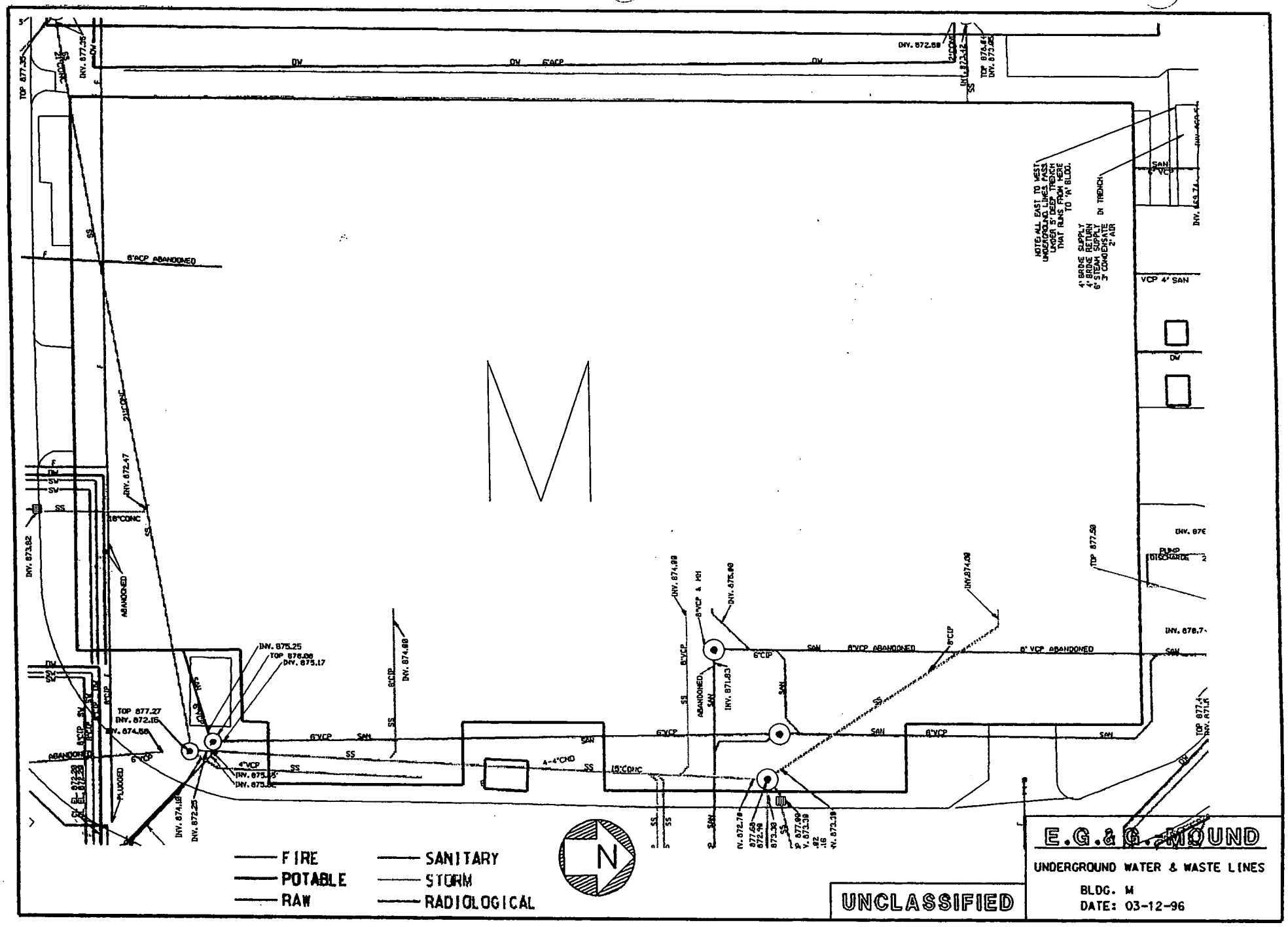
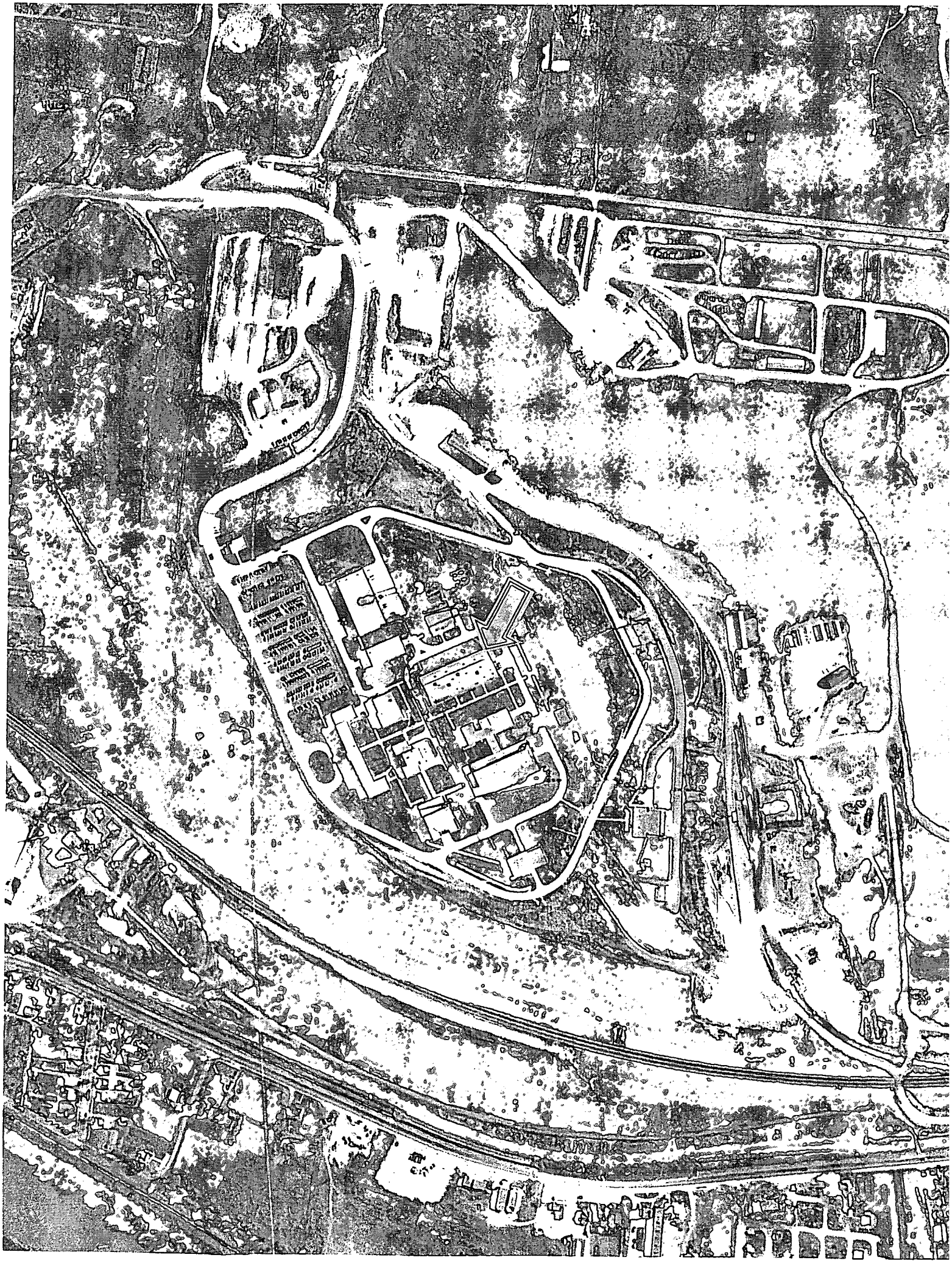
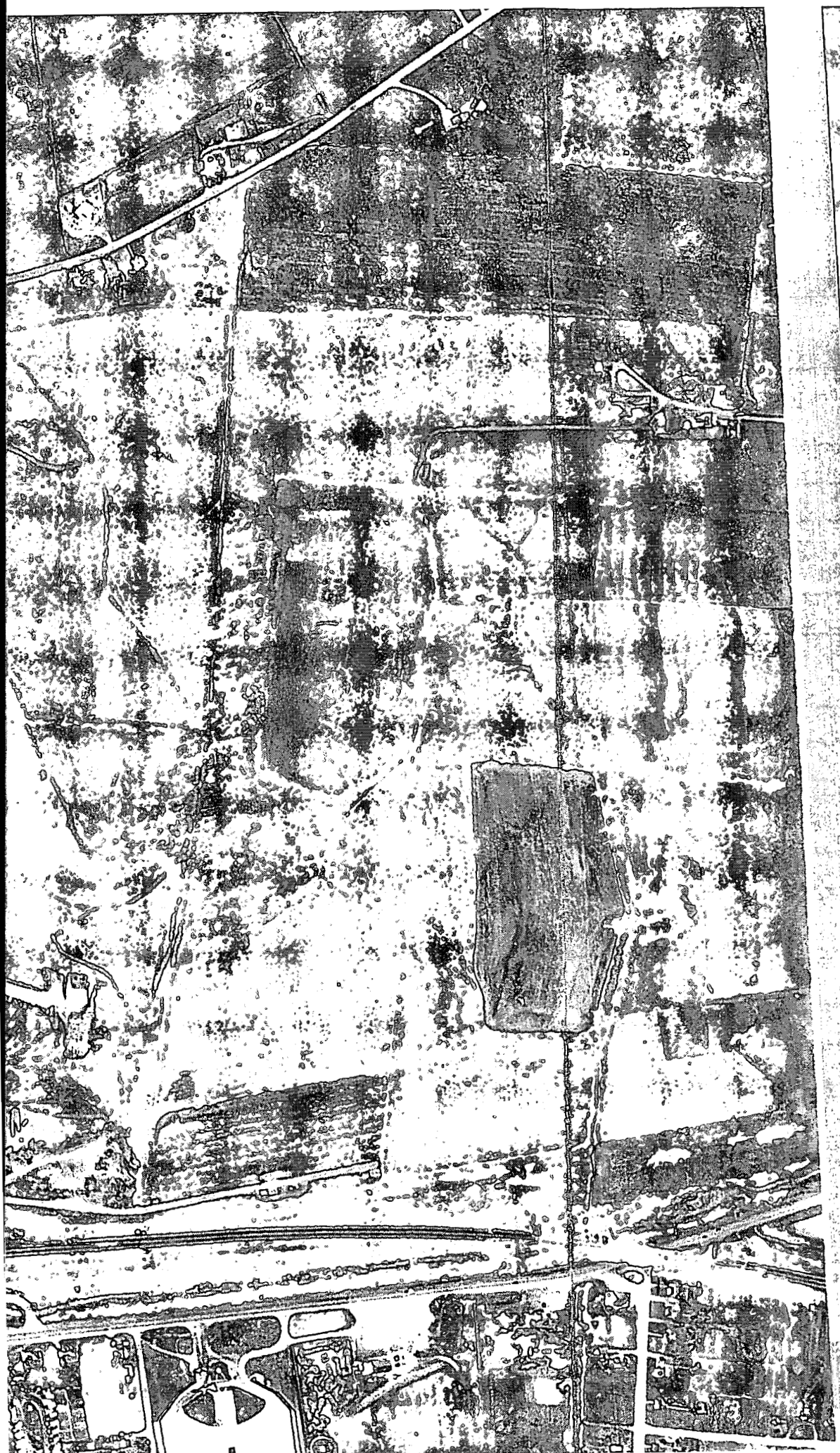
| DRAWING CLASSIFICATION UNCLASSIFIED | | |
| SIZE D | CAGE 14065 | SCALE AS NOTED |
| | ISSUE 0 | SHEET 2 |
| STATUS MD-REL-12/12/91 | | |


M
FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL
N
UNCLASSIFIED
E.G.&G. MOUND
UNDERGROUND WATER & WASTE LINES
BLDG. M
DATE: 03-12-96

# Appendix E

## Aerial Photographs





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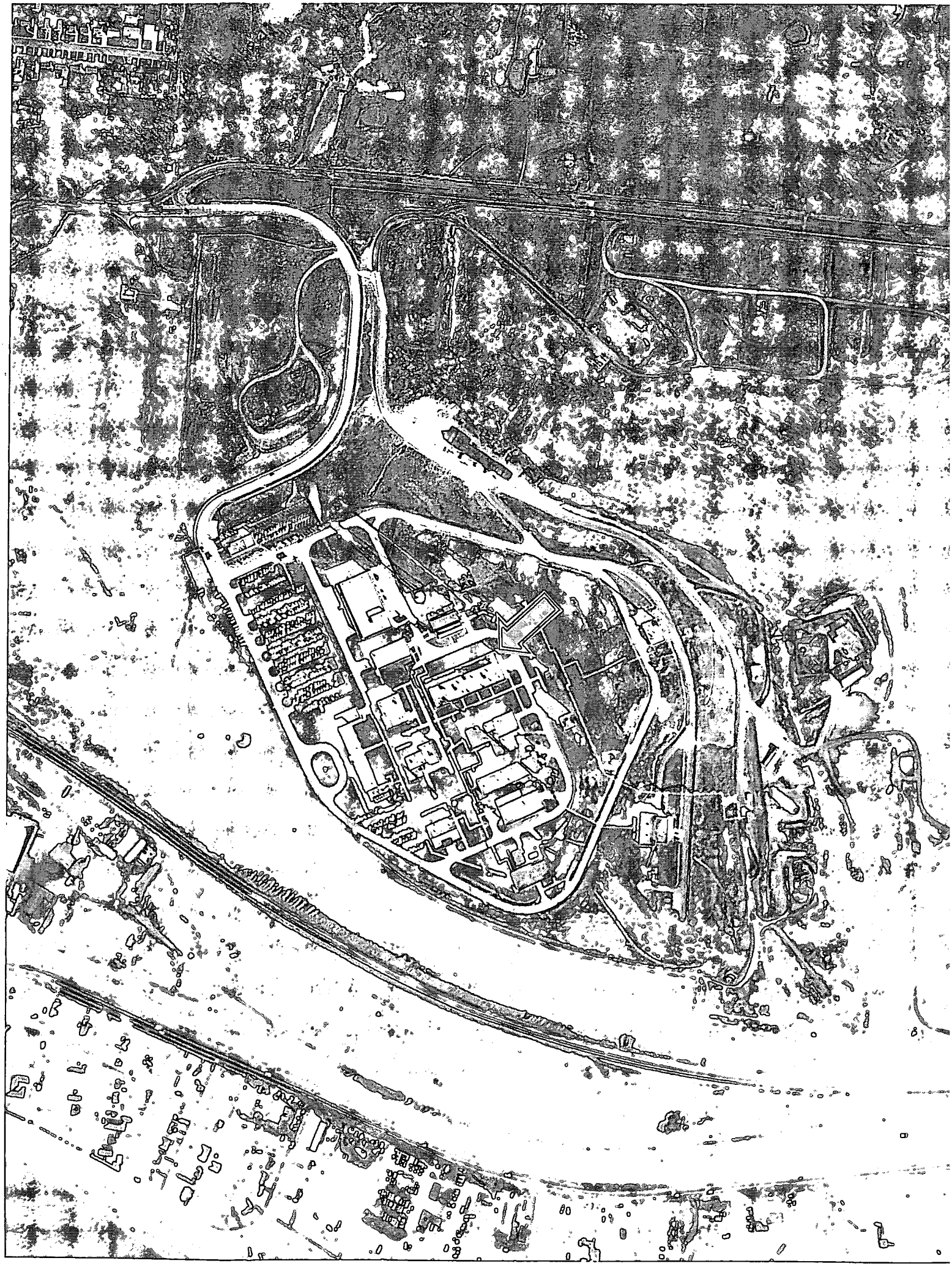

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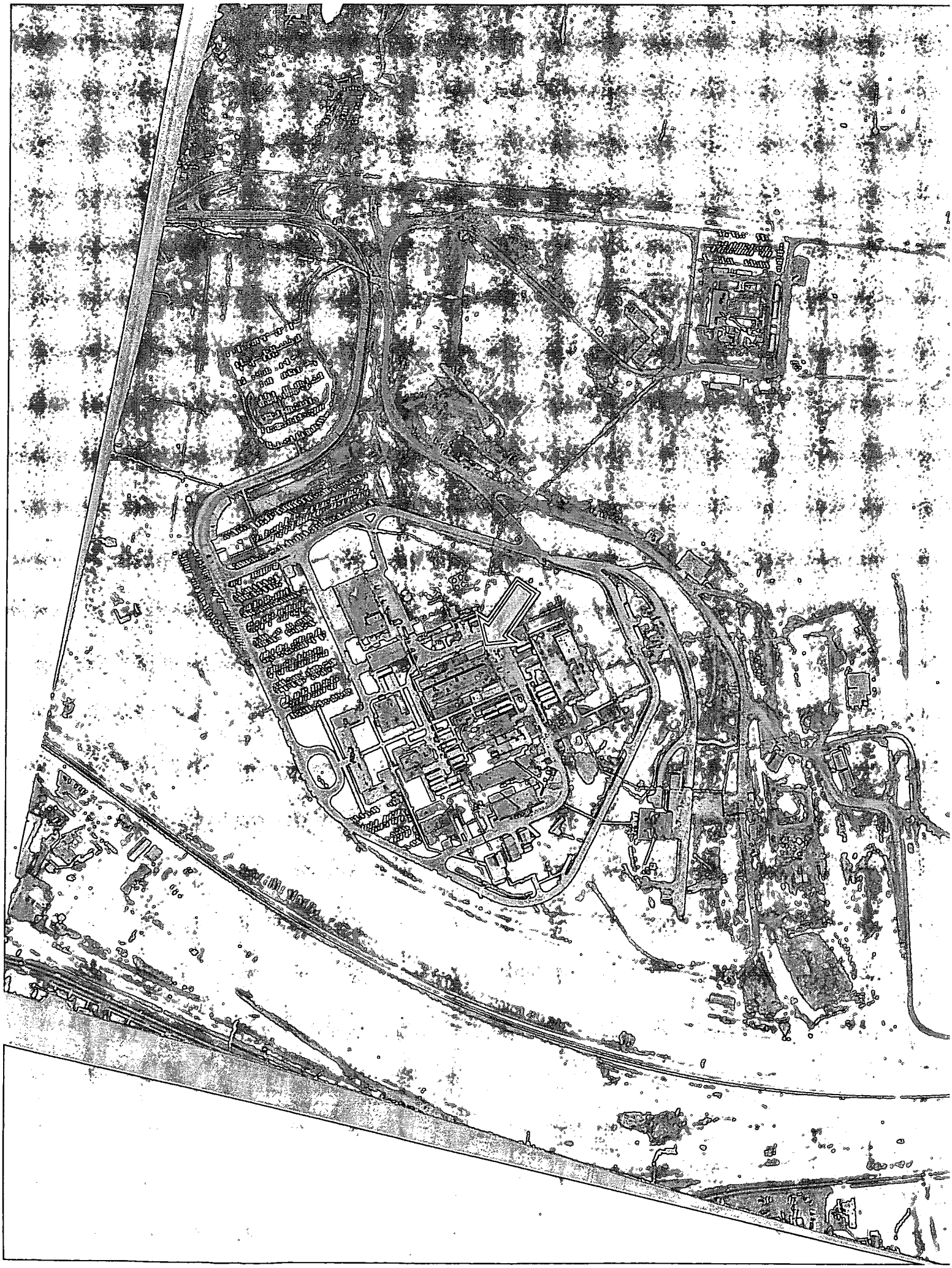
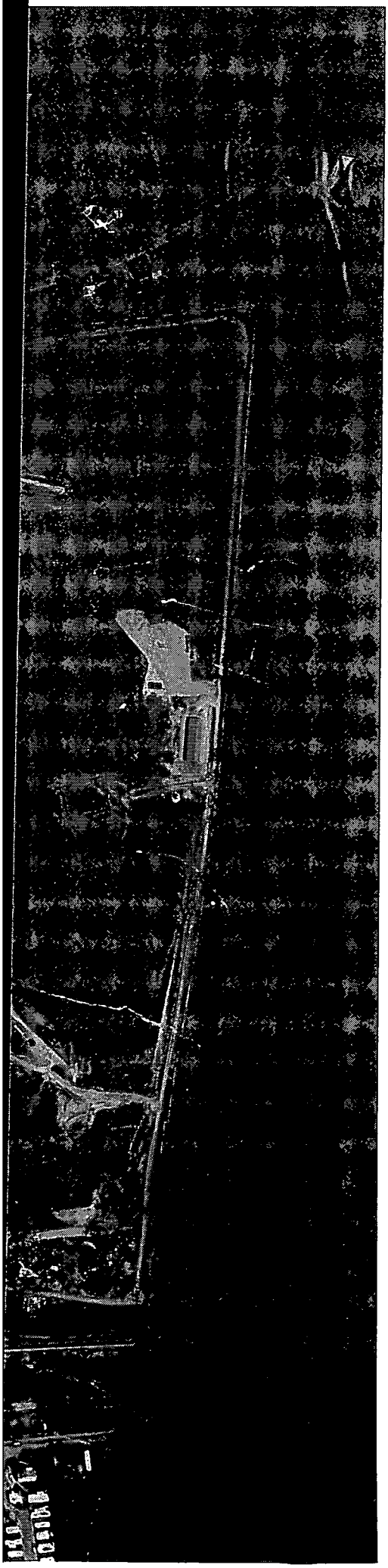
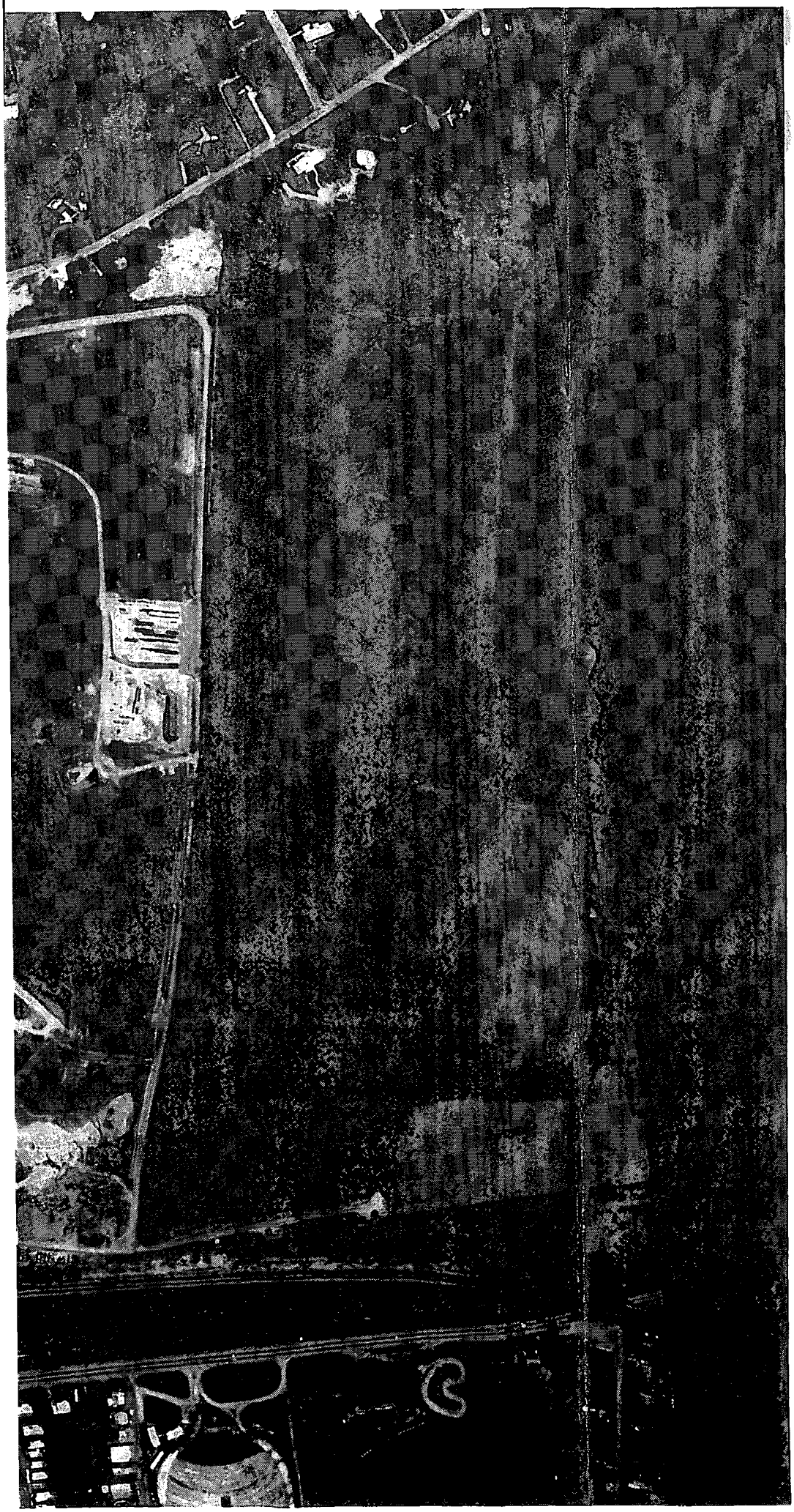
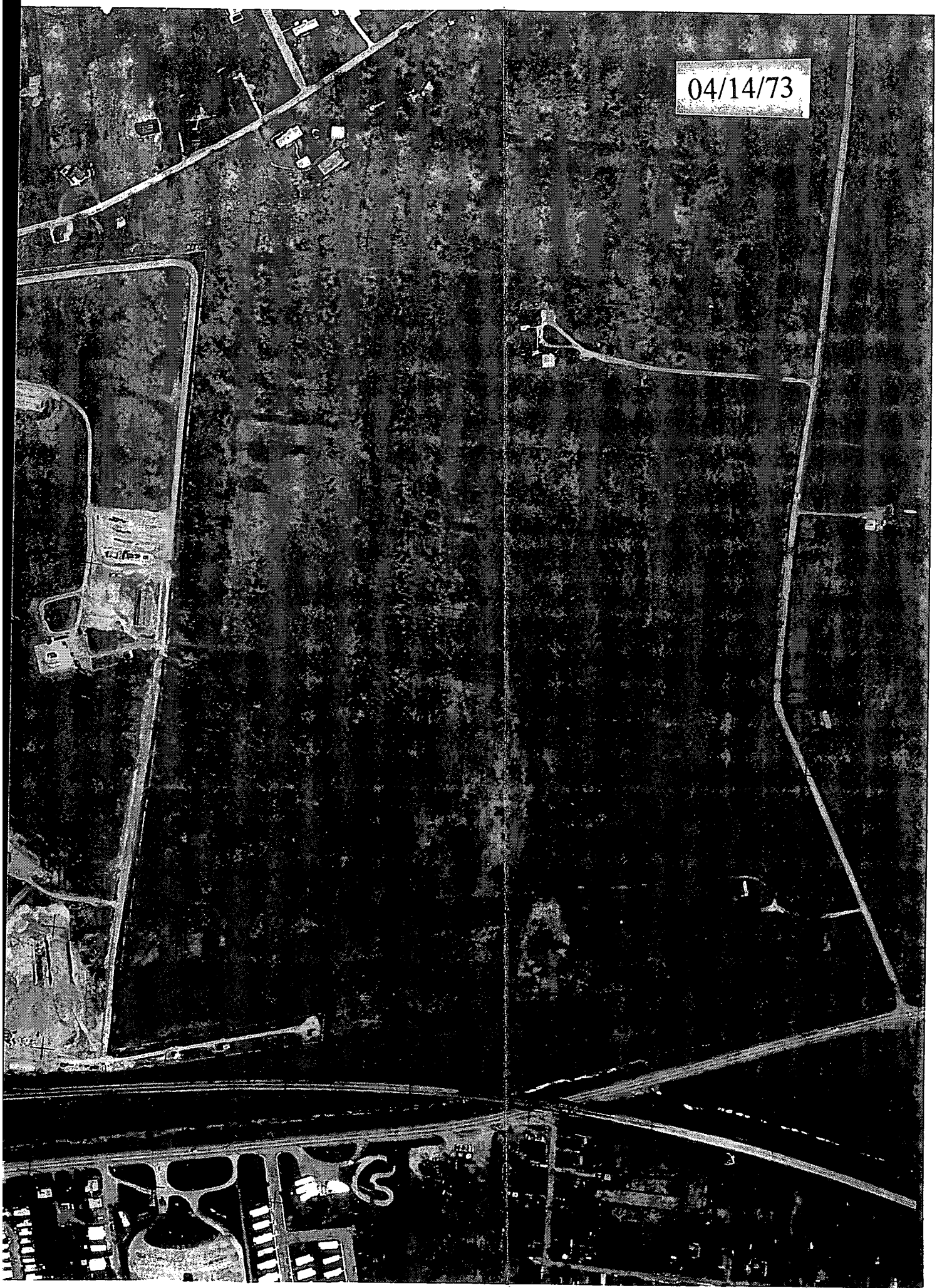




04/07/65

03/30/68

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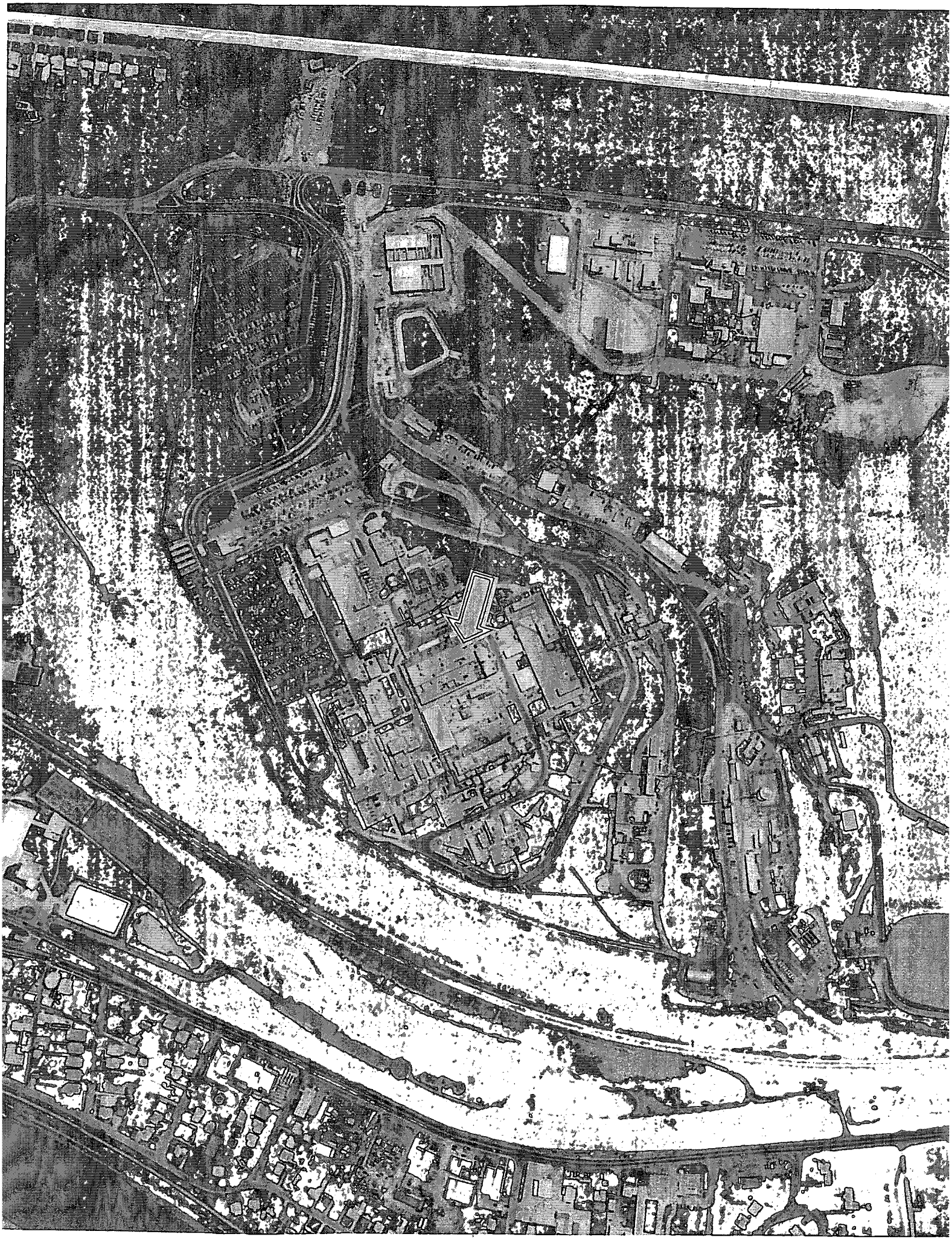
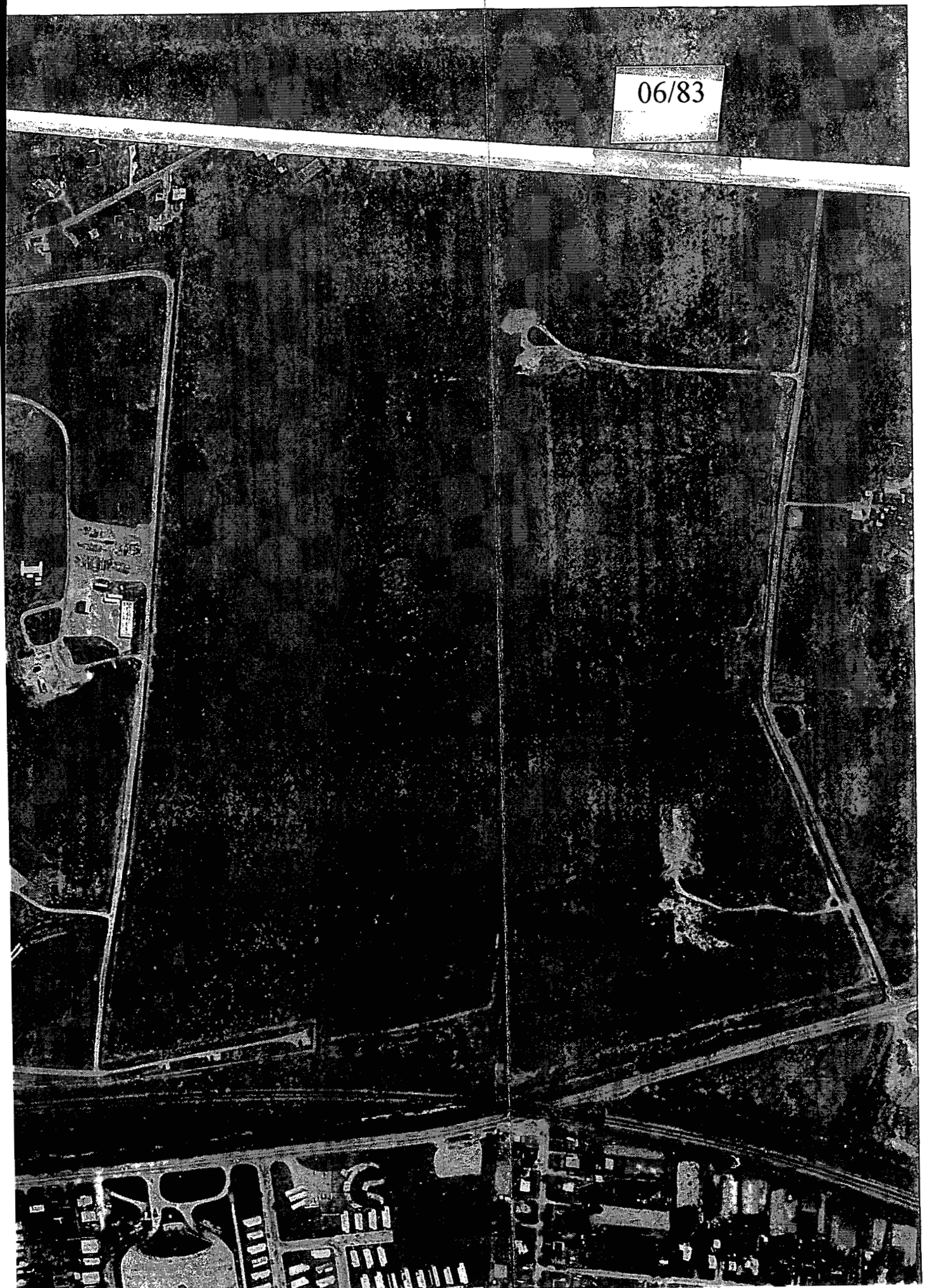
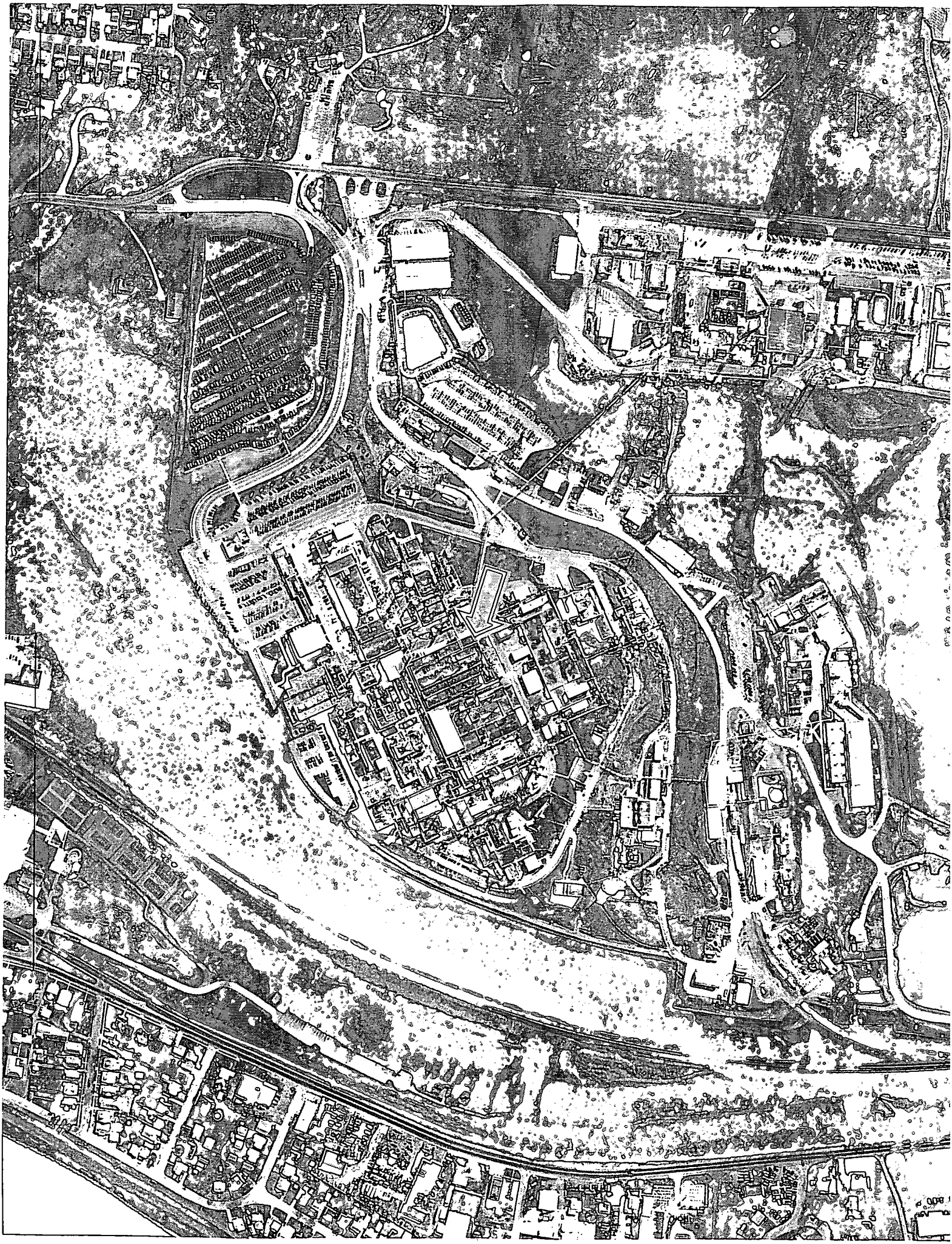


06/83





04/04/94

# Appendix F

## Environmental Appraisal Report of the Mound Plant (Extract)

## and

## Integrated Environmental Management Report (IEMP) Appraisal

## 9.18 BUILDING M

### 9.18.1 Scope of Building M 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 M on February 7, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.18.6.1). The appraisers were accompanied by the building manager. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.18.6.2).

### 9.18.2 Description of Building M

Building M is a two-story structure of concrete block with brick facing. The roof is metal and built-up membrane of coal tar and asphalt. Building M was one of the original buildings constructed in 1948 and it is located on the main hill as shown in Attachment 3 (Section 9.18.6.3). The building is bordered on three sides by a roadway. Adjacent buildings are Building C to the north, Building P to the east, Building DS to the south, and Building E to the west. The building is serviced by central steam for heat, chilled water, and electrical service of 480V (*Mound Facility Physical Characterization*, 12-1-93).

Building M is the former machine shop and housed electroplating operations. These process areas are now out-of-service and the majority of the building is inactive. The building does support some activities including electronics maintenance, an electrical substation, and excess material staging and storing. Total area of Building M is 56,000 square feet, including two mezzanine office areas of 5,800 square feet. Floor plans are presented as Attachment 4 (Section 9.18.6.4). No research, development, or production activities using radioactive or energetic materials have occurred in the building. Unknown quantities of contaminants, consisting of arsenic, cyanide, heavy metals, and machine oils may be present (*Mound Facility Physical Characterization*, 12-1-93).

### 9.18.3 Summary of Findings

Many issues of environmental concern were identified during the walk-through. Applications on file for air emissions should be updated as the building shuts down. Two water fountains in the building should be removed because they are suspected of lead contamination based on Environmental Protection Agency (EPA) tests on some models. Friable asbestos needs to be cleaned up and contained to prevent further damage. Several operations should be reviewed with respect to preventing chemical releases to the sanitary or storm system. Compressed gas

cylinders and materials that are in secondary containers need to be properly tagged or labeled. Wastes from idle equipment and satellite accumulation areas need to be properly managed.

### 9.18.4 Observations

#### 9.18.4.1 Air Emissions

There were two Permit to Operate (PTO) applications, for degreaser No. 2 and the plating shop, filed with the Regional Air Pollution Control Agency (RAPCA) for Building M. The degreaser was permitted (L002) with an expiration date of January 26, 1996. Mound's air emission database is inaccurate as all operations are now out-of-service. Although the operations have ceased, exhaust fans were still running in the plating shop. No air emissions were noted during the walk-through. There are no fuel-burning units in the building. There was no visual evidence of fugitive dust.

#### 9.18.4.2 Water Emissions

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

##### 9.18.4.2.2 Sanitary

The building has sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.18.6.5), the building is serviced by the sanitary system. Expected discharges to the sanitary system are by sinks, toilets, floor drains, and sumps. Chemicals have entered the sanitary system as an oily stain is in the sink basin in Room 28 and two metal plating rinse tanks are in the building. The metal plating rinse tank in Room 108 was monitored as part of the NPDES permit. Effluent from this tank has exceeded established discharge limits in the past. The plating shop in Room 108 is no longer in use. The other tank is listed inactive according to the Underground Storage Tank (UST) Program. 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. Based on current operations identified by the process owner, effluent from Building M should not deviate from that expected by the sanitary treatment plant manager.

#### 9.18.4.2.2 Storm Wastewater

The building is also serviced by storm drains according to Attachment 5 (Section 9.18.6.5). Roof drains and condensate discharge to the storm sewer according to the BMQ which is presented as Attachment 2 (Section 9.18.6.2). Exterior grates and drains were not tested to confirm that they connect to the storm drainage system. Inspection showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water have entered the storm drainage system. The diagram of underground utility lines also indicates that several storm lines terminate inside the building. It was undetermined at the time of the assessment what these potential discharge points are.

#### 9.18.4.2.3 Process Wastewater

This building does not create or discharge radioactive wastewater to the WD facility. According to Attachment 5 (Section 9.18.6.5), no radioactive wastewater lines service Building M.

#### 9.18.4.2.4 Chemicals

The remaining chemicals in Building M were evaluated against Table V of Appendix D in 40 CFR 122 and none were listed Clean Water Act (CWA) pollutants. Chemical storage and handling procedures are in place for proper disposal of chemicals. There have been no reported spills from Building M. There is no visual evidence that chemicals have entered the storm drains, but the potential exist as a drum of hypochlorite was within 10 feet of a storm water drain.

### 9.18.4.3 Potable and Service Water

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross-connections. All potable and service water lines are uniquely marked and easily identified, except for one service line in Room 8 which was identified as domestic water. Four of the six water fountains that supply drinking water in the building are not EPA-listed models suspected of lead contamination. Model numbers for the other two water fountains were inaccessible. Although the model number was inaccessible, the Halsey Taylor brand in Room 26 is very similar to those identified as suspected of lead contamination based on EPA tests on some models.

### 9.18.4.4 Chemical Storage and Hazardous Materials

A chemical inventory for Building M is included in the BMQ which is presented in Attachment 2 (Section 9.18.6.2). The information was gathered as part of the annual chemical inventory. The inventory information dates to 1994. Data from 1995 were not available when the appraisal was performed. Conformation of the 1994 inventory by the appraisal team was not attempted, as the current year's inventory was ongoing. However, storage, handling. and disposal of chemicals observed during the appraisal were reviewed to assure conformance with 40 CFR 122, 40 CFR-260-265 and 268, and 29 CFR 1910. It was noted that most of the chemicals on the

Building M inventory have been removed from the building. The power house water laboratory and the electronics maintenance shop are the only tenants in the building using chemicals. There was no visual evidence of chemical storage incompatibility among remaining materials and janitorial supplies. Material Safety Data Sheets (MSDS's) sheets were present and were reviewed for completeness. Documentation is available for chemicals disposed of through Waste Management.

Chemicals used in the electronic shop and in Room 7C (power house lab) were properly identified and stored. Room 7 is used as a storage area for 55-gallon drums of chemicals (Ancotreat 1310, 2010, and 3710) for boiler water treatment in the power house. There is no spill prevention for this area. Another storage area was Room 38A, where five flammable cabinets were full of 1-gallon containers of BioAct EC-7. This material was claimed by the City of Miamisburg for one of the onsite lessees.

Numerous containers of chemicals were identified in the out-of-service parts of Building M. Several containers did not have bar codes on them. An unidentified white powder was scattered on the floor. On a follow-up visit, most of the material was cleaned up with an unlabeled bag of similar material located a short distance from the location. Several compressed gas cylinders remain throughout the building, both inside and outside. The majority of these gas cylinders did not have empty/full tags attached.

The building is equipped with appropriate emergency response equipment such as eyewashes, safety showers, and fire extinguishers. Halon 1211 is the predominant fire extinguisher. Eyewashes and safety showers in the plating shop were tagged "Do Not Use." Inspection tags on all the other eyewashes and safety showers were present and current. The electronic shop, where chemicals are used, does not contain eyewash and safety shower equipment. There is an Emergency Evacuation Plan and signs are posted throughout the building.

No aboveground storage tanks were observed in or around the building. Two liquid helium and argon aboveground chemical storage tanks are located across the street from Building M, next to Building 25. There is no secondary containment nor is any required. No aboveground tanks were observed inside the building during the walk-through even though they were listed in the BMQ, included as Attachment 2 (Section 9.18.6.2). There are no separators or catch basins, in or around the building. There are two sumps in this building and they are identified in the UST Program as tanks Nos. 119 and 225. Both are metal-plating rinse tanks. Tank No. 225 is listed as inactive and tank No. 119 was an active NPDES outfall until the plating shop shut down. There may be sludge in either tank.

The building was tested and does contain asbestos-containing building material (MD-10391, *Asbestos Program Manual*, 9-14-95). There was visual evidence of friable asbestos in Room 20. Signs of damage were observed on insulation in the northeast corner of Room 20; debris was noted on the floor. Otherwise, the areas containing asbestos material were identified and properly marked indicating the presence of asbestos.

There are no capacitors or transformers containing polychlorinated biphenyls (PCB's) located in the building. PCB transformers and capacitors were removed from Substation M, which is located within the building. Substation A, located outside and in front of Building M, has PCB capacitors and is properly labeled. A PCB transformer was observed being removed during Building M assessment. The PCB capacitors will also be removed during the spring of 1996 (1995 PCB Annual Document Log). There is no visual evidence of PCB oil contamination in the area.

### 9.18.4.5 Solid, Hazardous and Radioactive Wastes

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

Hazardous waste generation ceased in the plating shop in Room 108 when it was shut down. The plating tanks appear to have been cleaned out and no waste remained in the area. Based on discussions with maintenance personnel, hazardous waste can be generated when equipment staged in Building M is prepared to be shipped offsite. Fluids, including oil and Freon, are removed from the equipment. Idle machinery in Building M contain oil and metal chips. In Room 20, the team observed that a piece of equipment was being drained of oil and residue into a 55-gallon black drum labeled "Hazardous Waste." It is Mound's policy for generators to characterize their waste before Waste Management collects it. No generators were present during walk-through to verify waste characterization. All hazardous waste is collected and transported by a representative of the EG&G Waste Management Group, and stored in Building 72 for ultimate disposal. There is no onsite treatment of waste. Waste disposal manifests and Certificates of Disposal are maintained by the EG&G Waste Management Group. They conform to RCRA requirements.

A satellite accumulation area (SAA) is being established in the electronic shop for printed circuit boards as a result of the appraisal. Printed circuit boards may be hazardous waste because they may contain lead and silver in the solder. Other items being accumulated are batteries and aerosol cans.

There are three bag-houses on the air handling system. Two are located along the outside east wall and the other is in Room 42A. It was not possible to determine if the traps were empty.

Portions of Room 8 have a creosote wood-block floor which was observed to be discolored from spills or releases. It is noted in documents that unknown quantities of contaminants, consisting of arsenic, cyanide, heavy metals, and machine oils are suspected to be present throughout the building.

### 9.18.4.6 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. Aluminum cans and paper are being recycled in the electronics shop. Waste volume is minimized through cannibalism of damaged equipment to repair broken equipment.

### 9.18.5 Findings and Recommendations

The environmental appraisal of Building M indicates that the following action items, in priority order, should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place. Photographs were taken to document the environmental appraisal.

M-1 Friable asbestos-containing building material (ACBM) needs to be managed to prevent exposure to workers. Damaged ACBM in Room 20 needs to be cleaned up and the source contained to prevent further damage.

M-2 Two water fountains located in Rooms 8 and 26 should be removed. The one located in room 26 is similar to others identified as EPA-listed fountains suspected of lead contamination. The other water fountain has no identification with respect to make or model number.

M-3 Secondary chemical containers such as boxes, bags, etc. should be properly identified and labeled. All chemicals and materials in the building should be labeled in accordance with site procedures.

M-4 Sumps used as plating rinse tanks may contain sludge from past operations. Since all processes have ended in Building M, these tanks should be checked to verify that there is no sludge in them. If the tanks contain sludge, the sludge should be characterized to determine if it is RCRA-regulated, and managed accordingly.

M-5 Hazardous waste regulations require that RCRA-regulated waste be removed from manufacturing process equipment within 90-days of the equipment becoming idle.

M-6 Prior to generating printed circuit boards as waste, the satellite accumulation process for printed circuit boards needs to be established so that they can be managed as hazardous waste.

M-7 Storage requirements should be reviewed for bulk chemicals and any measures that can be taken to prevent chemicals from entering the sanitary or storm systems. This review should include the storm water system that has lines terminating inside the building to ensure that chemicals or hazardous materials cannot enter the system.

M-8 Applications on file with the Regional Air Pollution Control Agency (RAPCA) for air emission sources should be updated as the building shuts down. Mound's air emissions database needs to be updated with respect to changing operations.

M-9 All gas cylinders should carry a legible label or marking identifying their contents, including full/empty tags (CGA P-1).

M-10 Bag-houses should be checked for wastes. If empty, they should be identified as such and measures taken to ensure that condition, otherwise the waste should be characterized to determine if it is RCRA-regulated and managed accordingly.

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## 9.18.6.1 Environmental Appraisal Checklist

# ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name M

Appraisers: Ronald Paulick
Name Discipline

Name Discipline

Name Discipline

Name Discipline

Building Manager:

Process Manager:

Date:

# ENVIRONMENTAL APPRAISAL CHECKLIST

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# Environmental Appraisal Checklist

Building Name: M Appraisers: Patrick, Atkins, Ross, Parker Date: 2-7-96

## 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?<br>Are they properly contained? | Y / (N)<br>(Y) / N | |
| | Is the building in operation?<br>What are the processes and where do they discharge to? | Y / (N)<br>_____<br>_____ | Storage area, Offices<br>plating shop & machine shop shutdown |
| | Do the floor drains, sinks & toilets appear to be draining properly? | (Y) / N | |
| OAC 3745-33 | Do the floor drains and sinks drain to a sanitary or storm sewer? | (Sanitary)<br>Storm | |
| | Is there a sump/pit in the building?<br>If so, what does it contain?<br>How often is it pumped out?<br>Does water collect in sump?<br>Does sump have secondary containment? | (Y) / N<br>inactive<br>(Y) / N<br>Y / (N) | One active NPDES site until Plating Shop shutdown. The other is listed as inactive. Both are Metal plating rinse water sumps |
| | Are there any manholes, catch basins, drains, or fill pipes in or around the building?<br>If so, are there any unusual appearances, colors, and/or odors? Describe in comment section.<br>Can chemicals flow into the drain? | (Y) N<br>(Y) / N<br>(Y) / N | a sink in Rm 28 had oil staining in sink.<br>a drum of hypochlorite is located on east side of building within 10' of a storm Drain |

9.18-13

9.18-14

# Environmental Appraisal Checklist

Building Name: M Appraisers: Adkins, Parker, Pantick, Ross Date: 2-7-96

## 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 | 108 |
| 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 | Degreaser expired 1-26-96. All operations have ceased. |
| 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 | All operations have ceased. |
| 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 Appraisal Checklist

Building Name: M

Appraisers: Atkins, Parker, Parker Ross Date: 2-7-96

CAA Checklist

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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: _____

9.18-16

# Environmental Appraisal Checklist

Building Name: A1 Appraisers: Adkins, Parker, Patrick Ross Date: 2-7-96

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

All Chemicals are labeled, The Chemical list Provided with BMCR is out of Date Most Chemicals are gone too.

## Environmental Appr[illegible]al Checklist

Building Name: M

Appraisers: Adkins, Parker, Patrick Ross Date: 2-7-96

### HM Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| 29 CFR 1910.106(d)(7) | All flammable/combustible storage locations have at least one 12-B portable fire extinguisher located outside and within 10 ft. of a door opening into any room for storage. No smoking signs are posted. | (Y) / N | |
| 29 CFR 1910.151 | Eyewashes/showers shall be provided within the work area. Ensure unit is operational. | (Y) / N | Eyewashes in General building inspected & up to date see Below |
| CGA P-1 3.3 & 3.3.10 | All gas cylinders (full or empty) shall carry a legible label or marking identifying the contents. | (Y) / N | |
| CGA P-1 3.5.3 | Full and empty containers should be stored separately with the storage layout planned so that containers comprising of old stock can be removed first with a minimum handling of other containers. | (Y) / N | |
| CGA P-1 3.5.8 | All compressed gas containers in service or in storage shall be stored standing upright and the container shall be secured. | (Y) / N | One cylinder in Rm 38 was unsecured. It was corrected in < 72 hours by BIF Personnel |
| 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 | |

* Eyewashes/Safety Showers in Plating lab Tagged "Do not use" are out of service Area is in safe shut down.

9.18-17

## Environmental Appraisal Checklist

Building Name: M

Appraisers: Adkins, Parker, Pavlick Ross Date: 2-7-96

### HM Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| | Is there a process area? | (Y) / N | Power house water quality Lab |
| | 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) | BuQ is not Accurate |

### 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: M Appraisers: Atkins, Parker, Patrick, Ross Date: 2-7-96

### 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 | Drinking water / service water |
| OAC 3745 95-04 (B)(C) | Are backflow prevention devices installed where cross connections (hoses connected to faucets, hot water tank vented directly to a drain) exist? | (Y)/ N | |
| | Are sources of service water (janitorial and laboratory faucets, or outdoor spigots) posted as non-potable water sources? | (Y)/ N | One ~~to~~ service line identified as Domestic |
| | Does the facility contain any water coolers or fountains ~~that are not lead free?~~ Complete Table C. | (Y)/ N | |

### TABLE C—Water Fountain Survey

| Building | Location | Model # | Comments / Date of Analysis for Lead |
|---|---|---|---|
| M | Corr 48 | PLF 3CP-D001 | OASIS |
| M | Corr 37 | ~~Type 1~~ NSID-8 | SUNROC |
| M | Rm 8 | | Unidentified. - No model # or marker ID |
| M | Rm 28 | FD700-3 | ELKAY |
| M | Rm 26 | "WM8A" | HALSEY TAYLOR - ID BLOCKED - Appears to be WM8A model |
| | Corr 220A | 5805 | HALSEY TAYLOR |
| | Rm 225 | | Bottled water |

Source:

9.18-19

9.18-20

# Environmental Appraisal Checklist

Building Name: M

Appraisers: Atkins, Parker, Pauliuk, Ross, Date: 2-7-96

## 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?<br>Was charactarization by analysis or by process knowledge?<br>Are lab results or documentation of process knowledge readily available?<br>Note any uncharacterized material in comment section.<br>Is it waste?<br><br>If yes, proceed with next section. | (Y) / N<br><br>analysis / (process)<br><br>(Y) / N<br><br>(Y) / N | Waste from Parts Cleaner Rm 20 & Electric Circuit Boards in Electronics maintenance area.<br>– Using MSDS for solvent 1 bag, unknown cream colored powder in Rm 7 |
| OAC 3745 52-11 | Are any of the materials noted RCRA hazardous waste?<br><br>If no, note and stop here.<br><br>If yes, note the location of the management unit, and the method of management, and proceed with the appropriate section below. | (Y) / N | Rm 20, a drum of liquid from Parts Cleaner, labeled as a hazardous waste satellite, and circuit boards. |

# Environmental Appraisal Checklist

Building Name: M Appraisers: Adkins, Parker, Parlick, Ross Date: 2-7-96

## 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?<br>Is it treated as such? | (Y) / N<br>(Y) / (N) | Parts cleaner waste is a satellite, the circuit board area is an SAA |
| OAC 3475-52-34 (C) | Has any of the RCRA hazardous waste in this building been managed in Satellite Accumulation Areas?<br><br>If no, proceed to the next section.<br><br>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) | Drum was closed but not locked or in locked area |
| | Are containers moved within 3 days of being filled? | Y / N | N/A see note below. |

- 1 Drum in Room 20 being managed as a Satellite accumulation area for draining of a parts cleaner. Job was in progress. Less than 55 gallons of waste will be generated.
- George Jones has an MSR to have part of Equipment removed to facilitate removal of sludge from bath. He stated that he believes safe shut down is lower priority and can't give a date for removal.
- George Jones indicated that waste is based on process knowledge and MSDS, prior results used to change solvent & clean

9.18-22

# Environmental Appraisal Checklist

Building Name: M Appraisers: [illegible] Date: 2-7-96

## 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.<br><br>If this exclusion does not apply, go to the next section. If the containers have been in storage under this exclusion, answer the following: | | N/A |
| | 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?<br>Where is the log?<br>Is it properly completed, dated, and signed? | Y / N<br>_____<br>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) | ~~N/A~~ |
| | If no go to next section. | | |
| | If yes, note. | | |
| | For Building 23, Building 72 & Burn Area use special checklist. | | |

# Environmental Appraisal Checklist

Building Name: M Appraisers: Atkins Parker Parrish Ross Date: 2-7-96

## 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 | 11 pieces Idled Equipment have waste oil, sludge & chips |
| | 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 | Sump is a CWA discharge for Plating Lab |
| | Is it dry? | Y / N | Couldn't observe |
| | 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 | 11 pieces Idle Equip Need to Perform Determination |
| | If the answer was no, then proceed with the following: | | |
| | Has the tank or piece of equipment had an integrity assessment? | Y / N | N/A until determination |
| | Does the tank or equipment have secondary containment? | Y / N | N/A " " |
| | Does the tank or equipment have leak detection device(s)? | Y / N | N/A " " |
| | Has spill control prevention been enacted? | Y / N | N/A " " |
| | Is there a closure plan? | Y / N | N/A " " |
| | 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) | |

* Per site list of Tanks & Sumps.

9.18-23

9.18-24

# Environmental Appraisal Checklist

Building Name: M1 Appraisers: Adkins, Parker, Pavlick, Ross Date: 2-7-96

## RCRA Checklist

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

General Comments:

## Environmental Appraisal Checklist

Building Name: M Appraisers: Adkins Parker Pavlick Ross Date: 2-7-96

### 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?<br><br>If no for this building or area note this conclusion in the comment section. | Y / N | BQM indicates Asbestos Baseline performed, Ref: Manual Technical manual MA10391 |
| * | Is there any evidence of friable asbestos? | Y / N | Friable Asbestos Noted in BQM Damage noted in Rm 20 |
| | Is the asbestos removal properly managed? (See questions listed below) | Y / N | No on-going abatement to observe<br>If there is no asbestos removal, do not complete the following section. |
| NESHAPS FOR ASBESTOS FOR ANY ONGOING ASBESTOS REMOVAL: | | | No on-going Abatement |
| 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 | |

Rm 20 There are pieces of insulation and powder on floor beneath a pipe labeled Asbestos.

9.18-25

9.18-26

# Environmental Appraisal Checklist

Building Name: M Appraisers: Adkins Packer Parlick Ross Date: 2-7-96 thru 3-7-96

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

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

## TSCA Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| 40 CFR 761 | Has any waste generated in, or from, this building been characterized either through process knowledge or by analyses to determine if it contains PCB's ?<br><br>If the answer is no, note .<br><br>If the answer is yes, proceed with next section. | (Y) / N | Waste operations inventory 1991-1995 notes large quantities PCB oil removed from Bldg M Bldg. mgr stated Transformer Substation A removed 2-96 |
| | Based on an inspection, are any of the materials or equipment potentially PCB contaminated?<br><br>If no, note and stop here.<br><br>If yes, note the location of the management unit, and the method of management, and proceed. | (Y) / N | Substation A still contains PCB capacitors, are active will be removed this spring. (per discussions with Dave Wiemer) |
| 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 | N/A no PCB storage |
| | If yes, are auditable records maintained. | Y / N | N/A |
| 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 | Substation A in use until 2-96 |
| | Are they visually inspected quarterly? If yes, are auditable records maintained? | (Y) N | Tony Williams has records up to Replacing Transformer 3-7-96 Performed visual inspection of area where PCB Transformer was replaced, No evidence of release or contam. [illegible] |

## Environmental Appraisal Checklist

Building Name: M Appraisers: Atkins Parker Patrick Ross Date: 2-7-96

### 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 | Substation A has PCB capacitors ~~N/A~~ that will be removed in 96. |
| | Are labeled PCB articles and containers stored so that the labels can be referenced? | Y / N | N/A |
| 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 | N/A |
| 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 | N/A |
| 40 CFR 761.62 (b) (1) (iv) | Are storage are floors curbed and constructed of continuous smooth and impervious materials? | Y / N | N/A |
| 40 CFR 761.62 (b) (1) (i) | Are the curbs at least 6 inches high? | Y / N | N/A |
| 40 CFR 761.62 (b) (1) (iii) | No drains are allowed in storage areas. Are there drains in the storage areas? | Y / N | N/A |

Joe Wismer ~~Troy Williams~~ in Division: 3-7-96. Troy stated that Substation A has PCB capacitors that will be removed this spring. They are inspected Quarterly. Records kept by Troy Williams 3881

x3323

9.18-27

9.18-28

# Environmental Appraisal Checklist

Building Name: M

Appraisers: Atkins Parker Patrick Ross Date: 2-7-96

## 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 | N/A |
| 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 | N/A |
| 40 CFR 761.65 (c) (5) | Have all leaking PCB articles and containers been transferred to non-leaking containers? | Y / N | N/A |
| 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 | N/A |

**GENERAL COMMENTS:**

## Environmental Appraisal Checklist

Building Name: M Appraisers: Atkins, Parker, Pendlick, Ross Date: 2-7-96

### 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 ?<br><br>If the answer is no, note.<br><br>If the answer is yes, proceed with next section. | Y / N | No Rad was generated or stored |
| DOE Order 5820.2A Chapter III. | Are any of the materials noted by inspection LLW?<br><br>If no, The audit would stop here, because there are no LLW.<br><br>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 | |

Note: BGM indicates that Rad Contamination has been identified on wood floor of the main Bay Area (Room 8 machine shop). No posted areas were noted during inspection.

9.18-29

# Environmental Appraisal Checklist

Building Name: N1 Appraisers: Atkins, Anker, Paulick, Ross Date: 2-7-96

## Low-Level Waste and Transuranic Waste Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| DOE Order 5820.2A Chapter III, 3.d. | Based on field data, is the characterization of the materials in this area sufficient to assure proper segregation to assure proper segregation, treatment, storage, and disposal? | Y / N | No Rad waste generated or stored |
| | 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 | |

## Environmental Appraisal Checklist

Building Name: M Appraisers: Atkins Parker Paulick Ross Date: 2-7-96

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?<br><br>If no, note and stop.<br><br>If yes, proceed with the next section. | Y / N | No Rad waste generated or stored. |
| | Are any of the materials noted as being TRU waste during an inspection?<br><br>If no, note and stop.<br><br>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?<br><br>(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 | |

9.18-31

# Environmental Appraisal Checklist

Building Name: M

Appraisers: Atkins Patrick Parker Ross Date: 2-7-96

## Low-Level Waste and Transuranic Waste Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| DOE Order 5820.2A, Chapter II, 3.b | Has the TRU waste been assayed or otherwise evaluated to determine its radioactive content prior to storage? | Y / N | no Rad waste generated or stored |
| | 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: M Appraisers: Adkins Parker Pavlick Ross Date: 2-7-96

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 | No Rad Waste Generated or Stored. |
| | Has the TRU waste been protected from unauthorized access? | Y / N | |
| | Has the TRU waste been monitored periodically to ensure that it is not releasing its radioactive and/or hazardous constituents? | Y / N | |
| | Has this TRU waste storage area been designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or accidental release of its radioactive and/or hazardous constituents? | Y / N | |
| | Does the facility have a contingency plan designed to minimize the adverse impacts of fire, explosion, or accidental release of its radioactive and/or hazardous constituents? | Y / N | |

GENERAL COMMENTS:

9.18-33

9.18-34

# Environmental Appraisal Checklist

Building Name: M Appraisers: Atkins Pendick Parker Ross Date: 2-7-96

## 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.).<br><br>If yes, list candidate areas in the comment section. | Y / (N) | Building is shut down Electric Shop is only active operation. |
| | Are there solvent wastes? | Y / N | Need to check idle equip |
| | Is vehicle maintenance performed? | Y / (N) | |
| | Are oils used ? | (Y) / N | |
| | Are these corrosive wastes? | Y / (N) | |
| | Are there sludges? | (Y) / N | Sludge in Idle Equip. |
| | Are there halogenated organic (nonsolvent) wastes? | Y / N | Unknown, No personnel in work job |
| | 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 | Standard Site Practices |
| | Ion exchange process? | Y / (N) | |
| | Lead in gasoline lowered to reduce tank sludge toxicity? | Y / N | N/A |
| | Storage tank agitators installed? | Y / N | N/A |
| | Corrosive resistant materials used? | Y / N | N/A |
| | Prevention of crude oil oxidation ? | Y / N | N/A |
| | Drying? | Y / N | N/A |

## Environmental Appraisal Checklist

Building Name: M

Appraisers: Atkins Parker Patrick Ross Date: 2-7-96

### 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) | ~~N/A~~ |
| | Are solid wastes generated from the collection of baghouse dust? | (Y) / N | |
| | Wet instead of dry grinding used? | Y / N | N/A |
| | The output spray dried? | Y / N | N/A |
| | Has baghouse emptying and recycling of baghouse fines been scheduled? | Y / N | BIS manager Need to check |
| | 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 | N/A |
| | Evaporation of waste rinsewater? | Y / N | N/A |
| | Reverse osmosis? | Y / N | N/A |
| | Ion exchange? | Y / N | N/A |
| | Electrolysis? | Y / N | N/A |
| | Agglomeration? | Y / N | N/A |
| CORROSIVE WASTES | | | |
| | Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals? | Y / N | N/A |

9.18-35

# Environmental Appraisal Checklist

Building Name: M

Appraisers: Adkins Parker Parrish Ross Date: 2-7-96

## 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 | N/A |
| | Is crystallization used to remove corrosives from solution by cooling? | Y / N | N/A |
| | Is the process of evaporation of liquid wastes by heating used to leave behind a more concentrated solution? | Y / N | N/A |
| CYANIDE AND REACTIVE WASTES | | | |
| | Has non-cyanide or low concentration of cyanide process replaced zinc cyanide bath ? | Y / N | N/A |
| | Are any of these processes used to recycle cyanide wastes? | Y / N | N/A |
| | Refrigeration/crystallization? | Y / N | N/A |
| | Evaporation? | Y / N | N/A |
| | Ion exchange? | Y / N | N/A |
| | Membrane separation which includes reverse osmosis or electrodialysis? | Y / N | N/A |
| VEHICLE MAINTENANCE | | | |
| | How are auto parts cleaned? | Y / N | N/A |
| | Solvent sink? | Y / N | N/A |
| | Solvent dunk bucket? | Y / N | N/A |
| | Solvent dip tank? | Y / N | N/A |
| | Are parts cleaning solvents used for anything else besides cleaning parts? | Y / N | N/A ~~Nothing observed~~ |
| | Are spills reduced by locating sinks or dunk buckets near auto service bays? | Y / N | N/A |

## Environmental Appraisal Checklist

Building Name: M Appraisers: Atkins, Parker, Pollitt, Ross Date: 2-7-96

### Waste Minimization/Pollution Prevention Activities Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| | Are cleaned parts drained on the sink to minimize solvent spills? | Y / N | N/A |
| | Are drip tanks used to capture losses? | Y / N | N/A |
| | Is a solvent sink used for mineral solvents rather than a dunk bucket or dip tank? | Y / N | N/A |
| | Does a waste hauler collect solvent waste for recycling or treatment? | Y / N | N/A |
| 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 | Building Shutdown |
| | Are these good housekeeping and operation practices used to minimize oil waste production? | | |
| | Use oils not contaminated with other liquids? | Y / N | Cannot determine |
| | Oil spills prevented? | Y / N | evidence of past spills. |
| | Drip pans installed? | Y / N | |
| | Oil soaked rags laundered? | Y / N | N/A |
| | Rags and absorbants used to their limit? | Y / N | unknown |

9.18-37

9.18-38

# Environmental Appraisal Checklist

Building Name: M

Appraisers: Atkins Parker Patrick Ross Date: 2-7-96

## Waste Minimization/Pollution Prevention Activities Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| | Are these treatment techniques used to promote separation of oil/water wastes? | | No oil processing observed |
| | Reclaiming process to remove water and solvents by heat? | Y / N | |
| | Gravity setting? | Y / N | |
| | Screening? | Y / N | |
| | Centrifugation? | Y / N | |
| | Filtration? | Y / N | |
| SOLVENT WASTES | | | |
| | Has there been an attempt to reduce volume or toxicity by: | | |
| * | Eliminating solvents? | Y / N | |
| | Reducing the use of solvents? | Y / N | |
| | Reducing the loss of solvents? | Y / N | |
| | Increasing recyclability? | Y / N | |
| | Are solvents segregated? | Y / N | Not necessary |
| | Are waste solvents free from water and garbage? | Y / N | |
| | Are recycled solvent containers labeled as such? | Y / N | N/A |
| | 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 | N/A |
| | Is a method used to minimize the use of new materials such as a countercurrent process? | Y / N | not necessary building shaping frame |

Some solvents are used in electronics, there is use do not generate solid wastes

## Environmental Appraisal Checklist

Building Name: M Appraisers: Atkins, Parker, Pollitt, Ross Date: 2-7-96

Waste Minimization/Pollution Prevention Activities Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| | If there is a recycling program, what technique is used? | Y / N | No program active |
| | Distillation? | Y / N | N/A |
| | Solids removal? | Y / N | N/A |
| | Dispersion breaking? | Y / N | N/A |
| | Dissolved and emulsified organics recovery? | Y / N | N/A |
| | Are any of these housekeeping procedures used to minimize the production of solvent wastes? | | |
| | Separators cleaned and checked? | Y / N | N/A |
| | Parts not allowed to enter the degreaser while wet? | Y / N | N/A |
| | Sludge from the bottom of the tank not allowed to accumulate? | Y / N | N/A |
| | Lids kept on tanks? | Y / N | |
| | Freeboard space on tanks increased? | Y / N | |
| | Are better operating practices used to reduce waste? | Y / N | N/A |
| | How long is solvent waste stored and where? | _____ _____ | |

Note for general building: High Bay Rm 8, The wood block floor has extensive evidence of spilled or released oil on floor. This will require corrective action during D&D.

9.18-39

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### 9.18.6.2 Building Manager's Questionnaire

DONE

# Building Manager's Questionnaire

Building Name: M  Building Manager: W.H. Whitelow  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

TALK TO BILL DOWDY X3535.
HE TOLD ME HE DETECTED RAD. STUFF ON WOOD FLOOR IN MAIN BAY AREA.

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

TK.

4. Provide a physical description of the building.

Area of this building totals some 56,000 ft², including two mezzanine office areas of 5,800 ft² and other low bay areas totaling approximately 35,500 ft². Building is of concrete blocks with brick facing; roof is ~~BUM of~~ coal tar and asphalt. Building is not contaminated with radioactive or energetic materials. Unknown quantities of contaminants, consisting of arsenic, cyanide, heavy metals, and machine oils, may be present. HVAC systems are central steam and chilled water.

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 support activities including: ~~electroplating,~~ TK electronics maintenance, office space, an electrical substation, and an EXCESS MATERIAL STORAGE/STAGING OUT ~~MW Heat Source surveillance~~ facility.

(ELECTROPLATING LABS ARE SHUT DOWN.)

Source: Mound Buildings, 5-9-95

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

MW HEAT SOURCE SURVEILLANCE, ELECTROPLATING, MACHINING

Source: Mound Buildings, 5-9-95



9.18-43

# Building Manager's Questionnaire

Building Name: M Building Manager: W.H. Whitelow Phone: _____ Dat
Alternate: _____ Phone: _____

ALL OF THESE OPERATIONS HAVE CEASED.

TK.

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

Process(es) Housed: PAST OPERATIONS, BLDG IS SHUTDOWN Production support, glass shop, gauge [illegible] and maintenance, ceramics machining, tool development, milliwatt generator production, plating facility (production and development)

How Wastes Are Generated:

There are many different wastes generated in Building M. In this document these wastes are divided into two main groups: wastes from the Plating Shop and wastes from the rest of the areas in the building (Machine Shop). Wastes from the Machine Shop include waste water coolant which is the coolant used during the machining process, waste oil which is used to lubricate the machines, and various mixtures of Freon, alcohol, and trichloroethane which are used to clean machined parts. The oil with mercury and methyl ethyl ketone listed as wastes are not normally found in Building M and were disposed of when unnecessary chemicals were cleaned out.

Wastes from the Plating Shop are further subdivided into groups depending on their use. The primary uses of these materials are plating, coating, annodizing, passivating, cleaning, and oxide removal. Wastes generated during each of these processes are identified in the list under "Waste Volume." Wastes in the "Miscellaneous" category have been generated during other operations which are described in the following paragraph.

Floor waste was generated when a spill was cleaned up. The waste water is overflow from a rinse tank. Unichrome compound was disposed of during a general cleanup and is not currently used in the plating shop. Building M personnel have no record of using acetonitrile or Phill. Solution. It is possible the wastes on the Building M dock were generated elsewhere and carried to Building M for pickup by Waste Management.

Contact:
Phone:

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



9.18-44

# Building Manager's Questionnaire

Building Name: M  Building Manager: W.H. Whitelow  Phone: _____  Date: 12-07-95
Alternate: _____  Phone: _____

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

10. Does the building have air emission sources? Yes

| Process Source | Room Number | Hood Number | Active | Chemicals Used | Quantity Used | Quantity to Waste Management | Lbs./Yr. Operation | Air Emissions |
|---|---|---|---|---|---|---|---|---|
| Safe Shutdown | 7 | | N | | | | | |
| Safe Shutdown | 7A | | N | | | | | |
| Safe Shutdown | 8 | | N | | | | | |
| Plating Process | 47,108 | | ~~Y~~ N | <0.0001 all hoods | | | | |
| Plating Process | 048 | M0480001 | ~~Y~~ N | Empty | | | | |
| Safe Shutdown | 47,108 | | N | | | | | |
| Plating Process | 47 | | ~~Y~~ N | <0.0001 all hoods | | | | |
| Cleaning Process | 108 | M1080004 | ~~Y~~ N | sodium hydroxide<br>potassium permanganate | 0.0001<br>0.0001 | | 0.8736<br>0.8736 | |
| Cleaning Process | 108 | M1080005 | ~~Y~~ N | nitric acid<br>hydrochloric acid<br>sodium dichromate<br>sulfuric acid | 0.0001<br>0.0001<br>0.0001<br>0.0001 | | 0.8736<br>0.8736<br>0.8736<br>0.8736 | |
| Cleaning Process | 108 | M1080006 | ~~Y~~ N | nitric acid<br>hydrochloric aacid | 0.0001<br>0.0001 | | 0.8736<br>0.8736 | |
| Cleaning Process | 108 | M1080007 | ~~Y~~ N | hydrochloric acid | 0.0001 | | 0.8736 | |
| Cleaning Process | 108 | M1080008 | ~~Y~~ N | hydrochloric acid | 0.0001 | | 0.8736 | |
| Cleaning Process | 108 | M1080009 | ~~Y~~ N | hydrochloric acid | 0.0001 | | 0.8736 | |
| Cleaning Process | 108 | M1080010 | ~~Y~~ N | hydrochloric acid<br>nitric acid | 0.0001<br>0.0001 | | 0.8736<br>0.8736 | |
| Cleaning Process | 108 | M1080011 | ~~Y~~ N | hydrochloric acid<br>nitric acid | 0.0001<br>0.0001 | | 0.8736<br>0.8736 | |
| Cleaning Process | 108 | M1080012 | ~~Y~~ N | nitric acid | 0.0001 | | 0.8736 | |
| Cleaning Process | 108 | M1080013 | ~~Y~~ N | nitric acid | 0.0001 | | 0.8736 | |
| Cleaning Process | 108 | M1080014 | ~~Y~~ N | nitric acid | 0.0001 | | 0.8736 | |
| Cleaning Process | 108 | M1080001 | ~~Y~~ N | acetone<br>ethanol<br>freon | 0.009<br>0.016<br>0.01 | | 2.88<br>5.12<br>3.2 | |



9.18-45

# Building Manager's Questionnaire

Building Name: M Building Manager: W.H. Whitelow Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

| | Room Number | Hood Number | Active | Chemicals Used | Quantity Used | Quantity to Waste Management | Lbs./Yr. Operation | Air Emissions |
|---|---|---|---|---|---|---|---|---|
| Cleaning Process | 108 | M1080002 | ~~Y~~ N | ethanol<br>freon<br>isopropanol | 0.016<br>0.01<br>0.0009 | | 32<br>20<br>1.8 | |
| Cleaning Process | 108 | M1080003 | ~~Y~~ N | Bio-Act<br>EC-7 | | | | |
| Safe Shutdown | 103 | | N | | | | | |
| Safe Shutdown | 38,108 | | N | | | | | |
| Safe Shutdown | 17 | | N | | | | | |
| Safe Shutdown | 20,27 | | N | | | | | |
| Vapor Degreaser | | | | | | | | |
| Vapor Degreaser | | | | | | | | |

Source: _____

Exhaust still running on some equipment in the plating shop. No ongoing operations & all equipment is empty. Exhaust fans should be turned-off.

**Process Source**



9.18-46

# Building Manager's Questionnaire

Building Name: M Building Manager: W.H. Whitelow 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? RAIN + CONDENSATE

15. Does the building discharge to the sanitary sewer? (Yes) No
Where? LAV. FLOOR DRAINS TOILETS Sump

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

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



9.18-47

# Building Manager's Questionnaire

Building Name: M Building Manager: W.H. Whitelow 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) |
|---|---|---|
| Attached | | |
| | | |
| | | |
| | | |
| | | |

Source: Chemical Inventory 1994

Some of the chemicals listed have been removed since the plating shop has been shutdown.



9.18-48

| CHEMICAL | MANUFACT | USE | | MAX | Unit | AVG | Unit | BD | RM | STATE | STOR | PRES | TMP | SUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARGON | AIR PRODUCTS | 0.25 | | 2 | CF | 2 | CF | M | 225 | G | L | 1 | 4 | WEIDE |
| ROSIN CORE SOLDER 60/40 | JW HARRIS CO | 1 | LB | 5 | LB | 10 | LB | M | 225 | S | K | 1 | 4 | WEIDE |
| SOLDERING PASTE | BURNLEY MFG CO | 2 | OZ | 10 | OZ | 12 | OZ | M | 225 | S | F | 1 | 4 | WEIDE |
| TAP MAGIC CUTTING FLUID | STECO CO | 1 | OZ | 8 | OZ | 16 | OZ | M | 225 | L | F | 1 | 4 | WEIDE |
| VC-3 VIBRA-TITE | OAKLAND CORP | 0 | OZ | 1 | OZ | 0 | OZ | M | 225 | L | M | 1 | 4 | WEIDE |
| ACRYLIC SPRAY COATING | BORDEN CHEMICAL PRODUCTS | 8 | OZ | 30 | OZ | 52 | OZ | M | 23 | L | F | 1 | 4 | WEIDE |
| PENTRATE ULTRA | HEATBATH CORP | 650 | | 650 | | 178.7 | | M | 47 | L | D | 1 | 4 | MILLEI |
| 1,1,1-TRICHLOROETHANE | G E CORPORATE RESEARCH & | 12 | (O | 24 | (O | 48 | (O | M | CAGE | ML | L | 2 | 4 | CLAW: |
| IMS SILICONE SPRAY | IMS COMPANY, CHAGRIN FALLS, OH | 8 | (O | 72 | (O | 288 | (O | M | CAGE | ML | L | 2 | 4 | CLAW: |
| LOCTITE #242 THREADLOCKER | LOCTITE CORP., CLEVELAND, OHIO | 1 | (O | 6 | (O | 36 | (O | M | CAGE | ML | N | 1 | 4 | CLAW: |
| MOBIL 1 FORMULA 15 W 50 | MOBIL OIL CORP., FAIRFAZ, VA 22037 | 5 | (G | 5 | (G | 5 | (G | M | CAGE | ML | F | 1 | 4 | CLAW |
| MOBILUX EP1 | MOBIL OIL CORP., FAIRFAX, VA 22037 | 12 | (O | 288 | (O | 288 | (O | M | CAGE | ML | R | 1 | 4 | CLAW |
| MOBILUX EP2 | MOBIL OIL CORP., FAIRFAX, VA 22037 | 12 | (O | 288 | (O | 288 | (O | M | CAGE | ML | R | 1 | 4 | CLAW |
| PAX-SOLV WATERLESS HAND CLEANER | CALGON | 5 | (O | 20 | (L | 25 | (L | M | CAGE | ML | F | 1 | 4 | CLAW |
| RTV SILICONE RUBBER SEALANT 108 | GENERAL ELECTRIC, WATERFORD, NY | 8 | (O | 96 | (O | 96 | (O | M | CAGE | ML | R | 1 | 4 | CLAW |
| RTV SILICONE RUBBER SEALANT 108 5P1 | GENERAL ELECTRIC, WATERFORD, NY | 11 | (O | 132 | (O | 132 | (O | M | CAGE | ML | R | 1 | 4 | CLAW |
| GRAPHITE POWDER, FIBERS | MORTON THIOKOL, INC., DANVERS, MA | 2 | (O | 8 | (O | 8 | (O | M | SHOP | PS | | 1 | 4 | CLAW |
| MINERAL SEAL OIL 5062 | TOTAL PETROLEUM, INC., EAST | 0 | (G | 0 | (G | 0 | (G | M | SHOP | ML | | 1 | 4 | CLAW |
| MOBIL 600W CYLINDER OIL | MOBIL OIL CORP., FAIRFAX VA 22037 | 5 | (G | 5 | (G | 10 | (G | M | SHOP | ML | F | 1 | 4 | CLAW |
| MOBIL DTE OIL HEAVY MEDIUM | MOBIL OIL CORP., 3225 GALLOWS RD., | 55 | (G | 110 | (G | 550 | (G | M | SHOP | ML | D | 1 | 4 | CLAW |
| MOBIL DTE OIL LIGHT | MOBIL OIL CORP., 3225 GALLOWS RD., | 55 | (G | 110 | (G | 550 | (G | M | SHOP | ML | D | 1 | 4 | CLAW |
| MOBIL FLUID 350 | MOBIL OIL CORP., 3225 GALLOWS RD., | 24 | (Q | 48 | (Q | 48 | (Q | M | SHOP | ML | F | 1 | 4 | CLAW |
| MOBIL VACTRA OIL NO. 4 | MOBIL OIL CORP., 3225 GALLOWS RD., | 55 | (G | 55 | (G | 55 | (G | M | SHOP | ML | D | 1 | 4 | CLAW |
| MOBILGEAR 629 | MOBIL OIL CORP., FAIRFAX VA 22037 | 55 | (G | 55 | (G | 55 | (G | M | SHOP | ML | D | 1 | 4 | CLAW |
| MOBILUBE HD 85W-140 | MOBIL OIL CORP., FAIRFAX, VA 22037 | 5 | (G | 5 | (G | 10 | (G | M | SHOP | ML | F | 1 | 4 | CLAW |
| NEV-SZ-REG | BOSTIK, MIDDLETON, MA 01949 | 8 | (O | 96 | (O | 96 | (O | M | SHOP | ML | R | 1 | 4 | CLAW |
| PERMATEX #1 FORM-A-GASKET | LOCTITE CORP., CLEVELAND, OH 44128 | 10 | (O | 60 | (O | 40 | (O | M | SHOP | ML | R | 1 | 4 | CLAW |
| PERMATEX #2 FORM-A-GASKET | LOCTITE CORP., CLEVELAND, OH 44128 | 10 | (O | 60 | (O | 40 | (O | M | SHOP | ML | R | 1 | 4 | CLAW |
| QUICK METAL, LOCTITE | LOCTITE CORP., NEWINGTON, CT 06111 | 10 | (O | 60 | (O | 30 | (O | M | SHOP | ML | R | 1 | 4 | CLAW |
| RTV SILICONE RUBBER SEALANT 102 | GENERAL ELECTRIC CO., | 8 | (O | 96 | (O | 96 | (O | M | SHOP | ML | R | 1 | 4 | CLAV |
| RTV SILICONE RUBBER SEALANT 102 5P1 | GENERAL ELECTRIC CO., WATERFORD, | 11 | (O | 132 | (O | 132 | (O | M | SHOP | ML | R | 1 | 4 | CLAV |
| RUBBER-TO-METAL CEMENT | GC ELECTRONICS, ROCKFORD,IL | 2 | (O | 4 | (O | 40 | (O | M | SHOP | ML | M | 1 | 4 | CLAV |
| STODDARD SOLVENT, TYPE I | VARIOUS | 55 | (G | 55 | (G | 165 | (G | M | SHOP | ML | D | 1 | 4 | CLAV |
| TAP MAGIC CUTTING FLUID | THE STECO CORP., LITTLE ROCK, AR | 12 | (O | 72 | (O | 288 | (O | M | SHOP | ML | F | 1 | 4 | CLAV |
| THREE-IN-ONE HOUSEHOLD OIL | BOYLE-MIDWAY, CRANFORD, NJ 07016 | 4 | (O | 24 | (O | 48 | (O | M | SHOP | ML | F | 1 | 4 | CLAV |
| TRIM TAP HEAVY | MASTER CHEMICAL CORPORATION, 501 | 55 | (G | 55 | (G | 55 | (G | M | SHOP | ML | D | 1 | 4 | CLAV |
| VALVOLINE AUTOMATIC TRANSMISSION | VALVOLIINE OIL CO., ASHLAND, KY 41114 | 24 | (Q | 48 | (Q | 48 | (Q | M | SHOP | ML | F | 1 | 4 | CLAV |
| WD-40 | WD-40 COMPANY,1061 CUDAHY PL.,P.O. | 8 | (O | 24 | (O | 96 | (O | M | SHOP | ML | L | 2 | 4 | CLAV |
| WHITMORE #1 GREASE | WHITMORE MANUFACTURING CO., | 12 | (O | 288 | (O | 144 | (O | M | SHOP | ML | R | 1 | 4 | CLAV |
| MOBIL DTE OIL HEAVY MEDIUM | MOBIL OIL CORP., 3225 GALLOWS RD., | 1 | (G | 1 | (G | 1 | (G | M | STOR | ML | D | 1 | 4 | CLAV |

| CHEMICAL | MANUFACT | USE | | MAX | Unit | AVG | Unit | BD | RM | STATE | STOR | PRES | TMP | SUPER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL CHLORIDE | FISHER | 138.8 | | 138.8 | | 5 | | M | 108 | S | M | 1 | 4 | MILLER |
| NICKEL SULFATE | JOHNSON MATTHEY | 8.81 | | 8.81 | | 2.64 | | M | 108 | S | N | 1 | 4 | MILLER |
| NITRIC ACID | FISHER | 43.2 | | 43.2 | | 66.08 | | M | 108 | L | M | 1 | 4 | MILLER |
| OAKITE DYANDET | OAKITE PRODUCTS | 1 | | 1 | | 0 | | M | 108 | S | F | 1 | 4 | MILLER |
| PHOSPHORIC ACID | FISHER | 11.13 | | 11.13 | | 20 | | M | 108 | L | M | 1 | 4 | MILLER |
| POTASSIUM PERMANGANATE | FISHER | 3.3 | | 3.3 | | 20 | | M | 108 | S | M | 1 | 4 | MILLER |
| SODIUM BICARBONATE | FISHER | 1 | | 1 | | 6.6 | | M | 108 | S | N | 1 | 4 | MILLER |
| SODIUM DICHROMATE | FISHER | 1 | | 1 | | 0.5 | | M | 108 | S | N | 1 | 4 | MILLER |
| SODIUM HYDROXIDE | FISHER | 26.43 | | 26.43 | | 50 | | M | 108 | S | N | 1 | 4 | MILLER |
| SULFURIC ACID | FISHER | 70.7 | | 70.7 | | 30.4 | | M | 108 | L | M | 1 | 4 | MILLER |
| TOLUENE | FISHER | 0.5 | | 0.5 | | 0.1 | | M | 108 | L | M | 1 | 4 | MILLER |
| VASELINE INTENSIVE CARE LOTION | CHEESEBROUGH PONDS | 0.5 | | 0.5 | | 2 | | M | 108 | L | N | 1 | 4 | MILLER |
| WD-40 | WD-40 CO | 0.56 | | 0.56 | | 0.1 | | M | 108 | L | F | 1 | 4 | MILLER |
| ZINC OXIDE | FISHER | 3.3 | | 3.3 | | 0 | | M | 108 | S | N | 1 | 4 | MILLER |
| AGENT Y-17 | M&T HARSHAW | 18.9 | | 18.9 | | 6 01 | | M | 110 | L | F | 1 | 4 | MILLER |
| ALUM. FAST RED B3LW DYE | SANDOZ CHEMICALS | 5 | | 5 | | 1 | | M | 110 | S | F | 1 | 4 | MILLER |
| ALUM. TURQUOISE PLW DYE | SANDOZ CHEMICALS | 2.5 | | 2.5 | | 1 | | M | 110 | S | F | 1 | 4 | MILLER |
| ALUM. VIOLET 3D DYE | SANDOZ CHEMICALS | 10 | | 10 | | 2 | | M | 110 | S | N | 1 | 4 | MILLER |
| ANODAL MS-1 LIQUID | SANDOZ CHEMICALS | 40 | | 40 | | 0 | | M | 110 | S | F | 1 | 4 | MILLER |
| BLACK LABEL II | M&T HARSHAW | 40 | | 40 | | 0 | | M | 110 | L | N | 1 | 4 | MILLER |
| COPPER CYANIDE | FISHER | 110 | | 110 | | 2 | | M | 110 | S | F | 1 | 4 | MILLER |
| DEEP BLACK MLW DYE | SANDOZ CHEMICALS | 7 | | 7 | | 1 | | M | 110 | S | F | 1 | 4 | MILLER |
| FREON TF | ASHLAND CHEMICAL CO | 200 | | 200 | | 200 | | M | 110 | L | D | 1 | 4 | MILLER |
| GREEN LABEL II | M&T HARSHAW | 3 | | 3 | | 1 | | M | 110 | L | N | 1 | 4 | MILLER |
| LENS CLEANER | EASTERN SAFETY EQ CO | 8.34 | | 8.34 | | 0.5 | | M | 110 | L | N | 1 | 4 | MILLER |
| MORPLAS ERO BLUE DYE | MORTON INTERNATIONAL | 5 | | 5 | | 0.5 | | M | 110 | S | E | 1 | 4 | MILLER |
| NICKEL ACETATE | SHEPPARD CHEMICAL | 80 | | 80 | | 5.28 | | M | 110 | S | I | 1 | 4 | MILLER |
| SA-1 ADDITIVE | M&T HARSHAW | 18.9 | | 18.9 | | 1 | | M | 110 | L | N | 1 | 4 | MILLER |
| SODIUM CYANIDE | GEM CITY CHEMICALS | 10 | | 10 | | 2 | | M | 110 | S | D | 1 | 4 | MILLER |
| SODIUM HYDROXIDE SOLUTION | MAYS | 674 | | 674 | | 200 | | M | 110 | L | E | 1 | 4 | MILLER |
| SOLDERING FLUX | RUBY CHEMICAL CO | 0.63 | | 0.63 | | 0.1 | | M | 110 | L | N | 1 | 4 | MILLER |
| WINDOW SHINE GLASS CLEANER | VALLEY JANITOR SUPPLY | 16.7 | | 16.7 | | 1 | | M | 110 | L | N | 1 | 4 | MILLER |
| 1,1,1-TRICHLOROETHANE SOLVENT | MILLER-STEPHENSON | 1 | OZ | 8 | OZ | 8 | OZ | M | 223 | L | N | 1 | 4 | WEIDENBACH |
| DRIERITE | WA HAMMOND | 0 | LB | 2 | LB | 0 | LB | M | 223 | S | M | 1 | 4 | WEIDENBACH |
| DRIVE GRIP | OAKLAND CORP | 0 | OZ | 1 | OZ | 0 | OZ | M | 223 | S | R | 1 | 4 | WEIDENBACH |
| ELECTRICAL INSULATING RESIN | SCOTCHCAST 3M | 3 | OZ | 12 | OZ | 12 | OZ | M | 223 | S | K | 1 | 4 | WEIDENBACH |
| ELECTRONIC CLEANER | BOWMAN | 1 | OZ | 30 | OZ | 1 | OZ | M | 223 | L | F | 1 | 4 | WEIDENBACH |
| ELECTRONIC DEGREASER | CHARDON LABORATORIES | 0 | OZ | 12 | OZ | 12 | OZ | M | 223 | L | F | 1 | 4 | WEIDENBACH |
| EPOXY | COLE PARMER CO | 2 | OZ | 24 | OZ | 36 | OZ | M | 223 | L | J | 1 | 4 | WEIDENBACH |
| FREEZE MIST SPRAY | GC ELECTRONICS | 12 | OZ | 36 | OZ | 36 | OZ | M | 223 | L | F | 1 | 4 | WEIDENBACH |
| FREON SOLVENT FLUX REMOVER | MILLER-STEPHENSON | 8 | OZ | 48 | OZ | 64 | OZ | M | 223 | L | F | 1 | 4 | WEIDENBACH |
| FREON TF SOLVENT CLEANER | EI DUPONT | 0 | OZ | 20 | OZ | 24 | OZ | M | 223 | L | F | 1 | 4 | WEIDENBACH |
| FURNITURE POLISH | CARROLL COMPANY | 0 | OZ | 10 | OZ | 0 | OZ | M | 223 | L | F | 1 | 4 | WEIDENBACH |
| HIGH VACI[illegible]M GREASE | DOW CORNING | 1 | OZ | 10 | OZ | 15 | OZ | M | 223 | S | N | 1 | | WEIDENBACH |
| RTV SILI[illegible] UBBER | GENERAL ELECTRIC | 2 | OZ | 6 | OZ | 12 | OZ | M | 223 | S | N | 1 | | WEIDENBACH |
| THERMAL COMPOUND | WAKEFIELD ENG | 1 | OZ | 12 | OZ | 16 | OZ | M | 223 | [illegible] | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-PROPANOL | FISHER | 600 | L | 600 | ML | 0 | | HL | 104 | PL | M | 1 | | BARTON |
| 1,1,1-TRICHLORO[illegible]NE | | 25 | [illegible] | 55 | GA | 45 | GA | M | 103 | L | D | 1 | | KOEHLER |
| ARGON | | 1000 | LB | 4000 | LB | 2000 | LB | M | 103 | G | L | 2 | 4 | KOEHLER |
| ETHYL ALCOHOL | | 0.5 | GA | 4 | GA | 4 | GA | M | 103 | L | N | 1 | 4 | KOEHLER |
| HELIUM | | 220 | CF | 440 | CF | 110 | CF | M | 103 | G | L | 2 | 4 | KOEHLER |
| 2-PROPANOL | FISHER | 13.74 | | 13.74 | | 2 | | M | 108 | L | M | 1 | 4 | MILLER |
| 3 IN 1 OIL | BOYLE MIDWAY | 0.19 | | 0.19 | | 0.01 | | M | 108 | L | F | 1 | 4 | MILLER |
| ACETIC ACID | FISHER | 4.8 | | 4.8 | | 0.6 | | M | 108 | L | M | 1 | 4 | MILLER |
| ACETONE | FISHER | 10.44 | | 10.44 | | 174 | | M | 108 | L | M | 1 | 4 | MILLER |
| ALODINE 1200S | PARKER AND AMCHEM | 10 | | 10 | | 1 | | M | 108 | L | N | 1 | 4 | MILLER |
| AMMONIUM HYDROXIDE | MALLINCKRODT | 1 | | 1 | | 0 | | M | 108 | L | M | 1 | 4 | MILLER |
| BIOACT EC-7 | PETROFERM | 35.6 | | 35.6 | | 50 | | M | 108 | L | F | 1 | 4 | MILLER |
| BORIC ACID | FISHER | 6.6 | | 6.6 | | 6.6 | | M | 108 | S | M | 1 | 4 | MILLER |
| BUFFER SOLUTION | FISHER | 1 | | 1 | | 3 | | M | 108 | L | N | 1 | 4 | MILLER |
| E-BRITE 30/31 | ELECTROCHEMICAL PRODUCTS | 12.6 | | 12.6 | | 0 | | M | 108 | L | N | 1 | 4 | MILLER |
| E-BRITE 30/32 | ELECTROCHEMICAL PRODUCTS | 12.6 | | 12.6 | | 0 | | M | 108 | L | N | 1 | 4 | MILLER |
| ELECTRODW SOLUTION | ORION RESEARCH | 0.56 | | 0.56 | | 0.1 | | M | 108 | L | N | 1 | 4 | MILLER |
| ETHYL ALCOHOL | MIDWEST GRAIN CO | 23.8 | | 23.8 | | 396 | | M | 108 | L | N | 1 | 4 | MILLER |
| FERRIC CHLORIDE | FISHER | 0.22 | | 0.22 | | 0 | | M | 108 | S | M | 1 | 4 | MILLER |
| GOLD BRIGHTENER | ENGELHARD | 3.3 | | 3.3 | | 2.5 | | M | 108 | L | N | 1 | 4 | MILLER |
| GOLD REPLENISHER | ENGELHARD | 1.13 | | 1.13 | | 0.25 | | M | 108 | L | N | 1 | 4 | MILLER |
| HYDROCHLORIC ACID | FISHER | 39.6 | | 39.6 | | 79.3 | | M | 108 | L | M | 1 | 4 | MILLER |
| HYDROFLUORIC ACID | FISHER | 3.3 | | 3.3 | | 1 | | M | 108 | L | M | 1 | 4 | MILLER |
| ISOPROPYL ALCOHOL | FISHER | 13.2 | | 13.2 | | 20.9 | | M | 108 | L | M | 1 | 4 | MILLER |
| JOY LIQUID SOAP | PROCTOR & GAMBLE | 1.4 | | 1.4 | | 2.8 | | M | 108 | L | N | 1 | 4 | MILLER |
| MICROSHIELD | MICRO PRODUCTS | 6.8 | | 6.8 | | 1.1 | | M | 108 | L | F | 1 | 4 | MILLER |
| MICROSTOP | MICRO PRODUCTS | 3.4 | | 3.4 | | 3.4 | | M | 108 | L | F | 1 | 4 | MILLER |

# Building Manager's Questionnaire

Building Name: M Building Manager: W.H. Whitelow 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?

ATTACHED

23. Where do excess janitorial supplies go?

Room 2, 9, 10

Source: _____

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

ATTACHED

| Chemical | Amount | Chemical | Amount |
|---|---|---|---|
| ROUNDUP - HERB | AS NEEDED | | |
| | | | |
| | | | |

Source: INDUSTRIAL HYGIENE



9.18-52

| ecord# | COMMON | CHEMICAL |
|---|---|---|
| 1 | BLUE MAX SPRAY BUFF | BLUE MAX SPRAY BUFF |
| 2 | CLEAN-N-DRY | CLEAN-N-DRY |
| 3 | CLR WINDOW | CLR WINDOW |
| 4 | CONQUEST | CONQUEST |
| 5 | DD/85 SPRAY | DD/85 SPRAY |
| 6 | DMQ | DMQ |
| 7 | DUO-POWDER | DUO-POWDER |
| 8 | FLOOR FINISH/ABOVE | FLOOR FINISH/ABOVE |
| 9 | FOUNTAIN HEAD | FOUNTAIN HEAD |
| 10 | GLOSS-EXTENDERA | GLOSS-EXTENDERA |
| 11 | GREASE-BE-GONE | GREASE-BE-GONE |
| 12 | HEAD START | HEAD START |
| 13 | INSECT SPRAY/CHERRY | INSECT SPRAY/CHERRY |
| 14 | INSECTICIDE/WAS | INSECTICIDE/WAS |
| 15 | KINDEST CARE | KINDEST CARE |
| 16 | LAVA HAND SOAP | LAVA HAND SOAP |
| 17 | LIL BROTHER SAM | LIL BROTHER SAM |
| 18 | NABC | NABC |
| 19 | NEUT. FLOOR CORP. | NEUT. FLOOR CORP. |
| 20 | ODOR BANE | ODOR BANE |
| 21 | ON-BASE SEALER | ON-BASE SEALER |
| 22 | ONE-STEP/SURE BET | ONE-STEP/SURE BET |
| 23 | POLISH/LEMON | POLISH/LEMON |
| 24 | PUMMEL HAND SOAP | PUMMEL HAND SOAP |
| 25 | RINSE FREE/STRIP | RINSE FREE/STRIP |
| 26 | SBS-61 LOTION SOAP | SBS-61 LOTION SOAP |
| 27 | SCRUB-ENDER | SCRUB-ENDER |
| 28 | SEAL, CON-SEAL | SEAL, CON-SEAL |
| 29 | SEALER/IRONSTONE | SEALER/IRONSTONE |
| 30 | SHINELINE BASE | SHINELINE BASE |
| 31 | SNAPOUT | SNAPOUT |
| 32 | SPIN-OUT | SPIN-OUT |
| 33 | SPOT, PILE DRIVER | SPOT, PILE DRIVER |
| 34 | SPOTTER, PULL OUT | SPOTTER, PULL OUT |
| 35 | STAINLESS CLEANER | STAINLESS CLEANER |
| 36 | STATCIDE, GP | STATCIDE, GP |
| 37 | STRIPPER, ZIP | STRIPPER, ZIP |
| 38 | SURFACE GLEEM | SURFACE GLEEM |
| 39 | TREATMENT/DUST | TREATMENT/DUST |
| 40 | TRIPLE SSS | TRIPLE SSS |
| 41 | VESTA POWER | VESTA POWER |
| 42 | WINDOW SHINE | WINDOW SHINE |

Cus Todrail Chemical list

9.18-53

☐ INITIAL SERVICE
☑ REGULAR SERVICE
☐ EXTRA SERVICE

# TERMINIX.

TERMITE and PEST CONTROL

COPY

## COMMERCIAL SERVICE AND INSPECTION REPORT

| BRANCH | ACCOUNT | RT | TELEPHONE | GRID | S DAY | F | T | PRODUCTION | TIME IN | TIME OU |
|---|---|---|---|---|---|---|---|---|---|---|
| 2418 | 006092- | 07 | 000/000-0000 513/865-3921 | E30 - | 2FR | S | P | 00004570 09 | 7:40 AM | 8:25 A |

**SERVICE PROPERTY AT**

E G & G MOUND
P. O. #38224
MOUND AVE
MIAMISBURG OH 45342-0000

**BRANCH**

TERMINIX INTERNATIONAL
4712 PAYNE AVENUE
DAYTON OH 45414-0000
513/274-5800

OPERATOR NAME & CERTIFICATION NUMBER: [illegible] 1067

SUPERVISOR NAME & CERTIFICATION NUMBER: DANIEL J. STECK #1207

TARGET PEST(S): ☐ T2 Cockroaches ☑ T18 Rats ☐ Other: ____
☐ T3 Ants ☐ T19 Mice ☐ Other: ____

| SERVICE AREAS: | INSPECTED | TREATED |
|---|---|---|
| ☑ C1 FOOD AREAS: | ☐ | ☐ |
| ☐ C2 OFFICES: | ☐ | ☐ |
| ☐ C3 STORAGE/UTILITY: | ☐ | ☐ |
| ☐ C4 PUBLIC AREAS: | ☐ | ☐ |
| ☐ C5 REST ROOMS: | ☐ | ☐ |
| ☐ C6 EXTERIOR AREAS: | ☐ | ☐ |
| ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ |

| PESTICIDE(S) TO BE APPLIED | EPA'S | T/C | AMOUNT | EQ |
|---|---|---|---|---|
| ☐ P24 PT279 Engage (Chlorpyrifos) 0.5% | 499-292 | | | |
| ☑ P10 PT565 + XLO (Pyrethrin) 0.5% | 499-310 | C | 3 | A |
| ☐ P04 Dursban L.O. (Chlorpyrifos) 0.5% | 62719-55 | | | |
| ☑ P11 Conquer (Esfenvalerate) 0.05% | 1021-1565-57076 | C | [illegible] | A |
| ☐ P23 Tempo 20 WP (Cyfluthrin) 0.05% | 3125-380 | | | |
| ☐ P06 Ficam W (Bendiocarb) 0.5% | 45639-1 | | | |
| ☐ P21 Knox-Out 2FM (Diazinon) 1% | 4581-335-AA-499 | | | |
| ☐ P07 Gentrol (Hydroprene) 0.125% | 2724-304-50809 | | | |
| ☐ P12 Precor (Methoprene) 0.008% | 2724-352-50809 | | | |
| ☑ P02 Drione Dust (Silica/Pyrethrin) 1% | 4816-353AA | S | [illegible] | |
| ☐ P05 Ficam D (Bendiocarb) 1% | 45639-3 | X | | |
| ☐ P03 Dursban G (Chlorpyrifos) 0.5% | 10370-36-432 | | | |
| ☐ P08 Maxforce Bait (Hydramethylnon) 1.65% | 64248-1 | | | |
| ☐ P27 Avert Roach Bait (Avermectin) 0.05% | 499-294 | | | |
| ☐ P09 PT270 Dursban (Chlorpyrifos) 0.5% | 499-147 | | | |
| ☐ P25 PT280 Orthene (Acephate) 1% | 499-230 | | | |
| ☐ P26 Maxforce Gel (Hydramethylnon) 2.15% | 64248-5 | | | |
| ☐ P14 Ditrac All Weather Cake (Diphacinone) 0.005% | 12455-5 | | | |
| ☐ P20 Talon G (Brodifacoum) 0.005% | 10182-38 | | | |
| ☐ P47 Contrac Blox (Bromadiolone) 0.005% | 12455-79 | | | |
| ☐ P34 Ditrac Bait Pack (Diphacinone) 0.005% | 12455-19 | | | |
| ☐ P16 Glue Boards | | | | |
| ☐ P17 Ketch-All/Tin Cat | | | | |
| ☐ P19 Snap Traps | | | | |

**TREATMENT CODE:**
C = Crack & Crevice
S = Spot
G = General
T = Space Treatment
B = 3' Band

**Supervisor's Comments:** ☐ Treat for Infestation/Prevention or Inspect areas indicated.

**EQUIP. CODE**
F = Fogger
HD = Hand Dust
B&G = Comp. Air
B = ____

**SPECIAL SERVICE INSTRUCTIONS**

SER. OLD CAFE, SMPP, GUARDS REST ROMS AND BASINS IN MEDICAL AREA
P. O. # 38224

BALANCE AS OF NOVEMBER 29
DEC CHARGE
SALES TAX
TOTAL DUE

CUSTOMER'S SIGNATURE: [signature]

SERVICE TECHNICIAN'S SIGNATURE: [signature] DATE: 12-15-90

AMOUNT PAID
CASH
CHECK

9.18-54

☐ INITIAL SERVICE
☑ REGULAR SERVICE
☐ EXTRA SERVICE

**TERMINIX.**

TERMITE and PEST CONTROL

COPY

# COMMERCIAL SERVICE AND INSPECTION REPORT

| BRANCH | ACCOUNT | RT | TELEPHONE | GRID | S DAY | F | T | PRODUCTION | TIME IN | TIME OUT |
|---|---|---|---|---|---|---|---|---|---|---|
| 2419 | 006093- | 07 | 000/000-0000<br>513/865-4585 | E30<br>- | 2FR | S | P | 00005000 09 | 9:00 AM | 1:25 PM |

| SERVICE PROPERTY AT | BRANCH |
|---|---|
| E G & G MOUND<br>EARNIE HAYES 865-4310<br>MOUND AVENUE<br>MIAMISBURG OH 45342-0000 | TERMINIX INTERNATIONAL<br>4712 PAYNE AVENUE<br>DAYTON OH 45414-0000<br>513/274-5800 |

OPERATOR NAME & CERTIFICATION NUMBER: [illegible] 1467

SUPERVISOR NAME & CERTIFICATION NUMBER: DANIEL J. STECK #1207

TARGET PEST(S): ☑ T2 Cockroaches ☑ T3 Ants ☐ T18 Rats ☑ T19 Mice ☐ Other: ☐ Other:

| SERVICE AREAS: | INSPECTED | TREATED |
|---|---|---|
| ☐ C1 FOOD AREAS: | ☐ | ☐ |
| ☐ C2 OFFICES: | ☐ | ☐ |
| ☐ C3 STORAGE/UTILITY: | ☐ | ☐ |
| ☐ C4 PUBLIC AREAS: | ☐ | ☐ |
| ☐ C5 REST ROOMS: | ☐ | ☐ |
| ☐ C6 EXTERIOR AREAS: | ☐ | ☐ |
| ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ |

| PESTICIDE(S) TO BE APPLIED | EPA'S | T/C | AMOUNT | EQ |
|---|---|---|---|---|
| ☐ P24 PT279 Engage (Chlorpyrifos) 0.5% | 499-292 | | | |
| ☑ P10 PT565 + XLO (Pyrethrin) 0.5% | 499-310 | | | |
| ☐ P04 Dursban L.O. (Chlorpyrifos) 0.5% | 62719-55 | | | |
| ☑ P11 Conquer (Esfenvalerate) 0.05% | 1021-1565-57076 | C | | |
| ☐ P23 Tempo 20 WP (Cyfluthrin) 0.05% | 3125-380 | | | |
| ☐ P06 Ficam W (Bendiocarb) 0.5% | 45639-1 | | | |
| ☐ P21 Knox-Out 2FM (Diazinon) 1% | 4581-335-AA-499 | | | |
| ☐ P07 Gentrol (Hydroprene) 0.125% | 2724-304-50809 | | | |
| ☐ P12 Precor (Methoprene) 0.008% | 2724-352-50809 | | | |
| ☑ P02 Drione Dust (Silica/Pyrethrin) 1% | 4816-353AA | C | | |
| ☐ P05 Ficam D (Bendiocarb) 1% | 45639-3 | | | |
| ☐ P03 Dursban G (Chlorpyrifos) 0.5% | 10370-36-432 | | | |
| ☐ P08 Maxforce Bait (Hydramethylnon) 1.65% | 64248-1 | | | |
| ☐ P27 Avert Roach Bait (Avermectin) 0.05% | 499-294 | | | |
| ☐ P09 PT270 Dursban (Chlorpyrifos) 0.5% | 499-147 | | | |
| ☐ P25 PT280 Orthene (Acephate) 1% | 499-230 | | | |
| ☐ P26 Maxforce Gel (Hydramethylnon) 2.15% | 64248-5 | | | |
| ☐ P14 Ditrac All Weather Cake (Diphacinone) 0.005% | 12455-5 | | | |
| ☐ P20 Talon G (Brodifacoum) 0.005% | 10182-38 | | | |
| ☐ P47 Contrac Blox (Bromadiolone) 0.005% | 12455-79 | | | |
| ☐ P34 Ditrac Bait Pack (Diphacinone) 0.005% | 12455-19 | | | |
| ☐ P16 Glue Boards | | | | |
| ☐ P17 Ketch-All/Tin Cat | | | | |
| ☐ P19 Snap Traps | | | | |

**TREATMENT CODE:**
C = Crack & Crevice
S = Spot
G = General
T = Space Treatment
B = 3' Band

**Supervisor's Comments:** ☐ Treat for Infestation/Prevention or Inspect areas indicated.

**EQUIP. CODE**
F = Fogger
HD = Hand Dust
B&G = Comp. Air

SPECIAL SERVICE INSTRUCTIONS

GENERAL PC , C-BLDG. A-BLDG, MEDICAL, GH BLDG
SM CAFETERIA.(MONTHLY) -- OS-EAST CAFETERIA,
NEW CAFETERIA ONLY , P.O. #38224

BALANCE AS OF NOVEMBER 29
DEC CHARGE
SALES TAX
TOTAL DUE

9.18-55

CUSTOMER'S SIGNATURE: [illegible]

SERVICE TECHNICIAN'S SIGNATURE: [illegible] DATE: 12/15/95

AMOUNT PAID: 0 ☐ CASH ☐ CHECK

Building Name: M Building Manager: W.H. Whitelow 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.

No Above Ground tanks were identified during walk-through

| Registration Number | Content | Quantity | Last Inspection Date | Preventive Maintenance Performed | Inside Or Outside |
|---|---|---|---|---|---|
| 7697-37-2 | NITRIC ACID | 01C | | Y/N | |
| 7440-37-1 | ARGON | 02C | | Y/N | 103 |
| 7440-59-7 | HELIUM | 01C | | Y/N | 103 |
| 7664-93-9 | SULFURIC ACID | 01C | | | 108 |
| | | | | | |

WHERE IN 108? → I DON'T KNOW OF ANY $H_2SO_4$ STORAGE!

Source: Emergency and Hazardous Ch - Chemical Storage Tanks on EGG Mound .ned by Outside Contractors 8/8/94

TK.

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

M108 ← IN M108.

| Double-Wa | Days/Year in Use | Overflow Tank | Previous Overflow |
|---|---|---|---|
| Y / N | | Y / N | Y / N |

Source: _____

TK.

27. Does th... or dispose of hazardous waste? Yes No OK

| Materials |
|---|
| ATTACHED |
| |

NOT ANY MORE.

Source: Characterization of Mounds Hazardc Mixed Wastes 08/15/90

TK.

Not any more - plating shop shutdown



9.18-56

| | | | |
|---|---|---|---|
| M BLDG | BIOACT EC-7, ACETONE WASTE, M-536 | D001 F003 | 263.8 |
| M BLDG | BIOACT EC7, M-309 | D001 F003 | 229.0 |
| M BLDG | BIOACT EC7, M-310 | D001 F003 | 213.0 |
| [illegible] | BIOACT WASTE | D001 | 210.2 |
| [illegible] | BLACK OXIDE RINSE WATER | D002 | 625.2 |
| M BLDG | BLACK OXIDE RINSE WATER | D002 D007 | 295.7 |
| M BLDG | BLACK OXIDE RINSE WATER | D002 D007 | 698.7 |
| M BLDG | BREWER COAT DRIVEWAY SEALER | NONE | 30.0 |
| M BLDG | BREWER COAT DRIVEWAY SEALER | NONE | 25.0 |
| M BLDG | BREWER COAT DRIVEWAY SEALER | NONE | 50.1 |
| M BLDG | BRIGHT NICKEL PLATING WASTE | F007 F009 | 33.5 |
| M BLDG | BRIGHTENER BATH DEBRIS, M-553 | D004 D006 F007 F009 | 311.0 |
| M BLDG | BRIGHTENER BATH DEBRIS, M-554 | D004 D006 F007 F009 | 330.0 |
| M BLDG | BRIGHTENER BATH DEBRIS, M-556 | D004 D006 F007 F009 | 287.0 |
| M BLDG | BRIGHTENER BATH DEBRIS, M-557 | D004 D006 F007 F009 | 298.0 |
| M BLDG | CADMIUM CYANIDE PLATING DEBRIS | D003 D006 F007 F009 | 11.8 |
| M BLDG | CADMIUM CYANIDE PLATING RODS | D003 D006 F007 F009 | 24.9 |
| M BLDG | CADMIUM CYANIDE, SODIUM HYPOCHLORITE WASTE | D002 D006 F007 F009 | 524.0 |
| M BLDG | CADMIUM CYANIDE, SODIUM HYPOCHLORITE WASTE | D002 D006 F007 F009 | 403.5 |
| M BLDG | CADMIUM CYANIDE, SODIUM HYPOCHLORITE WASTE | D002 D006 F007 F009 | 505.9 |
| M BLDG | CHLOROFORM | D001 D022 | 1.0 |
| M BLDG | CHROMIC ACID DEBRIS | D007 | 18.5 |
| M BLDG | CHROMIC ACID PLATING DEBRIS | D007 F007 F009 | 12.0 |
| M BLDG | CHROMIC ACID SOLUTION | D002 D007 | 281.7 |
| M BLDG | CHROMIC ACID SOLUTION | D002 D007 | 471.5 |
| [illegible] | CHROMIC ACID SOLUTION | D002 D007 | 463.3 |
| [illegible] | CHROMIC ACID SOLUTION | D002 D007 | 438.0 |
| M BLDG | CHROMIC ACID WASTE | D001 D007 | 125.0 |
| M BLDG | COPPER CYANIDE | D003 P029 | 165.4 |
| M BLDG | COPPER CYANIDE | D003 F007 F009 | 36.5 |
| M BLDG | COPPER CYANIDE ANODES | F007 F009 | 605.9 |
| M BLDG | COPPER CYANIDE PLATING ELECTRODES | D003 F007 F009 | 12.2 |
| M BLDG | COPPER CYANIDE PLATING RODS | D003 F007 F009 | 187.4 |
| M BLDG | COPPER CYANIDE PLATING RODS | D003 D006 F007 F009 | 52.3 |
| M BLDG | COPPER CYANIDE PLATING RODS | D003 F007 F009 | 45.6 |
| M BLDG | COPPER CYANIDE PLATING RODS | D003 F007 F009 | 100.0 |
| M BLDG | COPPER CYANIDE WASTE | F007 F009 | 27.4 |
| M BLDG | COPPER CYANIDE, EMPTY DRUM (FORMERLY LP93-391) | D003 P029 | 90.2 |
| M BLDG | COPPER CYANIDE, SODIUM CYANIDE WASTE, M-212 | D003 F007 | 240.0 |
| M BLDG | COPPER CYANIDE, SODIUM CYANIDE WASTE, M-223 | D003 F007 | 240.0 |
| M BLDG | COPPER CYANIDE, WATER WASTE | F007 F009 | 466.5 |
| M BLDG | COPPER CYANIDE, WATER WASTE | F007 F009 | 539.5 |
| M BLDG | COPPER CYANIDE, WATER WASTE | F007 F009 | 431.8 |
| M BLDG | COPPER CYANIDE, WATER WASTE | F007 F009 | 419.7 |
| M BLDG | COPPER CYANIDE, WATER WASTE | F007 F009 | 425.4 |
| M BLDG | COPPER PHOSPHATE RINSE WATER | D002 | 462.1 |
| [illegible] | COPPER PHOSPHATE RINSE WATER | D002 | 332.9 |
| [illegible] | COPPER PHOSPHATE RINSE WATER | D002 | 532.9 |
| [illegible] | CYANIDE CONTAMINATED DEBRIS | F007 F009 | 8.1 |



9.18-57
Bldg. M

| | | | |
|---|---|---|---|
| M BLDG | CYANIDE RINSE WATERS | F007 F009 | 434.0 |
| M BLDG | DOWTHERM, WATER | NONE | 46.6 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 66.5 |
| [illegible]DG | DYE TANK DEBRIS | D006 D007 | 61.1 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 65.8 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 71.8 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 66.1 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 65.1 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 65.9 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 66.7 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 65.5 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 65.0 |
| M BLDG | DYE TANK DEBRIS | D006 D007 | 64.9 |
| M BLDG | DYE WASTE | D007 | 242.6 |
| M BLDG | DYE WASTE | D007 | 453.7 |
| M BLDG | DYE WASTE | D007 | 266.9 |
| M BLDG | DYE WASTE | D007 | 279.4 |
| M BLDG | DYE WASTE | D007 | 258.1 |
| M BLDG | DYE WASTE DEBRIS | D006 D007 | 3.7 |
| M BLDG | E-BRITE 30/30 WASTE | NONE | 234.8 |
| M BLDG | ELECTRO POLISH WITH METALS, M-299 | D002 D006 D007 | 339.0 |
| M BLDG | ELECTRO POLISH WITH METALS, M-315 | D002 D006 D007 | 245.0 |
| M BLDG | ETHANOL | D001 | 43.6 |
| M BLDG | ETHYLENE GLYCOL CLEANUP | NONE | 3.9 |
| M BLDG | ETHYLENE GLYCOL RAGS | NONE | 4.7 |
| M BLDG | ETHYLENE GLYCOL, XYLENE WASTE | D001 D007 F003 | 131.0 |
| M BLDG | FERRIC CHLORIDE WASTE | D002 | 574.2 |
| M BLDG | FERRIC CHLORIDE WASTE | D002 | 558.8 |
| M BLDG | FREON WASTE, M-196 | F001 | 343.2 |
| M BLDG | FREON WASTE, M-232 | F001 | 563.2 |
| M BLDG | FREON WASTE, M-264 | F001 | 287.0 |
| M BLDG | FREON WASTE, M-291 | F001 | 244.5 |
| M BLDG | GOLD CYANIDE (DRY) | D003 | 20.0 |
| M BLDG | GOLD CYANIDE FILTERS, DEBRIS WASTE | D003 F007 | 12.3 |
| M BLDG | GOLD CYANIDE PUMP, FILTER UNIT | D003 F007 F009 | 17.0 |
| M BLDG | GOLD CYANIDE SOLUTION | D003 F007 | 239.0 |
| M BLDG | HEAT TRANSFER CEMENT | NONE | 75.8 |
| M BLDG | HEXANE, METHANOL, WATER WASTE | D001 F003 | 277.0 |
| M BLDG | HYDROCHLORIC ACID RINSE WATER | D002 D006 D007 D008 | 425.1 |
| M BLDG | HYDROCHLORIC, SULFURIC, NITRIC ACIDS RINSE WATER | D002 | 468.3 |
| M BLDG | HYDROCHLORIC, SULFURIC, NITRIC ACIDS RINSE WATER | D002 | 454.9 |
| M BLDG | LEAD ANODES | D008 | 120.3 |
| M BLDG | LEAD ANODES | D008 | 157.1 |
| M BLDG | LEAD TAPE | D008 | 25.0 |
| M BLDG | LEAD, CHROMIUM PLATING RODS | D007 D008 F007 F009 | 52.3 |
| M BLDG | M DYE WASTE, M-210 | D006 D007 | 451.0 |
| M BLDG | M DYE WASTE, M-214 | D006 D007 | 488.4 |
| M BLDG | M DYE WASTE, M-222 | D006 D007 | 473.0 |
| M BLDG | M DYE WASTE, M-225 | NONE | 473.0 |
| M BLDG | M DYE WASTE, M-231 | D006 D007 | 470.8 |
| M BLDG | M DYE WASTE, M-236 | D006 D007 | 457.6 |
| M BLDG | M DYE WASTE, M-241 | D006 D007 | 462.0 |
| [illegible]DG | M DYE WASTE, M-308 | D006 D007 | 281.0 |

| | | | |
|---|---|---|---|
| M BLDG | M FLOOR WASTE, M-242 | NONE | 400.4 |
| M BLDG | M FLOOR WASTE, M-253 | NONE | 60.0 |
| M BLDG | M FLOOR WASTE, M-253 | NONE | 50.0 |
| [illegible]G | M FLOOR WASTE, M-267 | NONE | 55.0 |
| [illegible]DG | M FLOOR WASTE, M-268 | NONE | 60.0 |
| M BLDG | M WASTE WATER COOLANT | NONE | 495.1 |
| M BLDG | M WASTE WATER COOLANT | NONE | 497.4 |
| M BLDG | M WASTE WATER COOLANT | NONE | 496.1 |
| M BLDG | M WASTE WATER COOLANT | NONE | 274.3 |
| M BLDG | M WASTE WATER COOLANT | NONE | 472.2 |
| M BLDG | M WASTE WATER COOLANT | NONE | 389.8 |
| M BLDG | M WASTE WATER COOLANT | NONE | 437.3 |
| M BLDG | M WASTE WATER COOLANT | NONE | 391.9 |
| M BLDG | M WASTE WATER COOLANT | NONE | 454.2 |
| M BLDG | M WASTE WATER COOLANT | NONE | 234.4 |
| M BLDG | M WASTE WATER COOLANT | NONE | 504.8 |
| M BLDG | M WASTE WATER COOLANT | NONE | 451.1 |
| M BLDG | M WASTE WATER COOLANT | F002 | 400.0 |
| M BLDG | M WASTE WATER COOLANT | F002 | 450.0 |
| M BLDG | M WASTE WATER COOLANT | F002 | 442.2 |
| M BLDG | M WASTE WATER COOLANT | F002 | 447.0 |
| M BLDG | M WASTE WATER COOLANT, M-195 | F002 | 488.4 |
| M BLDG | M WASTE WATER COOLANT, M-195 | F002 | 444.4 |
| M BLDG | M WASTE WATER COOLANT, M-195 | F002 | 490.6 |
| M BLDG | M WASTE WATER COOLANT, M-195 | F002 | 501.6 |
| M BLDG | M WASTE WATER COOLANT, M-195 | F002 | 506.0 |
| M BLDG | M WASTE WATER COOLANT, M-195 | F002 | 457.6 |
| M BLDG | M WASTE WATER COOLANT, M-195 | F002 | 433.4 |
| [illegible]DG | M WASTE WATER COOLANT, M-195 | F002 | 490.6 |
| [illegible]DG | M WASTE WATER COOLANT, M-226 | F002 | 308.0 |
| M BLDG | M WASTE WATER COOLANT, M-229 | F002 | 448.8 |
| M BLDG | M WASTE WATER COOLANT, M-234 | F002 | 440.0 |
| M BLDG | M WASTE WATER COOLANT, M-235 | F002 | 493.9 |
| M BLDG | M WASTE WATER COOLANT, M-243 | F002 | 466.4 |
| M BLDG | M WASTE WATER COOLANT, M-245 | F002 | 479.6 |
| M BLDG | M WASTE WATER COOLANT, M-247 | F002 | 451.0 |
| M BLDG | M WASTE WATER COOLANT, M-258 | F002 | 475.2 |
| M BLDG | M WASTE WATER COOLANT, M-260 | F002 | 470.0 |
| M BLDG | M WASTE WATER COOLANT, M-261 | F002 | 464.2 |
| M BLDG | M WASTE WATER COOLANT, M-262 | F002 | 356.3 |
| M BLDG | M WASTE WATER COOLANT, M-272 | F002 | 463.4 |
| M BLDG | M WASTE WATER COOLANT, M-277 | F002 | 465.7 |
| M BLDG | M WASTE WATER COOLANT, M-278 | F002 | 501.9 |
| M BLDG | M WASTE WATER COOLANT, M-281 | F002 | 448.2 |
| M BLDG | M WASTE WATER COOLANT, M-286 | F002 | 442.0 |
| M BLDG | M WASTE WATER COOLANT, M-287 | F002 | 457.0 |
| M BLDG | M WASTE WATER COOLANT, M-288 | F002 | 479.0 |
| M BLDG | M WASTE WATER COOLANT, M-292 | F002 | 468.0 |
| M BLDG | M WASTE WATER COOLANT, M-294 | F002 | 452.0 |
| M BLDG | M WASTE WATER COOLANT, M-295 | F002 | 460.8 |
| M BLDG | M WASTE WATER COOLANT, M-316 | F002 | 453.6 |
| M BLDG | M WASTE WATER COOLANT, M-317 | F002 | 464.5 |
| [illegible] BLDG | M WASTE WATER COOLANT, M-318 | F002 | 452.9 |
| [illegible] BLDG | M WASTE WATER COOLANT, M-320 | F002 | 456.6 |
| [illegible]DG | M WASTE WATER COOLANT, M-321 | F002 | 488.8 |

P 7c

9.18-59
Bldg. M

| | | | |
|---|---|---|---|
| M BLDG | M WASTE WATER COOLANT, M-322 | F002 | 452.4 |
| M BLDG | M WASTE WATER COOLANT, M-323 | F002 | 452.6 |
| M BLDG | M WASTE WATER COOLANT, M-324 | F002 | 465.0 |
| M BLDG | M WASTE WATER COOLANT, M-326 | F002 | 474.3 |
| M BLDG | M WASTE WATER COOLANT, M-327 | F002 | 446.2 |
| M BLDG | M WASTE WATER COOLANT, M-345 | F002 | 434.7 |
| M BLDG | M&T BLACK LABEL 2 | NONE | 23.6 |
| M BLDG | M&T BLACK LABEL 2 | NONE | 20.0 |
| M BLDG | M&T GREEN LABEL 2 NICKEL ADDITIVE | NONE | 10.3 |
| M BLDG | MACUBOND | D001 D002 | 9.1 |
| M BLDG | MACUBOND 9804 | D002 | 48.7 |
| M BLDG | MACUBOND 9805 | D002 | 48.5 |
| M BLDG | MERCURY | D009 | 30.1 |
| M BLDG | MERCURY, ASBESTOS MATERIAL | D009 | 64.0 |
| M BLDG | METHYLENE CHLORIDE | F002 U080 | 116.6 |
| M BLDG | MINERAL OIL TRANSFORMERS (1) | NONE | 630.0 |
| M BLDG | NICKEL ACETATE TETRAHYDRATE | NONE | 42.8 |
| M BLDG | NICKEL ACETATE TETRAHYDRATE | NONE | 10.0 |
| M BLDG | NICKEL ACETATE TETRAHYDRATE | NONE | 10.0 |
| M BLDG | NICKEL ACETATE TETRAHYDRATE | NONE | 10.0 |
| M BLDG | NICKEL ACETATE TETRAHYDRATE | NONE | 10.0 |
| M BLDG | NICKEL ACETATE WASTE | NONE | 463.7 |
| M BLDG | NICKEL ACETATE WASTE | NONE | 258.2 |
| M BLDG | NICKEL ACETATE WASTE | NONE | 257.6 |
| M BLDG | NICKEL ACETATE WASTE | NONE | 264.1 |
| M BLDG | NICKEL ACETATE WASTE | NONE | 252.8 |
| M BLDG | NICKEL ACETATE, M-306 | D007 D009 | 286.0 |
| M BLDG | NICKEL ACETATE, SODIUM HYDROXIDE RINSE WATER | D002 | 334.4 |
| M BLDG | NICKEL ADDITIVE SA-1 | NONE | 48.3 |
| M BLDG | NICKEL ADDITIVE Y-17 | NONE | 20.5 |
| M BLDG | NICKEL ADDITIVE Y-17 | NONE | 21.0 |
| M BLDG | NICKEL BRIGHT WASTE | D002 D004 D007 D008 | 531.7 |
| M BLDG | NICKEL BRIGHT WASTE | D002 D004 D007 D008 | 590.5 |
| M BLDG | NICKEL CHLORIDE, HYDROCHLORIC ACID WASTE | D002 D004 D006 | 552.9 |
| M BLDG | NICKEL CHLORIDE, M-314 | D002 D007 | 450.0 |
| M BLDG | NICKEL SULFAMATE | D002 | 400.0 |
| M BLDG | NICKEL WASTE, BORIC ACID, NICKELOUS CHLORIDE, M-206 | NONE | 240.0 |
| M BLDG | NICKEL WASTE, M-259 | D002 | 200.0 |
| M BLDG | NICKEL WASTE, M-279 | D002 | 147.4 |
| M BLDG | NICKEL WASTE, M-282 | NONE | 271.0 |
| M BLDG | NITRIC ACID DUCT RINSE WASTE, M-319 | D002 D006 D007 | 148.2 |
| M BLDG | NITRIC ACID RINSE WATER | D002 | 498.2 |
| M BLDG | NITRIC ACID RINSE WATER | D002 D007 D008 | 531.5 |
| M BLDG | NITRIC ACID WASTE, M-238 | D002 D006 D007 | 286.0 |
| M BLDG | NITRIC ACID WASTE, M-311 | D002 D006 D007 | 462.0 |
| M BLDG | OAKITE 191 | NONE | 198.0 |
| M BLDG | OAKITE 30 | NONE | 34.5 |
| M BLDG | OAKITE 30 | NONE | 7.3 |
| M BLDG | OAKITE 30 RINSE WATER | D002 | 501.2 |
| M BLDG | OAKITE 30 RINSE WATER | D002 | 519.4 |
| M BLDG | OAKITE 30 RINSE WATER | D002 | 488.4 |
| M BLDG | OAKITE 30 RINSE WATER | D002 | 472.7 |

p 7d



Bldg. M

| | | | |
|---|---|---|---|
| M BLDG | OAKITE 30 RINSE WATER | D002 | 493.2 |
| M BLDG | OAKITE 30 RINSE WATER | D002 | 618.4 |
| M BLDG | OAKITE ALUMINUM CLEANER | D002 | 145.3 |
| [illegible]G | OAKITE CITRIDET | D001 | 40.3 |
| DG | OIL WASTE | NONE | 400.9 |
| M BLDG | OIL WASTE | NONE | 302.4 |
| M BLDG | OIL WASTE | NONE | 433.2 |
| M BLDG | OIL WASTE | NONE | 434.4 |
| M BLDG | OIL WASTE | NONE | 233.6 |
| M BLDG | OIL WASTE | NONE | 415.1 |
| M BLDG | OIL WASTE, ABSORBED | D004 | 120.7 |
| M BLDG | OIL WASTE, HYDRAULIC OIL | NONE | 235.0 |
| M BLDG | OIL WASTE, M-746 | NONE | 282.1 |
| M BLDG | OIL WASTE, SILICON, MINERAL OIL | NONE | 307.1 |
| M BLDG | OIL, WATER WASTE | NONE | 412.0 |
| M BLDG | OXIDE REMOVAL DEBRIS | NONE | 58.0 |
| M BLDG | PASSIVATING WASTE DEBRIS | D007 | 9.3 |
| M BLDG | PASSIVATING WASTE DEBRIS | D007 | 28.3 |
| M BLDG | PERCHLOROETHYLENE | D039 F001 | 408.5 |
| M BLDG | PERCHLOROETHYLENE DEBRIS | D039 | 2.2 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| [illegible]DG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| [illegible]DG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPHTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPHTHA, UNIT 341-01314 | D001 D018 D039 | 75.0 |
| M BLDG | PETROLEUM NAPHTHA, UNIT 341-01314 | D001 D018 D039 | 75.0 |
| M BLDG | PETROLEUM NAPHTHA, UNIT 341-01314 | D001 D018 D039 | 75.0 |
| M BLDG | PETROLEUM NAPHTHA, UNIT 341-01330 | D001 D018 D039 | 75.0 |
| M BLDG | PETROLEUM NAPHTHA, UNIT 341-01330 | D001 D018 D039 | 75.0 |
| M BLDG | PETROLEUM NAPHTHA, UNIT 341-01330 | D001 D018 D039 | 75.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 86.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 45.0 |
| M BLDG | PETROLEUM NAPTHA | D001 D018 D039 | 86.0 |
| G | PHOSPHORIC ACID DEBRIS | NONE | 27.1 |
| [illegible]G | PHOSPHORIC ACID DEBRIS | NONE | 30.0 |



9.18-61

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|---|---|---|---|
| M BLDG | PHOSPHORIC ACID RINSE WATER | D002 | 530.6 |
| M BLDG | PHOSPHORIC ACID RINSE WATER | D002 | 640.3 |
| M BLDG | PHOSPHORIC ACID, M-250 | D002 | 100.0 |
| M BLDG | POTASSIUM PERMANGANATE WASTE, M-276 | D002 | 393.3 |
| M BLDG | PYROLITE ADDITION AGENT | D002 | 14.6 |
| M BLDG | RINSE WATER | NONE | 456.2 |
| M BLDG | RINSE WATER | NONE | 480.5 |
| M BLDG | SANODOL BLACK POWDER | NONE | 47.0 |
| M BLDG | SCRAP DYE TANK | D006 D007 | 11.4 |
| M BLDG | SODIUM CYANIDE | D003 P106 | 103.0 |
| M BLDG | SODIUM CYANIDE DEBRIS | D003 | 11.1 |
| M BLDG | SODIUM HYDROXIDE DEBRIS | NONE | 93.6 |
| M BLDG | SODIUM HYDROXIDE POTASSIUM HYDROXIDE DEBRIS | NONE | 4.7 |
| M BLDG | SODIUM HYDROXIDE RINSE WATER | D002 | 614.4 |
| M BLDG | SODIUM HYDROXIDE RINSE WATER | D002 | 457.3 |
| M BLDG | SODIUM HYDROXIDE RINSE WATER | D002 | 496.8 |
| M BLDG | SODIUM HYDROXIDE SOLUTION | D002 | 543.7 |
| M BLDG | SODIUM HYDROXIDE SOLUTION, M-289 | NONE | 182.0 |
| M BLDG | SODIUM HYDROXIDE WASTE, M-283 | NONE | 402.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM HYDROXIDE DEBRIS | NONE | 4.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 482.8 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 525.8 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 199.7 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 286.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 225.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-204 | D002 | 240.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-207 | D002 | 240.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-215 | D002 | 240.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-218 | D002 | 240.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-225 | D002 | 240.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-230 | D002 | 240.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-233 | D002 | 240.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-240 | D002 | 450.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-251 | D002 | 200.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-257 | D002 | 265.5 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-263 | D002 | 258.0 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-269 | D002 | |

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|---|---|---|---|
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-270 | D002 | 243.2 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-271 | D002 | 250.5 |
| [illegible]DG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-273 | D002 | 239.6 |
| M BLDG | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-300 | D002 | 232.2 |
| M BLDG | SODIUM HYDROXIDE, RINSE WATER | D002 | 588.7 |
| M BLDG | SODIUM HYDROXIDE, ZINC OXIDE RINSE WATER | D002 | 507.8 |
| M BLDG | SOIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-248 | D002 | 240.0 |
| M BLDG | SPARTAN DC-13 CLEANER | D002 | 38.9 |
| M BLDG | STODDARD SOLVENT, M-266 | D001 | 103.9 |
| M BLDG | SULFURIC ACID | D002 | 28.6 |
| M BLDG | SULFURIC ACID RINSE WATER | D002 | 523.6 |
| M BLDG | SULFURIC ACID SOLUTION | D002 | 330.1 |
| M BLDG | TETRA ETCH | D001 | 1.1 |
| M BLDG | TRIM-SOL WASTE | NONE | 134.2 |
| M BLDG | TURCO KWIK SOLVE | D001 | 108.0 |
| M BLDG | TURCO NITRAD | D002 | 66.5 |
| M BLDG | UNICROME C11-X-B | D007 | 72.2 |
| M BLDG | VINYL PYRROLIDONE | NONE | 3.2 |
| M BLDG | WOODS NICKEL RINSE WATER | D004 | 573.6 |
| M BLDG | WOODS NICKEL, BRIGHT NICKEL DEBRIS | NONE | 571.8 |
| M BLDG | WOODS NICKEL, BRIGHT NICKEL DEBRIS | NONE | 167.4 |
| M BLDG | WOODS NICKEL, BRIGHT NICKEL DEBRIS | NONE | 446.9 |
| [illegible]DG | ZINCATE WASTE | D002 | 63.8 |
| [illegible]DG | ZINCATE WASTE, M-244 | D002 | 110.0 |
| M BLDG | ZINCATE WASTE, M-265 | D002 | 250.0 |
| M BLDG (PS-01) | ACETONE, ALCOHOL WASTE | D001 F003 | 265.0 |
| M BLDG (PS-01) | ACETONE, ALCOHOL WASTE, M-484 | D001 F003 | 295.2 |
| M BLDG (PS-01) | ACETONE, ALCOHOL WASTE, M-493 | D001 F003 | 235.0 |
| M BLDG (PS-01) | ACETONE, ALCOHOL WASTE, M-706 | D001 F003 | 413.5 |
| M BLDG (PS-02) | RINSE WATER, NITRIC | D002 D006 D007 D008 | 480.0 |
| M BLDG (PS-02) | RINSE WATER, NITRIC, M-449 | D002 | 253.0 |
| M BLDG (PS-02) | RINSE WATER, NITRIC, M-473 | D002 | 596.6 |
| M BLDG (PS-02) | RINSE WATER, NITRIC, M-474 | D002 D006 D007 | 559.5 |
| M BLDG (PS-02) | RINSE WATER, NITRIC, M-518 | D002 D006 D007 D008 | 491.3 |
| M BLDG (PS-02) | RINSE WATER, NITRIC, M-560 | D002 D007 | 466.4 |
| M BLDG (PS-02) | RINSE WATER, NITRIC, M-73 | D002 D006 D007 D008 | 532.0 |
| M BLDG (PS-02) | RINSE WATER, SULFURIC, M-477 | D002 | 361.6 |
| M BLDG (PS-02) | RINSE WATER, SULFURIC, M-478 | D002 | 366.6 |
| M BLDG (PS-02) | RINSE WATER, SULFURIC, M-483 | D002 | 462.0 |
| M BLDG (PS-03) | CHROMIC ACID SOLUTION, M-487 | D002 D007 | 645.3 |
| M BLDG (PS-03) | CHROMIC ACID SOLUTION, M-488 | D002 D007 | 601.4 |
| M BLDG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 414.0 |
| M BLDG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 407.0 |
| M BLDG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 411.0 |
| M BLDG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 433.0 |
| M BLDG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 421.0 |
| [illegible] BLDG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 398.0 |
| [illegible]LDG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 402.0 |
| [illegible]DG (PS-03) | RINSE WATER, FLOOR WASTE | D007 D008 | 451.0 |

P 7

9.18-63
Bldg. M1

| | | | |
|---|---|---|---|
| M BLDG (PS-05) | RINSE WATER, M-69 | NONE | 508.4 |
| M BLDG (PS-05) | RINSE WATER, M-70 | NONE | 474.0 |
| M BLDG (PS-05) | RINSE WATER, M-71 | NONE | 242.4 |
| M BLDG (PS-08) | RINSE WATER, COPPER CYANIDE | F007 F009 | 451.2 |
| M BLDG (PS-08) | RINSE WATER, COPPER CYANIDE | F007 F009 | 535.7 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-491 | D004 D006 F007 F009 | 475.6 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-497 | D004 D006 F007 F009 | 456.3 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-498 | D004 D006 F007 F009 | 462.6 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-499 | D004 D006 F007 F009 | 461.0 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-500 | D004 D006 F007 F009 | 475.6 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-501 | D004 D006 F007 F009 | 468.2 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-502 | D004 D006 F007 F009 | 476.6 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-503 | D004 D006 F007 F009 | 475.4 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-504 | D004 D006 F007 F009 | 475.5 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-505 | D004 D006 F007 F009 | 476.7 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-506 | D004 D006 F007 F009 | 476.6 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-507 | D004 D006 F007 F009 | 474.3 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-508 | D004 D006 F007 F009 | 474.8 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-509 | D004 D006 F007 F009 | 476.9 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-510 | D004 D006 F007 F009 | 476.8 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-511 | D004 D006 F007 F009 | 476.8 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-512 | D004 D006 F007 F009 | 476.6 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-513 | D004 D006 F007 F009 | 478.5 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-514 | D004 D006 F007 F009 | 468.2 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-515 | D004 D006 F007 F009 | 476.0 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-516 | D004 D006 F007 F009 | 475.4 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-519 | D004 D006 F007 F009 | 477.4 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-520 | D004 D006 F007 F009 | 482.2 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-521 | D004 D006 F007 F009 | 484.4 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-522 | D004 D006 F007 F009 | 484.4 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-523 | D004 D006 F007 F009 | 481.1 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-524 | D004 D006 F007 F009 | 487.2 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-525 | D004 D006 F007 F009 | 484.0 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-526 | D004 D006 F007 F009 | 474.2 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-527 | D004 D006 F007 F009 | 480.2 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-528 | D004 D006 F007 F009 | 474.8 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-529 | D004 D006 F007 F009 | 481.8 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-530 | D004 D006 F007 F009 | 228.4 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-531 | D004 D006 F007 F009 | 472.1 |
| M BLDG (PS-09) | BRIGHTENER BATH WASTE WATER, M-532 | D004 D006 F007 F009 | 486.6 |
| M BLDG (PS-09) | CYANIDE PIT WASTE | D006 D007 F007 F009 | 132.4 |
| M BLDG (PS-10) | DYE WASTE, M-481 | D007 | 475.4 |
| M BLDG (PS-10) | DYE WASTE, M-562 | D006 D007 | 426.5 |
| M BLDG (PS-10) | DYE WASTE, M-75 | D007 | 446.6 |
| M BLDG (PS-12) | PHOSPHORIC ACID RINSE WASTE, M-475 | D002 | 623.3 |
| M BLDG (PS-12) | PHOSPHORIC ACID RINSE WASTE, M-476 | D002 | 801.6 |
| M BLDG (PS-13) | FREON WASTE, M-088 | F001 | 638.6 |
| M BLDG (PS-13) | FREON WASTE, M-468 | F001 | 622.6 |
| M BLDG (PS-13) | FREON WASTE, M-495 | F001 | 734.0 |
| M BLDG (PS-14) | NICKEL ACETATE WASTE | D006 D007 | 488.2 |
| M BLDG (PS-14) | NICKEL ACETATE WASTE, M-479 | NONE | 496.6 |
| M BLDG (PS-15) | NICKEL FLOOR WASTE | D002 D007 | 172.5 |
| M BLDG (PS-15) | NICKEL FLOOR WASTE, M-489 | D002 D007 | 474.7 |
| M BLDG (PS-16) | OAKITE POWDER | NONE | 433.4 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 504.1 |

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|---|---|---|---|
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-469 | D002 | 400.0 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-480 | D002 | 498.2 |
| G (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-482 | D002 | 480.4 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-485 | D002 D007 | 651.3 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-486 | D002 D007 | 415.4 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-490 | D002 | 489.1 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-492 | D002 | 450.3 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-494 | D002 | 507.5 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-496 | D002 D007 | 501.4 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-535 | D002 | 275.7 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-542 | D002 | 411.0 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-551 | D002 | 422.0 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-552 | D002 | 377.0 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-555 | D002 | 424.0 |
| DG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-558 | D002 | 428.9 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-559 | D002 | 471.2 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-564 | D002 | 489.1 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-68 | D002 | 437.4 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-72 | D002 | 489.6 |
| M BLDG (PS-17) | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-87 | D002 | 494.4 |
| M BLDG (PS-21) | BIOACT EC-7 WASTE, M-696 | D001 | 446.5 |
| M BLDG SUBSTATION | PCB CAPACITORS >500PPM, SN: 50K-2764GG, -2876C, -2758GG, -2866C, -2016B, -2807A | PCB1 | 356.4 |
| M BLDG SUBSTATION | PCB DEBRIS >500PPM, FROM SN: PAV024001 | PCB2 | 99.0 |
| M BLDG SUBSTATION | PCB OIL >500PPM, FROM SN: PAV024001 | PCB2 | 688.6 |
| M BLDG SUBSTATION | PCB OIL >500PPM, FROM SN: PAV024001 | PCB2 | 627.0 |
| M BLDG SUBSTATION | PCB OIL >500PPM, FROM SN: PAV024001 | PCB2 | 688.6 |
| M BLDG SUBSTATION | PCB OIL >500PPM, FROM SN: PAV024001 | PCB2 | 688.6 |
| M BLDG SUBSTATION | PCB TRANSFORMER >500PPM, SN: PAV024001, OUT OF SERVICE DATE 12-09-91 | PCB1 | 5288.8 |
| G, BLDG 27 | EXPLOSIVE PROCESS SOLVENT WASTE | D001 F003 | 187.7 |
| JG, PS-01 | ACETONE, ALCOHOL WASTE | D001 F003 | 131.5 |

P7i

9.18-65
Bldg. M

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|---|---|---|---|
| M BLDG, PS-01 | ACETONE, ALCOHOL WASTE | D001 F003 | 241.1 |
| M BLDG, PS-09 | CYANIDE PIT WASTE | D003 D006 D007 D011 F007 F009 | 213.1 |
| M BLDG, PS-10 | DYE WASTE | D007 | 477.5 |
| M BLDG, PS-10 | DYE WASTE | D006 D007 | 357.7 |
| M BLDG, PS-10 | DYE WASTE | D007 | 472.7 |
| M BLDG, PS-10 | DYE WASTE | D006 D007 | 493.6 |
| M BLDG, PS-10 | DYE WASTE, M-77 | D007 | 427.5 |
| M BLDG, PS-13 | FREON WASTE | F001 | 283.8 |
| M BLDG, PS-13 | FREON WASTE | F001 | 510.3 |
| M BLDG, PS-14 | NICKEL ACETATE WASTE | NONE | 471.4 |
| M BLDG, PS-14 | NICKEL ACETATE WASTE | NONE | 355.5 |
| M BLDG, PS-14 | NICKEL ACETATE WASTE | NONE | 479.1 |
| M BLDG, PS-16 | OAKITE 30 WASTE | D002 | 430.3 |
| M BLDG, PS-17 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 461.7 |
| M BLDG, PS-17 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 501.8 |
| M BLDG, PS-17 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 476.3 |
| M BLDG, PS-17 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 486.3 |
| M BLDG, PS-17 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE | D002 | 493.3 |
| M BLDG, PS-21 | BIOACT EC7 WASTE | D001 | 318.4 |
| M BLDG- BRINE LINE | ASBESTOS WASTE, DEBRIS, PIPE | NONE | 7100.0 |
| M BLDG- BRINE LINE | ASBESTOS WASTE, DEBRIS, PIPE | NONE | 5600.0 |
| M BLDG- BRINE LINE | ASBESTOS WASTE, DEBRIS, PIPE | NONE | 8000.0 |
| M BLDG- BRINE LINE | ASBESTOS WASTE, DEBRIS, PIPE | NONE | 8000.0 |
| M BLDG- BRINE LINE | ASBESTOS WASTE, DEBRIS, PIPE | NONE | 8000.0 |
| M BLDG- BRINE LINE | ASBESTOS WASTE, DEBRIS, PIPE | NONE | 8000.0 |
| M-008 | ETHYLENE GLYCOL, XYLENE CLEANUP | F003 | 44.1 |
| M-008 | FREON WASTE | F001 | 388.1 |
| M-008 | FREON WASTE, M-331 | F001 | 492.6 |
| M-008 | FREON WASTE, M-415 | F001 | 625.0 |
| M-008 | FREON WASTE, M-450 | F001 | 571.8 |
| M-008 | M WASTE WATER COOLANT | NONE | 464.8 |
| M-008 | M WASTE WATER COOLANT | NONE | 484.8 |
| M-008 | M WASTE WATER COOLANT, M-346 | F002 | 468.6 |
| M-008 | M WASTE WATER COOLANT, M-354 | F002 | 467.1 |
| M-008 | M WASTE WATER COOLANT, M-355 | F002 | 493.2 |
| M-008 | M WASTE WATER COOLANT, M-361 | F002 | 434.0 |
| M-008 | M WASTE WATER COOLANT, M-365 | F002 | 419.0 |
| M-008 | M WASTE WATER COOLANT, M-366 | F002 | 461.0 |
| M-008 | M WASTE WATER COOLANT, M-370 | F002 | 461.0 |
| M-008 | M WASTE WATER COOLANT, M-381 | F002 | 461.5 |
| M-008 | M WASTE WATER COOLANT, M-386 | F002 | 467.3 |
| M-008 | M WASTE WATER COOLANT, M-387 | F002 | 473.0 |
| M-008 | M WASTE WATER COOLANT, M-388 | F002 | 487.0 |
| M-008 | M WASTE WATER COOLANT, M-392 | F002 | 409.0 |
| M-008 | M WASTE WATER COOLANT, M-393 | F002 | 449.0 |
| M-008 | M WASTE WATER COOLANT, M-395 | F002 | 492.9 |
| M-008 | M WASTE WATER COOLANT, M-397 | F002 | 462.7 |
| M-008 | M WASTE WATER COOLANT, M-398 | F002 | 465.3 |
| M-008 | M WASTE WATER COOLANT, M-399 | F002 | 497.0 |
| M-008 | M WASTE WATER COOLANT, M-400 | F002 | 473.2 |

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| M-008 | M WASTE WATER COOLANT, M-401 | F002 | 487.8 |
| M-008 | M WASTE WATER COOLANT, M-402 | F002 | 465.9 |
| M-008 | M WASTE WATER COOLANT, M-405 | F002 | 475.0 |
| [illegible] | M WASTE WATER COOLANT, M-406 | F002 | 455.0 |
| [illegible] | M WASTE WATER COOLANT, M-411 | F002 | 452.6 |
| M-008 | M WASTE WATER COOLANT, M-414 | F002 | 466.1 |
| M-008 | M WASTE WATER COOLANT, M-418 | F002 | 431.8 |
| M-008 | M WASTE WATER COOLANT, M-420 | F002 | 483.8 |
| M-008 | M WASTE WATER COOLANT, M-448 | F002 | 486.7 |
| M-008 | M WASTE WATER COOLANT, M-452 | NONE | 485.8 |
| M-008 | M WASTE WATER COOLANT, M-457 | NONE | 476.0 |
| M-008 | M WASTE WATER COOLANT, M-459 | NONE | 476.2 |
| M-008 | M WASTE WATER COOLANT, M-464 | NONE | 282.2 |
| M-008 | M WASTE WATER COOLANT, M-465 | NONE | 483.3 |
| M-008 | M WASTE WATER COOLANT, M-467 | NONE | 485.1 |
| M-008 | OIL WASTE | NONE | 427.1 |
| M-008 | OIL WASTE | NONE | 436.5 |
| M-008 | OIL WASTE | NONE | 420.1 |
| M-008 | OIL WASTE | NONE | 375.1 |
| M-008 | OIL WASTE | NONE | 369.8 |
| M-008 | OIL WASTE | NONE | 434.1 |
| M-008 | OIL WASTE | NONE | 331.2 |
| M-008 | OIL WASTE | NONE | 354.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| [illegible]8 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| [illegible]08 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| [illegible]008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| [illegible]08 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| [illegible]8 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |

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|---|---|---|---|
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| [illegible]3 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 62.6 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 86.0 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-008 | PETROLEUN NAPHTHA | D001 D018 D039 | 62.6 |
| M-019 | CHROMIUM SLUDGE WITH NITRIC ACID | D007 | 618.4 |
| M-019 | CHROMIUM SYSTEM DEBRIS (#28) | D007 | 154.7 |
| M-019 | CHROMIUM SYSTEM DEBRIS (#29) | D007 | 160.9 |
| M-019 | CHROMIUM SYSTEM DEBRIS (#30) | D007 | 116.2 |
| M-019 | CHROMIUM SYSTEM DEBRIS (#63) | D007 | 230.0 |
| M-019 | CLEANUP MATERIALS AND PPE (#26) | D006 D007 D010 | 96.6 |
| M-019 | CLEANUP MATERIALS AND PPE (#27) | D006 D007 D010 | 94.7 |
| M-019 | CLEANUP MATERIALS AND PPE (#53) | D006 D007 D010 | 88.9 |
| M-019 | PCB BALLASTS >500PPM, (24) OUT OF SERVICE DATE 04-07-92 | PCB2 | 241.5 |
| M-019 | PLATING SHOP CLEANUP MATERIALS (#104) | D006 D007 D010 | 86.4 |
| M-019 | PLATING SHOP CLEANUP MATERIALS (#105) | D006 D007 D010 | 82.5 |
| M-019 | PLATING SHOP CLEANUP MATERIALS (#94) | D006 D007 D010 | 104.0 |
| [illegible]19 | PLATING SHOP FLOOR DEBRIS (#102) | D006 D007 D010 | 216.6 |
| [illegible]19 | PLATING SHOP WASH WATER (#100) | D007 | 423.0 |
| M-019 | PLATING SHOP WASH WATER (#101) | D006 D007 D008 | 120.5 |
| M-019 | PLATING SHOP WASH WATER (#103) | D006 D007 | 356.0 |
| M-019 | PLATING SHOP WASH WATER (#19) | D006 | 503.7 |
| M-019 | PLATING SHOP WASH WATER (#20) | D006 | 466.9 |
| M-019 | PLATING SHOP WASH WATER (#25) | D006 D007 | 459.8 |
| M-019 | PLATING SHOP WASH WATER (#31) | D006 D007 | 484.1 |
| M-019 | PLATING SHOP WASH WATER (#33) | D006 D007 D008 | 504.7 |
| M-019 | PLATING SHOP WASH WATER (#35) | D006 D007 D008 | 493.5 |
| M-019 | PLATING SHOP WASH WATER (#37) | D008 | 469.3 |
| M-019 | PLATING SHOP WASH WATER (#38) | D006 D007 D008 | 402.1 |
| M-019 | PLATING SHOP WASH WATER (#39) | D006 D007 D008 | 332.3 |
| M-019 | PLATING SHOP WASH WATER (#40) | D006 D007 D008 | 460.9 |
| M-019 | PLATING SHOP WASH WATER (#41) | D006 D007 D008 | 489.2 |
| M-019 | PLATING SHOP WASH WATER (#43) | D006 D007 | 460.2 |
| M-019 | PLATING SHOP WASH WATER (#44) | D006 D007 D008 | 489.2 |
| M-019 | PLATING SHOP WASH WATER (#45) | D007 | 479.7 |
| M-019 | PLATING SHOP WASH WATER (#49) | D007 | 154.7 |
| M-019 | PLATING SHOP WASH WATER (#54) | D007 D008 | 475.9 |
| [illegible]-019 | PLATING SHOP WASH WATER (#57) | D006 | 484.0 |
| M-019 | PLATING SHOP WASH WATER (#58) | D006 D007 D008 | 465.0 |
| M-019 | PLATING SHOP WASH WATER (#59) | D006 D007 | 476.0 |
| M-019 | PLATING SHOP WASH WATER (#61) | D006 | 484.0 |
| M-019 | PLATING SHOP WASH WATER (#62) | D006 D007 | 439.0 |
| M-019 | PLATING SHOP WASH WATER (#65) | D006 D007 | 501.1 |
| [illegible]9 | PLATING SHOP WASH WATER (#66) | D006 D007 D008 | 478.6 |

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| M-019 | PLATING SHOP WASH WATER (#71) | D006 D007 D008 | 502.3 |
| M-019 | PLATING SHOP WASH WATER (#73) | D007 | 431.9 |
| M-019 | PLATING SHOP WASH WATER (#79) | D006 D007 | 489.3 |
| [illegible] | PLATING SHOP WASH WATER (#87) | D007 | 473.5 |
| 9 | PLATING SHOP WASH WATER (#88) | D006 D007 D008 | 486.2 |
| .9 | PLATING SHOP WASH WATER (#88) | D007 | 485.5 |
| M-019 | PLATING SHOP WASH WATER (#89) | D006 | 481.1 |
| M-019 | PLATING SHOP WASH WATER (#95) | D007 | 491.0 |
| M-019 | PLATING SHOP WASH WATER (#96) | D007 | 489.3 |
| M-019 | PLATING SHOP WASH WATER (#97) | D006 D007 | 483.5 |
| M-019 | PLATING SHOP WASH WATER (#98) | D006 D007 | 487.0 |
| M-019 | PLATING SHOP WASH WATER (#99) | D006 D007 | 476.6 |
| M-019 | PLATING SHOP WASH WATER- ACID (#21) | D002 D006 D007 | 461.5 |
| M-019 | PLATING SHOP WASH WATER- ACID (#22) | D002 D006 D007 | 517.5 |
| M-019 | PLATING SHOP WASH WATER- ACID (#23) | D002 D006 D007 | 485.9 |
| M-019 | PLATING SHOP WASH WATER- ACID (#24) | D002 D006 D007 | 487.6 |
| M-019 | PLATING SHOP WASH WATER- ACID (#34) | D002 D006 D007 D008 | 468.6 |
| M-019 | PLATING SHOP WASH WATER- BASE (#14) | D002 D006 | 304.4 |
| M-019 | PLATING SHOP WASH WATER- BASE (#15) | D002 D006 | 490.0 |
| M-019 | PLATING SHOP WASH WATER- BASE (#16) | D002 D006 | 486.0 |
| M-019 | PLATING SHOP WASH WATER- CYANIDES (#36) | D006 D007 D008 F007 F009 | 480.8 |
| M-019 | PLATING SHOP WOOD DEBRIS (#92) | D006 D007 D010 | 189.6 |
| M-019 | PLATING SHOP WOOD DEBRIS (#93) | D006 D007 D010 | 431.0 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#1) | D006 D007 D010 | 162.7 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#10) | D006 D007 D010 | 140.6 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#11) | D006 D007 D010 | 207.5 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#12) | D006 D007 D010 | 194.6 |
| [illegible]19 | WOOD DEBRIS, CLEANUP DEBRIS (#13) | D006 D007 D010 | 113.0 |
| ) | WOOD DEBRIS, CLEANUP DEBRIS (#2) | D006 D007 D010 | 183.9 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#3) | D006 D007 D010 | 169.2 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#4) | D006 D007 D010 | 169.0 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#46) | D006 D007 D010 | 92.0 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#47) | D006 D007 D010 | 146.7 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#48) | D006 D007 D010 | 65.1 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#5) | D006 D007 D010 | 185.6 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#6) | D006 D007 D010 | 157.2 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#60) | D006 D007 D010 | 180.0 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#7) | D006 D007 D010 | 164.6 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#8) | D006 D007 D010 | 136.9 |
| M-019 | WOOD DEBRIS, CLEANUP DEBRIS (#9) | D006 D007 D010 | 155.2 |
| M-038 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-038 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-038 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-038 | PETROLEUM NAPHTHA | D001 D018 D039 | 65.5 |
| M-102 | ASPHALT | NONE | 89.3 |
| M-103 | EPON 828 RESIN | NONE | 1.4 |
| M-103 | MARKER BOARD CLEANER | D002 | 2.5 |
| M-103 | VERSAMID 140 | NONE | 0.9 |
| M-108 | ACETONE, ISOPROPANOL WASTE, M-347 | D001 F003 | 227.1 |
| M-108 | ACETONE, ISOPROPANOL WASTE, M-379 | D001 F003 | 353.0 |
| M-108 | ACETONE, ISOPROPANOL WASTE, M-409 | D001 F003 | 364.2 |
| M-108 | ACETONE, ISOPROPANOL, TRACE PCB WASTE | PCB2 D001 F001 F003 | 426.5 |
| | CHROMATE SOLUTION | D007 | 197.7 |

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| M-108 | CHROMIUM SYSTEM DEBRIS | D007 | 160.9 |
| M-108 | CYANIDE RINSE WATER, M-330 | D006 D007 F007 F009 | 445.7 |
| M-108 | CYANIDE WASTE SOLUTION, M-296 | D011 F007 F009 | 387.7 |
| [illegible]3 | DYE WASTE, M-350 | D006 D007 | 274.7 |
| M-108 | DYE WASTE, M-385 | D007 | 462.0 |
| M-108 | DYE WASTE, M-389 | D007 | 487.8 |
| M-108 | DYE WASTE, M-396 | D007 | 437.0 |
| M-108 | DYE WASTE, M-444 | NONE | 261.0 |
| M-108 | FERRIC CHLORIDE | D002 | 586.0 |
| M-108 | FERRIC CHLORIDE | D002 | 536.0 |
| M-108 | FERRIC CHLORIDE | D002 D006 D007 D008 | 574.7 |
| M-108 | FERRIC CHLORIDE | D002 D006 D007 D008 | 643.1 |
| M-108 | FREON WASTE, M-364 | F001 | 741.9 |
| M-108 | M DYE WASTE, M-380 | D007 | 378.0 |
| M-108 | M DYE WASTE, M-382 | D007 | 100.0 |
| M-108 | M FLOOR WASTE, M-442 | D007 F003 | 198.3 |
| M-108 | M RINSE WATER, M-334 | NONE | 479.1 |
| M-108 | M RINSE WATER, M-335 | NONE | 482.7 |
| M-108 | M RINSE WATER, M-338 | NONE | 265.6 |
| M-108 | M RINSE WATER, M-340 | NONE | 281.0 |
| M-108 | M RINSE WATER, M-344 | NONE | 231.6 |
| M-108 | M RINSE WATER, M-348 | NONE | 427.5 |
| M-108 | M RINSE WATER, M-349 | NONE | 498.5 |
| M-108 | M RINSE WATER, M-352 | NONE | 480.5 |
| M-108 | M RINSE WATER, M-353 | NONE | 498.5 |
| M-108 | M RINSE WATER, M-356 | D002 | 355.2 |
| M-108 | M RINSE WATER, M-357 | D006 D007 | 115.0 |
| M-108 | M RINSE WATER, M-367 | D002 | 262.0 |
| M-108 | M RINSE WATER, M-371 | NONE | 176.0 |
| [illegible]8 | M RINSE WATER, M-383 | NONE | 400.5 |
| M-108 | M RINSE WATER, M-384 | D002 D006 D007 | 272.0 |
| M-108 | M RINSE WATER, M-410 | NONE | 133.1 |
| M-108 | M RINSE WATER, M-416 | NONE | 283.1 |
| M-108 | M RINSE WATER, M-419 | NONE | 279.2 |
| M-108 | M RINSE WATER, M-421 | D007 F003 | 75.3 |
| M-108 | M RINSE WATER, M-422 | NONE | 277.7 |
| M-108 | M RINSE WATER, M-423 | NONE | 279.9 |
| M-108 | M RINSE WATER, M-424 | NONE | 280.9 |
| M-108 | M RINSE WATER, M-425 | NONE | 278.8 |
| M-108 | M RINSE WATER, M-426 | NONE | 282.0 |
| M-108 | M RINSE WATER, M-427 | NONE | 281.2 |
| M-108 | M RINSE WATER, M-428 | NONE | 255.7 |
| M-108 | M RINSE WATER, M-429 | NONE | 498.1 |
| M-108 | M RINSE WATER, M-438 | NONE | 341.6 |
| M-108 | M RINSE WATER, M-451 | D002 | 269.5 |
| M-108 | M RINSE WATER, M-454 | D002 | 234.4 |
| M-108 | M RINSE WATER, M-461 | NONE | 368.4 |
| M-108 | M RINSE WATER, M-462 | NONE | 465.8 |
| M-108 | M RINSE WATER- ACID, M-333 | D002 | 482.7 |
| M-108 | M RINSE WATER- ACID, M-336 | D002 | 264.4 |
| M-108 | M RINSE WATER- ACID, M-337 | D002 | 262.4 |
| M-108 | M RINSE WATER- ACID, M-341 | D002 | 280.4 |
| M-108 | M RINSE WATER- ACID, M-342 | D002 | 169.6 |
| M-108 | M RINSE WATER- ACID, M-343 | D002 | 258.4 |
| [illegible]8 | M RINSE WATER- ACID, M-439 | D002 | 202.3 |

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| M-108 | M RINSE WATER- ACID, M-447 | D002 | 260.0 |
| M-108 | M RINSE WATER- BASE, M-329 | D002 | 257.6 |
| M-108 | M RINSE WATER- CYANIDES, M-373 | D006 D007 F007 F009 | 494.0 |
| [illegible]18 | NICKEL ACETATE WASTE, M-435 | NONE | 470.0 |
| [illegible]9 | NICKEL ACETATE WASTE, M-436 | NONE | 271.9 |
| [illegible]8 | NICKEL ACETATE, M-351 | D006 D007 | 110.0 |
| M-108 | NICKEL SULFATE CLEANUP MATERIAL | NONE | 96.7 |
| M-108 | NICKEL SULFATE, M-441 | NONE | 306.0 |
| M-108 | NITRIC ACID RINSE WATER, M-412 | D001 D002 D007 | 371.7 |
| M-108 | NITRIC ACID WASTE, M-456 | D001 D002 | 298.3 |
| M-108 | OAKITE 30 WASTE, M-358 | D002 | 200.0 |
| M-108 | PERCHLOROETHYLENE, M-275 | D039 | 174.5 |
| M-108 | PHOSPHORIC ACID WASTE, M-443 | D002 D006 D007 F003 | 226.7 |
| M-108 | PHOSPHORIC ACID WASTE- M-332 | D002 D006 D007 | 342.8 |
| M-108 | SCUBBER FLOOR WASTE, M-360 | NONE | 186.0 |
| M-108 | SODIUM HYDROXIDE WASTE, M-328 | D002 | 554.6 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-339 | D002 | 130.9 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-359 | D002 | 254.0 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-378 | D002 | 461.2 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-390 | D002 | 453.0 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-394 | D002 | 506.7 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-407 | D002 | 488.2 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-408 | D002 | 425.9 |
| M-[illegible] | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-413 | D002 | 491.7 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-417 | D002 | 492.5 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-430 | D002 | 500.2 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-445 | D002 | 509.2 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-453 | D002 | 510.4 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-455 | D002 | 511.6 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-458 | D002 | 283.7 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-460 | D002 | 284.7 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-463 | D002 | 504.2 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE WASTE, M-466 | D002 | 430.5 |
| M-108 | SODIUM HYDROXIDE, POTASSIUM PERMANGANATE, M-437 | D002 | 449.8 |
| M-108 | SULFURIC ACID RINSE WASTE, M-374 | D002 | 400.0 |
| M-[illegible] | SULFURIC ACID RINSE WASTE, M-375 | D002 | 400.0 |
| [illegible] | SULFURIC ACID WASTE, M-362 | D002 D007 | 290.0 |



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| M-108 | SULFURIC ACID WASTE, M-363 | D002 D007 | 531.0 |
| M-108 | TASBLACK BL-11 | D001 | 287.8 |
| M-108 | WATTS NICKEL, M-440 | D002 D008 | 299.8 |
| [illegible]8 | ZINCATE WASTE, M-377 | D002 | 98.0 |
| M-223 | GLYCERIN | NONE | 1.5 |
| M-225 | CITRIC ACID SOLUTION | D002 | 6.9 |
| M-225 | GC CEMENT SOLVENT | D001 D035 F005 | 0.8 |
| M-225 | PDS PIGMENT | NONE | 8.4 |
| M-225 | PHOSPHORIC ACID | D002 | 0.1 |
| M-226 | MERCURY SWITCHES | D009 | 4.0 |
| M BLDG | 3M LAPPING VEHICLE | D001 | 32.2 |
| M BLDG | ACETONE | D001 F003 U002 | 19.5 |
| M BLDG | ACETONE, ISOPROPANOL WASTE | D001 F003 | 240.0 |
| M BLDG | ACETONE, ISOPROPANOL WASTE | D001 F003 | 219.0 |
| M BLDG | ACETONE, ISOPROPANOL WASTE | D001 F003 | 158.3 |
| M BLDG | ACETONE, ISOPROPANOL WASTE, M-221 | D001 F003 | 444.4 |
| M BLDG | ACETONE, ISOPROPANOL WASTE, M-235 | D001 F003 | 240.0 |
| [illegible]DG | ACETONE, ISOPROPANOL WASTE, M-256 | D001 F003 | 216.7 |
| [illegible]DG | ALCOHOL WASTE, M-89 | D001 | 154.2 |
| M BLDG | ALODINE 1200S | D007 F007 F009 | 30.0 |
| M BLDG | ALODINE 1200S | D007 F007 F009 | 23.8 |
| M BLDG | ALODINE DYE WASTE | D006 D007 | 1.2 |
| M BLDG | ALODINE WASTE SOLUTION | D007 F007 F009 | 467.3 |
| M BLDG | ALODINE WASTE SOLUTION | D007 F007 F009 | 397.8 |
| M BLDG | ALODINE WASTE, M-307 | D007 F007 | 146.0 |
| M BLDG | ALUMINUM BLUE POWDER | NONE | 7.2 |
| M BLDG | ALUMINUM FAST RED POWDER | NONE | 3.4 |
| M BLDG | ALUMINUM TURQUOISE POWDER | NONE | 5.8 |
| M BLDG | ALUMINUM VIOLET POWDER | NONE | 5.0 |
| M BLDG | ALUMINUM VIOLET POWDER | NONE | 5.2 |
| M BLDG | AMMONIUM BIFLUORIDE ACID WASTE | D002 | 209.0 |
| M BLDG | AMMONIUM HYDROXIDE | D002 | 1.7 |
| M BLDG | AMMONIUM PERSULFATE | D001 | 10.1 |
| M BLDG | ANODIZE CHROME DEBRIS | D007 | 89.7 |
| M BLDG | ANODIZE PIT WASTE | NONE | 5.3 |
| M BLDG | ANODOL MS-1 NICKEL ACETATE | NONE | 43.4 |
| M BLDG | AROJET ATC ACCELERATOR | NONE | 3.1 |
| M BLDG | ASBESTOS WASTE | NONE | 85.0 |
| M BLDG | ASBESTOS WASTE | NONE | 210.0 |
| M BLDG | BARRET ADDITIVE A | NONE | 27.3 |
| M BLDG | BARRETT SNAC | NONE | 43.7 |
| M BLDG | BIOACT EC-7 | D001 | 8.4 |
| M BLDG | BIOACT EC-7 WASTE | D001 | 230.1 |
| [illegible]DG | BIOACT EC-7, ACETONE WASTE, M-534 | D001 F003 | 510.1 |

9.18-72

p 7p

Bldg. M.

| | | | |
|---|---|---|---|
| PLATING SHOP | DILUTE HCL | D002 | 36.2 |
| PLATING SHOP | DILUTE NITRIC ACID | D002 | 31.6 |
| PLATING SHOP | DOW THERM SR-1 | NONE | 4.0 |
| ING SHOP | DURO SUPER GLUE REMOVER | D001 | 3.0 |
| NG SHOP | DYCHEM LAYOUT FLUID | D001 F003 | 2.2 |
| PLATING SHOP | DYE TANKS | D006 D007 | 33.8 |
| PLATING SHOP | E BRITE 20/20 | NONE | 86.0 |
| PLATING SHOP | E BRITE 20/20 | NONE | 143.4 |
| PLATING SHOP | E-BRIGHT 30/31 | NONE | 10.9 |
| PLATING SHOP | E-BRIGHT 30/32 | NONE | 9.5 |
| PLATING SHOP | ELECTROLESS NICKEL WASTE | NONE | 1.7 |
| PLATING SHOP | ELECTROLYTE | NONE | 0.2 |
| PLATING SHOP | ELECTROLYTE | NONE | 0.3 |
| PLATING SHOP | ELECTROLYTE | NONE | 0.3 |
| PLATING SHOP | ELECTROLYTE LNC-3 | NONE | 2.0 |
| PLATING SHOP | ELECTROLYTE MSC-4 | D002 | 1.5 |
| PLATING SHOP | ELECTROLYTE STAINLESS STEEL | NONE | 0.6 |
| PLATING SHOP | ELECTROPHORIC SOLUTION | D001 | 4.9 |
| PLATING SHOP | EMERSON ECCOCOAT CC-2 | D001 D011 F005 | 0.5 |
| PLATING SHOP | ENGRAVERS ENAMEL PAINT | D001 | 2.0 |
| PLATING SHOP | ETHYLENE GLYCOL RAGS | NONE | 4.5 |
| PLATING SHOP | FERRIC CHLORIDE | NONE | 1.8 |
| PLATING SHOP | FERRIC CHLORIDE | NONE | 1.0 |
| PLATING SHOP | FLEXCO EPOXY RESIN | NONE | 3.0 |
| PLATING SHOP | FLEXIBLE FOAM ADHESIVE | D040 F002 | 2.2 |
| PLATING SHOP | FLOOR WASTE- ACID | D002 | 8.1 |
| PLATING SHOP | GRAPHITE | NONE | 25.6 |
| PLATING SHOP | GRIND SAFE CUTTING FLUID | NONE | 1.0 |
| NG SHOP | HYDROCHLORIC ACID | D002 | 0.2 |
| NG SHOP | HYDROFLUORIC ACID | D002 U134 | 2.0 |
| PLATING SHOP | HYDROFLUORIC ACID | D002 U134 | 1.9 |
| PLATING SHOP | LAMP BLACK | NONE | 1.0 |
| PLATING SHOP | LEAD | D008 | 25.0 |
| PLATING SHOP | LOCTITE WATER PROOFING SOLUTION | D001 D035 F005 | 7.0 |
| PLATING SHOP | M&T BLACK LABEL | NONE | 25.0 |
| PLATING SHOP | M&T GREEN LABEL | NONE | 32.0 |
| PLATING SHOP | M&T MAKEUP BRIGHTNER | NONE | 7.8 |
| PLATING SHOP | M&T NICKEL ADDITIVE | NONE | 32.5 |
| PLATING SHOP | M&T NICKEL ADDITIVE | NONE | 16.0 |
| PLATING SHOP | MARKER BOARD CLEANER 202 | D001 | 2.2 |
| PLATING SHOP | MERCURIC CHLORIDE | D009 | 0.1 |
| PLATING SHOP | MERCURY SALTS | D009 | 1.0 |
| PLATING SHOP | MERCURY WASTE | D009 | 2.1 |
| PLATING SHOP | MERCURY WASTE | D009 | 1.8 |
| PLATING SHOP | METHYL ETHYL KETONE PEROXIDE | D001 D003 | 0.1 |
| PLATING SHOP | MICROCLEANER | NONE | 2.6 |
| PLATING SHOP | MORPLAS ERO BLUE | NONE | 12.2 |
| PLATING SHOP | NEUTROLAIR | F002 | 0.6 |
| PLATING SHOP | NIBCO CPVC PIPE CEMENT | D001 D035 F003 F005 | 0.6 |
| PLATING SHOP | NICKEL ACETATE | NONE | 102.6 |
| PLATING SHOP | NICKEL ACETATE SOLID | NONE | 106.0 |
| PLATING SHOP | NICKEL ADDITIVE B | NONE | 42.9 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 42.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 10.0 |
| ING SHOP | NICKEL CHLORIDE | NONE | 10.0 |

| | | | |
|---|---|---|---|
| PLATING SHOP | NICKEL CHLORIDE | NONE | 10.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 10.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 20.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 15.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 23.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 15.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 20.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 20.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 15.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 25.0 |
| PLATING SHOP | NICKEL CHLORIDE | NONE | 15.0 |
| PLATING SHOP | NICKEL FILTERS | NONE | 60.0 |
| PLATING SHOP | NICKEL FLOOR WASTE | NONE | 10.8 |
| PLATING SHOP | NICKEL SULFAMATE | NONE | 7.2 |
| PLATING SHOP | NICKEL SULFAMATE | NONE | 0.7 |
| PLATING SHOP | NICKEL SULFAMATE | NONE | 24.1 |
| PLATING SHOP | NICKEL SULFATE | NONE | 6.4 |
| PLATING SHOP | NICKEL WASTE | NONE | 9.7 |
| PLATING SHOP | NICKEL, CADMIUN PLATES | D006 | 30.0 |
| PLATING SHOP | NITRIC ACID FLOOR WASTE | NONE | 5.4 |
| PLATING SHOP | NITRIC ACID, >40% | D001 D002 | 63.7 |
| PLATING SHOP | NITRIC ACID, PHOSPHORIC ACID, WATER, ALUMINUM | D001 D002 | 17.6 |
| PLATING SHOP | OAKITE 30 CLEANUP RAGS | NONE | 4.0 |
| PLATING SHOP | OAKITE DYNANET | NONE | 0.8 |
| PLATING SHOP | OTASSIUM PERMANGANATE | D001 | 1.2 |
| PLATING SHOP | OX 311 | D002 | 6.6 |
| PLATING SHOP | OXIDE WASTE | D001 | 1.3 |
| PLATING SHOP | PANNIER BLACK INK 1001 | D001 | 2.8 |
| PLATING SHOP | PANNIER INK SOLVENT | D001 | 1.7 |
| PLATING SHOP | PHOSPHORIC ACID | D002 | 4.5 |
| PLATING SHOP | PHOSPHORIC ACID | D002 | 20.0 |
| PLATING SHOP | PHOSPHORIC ACID | D002 | 9.5 |
| PLATING SHOP | PHOSPHORIC ACID WASTE | D002 | 0.9 |
| PLATING SHOP | PHOSPHORIC WASTE | D002 | 1.9 |
| PLATING SHOP | PLIOBOND ADHESIVE | D001 D035 | 0.5 |
| PLATING SHOP | PLIOBOND ADHESIVE | D001 D035 F005 | 2.2 |
| PLATING SHOP | POTASSIUM PERSULFATE | D001 | 0.2 |
| PLATING SHOP | RAGS WITH HCL | NONE | 10.9 |
| PLATING SHOP | RECORDER INK | D001 | 0.1 |
| PLATING SHOP | ROBOND CU BLACK | D002 | 43.1 |
| PLATING SHOP | ROCHELLE SALT | NONE | 4.6 |
| PLATING SHOP | RTV 102 | NONE | 1.2 |
| PLATING SHOP | RTV 630 PART A | NONE | 3.0 |
| PLATING SHOP | RTV 630 PART B | NONE | 0.2 |
| PLATING SHOP | SANDOZ DYE WITH CHROMIUM | D007 | 8.5 |
| PLATING SHOP | SANDOZ DYES, VARIOUS | NONE | 12.0 |
| PLATING SHOP | SEL REX AUROBOND TW | NONE | 84.6 |
| PLATING SHOP | SEL REX AUTRONEX 55 GV | D003 | 56.8 |
| PLATING SHOP | SILICON CARBIDE | NONE | 30.8 |
| PLATING SHOP | SILVER CYANIDE SOLID | D011 | 1.6 |
| PLATING SHOP | SILVER NITRATE | D001 D011 | 4.0 |
| PLATING SHOP | SILVER PERMANGANATE | D001 D011 | 0.2 |
| PLATING SHOP | SILVER SOLDER FLUX | D011 | 0.8 |
| PLATING SHOP | SODIUM BICARBONATE | NONE | 1.0 |

| | | | |
|---|---|---|---|
| PLATING SHOP | ACETIC ACID | D002 | 0.2 |
| PLATING SHOP | ACETIC ACID | D001 D002 | 3.7 |
| PLATING SHOP | ACETONE, ETHANOL WASTE | D001 F003 | 18.0 |
| PLATING SHOP | ACTANE 70 | NONE | 1.0 |
| ING SHOP | ALODINE 1200S | D001 D005 | 9.1 |
| ING SHOP | ALODINE 1200S | D001 D007 | 1.0 |
| PLATING SHOP | ALUMINUM CLEANER | NONE | 1.0 |
| PLATING SHOP | AMMONIOUM FLUORIDE | NONE | 0.1 |
| PLATING SHOP | AMMONIUM ACETATE SOLUTION | NONE | 0.1 |
| PLATING SHOP | AMMONIUM HYDROXIDE | D002 | 12.0 |
| PLATING SHOP | AMMONIUM HYDROXIDE | D002 | 1.5 |
| PLATING SHOP | AMMONIUM THIOCYANATE | D003 | 0.2 |
| PLATING SHOP | AMMONIUM THIOCYANATE | NONE | 1.0 |
| PLATING SHOP | ANTISTATIC PLASTIC POLISH | NONE | 2.2 |
| PLATING SHOP | AREMCO BASE | NONE | 0.5 |
| PLATING SHOP | ARSENIC TRIOXIDE | D004 | 0.5 |
| PLATING SHOP | BARRET SNAP | NONE | 10.9 |
| PLATING SHOP | BERRYLIUM, COPPER ALLOY | P015 | 13.7 |
| PLATING SHOP | BIOACT EC-7 | D001 | 2.2 |
| PLATING SHOP | BIOACT EC-7 | D001 | 8.0 |
| PLATING SHOP | BIOACT EC7 | D001 | 2.2 |
| TING SHOP | BIOACT EC7 | D001 | 23.6 |
| TING SHOP | BIOACT EC7 | D001 | 23.0 |
| PLATING SHOP | BORIC ACID | NONE | 1.6 |
| PLATING SHOP | BORON CARBIDE | NONE | 3.8 |
| PLATING SHOP | CADMIUM METAL | D006 | 0.1 |
| PLATING SHOP | CADMIUM WASTE | D006 | 0.5 |
| PLATING SHOP | CADMIUM WIRE | D006 | 8.2 |
| TING SHOP | CERIUM OXIDE | NONE | 0.5 |
| TING SHOP | CHROMIC ACID | D001 D007 | 34.4 |
| PLATING SHOP | CHROMIC ACID SOLUTION | D002 D007 | 0.9 |
| PLATING SHOP | CHROMIC ACID, PHOSPHORIC ACID, AND ALUMINUM WASTE | D002 | 9.6 |
| PLATING SHOP | CHROMIUM METAL | D007 | 0.1 |
| PLATING SHOP | CHROMIUM TRAYS | D007 | 58.1 |
| PLATING SHOP | CHROMIUM WASTE | D007 | 4.1 |
| PLATING SHOP | CLEAR ARCRYLIC 670C16 | D001 | 46.0 |
| PLATING SHOP | COOL SPAR CUTTING FLUID | NONE | 1.8 |
| PLATING SHOP | COPPER CYANIDE | D003 | 8.7 |
| PLATING SHOP | COPPER CYANIDE | D003 | 7.9 |
| PLATING SHOP | COPPER CYANIDE CLEANUP RAGS | D003 | 2.0 |
| PLATING SHOP | COPPER CYANIDE WASTE RAGS | D003 | 0.9 |
| PLATING SHOP | COPPER CYANIDE WASTE RAGS, FILTERS | D003 F007 | 5.6 |
| PLATING SHOP | CRAFTICS SUPER GLUE REMOVER | D001 | 2.2 |
| PLATING SHOP | CRYSTAL CAST | D001 | 13.0 |
| PLATING SHOP | CYANIDE PLATING WASTE | D003 F007 | 2.4 |
| PLATING SHOP | CYANIDE WASTE | D003 | 2.5 |
| ING SHOP | DIETHYL (2) AMINOETHANOL | D001 | 2.2 |

| | | | |
|---|---|---|---|
| PLATING SHOP | SODIUM DICHROMATE | D001 D007 | 1.0 |
| PLATING SHOP | SODIUM DICHROMATE | D001 D007 | 9.2 |
| PLATING SHOP | SODIUM DICHROMATE | D007 | 2.4 |
| PLATING SHOP | SODIUM DICHROMATE | D007 | 0.7 |
| PLATING SHOP | SODIUM FERROCYANIDE | NONE | 0.1 |
| PLATING SHOP | SODIUM HYDROXIDE PELLETS | NONE | 32.8 |
| PLATING SHOP | SODIUM HYDROXIDE SOLID | NONE | 31.4 |
| PLATING SHOP | SODIUM HYDROXIDE SOLUTION | D002 | 47.9 |
| PLATING SHOP | SODIUM HYDROXIDE WASTE | D002 | 6.8 |
| PLATING SHOP | SODIUM HYPOCHLORITE, <10% | D001 | 4.8 |
| PLATING SHOP | SODIUM HYPOCHLORITE, >10% | D001 | 9.6 |
| PLATING SHOP | SODIUM SULFITE | NONE | 1.3 |
| PLATING SHOP | SPARTAN CLEANER | D002 | 183.0 |
| PLATING SHOP | STAY CLEAN FLUX | NONE | 0.8 |
| PLATING SHOP | STOP-OFF LACQUER | D001 D035 F005 | 14.0 |
| PLATING SHOP | STOP-OFF LACQUER | D001 D035 F005 | 14.9 |
| PLATING SHOP | SULFAMATE SNAP-AM | D002 | 42.0 |
| PLATING SHOP | SULFURIC ACID | D002 | 29.0 |
| PLATING SHOP | SULFURIC ACID MIX | D002 | 6.7 |
| PLATING SHOP | TAP MAGIC | D001 | 1.8 |
| PLATING SHOP | TERGITOL 7 | D002 | 2.0 |
| PLATING SHOP | THERMAL COMPOUND | NONE | 0.5 |
| PLATING SHOP | TOUCH UP PAINT | D001 D008 | 0.7 |
| PLATING SHOP | TRICHLOROETHYLENE | D040 F002 U228 | 10.5 |
| PLATING SHOP | TURCO AQUASORB | D001 | 5.0 |
| PLATING SHOP | UNICHROME CR-110 | D001 D007 | 101.0 |
| PLATING SHOP | WELD-ON 3 PIPE SOLVENT | D001 D035 F003 F005 | 0.8 |
| PLATING SHOP | WELDWOOD CONTACT CEMENT | D001 F002 F005 | 1.6 |
| PLATING SHOP | ZINC OXIDE | NONE | 3.0 |

# Building Manager's Questionnaire

Building Name: M Building Manager: W.H. Whitelow 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~~ printed circuit boards – potentially lead contaminate.

32. Is mixed waste generated, stored, or disposed of from the bu #31. NOT ANYMORE
Where are logs found? NO

#32 NO.

| Process | Waste | Stored | Dispose | |
|---|---|---|---|---|
| | | Y / N | Y / N | TK. |
| | | 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: _____



9.18-77

# Building Manager's Questionnaire

Building Name: M Building Manager: W.H. Whitelow 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: _____



9.18-78

# Building Manager's Questionnaire

Building Name: M  Building Manager: W.H. Whitelow  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? #34 NO.

| Process | Waste | Stored | [ | TK. |
|---|---|---|---|---|
| | | 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



9.18-79

Building Name: M Building Manager: W.H. Whitelow 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.

#36 NO.

TK.

37. Has a pollution prevention program been developed for the bu
UNKNOWN

# Integrated Environmental Management Program (IEMP) Appraisal

Finding Number: M - 10

I hereby certify that the corrective action(s) for the above finding has been completed and request that the finding be closed.

| | | |
|---|---|---|
| Gary F. Wiedenbach | BLDG MGR | 10-14-96 |
| Assignee - WIEDENBACH, GARY | Title | Date |

Closure documentation custodian: WIEDENBACH, GARY

I have reviewed the corrective actions and concur that they have been completed.

| | |
|---|---|
| Curtis M. Watson | 10/14/96 |
| Core Team Leader | Date |

Reviewers Comments:

☐ PBA closure verification requested

**From:** Gary Weidenbach
**To:** BARNBV
**Date:** 10/7/96 3:45pm
**Subject:** IEMP Finding M-10, Bag House/Dust Collectors.

Finding M-10, Bag Houses should be checked.....

Corrective Action Narrative:

These Bag Houses where also identified as a RCRA Audit Finding in May, 96. RCRA Finding No. 96-007 and 96-010, identified there as Dust Collectors.

Samples from the collection drums where taken by Waste Management and determined to be non-RCRA material.

The collection drums have been removed and the Dust Collectors tagged with an Administrative Tag: Do Not UseThis Equipment at both the drum location and the electrical service breaker.

I contend that this finding be closed effective 10-07-96.

**CC:** CLARWB

# EG&G Mound Applied Technologies

## INTEROFFICE CORRESPONDENCE

Date: 8/12/96

Subject: Integrated Environmental Management Program (IEMP)
Corrective Action Plan

TO: WIEDENBACH, GARY

**YOUR IMMEDIATE ATTENTION REQUIRED**

You have been identified as the owner of IEMP finding number M -10 . As the owner of this finding, you are responsible for developing a corrective action plan and target completion date. For your convenience, a form has been attached with the IEMP finding description and an area for recording your corrective action description and target completion date. EG&G MAT Senior Management is committed to have findings completed as soon as possible with a target completion of all IEMP findings by March, 1997. If funding or resource allocation will extend your target completion date beyond March, 1997, please identify the problem area on the back of the attached form.

EG&G MAT Senior Management has required that you complete the attached form and return to Brady Barnhart, DS-248, by COB 08/30/96. If you have specific questions regarding this finding, please contact me at extension 4047 or AOS: BARNBV.

The Integrated Environmental Management Program (IEMP) is the result of an independent environmental appraisal/audit conducted several months ago. These findings deal primarily with environmental issues and will be reviewed by regulators. Therefore, these findings are being placed into a formal tracking and reporting system, CARS. In order to bring the program back on schedule, it is imperative that your corrective action be returned by the above date. I apologize for the short notice and inconvenience and thank you for your support.

Sincerely,

Brady V. Barnhart
T&FM IEMP Project Manager

Sent Group W/
10/07/96
For Closure

# EG&G Mound Applied Technologies

## INTEROFFICE CORRESPONDENCE

## IEMP T&FM FINDING/CORRECTIVE ACTION REPORT

| Responsible Individual: | Building: | Finding No.: | T&FM Proj. Code: | Project Manager: |
|---|---|---|---|---|
| WIEDENBACH, GARY | M | 10 | WST-5-A | Barnhart, Brady |

IEMP Finding:

Bag-houses should be checked for wastes and managed accordingly.

Corrective Action Narrative

The Bag Houses (Dust Collectors) where identified as a RCRA Audit Finding in May 96.

Finding numbers RCRA 96-007 and 96-010.

Samples from the collection drums where taken and determined to be NON-RCRA material, see attached sheets from Waste Management.

Requests are in place to empty the drums.

Units have been tagged with an Administrative Tag: Do Not Use this Equipment.

TARGET COMPLETION DATE 9-5-96

Return completed form by COB 08/30/96
TO:

Brady V. Barnhart
DS-248

Gary J. Wiedenbach 9-5-96

Signature - WIEDENBACH, GARY Date

M o u n d Electronic Message/AOS

From :Mike Isper
ISPEMP
Dept. :Administration
Tel. No :
Date :24-Jun-1996 11:58am EST
Subject :Samples

TO :Gary Weidenbach ( WEIDGL )

CC :David Adkins ( ADKIDS )

Gary,

I recieved the analytical results from those dust collector units that Steve King and I sampled. They were referenced in your audit response as RCRA 96-007 and 96-010. Based upon the analytical and generator knowledge of the process, the dust in the collection drums are non hazardous and non regulated. The contents of the drums can be emptied/disposed of through Mound's regular trash. I would suggest, though, to make life less dirtier, empty the drums into poly bags prior to dumping in the trash.

If you need anything else, give me a yell.

--Mike
x4526

**From:** Gary Weidenbach
**To:** BARNBV
**Subject:** IEMP Finding M-10, Bag House/Dust Collectors.

Finding M-10, Bag Houses should be checked.....

Corrective Action Narrative:

These Bag Houses where also identified as a RCRA Audit Finding in May, 96.
RCRA Finding No. 96-007 and 96-010, identified there as Dust Collectors.

Samples from the collection drums where taken by Waste Management and determined to be non-RCRA material.

The collection drums have been removed and the Dust Collectors tagged with an Administrative Tag: Do Not UseThis Equipment at both the drum location and the electrical service breaker.

I contend that this finding be closed effective 10-07-96.

**CC:** CLARWB

# Appendix G

## Radiological Summary/Information

# *RADIOLOGICAL SURVEY PLAN*

# *FOR THE*

# *DEMOLITION OF M BUILDING*

*July 6, 1999*

## 1.0 Introduction

This document defines the radiological sampling requirements for M Building. The final disposition of the building is demolition. Therefore, these radiological sampling requirements are those determined to be necessary prior to demolition activities. The debris from demolition activities is planned to be dispositioned by: 1) Recycling the metal, 2) Staging the concrete and masonry at the Spoils Area for future crushing and use as on-site backfill, 3) Placing unusable insulation, building debris in rolloffs and sent offsite.

This plan will describe the methodology for obtaining radiological data and the criteria from which to evaluate the radiological data. All structural components will be radiologically evaluated and surveyed as appropriate. Survey methods will include direct and removable contamination surveys, large area wipes, dose rate measurements, core asbestos samples and core roof samples. The results of the data obtained will be used to see if the debris can be dispositioned as planned.

## 2.0 Scope

The physical boundary of the building consists of the building and a fifteen-foot perimeter surrounding the exterior of the building. The scope of this plan includes the building and 15 foot perimeter, which primarily consists of concrete. It does not include the entire building foundation, sumps and piping connected with the sumps, nor the soils. These items will be addressed in another plan, once demolition of the building has been completed.

The building has a known history of machining of uranium in the high bay area. Extensive amounts of fixed contamination were detected on the flooring of the high bay area using portable radiological monitoring instrumentation. Isotopic analysis results showed that depleted uranium was present throughout the high bay area floor. The entire wood flooring in the high bay area was removed and disposed as low-level radioactive waste. Isolated spots of fixed contamination were detected on the flooring underneath the wood bricks. The fixed contamination from these isolated areas was removed by scabbling and disposed as low-level radioactive waste. As a result of the building process history of radioactivity and the confirmation of depleted uranium in the high bay area, a verification survey was performed in the high suspect areas, along with a confirmatory survey in the low suspect areas. The building was posted as a Radioactive Material Management Area (RMMA).

## 3.0 Building Description

M Building was constructed in 1948 and is a two-story structure of concrete block with brick facing. The roof is metal and build-up membrane of coal tar and asphalt. M Building is one of the original buildings located on the main hill of the Mound site. Adjacent buildings are P Building to the east, DS Building to the south, E Building to the west. The former C Building was to the north of M Building.
The total area of M Building is 56,000 square feet, including two mezzanine office areas of 5,800 square feet.

## 4.0 Radiological Survey Requirements

The "Generic Process for the Disposition of Buildings that have Potential or Actual Radiological Contamination" was used as guidance to perform the confirmatory and verification surveys. Regulatory Guide 1.86 and DOE Order 5400.5 "Radiation Protection of the Public and the Environment were used to ensure that radiation and contamination levels met the acceptable criteria. Additionally, radiological surveys were also performed in accordance with Mound site procedures, MD-80043 "Radiological Work Requirements" and MD-80036 "Radiological Operations Procedures." One of the primary requirements from the site manuals was to perform RMMA deposting surveys prior to the demolition process. Pre-disposition (demolition) surveys were performed as well as roll-off surveys. Property waste release evaluations (P/WREs) were utilized for equipment that was removed from the building at the time it was posted as an RMMA.

The purpose of the confirmatory surveys was to verify that the building, or portions thereof, are radiologically clean based on the evaluation of existing information. The surveys were non-destructive surveys and served as a final check that the building does not have unexpected radiological contamination. The portions of the building, in which verification surveys were performed, served to determine if radioactive constituents above background and above existing radiological criteria (Regulatory Guide 1.86, DOE Order 5400.5) existed.

Provided no anomalies (e.g. elevated readings) are detected, confirmatory survey should be adequate to verify that the building is radiologically clean. If anomalies are detected, then verification surveys are required.

## 5.0 Sampling

The main objectives of this radiological survey plan are to:

1. Verify that any surface contamination values are below the guidelines of Figure IV-1 of DOE 5400.5 and Regulatory Guide 1.86.

2. Verify that no radiation dose measurements exceed the dose limits specified in DOE 5400.5. (Gamma radiation must not exceed background radiation by more than 20 uR/hour (0.02 mrem/hr).

3. Ensure that the site procedural survey requirements associated with RMMA deposting, pre-disposition (demolition) and rolloffs are met.

### 5.1 Interior Radiological Surveys

Confirmatory surveys were performed throughout the building interior. The confirmatory surveys included the floor, air vents and floor drains. Direct measurements were performed on 100 % of the floor area, using portable NE Electra instrumentation for alpha and beta radioactivity. Representative swipes were taken and analyzed for gross alpha, beta and tritium radioactivity. Biased sampling was performed at all vent ducts and floor drain locations within the building. The biased sampling included both direct and swipe measurements.

If contamination was detected during the performance of the confirmatory surveys, then the radiological survey requirements were expanded to include components of the verification surveys. The additional surveys supported the verification survey process and included wall and overhead surveys. The verification survey components involved surveys of the overhead and walls (from the floor vertically upward 6 feet). The surveys performed by room are summarized in Attachment 1 of this section. Radiation dose rate measurements were performed in each room of M Building. Rooms identified with having alpha and or beta-gamma fixed contamination in which wall and overhead surveys were completed included: 7, 7A, 7B, 7C, 20, 31, ST 4, 8, 225. The fixed contamination was removed from each of these areas by scabbling, removal of floor tile, stair steps, etc. until no detectable contamination was obtained using NE Electra portable radiological instrumentation.

Radiological surveys were completed to support RMMA deposting survey efforts. RMMA deposting surveys were performed prior to asbestos removal. These surveys consisted of a representative direct survey of horizontal surfaces, representative removable contamination survey of horizontal surfaces and large area wipes. The surveys were analyzed for alpha, beta and tritium contamination, with the exception of the large area wipes, which were analyzed for alpha and beta contamination only. A summarization of the surveys performed as part of the RMMA deposting efforts appears on Attachment 2 of this section. Note that "Warning signs" were not posted

since pre-demolition activities have already started, and the actual demolition is scheduled this summer.

Eighteen core asbestos samples were obtained and isotopically analyzed prior to asbestos removal activities. The core asbestos samples provided radiological information necessary as part of the pre-disposition (demolition) process of performing surveys in previously inaccessible areas.

### 5.2 Exterior Radiological Surveys

Exterior building surveys were performed on the building foundation and 15 foot perimeter concrete area surrounding the building. These surveys included a 100% direct alpha and beta frisk of the foundation and surrounding concrete. Representative swipes were also taken in these areas and analyzed for alpha, beta and tritium radioactivity. There is approximately 12 more feet of the foundation, which remains to be surveyed in the southeast area exterior to the building. Efforts are being made to move equipment in order to complete the foundation survey as well as the concrete area where the paint collectors, EPDM roof membrane, asphalt felt and cabinets are located. Manhole covers, which were within the 15-foot perimeter area, were surveyed for both removable and direct alpha and beta contamination. Radiation dose measurements were taken in the fifteen-foot perimeter area surrounding the building.

Representative direct and removable surveys were performed on the roof of M Building for alpha and beta radioactivity. Biased sampling was performed on all exhaust vents, scrubbers, and ventilation units. Twelve core roof samples were obtained to provide a representative indication of radioactivity, if present.

## 6.0 Discussion of Results

The known results of the radiological survey efforts support the planned disposition of the debris from M Building. The objectives identified in Section 5 of this report are met, as summarized here.

Objective 1: Verify that any surface contamination values are below the guidelines of Figure IV-1 of DOE 5400.5 and Regulatory Guide 1.86.

All fixed contamination detected during the extensive survey efforts was removed from the building and disposed as low-level radioactive waste. Therefore, the surface contamination values on the remaining building structures are below the guidelines of Figure IV-1 of DOE 5400.5 and Regulatory Guide 1.86.

The exceptions to the direct and removable contamination surveys not meeting DOE 5400.5 and Mound's Radiological Control Program criteria are on six manhole covers and one drain shroud and extensive rusted surfaces on the roof. The highest fixed alpha contamination level on the manhole covers is 180 dpm/100 $cm^2$.

The drain shroud had 241 dpm/100 $cm^2$ of fixed alpha contamination. The highest fixed alpha contamination level detected on the roof was approximately 1000 dpm/100 $cm^2$. Plans are underway to survey the underside of the manholes and the manholes themselves to determine if contamination if present there. Isotopic analysis results are pending for the manhole and roof samples.

Objective 2: Verify that no radiation dose measurements exceed the dose limits specified in DOE 5400.5. (Gamma radiation must not exceed background radiation by more than 20 uR/hour (0.02 mrem/hr).

The interior and exterior radiation dose rates are all well below the 0.02 mrem/hour criteria specified in DOE 5400.5.

Objective 3: Ensure that the site procedural survey requirements associated with RMMA deposting, pre-disposition (demolition) and rolloffs are met.

The site procedural survey requirements associated with RMMA deposting efforts and pre-disposition surveys have been met. The core asbestos sample results were all less than the Lower Detection Level (LDL) of 3.60 pCi/gram. Rolloff surveys are ongoing and being performed in accordance with established site procedures.

Based on the extensive radiological survey efforts and the results obtained, the planned disposition of M Building should be determined acceptable, pending results of the manhole covers and the core roof samples.

## 7.0 References


1) DOE Order 5400.5 Radiation Protection of the Public and the Environment, 1/7/93.

2) Generic Process for the Disposition of Buildings that have Potential or Actual Radiological Contamination, March 1997.

3) Sampling and Analysis Plan for the Characterization of E Building and Surrounding Soils, September 22, 1998.

# GENERIC DISPOSITION PROCESS -- "M" BLDG.

## FIRST FLOOR

| RM. # | VENTS | DRAINS | DOSE RATES | FLOORS | | FCA | WALLS | OVER-HEAD |
|---|---|---|---|---|---|---|---|---|
| 2 | 99M153 | 99M058 | 99M227 | 99M058 | | N/A | → | → |
| 4 | 99M164 | N/A | 99M227 | 99M040 | | N/A | → | → |
| 5 | 99M164 | N/A | 99M227 | 99M040 | | N/A | → | → |
| 5A | 99M164 | N/A | 99M227 | 99M040 | | N/A | → | → |
| 6 | 99M171 | N/A | 99M227 | 99M041 | | N/A | → | → |
| 6A | 99M171 | N/A | 99M227 | 99M041 | | N/A | → | → |
| 7 | 99M109 | N/A | 99M227 | 99M221 | | 99M221 | 99M220 | 99M228 |
| 7A | 99M109 | N/A | 99M227 | 99M221 | | 99M221 | 99M220 | 99M221 |
| 7B | 99M109 | N/A | 99M227 | 99M221 | | 99M221 | 99M220 | 99M221 |
| 7C | 99M109 | N/A | 99M227 | 99M221 | | 99M221 | 99M220 | 99M221 |
| 9 | N/A | 99M058 | 99M227 | 99M058 | | N/A | → | → |
| 10 | N/A | N/A | 99M227 | 99M058 | | N/A | → | → |
| 10A | N/A | N/A | 99M227 | 99M074 | | N/A | → | → |
| 11 | 99M251 | 99M251 | 99M227 | 99M058 | | N/A | → | → |
| 12 | 99M099 | N/A | 99M227 | 99M012 | | N/A | → | → |
| 12A M | N/A | N/A | 99M227 | 99M059 | | N/A | → | → |
| 14 | 99M099 | N/A | 99M227 | 99M012 | | N/A | → | → |
| 15 | N/A | N/A | 99M227 | 99M044 | | N/A | → | → |
| 16 | N/A | N/A | 99M227 | 99M044 | | N/A | → | → |
| 16A | 99M101 | N/A | 99M227 | 99M044 | | N/A | → | → |
| 17A | 99M101 | N/A | 99M227 | 99M044 | | N/A | → | → |
| 16A M | N/A | N/A | 99M227 | 99M108 | | N/A | → | → |
| 17A M | N/A | N/A | 99M227 | 99M108 | | N/A | → | → |

FLOOR TILE ↓

# GENERIC DISPOSITION PROCESS -- "M" BLDG.

## FIRST FLOOR

| | RM. # | VENTS | DRAINS | DOSE RATES | FLOORS | | FCA | WALLS | OVER-HEAD |
|---|---|---|---|---|---|---|---|---|---|
| | 19 | N/A | N/A | 99 M 227 | 99 M 046 | | N/A | → | → |
| WALL → | 20 | N/A | N/A | 99 M 227 | 99 M 049 | | 99 M 091 | 99 M 249 | 99 M 249 |
| | 21 | 99 M 282 | N/A | 99 M 227 | 99 M 065 | | N/A | → | → |
| | 22 | 99 M 107 | N/A | 99 M 227 | 99 M 053 | | N/A | → | → |
| | 22A | 99 M 107 | N/A | 99 M 227 | 99 M 053 | | N/A | → | → |
| | 25 | 99 M 107 | N/A | 99 M 227 | 99 M 053 | | N/A | → | → |
| | 26 | 99 M 107 | 99 M 053 | 99 M 227 | 99 M 053 | | N/A | → | → |
| | 27 | 99 M 033 | N/A | 99 M 227 | 99 M 033 | | N/A | → | → |
| | 28 | 99 M 110 | N/A | 99 M 227 | 99 M 071 | | N/A | → | → |
| | 28A | 99 M 110 | N/A | 99 M 227 | 99 M 071 | | N/A | → | → |
| LOOR → | 31 | 99 M 279 | N/A | 99 M 227 | 99 M 035 | | 068 - 060<br>99 M 072 | 99 M 232 | 99 M 232 |
| | 32 | 99 M 276 | N/A | 99 M 227 | 99 M 035 | | N/A | → | → |
| | 33 | 99 M 226 | N/A | 99 M 227 | 99 M 035 | | N/A | → | → |
| | 35 | 99 M 275 | N/A | 99 M 227 | 99 M 035 | | N/A | → | → |
| | 35A | 99 M 278 | N/A | 99 M 227 | 99 M 035 | | N/A | → | → |
| | 36 | 99 M 280 | N/A | 99 M 227 | 99 M 035 | | N/A | → | → |
| | 36A | 99 M 281 | N/A | 99 M 227 | 99 M 035 | | N/A | → | → |
| | 37 | N/A | N/A | 99 M 227 | 99 M 044 | | N/A | → | → |
| | 38 | 99 M 100 | N/A | 99 M 227 | 99 M 026 | | N/A | → | → |
| | 38A | 99 M 100 | N/A | 99 M 227 | 99 M 015 | | N/A | → | → |
| | 39 | 99 M 166 | N/A | 99 M 227 | 99 M 064 | | N/A | → | → |
| | 41 | 99 M 099 | N/A | 99 M 227 | 99 M 039 | | N/A | → | → |
| | 42 | 99 M 099 | N/A | 99 M 227 | 99 M 019 | | N/A | → | → |

# GENERIC DISPOSITION PROCESS -- "M" BLDG.

## FIRST FLOOR

| RM. # | VENTS | DRAINS | DOSE RATES | FLOORS | | FCA | WALLS | OVER-HEAD |
|---|---|---|---|---|---|---|---|---|
| 42 A | 99 M 246 | N/A | 99 M 227 | 99 M 155 | | N/A | → | → |
| 44 | N/A | N/A | 99 M 227 | 99 M 242 | | N/A | → | → |
| 45 | 99 M 111 | N/A | 99 M 227 | 99 M 037 | | N/A | → | → |
| 45A | 99 M 111 | N/A | 99 M 227 | 99 M 283 | | N/A | → | → |
| 46 | 99 M 111 | N/A | 99 M 227 | 99 M 037 | | N/A | → | → |
| 47 | 99 M 111 | N/A | 99 M 227 | 99 M 050<br>99 M 069 | | N/A | → | → |
| 48 | 99 M 111 | N/A | 99 M 227 | 99 M 045 | | N/A | → | → |
| 48 A | 99 M 111 | N/A | 99 M 227 | 99 M 045 | | N/A | → | → |
| 49 | 99 M 111 | N/A | 99 M 227 | 99 M 045 | | N/A | → | → |
| 50 | 99 M 111 | N/A | 99 M 227 | 99 M 045 | | N/A | → | → |
| 51 | 99 M 111 | N/A | 99 M 227 | 99 M 045 | | N/A | → | → |
| 101 | 99 M 165 | N/A | 99 M 227 | 99 M 036 | | N/A | → | → |
| 103 | 99 M 165 | N/A | 99 M 227 | 99 M 036 | | N/A | → | → |
| 107 | N/A | N/A | 99 M 227 | 99 M 224 | | N/A | → | → |
| 108 | 99 M 111 | N/A | 99 M 227 | 99 M 047<br>99 M 067 | | N/A | → | → NOTE: 99 M 067 UNDER FLOOR GRATING |
| 109 | 99 M 111 | N/A | 99 M 227 | 99 M 047<br>99 M 067 | | N/A | → | → |
| 110 | 99 M 111 | N/A | 99 M 227 | 99 M 047<br>99 M 067 | | N/A | → | → |
| 111 | N/A | N/A | 99 M 227 | 99 M 066 | | N/A | → | → |
| ST. #1 | N/A | N/A | 99 M 227 | 99 M 070 | | N/A | → | → |
| ST #2 | N/A | N/A | 99 M 227 | 99 M 284 | | N/A | → | → |
| ST #3 | N/A | N/A | 99 M 227 | 99 M 224 | | N/A | → | → |
| TEP → ST #4 | N/A | N/A | 99 M 227 | 99 M 059 | | 99 M 059 | 99 M 248 | 99 M 248 |
| ELEV. | N/A | N/A | 99 M 227 | 99 M 062 | | N/A | → | → |

# RADIOACTIVE MATERIAL MANAGEMENT AREA (RMMA) ROLLBACK FOR "M" BLDG.

## FIRST FLOOR

| RM. # | REPRESENTATIVE DIRECT SURVEY OF HORIZ. SURFACES | REPRESENTATIVE REMOVABLE SURVEY OF HORIZ. SURFACES | LARGE AREA WIPE SURVEY |
|---|---|---|---|
| 2 | 99 M 153 | 99 M 153 | 99 M 153 |
| 4 | 99 M 164 | 99 M 164 | 99 M 164 |
| 5 | 99 M 164 | 99 M 164 | 99 M 164 |
| 5A | 99 M 164 | 99 M 164 | 99 M 164 |
| 6 | 99 M 171 | 99 M 171 | 99 M 171 |
| 6A | 99 M 171 | 99 M 171 | 99 M 171 |
| 7 | 99 M 219 | 99 M 219 | 99 M 219 |
| 7A | 99 M 220 | 99 M 220 | 99 M 220 |
| 7B | 99 M 220 | 99 M 220 | 99 M 220 |
| 7C | 99 M 220 | 99 M 220 | 99 M 220 |
| 9 | 99 M 153 | 99 M 153 | 99 M 153 |
| 10 | 99 M 153 | 99 M 153 | 99 M 153 |
| 10A | 99 M 259 | 99 M 259 | 99 M 259 |
| 11 | 99 M 251 | 99 M 251 | 99 M 251 |
| 12 | 99 M 159 | 99 M 159 | 99 M 159 |
| 12A | 99 M 207 | 99 M 207 | 99 M 207 |
| 14 | 99 M 159 | 99 M 159 | 99 M 159 |
| 15 | 99 M 243 | 99 M 243 | 99 M 243 |
| 16 | 99 M 160 | 99 M 160 | 99 M 160 |
| 16 A | 99 M 160 | 99 M 160 | 99 M 160 |
| 17 A | 99 M 160 | 99 M 160 | 99 M 160 |
| 16A L | 99 M 265 | 99 M 265 | 99 M 265 |

# RADIOACTIVE MATERIAL MANAGEMENT AREA (RMMA) ROLLBACK FOR "M" BLDG.

## FIRST FLOOR

| RM. # | REPRESENTATIVE DIRECT SURVEY OF HORIZ. SURFACES | REPRESENTATIVE REMOVABLE SURVEY OF HORIZ. SURFACES | LARGE AREA WIPE SURVEY |
|---|---|---|---|
| 17A M | 99 M 265 | 99 M 265 | 99 M 265 |
| 19 | 99 M 161 | 99 M 161 | 99 M 161 |
| 20 | 99 M 162 | 99 M 162 | 99 M 162 |
| 21 | 99 M 282 | 99 M 282 | 99 M 282 |
| 22 | 99 M 173 | 99 M 173 | 99 M 173 |
| 22A | 99 M 173 | 99 M 173 | 99 M 173 |
| 25 | 99 M 173 | 99 M 173 | 99 M 173 |
| 26 | 99 M 173 | 99 M 173 | 99 M 173 |
| 27 | 99 M 172 | 99 M 172 | 99 M 172 |
| 28 | 99 M 170 | 99 M 170 | 99 M 170 |
| 28A | 99 M 170 | 99 M 170 | 99 M 170 |
| 31 | 99 M 232 | 99 M 232 | 99 M 232 |
| 32 | 99 M 225 | 99 M 225 | 99 M 225 |
| 33 | 99 M 226 | 99 M 226 | 99 M 226 |
| 35 | 99 M 226 | 99 M 226 | 99 M 226 |
| 35A | 99 M 226 | 99 M 226 | 99 M 226 |
| 36 | 99 M 226 | 99 M 226 | 99 M 226 |
| 36A | 99 M 226 | 99 M 226 | 99 M 226 |
| 37 | 99 M 243 | 99 M 243 | 99 M 243 |
| 38 | 99 M 163 | 99 M 163 | 99 M 163 |
| 38A | 99 M 163 | 99 M 163 | 99 M 163 |
| 39 | 99 M 166 | 99 M 166 | 99 M 166 |

# RADIOACTIVE MATERIAL MANAGEMENT AREA (RMMA) ROLLBACK FOR "M" BLDG.

## FIRST FLOOR

| RM. # | REPRESENTATIVE DIRECT SURVEY OF HORIZ. SURFACES | REPRESENTATIVE REMOVABLE SURVEY OF HORIZ. SURFACES | LARGE AREA WIPE SURVEY |
|---|---|---|---|
| 41 | 99 M 155 | 99 M 155 | 99 M 155 |
| 42 | 99 M 155 | 99 M 155 | 99 M 155 |
| 42 A | 99 M 246 | 99 M 246 | 99 M 246 |
| 44 | 99 M 242 | 99 M 242 | 99 M 242 |
| 45 | 99 M 154 | 99 M 154 | 99 M 154 |
| 45 A | 99 M 154 | 99 M 154 | 99 M 154 |
| 46 | 99 M 154 | 99 M 154 | 99 M 154 |
| 47 | 99 M 151 | 99 M 151 | 99 M 151 |
| 48 | 99 M 152 | 99 M 152 | 99 M 152 |
| 48 A | 99 M 152 | 99 M 152 | 99 M 152 |
| 49 | 99 M 152 | 99 M 152 | 99 M 152 |
| 50 | 99 M 152 | 99 M 152 | 99 M 152 |
| 51 | 99 M 152 | 99 M 152 | 99 M 152 |
| 101 | 99 M 165 | 99 M 165 | 99 M 165 |
| 103 | 99 M 165 | 99 M 165 | 99 M 165 |
| 107 | 99 M 235 | 99 M 235 | 99 M 235 |
| 108 | 99 M 150 | 99 M 150 | 99 M 150 |
| 109 | 99 M 150 | 99 M 150 | 99 M 150 |
| 110 | 99 M 150 | 99 M 150 | 99 M 150 |
| 111 | 99 M 252 | 99 M 252 | 99 M 252 |
| N/A | | | |
| N/A | | | |

# GENERIC DISPOSITION PROCESS -- "M" BLDG.

## FIRST FLOOR

| | RM. # | VENTS | DRAINS | DOSE RATES | FLOORS | | FCA | WALLS | OVER-HEAD |
|---|---|---|---|---|---|---|---|---|---|
| FLOOR | LOW BAY 8 11-12 | SEE RMMA RB | N/A | 99 M 227 | 99 M 052 | | 99 M 029 | 99 M 094 | 99 M 119 |
| | 8 10-11 | | N/A | 99 M 227 | 99 M 052 | | 99 M 029 | 99 M 094 | 99 M 122 |
| | 8 9-10 | | N/A | 99 M 227 | 99 M 052 | | 99 M 029 | 99 M 094 | 99 M 123 |
| | 8 8-9 | | N/A | 99 M 227 | 99 M 052 | | 99 M 029 | 99 M 094 | 99 M 124 |
| | 8 7-8 | | N/A | 99 M 227 | 99 M 052 | | 99 M 029 | 99 M 094 | 99 M 125 |
| | LOW BAY 3 5-6 | | N/A | 99 M 227 | 99 M 052 | | N/A → | → | → |
| | 3 4-5 | | N/A | 99 M 227 | 99 M 052 | | N/A → | → | → |
| | 3 3-4 | | N/A | 99 M 227 | 99 M 052 | | N/A → | → | → |
| | 3 2-3 | | N/A | 99 M 227 | 99 M 052 | | N/A → | → | → |
| | 3 1-2 | | N/A | 99 M 227 | 99 M 052 | | N/A → | → | → |
| FLOOR | HIGH BAY 8 5-6 | | N/A | 99 M 227 | 99 M 029 | | 99 M 029 | 99 M 094 | 99 M 118 |
| | 8 6-7 | | N/A | 99 M 227 | 99 M 029 | | 99 M 029 | 99 M 094 | 99 M 118 |
| | 8 7-8 | | N/A | 99 M -227 | 99 M 029 | | 99 M 029 | 99 M 094 | 99 M 113 |
| | 8 8-9 | | N/A | 99 M 227 | 99 M 029 | | 99 M 029 | 99 M 094 | 99 M 114 |
| | 8 9-10 | | N/A | 99 M 227 | 99 M 029 | | 99 M 029 | 99 M 094 | 99 M 115 |
| | 8 10-11 | | N/A | 99 M 227 | 99 M 029 | | 99 M 029 | 99 M 094 | 99 M 116 |
| | 8 11-12 | | N/A | 99 M 227 | 99 M 029 | | 99 M 029 | 99 M 094 | 99 M 117 |
| | 8 12-13 | | N/A | 99 M 227 | 99 M 056 | | 99 M 029 | 99 M 094 | 99 M 120 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

# GENERIC DISPOSITION PROCESS-- "M" BLDG.

## SECOND FLOOR

| RM. # | VENTS | DRAINS | DOSE RATES | FLOORS | | FCA | WALLS | OVER-HEAD |
|---|---|---|---|---|---|---|---|---|
| 201 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 202 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 203 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 204 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 204 COR | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 205 | 99 M 098 | N/A | 99 M 227 | 99 M 079 | | N/A | → | → |
| 206 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 207 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 209 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 210 | 99 M 098 | N/A | 99 M 227 | 99 M 075 | | N/A | → | → |
| 212 | 99 M 098 | N/A | 99 M 227 | 99 M 079 | | N/A | → | → |
| 213 | 99 M 098 | N/A | 99 M 227 | 99 M 079 | | N/A | → | → |
| 214 | 99 M 098 | N/A | 99 M 227 | 99 M 079 | | N/A | → | → |
| 220 | 99 M ~~098~~ 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |
| 220A | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |
| 221 | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |
| 222 | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |
| 223 | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |
| 224 | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |
| 225 | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | 99 M 163 | 99 M 194 | 99 M 212<br>99 M 213 |
| 226 | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |
| 227 | 99 M 097 | N/A | 99 M 227 | 99 M 080 | | N/A | → | → |

# GENERIC DISPOSITION PROCESS-- "M" BLDG.

## SECOND FLOOR

| RM. # | VENTS | DRAINS | DOSE RATES | FLOORS | | FCA | WALLS | OVER-HEAD |
|---|---|---|---|---|---|---|---|---|
| 228 | 99M097 | 99M080 | 99M227 | 99M080 | | N/A | → | → |
| 230 | 99M097 | N/A | 99M227 | 99M080 | | N/A | → | → |
| 250 | 99M086 | 99M086 | 99M227 | 99M086 | | N/A | → | → |
| 251 | 99M085 | 99M085 | 99M0227 | 99M085 | | N/A | → | → |
| 252 | 99M081 | 99M081 | 99M227 | 99M081 | | N/A | → | → |
| 253 | 99M081 | 99M081 | 99M227 | 99M081 | | N/A | → | → |
| 254 | 99M084 | 99M084 | 99M227 | 99M084 | | N/A | → | → |
| ST.1 | N/A | N/A | 99M227 | 99M075 | | N/A | → | → |
| ST.2 | N/A | N/A | 99M227 | 99M079 | | N/A | → | → |
| ST.3 | N/A | N/A | 99M227 | 99M012 | | N/A | → | → |
| ELEV. | N/A | N/A | 99M227 | 99M062 | | N/A | → | → |
| | | | | | | | | |
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# RADIOACTIVE MATERIAL MANAGEMENT AREA (RMMA) ROLLBACK FOR "M" BLDG.

## FIRST FLOOR

| RM. # | REPRESENTATIVE DIRECT SURVEY OF HORIZ. SURFACES | REPRESENTATIVE REMOVABLE SURVEY OF HORIZ. SURFACES | LARGE AREA WIPE SURVEY |
|---|---|---|---|
| LOW BAY 8 11-12 | 99 M 198 | 99 M 198 | 99 M 198 |
| 8 10-11 | 99 M 198 | 99 M 198 | 99 M 198 |
| 8 9-10 | 99 M 198 | 99 M 198 | 99 M 198 |
| 8 8-9 | 99 M 198 | 99 M 198 | 99 M 198 |
| 8 7-8 | 99 M 198 | 99 M 198 | 99 M 198 |
| LOW BAY 3 5-6 | 99 M 222 | 99 M 222 | 99 M 222 |
| 3 4-5 | 99 M 209 | 99 M 209 | 99 M 209 |
| 3 3-4 | 99 M 240 | 99 M 240 | 99 M 240 |
| 3 2-3 | 99 M 239 | 99 M 239 | 99 M 239 |
| 3 1-2 | 99 M 223 | 99 M 223 | 99 M 223 |
| HIGH BAY 8 5-6 | 99 M 195 | 99 M 195 | 99 M 195 |
| 8 6-7 | 99 M 196 | 99 M 196 | 99 M 196 |
| 8 7-8 | 99 M 197 | 99 M 197 | 99 M 197 |
| 8 8-9 | 99 M 200 | 99 M 200 | 99 M 200 |
| 8 9-10 | 99 M 202 | 99 M 202 | 99 M 202 |
| 8 10-11 | 99 M 214 | 99 M 214 | 99 M 214 |
| 8 11-12 | 99 M 229 | 99 M 229 | 99 M 229 |
| 8 12-13 | 99 M 230 | 99 M 230 | 99 M 230 |
| | | | |
| ST. 4 | 99 M 207/248 | 99 M 207/248 | 99 M 207/248 |
| CRANE | 99 M 208 | 99 M 208 | 99 M 208 |
| HIGH BAY DOORS | 99 M 244 | 99 M 244 | 99 M 244 |

# RADIOACTIVE MATERIAL MANAGEMENT AREA (RMMA) ROLLBACK FOR "M" BLDG.

## SECOND FLOOR

| RM. # | REPRESENTATIVE DIRECT SURVEY OF HORIZ. SURFACES | REPRESENTATIVE REMOVABLE SURVEY OF HORIZ. SURFACES | LARGE AREA WIPE SURVEY |
|---|---|---|---|
| 201 | 99 M 175 | 99 M 175 | 99 M 175 |
| 202 | 99 M 175 | 99 M 175 | 99 M 175 |
| 203 | 99 M 175 | 99 M 175 | 99 M 175 |
| 204 | 99 M 250 | 99 M 250 | 99 M 250 |
| 204 cor | 99 M 267 | 99 M 267 | 99 M 267 |
| 205 | 99 M 174 | 99 M 174 | 99 M 174 |
| 206 | 99 M 175 | 99 M 175 | 99 M 175 |
| 207 | 99 M 175 | 99 M 175 | 99 M 175 |
| 209 | 99 M 175 | 99 M 175 | 99 M 175 |
| 210 | 99 M 175 | 99 M 175 | 99 M 175 |
| 212 | 99 M 174 | 99 M 174 | 99 M 174 |
| 213 | 99 M 174 | 99 M 174 | 99 M 174 |
| 214 | 99 M 174 | 99 M 174 | 99 M 174 |
| 220 | 99 M 176 | 99 M 176 | 99 M 176 |
| 220A | 99 M 176 | 99 M 176 | 99 M 176 |
| 221 | 99 M 176 | 99 M 176 | 99 M 176 |
| 222 | 99 M 176 | 99 M 176 | 99 M 176 |
| 223 | 99 M 176 | 99 M 176 | 99 M 176 |
| 224 | 99 M 176 | 99 M 176 | 99 M 176 |
| 225 | 99 M 176/212/213/247 | 99 M 176/212/213/247 | 99 M 176/212/213/247 |
| 226 | 99 M 176 | 99 M 176 | 99 M 176 |
| 227 | 99 M 176 | 99 M 176 | 99 M 176 |

# RADIOACTIVE MATERIAL MANAGEMENT AREA (RMMA) ROLLBACK FOR "M" BLDG.

## SECOND FLOOR

| RM. # | REPRESENTATIVE DIRECT SURVEY OF HORIZ. SURFACES | REPRESENTATIVE REMOVABLE SURVEY OF HORIZ. SURFACES | LARGE AREA WIPE SURVEY |
|---|---|---|---|
| 228 | 99-M 241 | 99 M 241 | 99 M 241 |
| 230 | 99 M 253 | 99 M 253 | 99 M 253 |
| 250 | 99 M 182 | 99 M 182 | 99 M 182 |
| 251 | 99 M 181 | 99 M 181 | 99 M 181 |
| 252 | 99 M 184 | 99 M 184 | 99 M 184 |
| 253 | 99 M 184 | 99 M 184 | 99 M 184 |
| 254 | 99 M 183 | 99 M 183 | 99 M 183 |
| ST. 1 | 99 M 224 | 99 M 224 | 99 M 224 |
| ST. 2 | 99 M 284 | 99 M 284 | 99 M 284 |
| ST. 3 | 99 M 224 | 99 M 224 | 99 M 224 |
| ST. 4 | N/A | | |
| ELEV. | 99 M 224 | 99 M 224 | 99 M 224 |
| | | | |
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| | | | |

Attachment 3

PG OF

# GENERIC DISPOSITION PROCESS -- "M" BLDG.

## ROOF

| AREA/ SECTION | VENTS | DRAINS | DOSE RATES | ACCESSIBLE ROOF TOP SURFACE | | FCA | COMMENTS |
|---|---|---|---|---|---|---|---|
| AREA 1-9 | 99-M-095 | 99-M-095 | 99-M-323 | N/A | | N/A | → |
| AREA 1 SEC. 9 | | | | 99-M-292 | | X | SEE LAB. ISOTOPIC ANAL. LAB I.D. 9906113 0.17 Pci/g - Pu 238, 239 |
| AREA 1 SEC. 12 | | | | 99-M-292 | | X | SEE NOTE 1 |
| AREA 1 SEC. 10 | | | | 99-M-291 | | N/A | → |
| AREA 1 SEC. 11 | | | | 99-M-295 | | X | SEE NOTE 1 |
| AREA 1 SEC. 14 | | | | 99-M-296 | | N/A | → |
| AREA 2 SEC. 8 | | | | 99-M-288 | | X | SEE NOTE 1 |
| AREA 3 SEC. 6 | | | | 99-M-286 | | X | SEE NOTE 1 |
| AREA 4 SEC. 1 | | | | 99-M-272 | | X | SEE NOTE 1 |
| AREA 4 SEC. 2 | | | | 99-M-270 | | X | SEE NOTE 1 |
| AREA 5 SEC. 3 | | | | 99-M-273 | | N/A | → |
| AREA 5 SEC. 15 | | | | 99-M-290 | | N/A | → |
| AREA 6 SEC. 13 | | | | 99-M-289 | | X | SEE NOTE 1 |
| AREA 7 SEC. 4 | | | | 99-M-271 | | X | SEE NOTE 1 |
| AREA 8 SEC. 5 | | | | 99-M-274 | | N/A | → |
| AREA 9 SEC. 7 | ↓ | ↓ | ↓ | 99-M-287 | | N/A | → |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

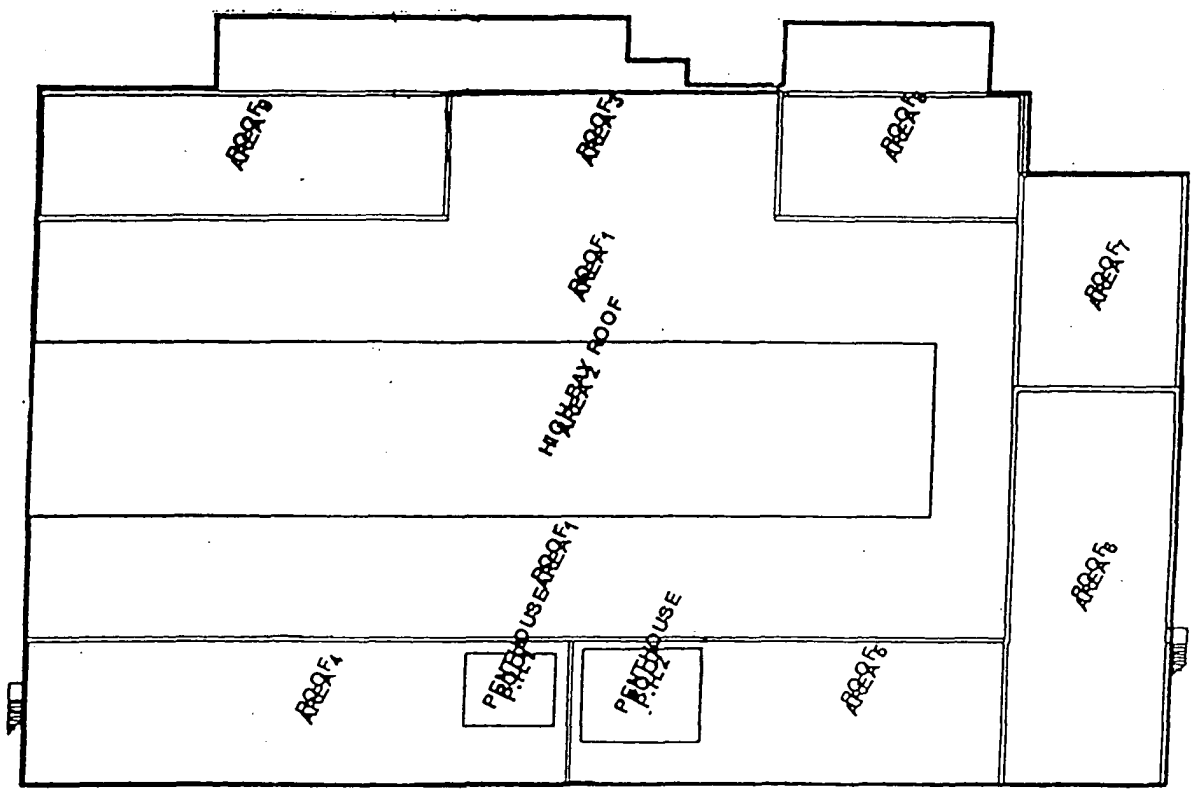
NOTE 1: REFER TO RSDS 99-M-312 - SAMPLING FOR ROOF. LABORATORY ISOTOPIC ANALYSIS - SEE ATTACHMENT EXTERIOR RADIOLOGICAL SURVEYS HAVE LABORATORY ISOTOPIC RESULTS STILL PENDING.

# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| LOCATION: (BLDG./AREA/ROOM) "M" BLDG. ROOF ALL INCLUSIVE | SURVEY NO. 99-M-324 |
| PURPOSE: REFERENCE DRAWING / MAP | RWP NO. N/A |
| | DATE: 13 JUL 99 |
| | TIME: 1200 |

## MAP/DRAWING




LEGEND:
# = mrem/hr (γ) whole body
# E = mrem/hr (β+η+γ) extremity on contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or /β = direct cont. measurement in dpm/100cm$^2$

### INSTRUMENTS USED

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| | | |
| | N | |
| | A | |
| | | |
| | | |

[redacted]

| | |
|---|---|
| HP# 7875 | Date: 13 JUL 99 |
| SE | |
| HP# | Date: |
| | |
| HP# 5996 | Date: 7-13-99 |

ML-9620 (2-98)

Survey No. 99-M-324

Page N/A

# RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

N/A

COMMENTS:

NOTES:

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

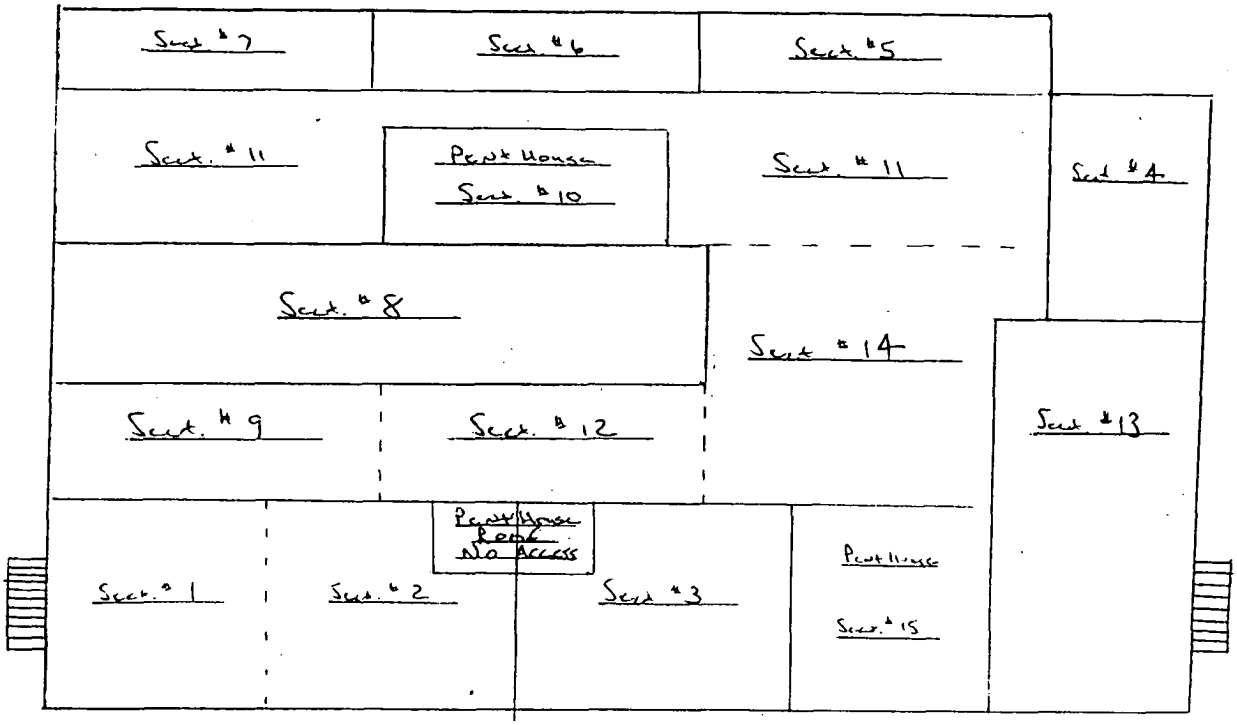
ML-9620 (4-98)

# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| LOCATION: (BLDG./AREA/ROOM) "M" BLDG - ROOF ALL INCLUSIVE | SURVEY NO. 99-M-324 |
| PURPOSE: REFERENCE DRAWING / MAP | RWP NO. N/A |
| | DATE: 13 JUL 99 |
| | TIME: 1200 |

## MAP/DRAWING




LEGEND:
# = mrem/hr (γ) whole body
# E = mrem/hr (β+η+γ) extremity on contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or /β = direct cont. measurement in dpm/100cm$^2$

### INSTRUMENTS USED

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| | | |
| | N | |
| | A | |
| | | |
| | | |

[redacted]

| HP# | Date: |
|---|---|
| 7875 | 13 JUL 99 |
| E | |
| HP# | Date: |
| | |
| | |
| HP# 5996 | Date: 7-13-99 |

ML-9620 (2-98)

Survey No. 99-M-324

Page ___ of N/A

# RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

N/A

COMMENTS:

**NOTES:**

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

ML-9620 (4-98)

Attachment 4

PG OF

# GENERIC DISPOSITION PROCESS -- "M" BLDG.

## PERIMETER 15' SURVEY

| SIDE OF BUILDING | BUILDING FOUNDATION | OUTSIDE STRUCTURES | DOSE RATES | SMEARS &DIRECT SURVEY OF WALK WAYS | | FCA | COMMENTS |
|---|---|---|---|---|---|---|---|
| NORTH | 99-M-318 | 99-M-305 | 99-M-112 | 99-M-137<br>99-M-121 | | M-019<br>M-021<br>M-022 | ** |
| SOUTH | 99-M-318 | 99-M-305 | 99-M-112 | 99-M-137<br>99-M-134 | | M-025 | ** |
| EAST | *<br>99-M-318 | 99-M-305 | 99-M-112 | 99-M-137<br>99-M-134 | | M-023<br>M-024 | ** |
| WEST | 99-M-318 | 99-M-305 | 99-M-112 | 99-M-137<br>99-M-133 | | N/A | |

N

A

*- REFER TO RSDS 99-M-318 : ALL SURVEYS OF BUILDING FOUNDATION COMPLETED, WITH THE EXCEPTION OF AREA IN SOUTH EAST CORNER, WHICH IS INACCESSIBLE AT THIS TIME.

**- REFER TO RSDS 99-I-001 & ASSOCIATED LAB ISOTOPIC ANALYSIS LABORATORY SAMPLE I.D 9906121 & 9906122 RESULTS INDICATE NATURAL THORIUM & URANIUM.

# Appendix H

## Radon Survey/Information

UNC Geotech

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

April 12, 1990

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

File

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

| Area | Bldg | Bldg Description | Room | Radon pCi/l | Radon pCi/l | Manid | Dupid | Install Date | Retrieve Date | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | 21 | | ABOVE AIR SAMPLER | 161.1 | 125.0 | 1678055 | 1666782 | 12/14/89 | 2/16/90 | MET - OLD THORIUM STORAGE |
| | 21 | | ABOVE AIR SAMPLERS | 115.7 | | 1660588 | | 12/14/89 | 2/16/90 | MET - OLD THORIUM STORAGE |
| | | SM | 19 MID EAST WALL | 4.0 | | 1661547 | | 12/12/89 | 2/19/90 | HISTORY OF ELEVATED READINGS |
| | 48 | | 114 B CLOSET ON SPRINKLER PIPE | 3.2 | | 1671292 | | 12/12/89 | 2/19/90 | |
| | 19 | | ROOM 1 | 2.6 | | 1678051 | | 12/13/89 | 2/19/90 | |
| | | OLD SO BLDG | BASEMENT RIGHT CABINET | 2.4 | | 1681585 | | 12/14/89 | 2/19/90 | |
| | 55 | | 1 BELOW THERMOSTAT ON E WALL | 2.1 | | 1661515 | | 12/18/89 | 2/19/90 | |
| | 57 | | ROOM 1 | 1.9 | | 1681565 | | 12/12/89 | 2/19/90 | |
| | 87 | | 143 | 1.5 | | 1681563 | | 12/13/89 | 2/19/90 | |
| | 888 | FIRE STATION | ROOM 002 EQUIPMENT ROOM WITH SUMP | 1.4 | | 1654460 | | 12/12/89 | 2/19/90 | |
| | 24 | | ROOM 1 PLANT NORTH WALL | 1.3 | | 1672087 | | 12/12/89 | 2/19/90 | |
| | | PAINT SHOP | PS 4 | 1.2 | | 1661516 | | 12/12/89 | 2/16/90 | * |
| | 30 | | ROOM 3 EAST | 1.1 | | 1671262 | | 12/12/89 | 2/16/90 | |
| | 100 | | 103 MIDDLE OF NORTH WALL | 1.0 | | 1678060 | | 12/12/89 | 2/19/90 | |
| | 37 | | 6 NORTH WALL | 1.0 | | 1678046 | | 12/12/89 | 2/19/90 | |
| | 34 | | 34 A WEST WALL | .9 | .6 | 1672062 | 1672042 | 12/12/89 | 2/19/90 | MET |
| | 102 | | 123 | .9 | | 1681577 | | 12/14/89 | 2/19/90 | |
| | 61 | | RM 221 MIDDLE OF NORTH WALL | .9 | | 1681585 | | 12/13/89 | 2/19/90 | |
| | 67 | | 101 N | .9 | | 1678029 | | 12/12/89 | 2/19/90 | |
| | G-13 | LOG | G-514 WEST WALL | .8 | | 1661544 | | 12/12/89 | 2/16/90 | |
| | | T | CORRIDOR 28 | .8 | | 1678039 | | 1/15/90 | 2/19/90 | |
| | | T | 153 | .8 | | 1678067 | | 1/15/90 | 2/19/90 | |
| | | T | 78 | .8 | | 1678077 | | 1/15/90 | 2/19/90 | |
| | | T | 38 | .8 | | 1681586 | | 1/15/90 | 2/19/90 | |
| | 105 | PARTS MACHINING BUILDING | STAIRWELL NEXT TO ROOM 127 | .8 | | 1681564 | | 12/12/89 | 2/19/90 | |
| | 25 | ARAC | 3 ON BOOK CASE MIDDLE | .8 | | 1671314 | | 12/15/89 | 2/19/90 | |
| | 60 | | 1 ON DOOR TO ROOM 3 | .8 | | 1678049 | | 12/12/89 | 2/19/90 | |
| | | A | 153C CENTER CUBICLE WEST WALL | .8 | | 1672056 | | 12/14/89 | 2/16/90 | |
| | | C BUILDING OLD CAFETERIA | NORTHEAST SECTION INTERNAL WALL RM2 | .8 | | 1672052 | | 12/12/89 | 2/16/90 | |
| | | R BUILDING | 68 NORTH WALL | .8 | | 1678068 | | 12/13/89 | 2/16/90 | |
| | | SM | 8 WEST WALL AT OLD RECOVERY | .8 | | 1672057 | | 12/11/89 | 2/16/90 | |
| | | WD BLDG | WD 8 | .8 | | 1678045 | | 12/18/89 | 2/16/90 | |
| | 87 | | 124 | .8 | | 1678032 | | 12/12/89 | 2/19/90 | |
| | 88 | | ROOM 116 ON NORHT WALL RIGHT OF CEN | .7 | .5 | 1661524 | 1661535 | 12/12/89 | 2/19/90 | |
| | 89 | | 101 NEAR BACK CORNER BY ROOF DRAIN | .7 | .5 | 1666783 | 1668532 | 12/15/89 | 2/19/90 | |
| | 22 | | RM 1 EAST CORRIDOR ON STORAGE RACK | .7 | | 1678070 | | 12/13/89 | 2/19/90 | |
| | 56 | FIRE PUMP HOUSE | ROOM 1 THERE IS ONLY 1 ROOM | .7 | | 1678066 | | 12/12/89 | 2/19/90 | |
| | | E ANNEX | E 225 EAST WALL | .7 | | 1681552 | | 12/18/89 | 2/16/90 | |
| | | POWER HOUSE PH-1 | REPAIR SHOP NORTH EAST CORNER | .7 | | 1678040 | | 12/12/89 | 2/19/90 | |
| | | W BLDG | W-135 | .7 | | 1681553 | | 12/12/89 | 2/16/90 | |
| | 26 | | ROOM 84 SOUTH WEST WALL | .6 | .9 | 1672048 | 1667159 | 12/13/89 | 2/16/90 | |
| | 69 | | RM 7 ON NORTH WALL | .6 | .4 | 1672044 | 1672077 | 12/12/89 | 2/19/90 | |
| | 26 | | ROOM 84 SOUTH WEST WALL | .6 | | 1671279 | | 12/13/89 | 2/16/90 | |
| | 35 | | RM 7 | .6 | | 1654459 | | 12/14/89 | 2/19/90 | |
| | 38 | PP BLDG | PP CORR 136 | .6 | | 1678016 | | 12/14/89 | 2/19/90 | |
| | 72 | | ON OVERHEAD DOOR BEAM | .6 | | 1672069 | | 1/03/90 | 2/19/90 | |
| | 93 | | HALLWAY 107 (MIDWAY) | .6 | | 1681629 | | 12/13/89 | 2/20/90 | |
| | 98 | FIRE STATION | ROOM 114 DORM | .6 | | 1661507 | | 12/12/89 | 2/19/90 | |
| | | COS | NW STAIRWELL AT BASEMENT LEVEL | .6 | | 1672086 | | 12/14/89 | 2/19/90 | |
| | | OSW | 120 C | .6 | | 1681573 | | 12/12/89 | 2/16/90 | |
| | | SW | 150 WEST END GAS BOX | .6 | | 1678043 | | 12/11/89 | 2/16/90 | |
| | | A | 34 EAST WALL | .5 | .7 | 1672075 | 1672051 | 12/14/89 | 2/16/90 | |
| | 47 | | 102 MIDDLE OF EAST WALL | .5 | .5 | 1658110 | 1666819 | 12/12/89 | 2/16/90 | |

1/14/90 Radon Monitor Results for 00 Mound Facility

| Area | Bldg | Bldg Description | Room | Avg Radon pCi/l | Duplicate Radon pCi/l | Monid | Dupid | Monitor Install Date | Monitor Retrieve Date | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | 45 | | WORK STATION AREA | .4 | | 1681568 | | 12/14/89 | 2/19/90 | |
| | 46 | | 81 EAST WALL | .4 | | 1672070 | | 12/12/89 | 2/19/90 | |
| | 49 | | WALL OUTSIDE RM 125 | .4 | | 1678020 | | 12/14/89 | 2/19/90 | |
| | 51 | | 107 TOP OF FUME HOOD | .4 | | 1681575 | | 12/12/89 | 2/19/90 | |
| | 63 | | ROOM 134 | .4 | | 1672059 | | 12/13/89 | 2/20/90 | |
| | 63W | | RM 4 | .4 | | 1678078 | | 12/14/89 | 2/19/90 | |
| | 65 | | ROOM 10 CONFERANCE ROOM | .4 | | 1671284 | | 12/14/89 | 2/19/90 | |
| | 66 | | OFFICE AREA | .4 | | 1681554 | | 12/12/89 | 2/19/90 | |
| | 68 | | EAST WALL CENTER BEAM | .4 | | 1681555 | | 12/14/89 | 2/19/90 | |
| | 69 | | RM 10A | .4 | | 1681576 | | 12/12/89 | 2/19/90 | |
| | 70 | | 17D MEETING ROOM CENTER WALL | .4 | | 1678041 | | 12/12/89 | 2/19/90 | |
| | 88 | | ROOM 118 | .4 | | 1671285 | | 12/12/89 | 2/19/90 | |
| | 95 | SR/PP | 95- BLD-ROOM#1 | .4 | | 1661531 | | 12/12/89 | 2/20/90 | |
| | | OS BUILDING | CORRIDOR 2 - 6 FT. ABOVE FLOOR | .4 | | 1678071 | | 12/13/89 | 2/19/90 | |
| | | I | I HALLWAY | .4 | | 1667194 | | 12/12/89 | 2/19/90 | |
| | | N BUILDING | N 21 WEST WALL | .4 | | 1678057 | | 12/15/89 | 2/20/90 | |
| | | POWER HOUSE PH-1 | OFFICE SUPERVISOR | .4 | | 1678036 | | 12/12/89 | 2/19/90 | |
| | | R BUILDING | 12 SOUTH WALL | .4 | | 1681566 | | 12/13/89 | 2/19/90 | |
| | 34 | | BURN ROOM | | | 1654481 | | 12/12/89 | | BURNT (NOT AVAILABLE) |
| | 61 | | RM 151 | | | 1681567 | | 12/13/89 | | MISSING |

| Bldg | Bldg Description | Room | Avg Radon pCi/l | Duplicate Radon pCi/l | Monid | Dupid | Monitor Install Date | Monitor Retrieve Date | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | R BUILDING | 163 NEXT TO NORTH WALL | .5 | .5 | 1660533 | 1666816 | 12/13/89 | 2/16/90 | |
| 101 | | ROOM 5 ON SOUTH WEST WALL IN OFFSET | .5 | | 1671288 | | 12/12/89 | 2/19/90 | |
| | "B" 175 | 175 WEST WALL | .5 | | 1678048 | | 12/12/89 | 2/16/90 | |
| 36 | | ELECTRICAL PANEL RM IN ELECTRONICS | .5 | | 1678062 | | 12/12/89 | 2/19/90 | |
| 40 | | 100 | .5 | | 1654480 | | 12/12/89 | 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 | | 1678058 | | 12/12/89 | 2/16/90 | |
| 50 | | CELL 113 | .5 | | 1661582 | | 12/13/89 | 2/19/90 | |
| 78 | | 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 | 1080 WEST WALL | .5 | | 1661580 | | 12/14/89 | 2/16/90 | |
| | COS | 119 N WALL NEAR PUNCH PRESS | .5 | | 1654456 | | 12/12/89 | 2/19/90 | |
| | COS | 319 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 | | 12/14/89 | 2/16/90 | |
| | E ANNEX | E 212 NORTH WALL | .5 | | 1661587 | | 12/18/89 | 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-8 | .5 | | 1671269 | | 12/19/89 | 2/19/90 | |
| | I BUILDING | BASEMENT LEFT CRAWL SPACE DOOR | .5 | | 1671260 | | 12/12/89 | 2/19/90 | |
| | M BUILDING | M 108 | .5 | | 1678056 | | 12/15/89 | 2/19/90 | |
| | OSE | CORRIDOR 437 | .5 | | 1661536 | | 12/15/89 | 2/16/90 | |
| | OSE | CORRIDOR 301 ACROSS FROM WATER FOUN | .5 | | 1672084 | | 12/15/89 | 2/16/90 | |
| | 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 | | 1678019 | | 12/12/89 | 2/16/90 | |
| | W BLDG | W135 WEST CENTRAL WALL | .5 | | 1671293 | | 12/12/89 | 2/16/90 | |
| | WO BLDG | WOA 110 | .5 | | 1671301 | | 12/18/89 | 2/16/90 | |
| | "B" 124 | EAST WALL | .5 | | 1667189 | | 12/12/89 | 2/16/90 | |
| | OSE | 113 BULLETIN BOARD OPPOSITE ELEVATO | .5 | | 1678027 | | 12/15/89 | 2/16/90 | |
| TF-2 | | 114 EAST WALL CENTER OF ROOM | .4 | | 1678064 | | 12/12/89 | 2/19/90 | |
| | HH | HH-24 | .4 | | 1667187 | | 12/14/89 | 2/19/90 | |
| | OS BUILDING | CORRIDOR 7 NEXT TO ROOM 216 | .4 | | 1661514 | | 12/13/89 | 2/19/90 | |
| | GP 81 | 1A MIDDLE OF WEST WALL | .4 | .5 | 1672135 | 1661542 | 12/12/89 | 2/19/90 | |
| 105 | PARTS MACHINING BUILDING | 126 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 | |
| 38 | 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 Summary/Information

| USE CATEGORY | |
|---|---|
| C | This procedure shall be available to workers, though not necessarily at the work location. This procedure may be performed without referring to the procedure; however, the user is still responsible for adhering to the procedure. |
| ML-9771A | |

# TECHNICAL MANUAL

## MD–10391, ISSUE 5
## ASBESTOS PROGRAM MANUAL

**MOUND**

ML–5872(1–89)

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| 17 | 5 | 69 | 3 |
| 18 | 5 | 70 | 3 |
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| 25 | 3 | 77 | 5 |
| 26 | 3 | 78 | 5 |
| 27 | 3 | 79 | 3 |
| 28 | 3 | 80 | 3 |
| 29 | 3 | 81 | 3 |
| 30 | 3 | 82 | 3 |
| 31 | 3 | 83 | 3 |
| 32 | 3 | 84 | 3 |
| 33 | 3 | 85 | 3 |
| 34 | 3 | 86 | 3 |
| 35 | 3 | 87 | 3 |
| 36 | 3 | 88 | 3 |
| 37 | 3 | 89 | 3 |
| 38 | 3 | 90 | 3 |
| 39 | 3 | | |
| 40 | 3 | | |
| 41 | 3 | | |
| 42 | 3 | | |
| 43 | 3 | | |
| 44 | 3 | | |
| 45 | 3 | | |
| 46 | 3 | | |
| 47 | 3 | | |
| 48 | 3 | | |
| 49 | 3 | | |
| 50 | 3 | | |
| 51 | 3 | | |
| 52 | 3 | | |


T. C. Fort, DOE/MEMP

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This issue has been reviewed and approved for publication by TR, Evan Kirk.

2/23/99
Date

CHANGES INCORPORATED

- [x] Replace — Pages 1, 2, 15, 16, 17, 18, 23, 24, 55, 56, 59, 60, 77 and 78
- [ ] Insert (New Pages)
- [ ] Remove
- [ ] Complete Reprint

All appropriate reviews were conducted. This issue is authorized for use by Advance Change Order on file in Technical Manuals.

M. D. Miller, Manager 11–12–98
Industrial Safety & Health

TR – TECHNICAL RESPONSIBILITY E – EDITOR

**TABLE 1**
**BUILDING INFORMATION FOR EG&G MOUND FACILITY**

Compiled by: Mound Industrial Hygiene

| BUILDING NAME | YEAR CONSTRUCTED | SQUARE FOOTAGE | ACBM[1] ? |
|---|---|---|---|
| A | 1948 | 55,582 | Yes |
| B | 1948 | 27,735 | Yes |
| C | 1948 | 13,403 | Yes |
| COS | 1986 | 64,654 | Suspected[2] |
| DS | 1965 | 47,810 | Yes |
| E | 1948 | 47,755 | Yes |
| EG1 | 1973 | 240 | Suspected[2] |
| EG2 | 1973 | 240 | Suspected[2] |
| EG4 | 1958 | 148 | Suspected[2] |
| EG6 | 1975 | 240 | Suspected[2] |
| EG7 | 1972 | 80 | Suspected[2] |
| FH1 | 1948 | 400 | No |
| FH2 | 1948 | 400 | No |
| G | 1948 | 7,518 | Yes |
| GH | 1948 | 5,347 | Yes |
| GH44 | 1963 | 365 | Assumed[3] |
| GIS | 1948 | 166 | Yes |
| GP-1 | 1949 | 7,792 | Yes |
| GP44 | 1971 | 365 | Assumed[3] |
| GW | 1968 | 9,782 | Yes |
| H | 1948 | 17,334 | Yes |
| HH | 1948 | 15,276 | Yes |

| BUILDING NAME | YEAR CONSTRUCTED | SQUARE FOOTAGE | ACBM[1] ? |
|---|---|---|---|
| I | 1948 | 25,736 | Yes |
| M | 1948 | 56,018 | Yes |
| OSE | 1986 | 90,072 | Assumed[3] |
| OSW | 1974 | 54,280 | Yes |
| P | 1948 | 15,143 | Yes |
| PH | 1948 | 646 | Yes |
| PS | 1963 | 2,288 | Yes |
| R | 1948 | 55,003 | Yes |
| SD | 1948 | 1,593 | Yes |
| SST | 1973 | 590 | Suspected[2] |
| SW | 1951 | 43,066 | Yes |
| T | 1948 | 172,963 | Yes |
| W | 1948 | 32,484 | Yes |
| WD | 1948 | 16,216 | Yes |
| WDA | 1966 | 5,000 | Yes |
| WH1 | 1960 | 374 | No |
| WH2 | 1960 | 374 | No |
| WH3 | 1960 | 128 | No |
| 1 | 1957 | 986 | Yes |
| 2 | 1959 | 6,291 | Yes |
| 3 | 1964 | 12,391 | Yes |
| 5 | 1948 | 314 | No |
| 6 | 1948 | 90 | No |
| 7 | 1986 | 387 | No |
| 8 | 1986 | 66 | No |

| BUILDING NAME | YEAR CONSTRUCTED | SQUARE FOOTAGE | ACBM[1] ? |
|---|---|---|---|
| 10 | 1986 | 66 | No |
| 11 | 1986 | 372 | No |
| 13 | 1960 | 47 | Suspected[2] |
| 14 | 1986 | 53 | Suspected[2] |
| 16 | 1960 | 480 | Yes |
| 17 | 1961 | 1,120 | Yes |
| 19 | 1963 | 4,480 | No |
| 20 | 1986 | 303 | No |
| 21 | 1966 | 4,069 | Suspected[2] |
| 22 | 1966 | 9,090 | No |
| 23 | 1966 | 3,422 | Yes |
| 24 | 1966 | 840 | Yes |
| 25 | 1966 | 430 | Yes |
| 26 | 1965 | 800 | Assumed[3] |
| 27 | 1968 | 5,285 | Yes |
| 28 | 1966 | 11,329 | Yes |
| 29 | 1964 | 6,601 | Yes |
| 30 | 1964 | 740 | Yes |
| 31 | 1966 | 8,740 | Suspected[2] |
| 33 | 1965 | 1,344 | Yes |
| 34 | 1965 | 1,100 | No |
| 35 | ---- | 2,500 | Yes |
| 36 | 1968 | 4,255 | Yes |
| 37 | 1968 | 2,463 | Yes |
| 38 | 1968 | 44,327 | Yes |

| BUILDING NAME | YEAR CONSTRUCTED | SQUARE FOOTAGE | ACBM[1] ? |
|---|---|---|---|
| 39 | 1967 | 3,515 | No |
| 40 | 1968 | 12,227 | Yes |
| 42 | 1969 | 2,892 | Yes |
| 43 | 1969 | 1,516 | Yes |
| 44 | 1969 | 2,480 | Yes |
| 45 | 1970 | 2,775 | Yes |
| 46 | 1969 | 2,439 | Yes |
| 47 | 1969 | 3,611 | Yes |
| 48 | 1970 | 7,950 | Yes |
| 49 | 1970 | 14,929 | Yes |
| 50 | 1971 | 14,849 | Yes |
| 51 | 1972 | 3,541 | Assumed[3] |
| 52 | 1973 | 78 | No |
| 53 | 1986 | 239 | No |
| 54 | 1986 | 331 | No |
| 55 | 1973 | 330 | No |
| 56 | 1973 | 613 | Yes |
| 57 | 1975 | 510 | Yes |
| 58 | 1977 | 6,110 | No |
| 59 | 1978 | 668 | Suspected[2] |
| 60 | 1980 | 3,958 | Yes |
| 61 | 1983 | 45,490 | Suspected[2] |
| 62 | 1980 | 290 | Yes |
| 63 | 1981 | 16,461 | Assumed[3] |
| 64 | ---- | 72 | No |

| BUILDING NAME | YEAR CONSTRUCTED | SQUARE FOOTAGE | ACBM[1] ? |
|---|---|---|---|
| 65 | 1979 | 2,400 | Assumed[3] |
| 66 | 1979 | 600 | Suspected[2] |
| 67 | 1982 | 3,787 | Assumed[3] |
| 68 | 1979 | 1,990 | Suspected[2] |
| 69 | 1981 | 1,620 | Suspected[2] |
| 70 | 1982 | 3,366 | Suspected[2] |
| 71 | 1983 | 800 | Suspected[2] |
| 72 | 1983 | 2,400 | No |
| 73 | 1983 | 2,200 | Suspected[2] |
| 74 | 1986 | 400 | Suspected[2] |
| 79 | 1983 | 1,650 | Suspected[2] |
| 80 | 1986 | 314 | No |
| 81 | 1986 | 314 | No |
| 82 | 1986 | 314 | No |
| 83 | 1986 | 314 | No |
| 84 | 1986 | 314 | No |
| 85 | 1988 | 3,160 | No |
| 87 | 1988 | 38,882 | No |
| 88 | 1983 | 7,200 | Assumed[3] |
| 89 | 1984 | 4,830 | Assumed[3] |
| 90 | 1983 | 656 | Suspected[2] |
| 91 | 1984 | 8,065 | Suspected[2] |
| 92 | 1984 | 1,600 | Suspected[2] |
| 93 | 1984 | 2,936 | Suspected[2] |
| 94 | 1984 | 1,240 | Assumed[3] |

| BUILDIN G NAME | YEAR CONSTRUCTED | SQUARE FOOTAGE | ACBM(1) ? |
|---|---|---|---|
| 95 | 1985 | 2,000 | Suspected(2) |
| 96 | ---- | 432 | Suspected(2) |
| 98 | 1988 | 8,517 | Suspected(2) |
| 99 | 1989 | 11,412 | Suspected(2) |
| 100 | 1989 | 6,292 | Suspected(2) |
| 101 | 1986 | 1,815 | Suspected(2) |
| 102 | 1987 | 10,982 | Suspected(2) |
| 104 | ---- | 1,800 | Suspected(2) |
| 105 | ---- | 38,027 | Suspected(2) |
| 106 | ---- | 180 | Suspected(2) |
| 107 | ---- | 70 | Suspected(2) |
| 112 | ---- | 785 | Suspected(2) |
| 113 | ---- | 547 | Suspected(2) |
| 114 | ---- | 432 | Suspected(2) |
| 119 | ---- | 350 | Suspected(2) |
| 120 | ---- | 350 | Suspected(2) |

**NOTES:** (1) ACBM - Asbestos-containing building materials.

(2) Building is noted to contain "suspect" asbestos-containing building materials. Industrial hygiene building files lack building construction or asbestos survey information.

(3) Building is noted to contain "suspect" asbestos-containing flooring tile or sheet goods.

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

NEW

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the ground level:*** | | | | |
| Room 38A, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 7 ftgs. |
| Room 38, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 5 ftgs. |
| Room 39 (Mens Room), pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 5 ftgs. |
| Room 20, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 29 ftgs. |
| Room 20, pipe | Preformed-block pipe insulation | 2 | TSI | 90 lf |
| Room 17A, walls and ceiling | Ceiling tile mastic, brown | 3* | Misc. | 90 sf |
| Room 17A, floor | Floor tile, 9"x9" | 4 | Misc. | 75 sf |
| Room 16, floor | Floor tile, 9"x9" | 4 | Misc. | 195 sf |
| Room 16, walls and ceiling | Ceiling tile mastic, brown | 3* | Misc. | 65 sf |
| Room 16A, floor | Floor tile, 9"x9" | 4 | Misc. | 100 sf |
| Room 16A, ceiling | Ceiling tile mastic, brown | 3* | Misc. | 20 sf |
| Hallway 15, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 2 ftgs. |
| Hallway 15, pipe | Preformed-block pipe insulation | 2 | TSI | 35 lf |
| Hallway 15, pipe | Aircell-paper pipe insulation | 5 | TSI | 7 lf |
| Janitors Closet 36, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 7 ftgs. |
| Janitors Closet 36, ceiling | Transite panel | 6 | Misc. | 20 sf |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the ground level (continued):*** | | | | |
| Room 37A, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 3 ftgs. |
| Room 37A, floor | Floor tile, 12"x12" white with orange and brown streaks pattern | 7 | Misc. | 80 sf |
| Room 31/32, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 10 ftgs. |
| Room 31/32, debris above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | $1^{\alpha}$ | TSI | 3 sf |
| Room 31/32, wall | Ceiling tile mastic, brown | 3* | Misc. | 100 sf |
| Room 31/32, floor | Floor tile, 9"x9" | 4 | Misc. | 310 sf |
| Rooms 33/35/35A, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 10 ftgs. |
| Rooms 33/35/35A, wall | Ceiling tile mastic, brown | 3* | Misc. | 60 sf |
| Rooms 33/35/35A, floor | Floor tile, 9"x9" | 4 | Misc. | 210 sf |
| Room 42/42A, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 130 lf |
| Room 42/42A, debris above ceiling | Preformed-block pipe insulation | $2^{\alpha}$ | TSI | 20 sf |
| Room 42/42A, wall | Ceiling tile mastic, brown | 3* | Misc. | 100 sf |
| Room 42/42A, floor | Floor tile, 9"x9" | 4 | Misc. | 815 sf |
| Room 41, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 80 lf |
| Room 41, wall | Ceiling tile mastic, brown | 3* | Misc. | 100 sf |
| Room 41, floor | Floor tile, 9"x9" | 4 | Misc. | 815 sf |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the ground level (continued):*** | | | | |
| Room 12, floor | Floor tile, 9"x9" | 4 | Misc. | 1,680 sf |
| Room 12, wall | Ceiling tile, 12"x12" 2-sizes of small holes and gray fill style | 8 | Misc. | 1,205 sf |
| Room 12, pipe | No-drip pipe gum wrap, white | 9 | TSI | 15 lf |
| Room 14, floor | Floor tile, 9"x9" | 4 | Misc. | 690 sf |
| Room 14, wall | Ceiling tile, 12"x12" 2-sizes of small holes and gray fill style | 8 | Misc. | 740 sf |
| Crawl spaces above Rooms 12/14, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1* | TSI | 20 ftgs. |
| Crawl spaces above Rooms 12/14, pipe | Preformed-block pipe insulation | 2* | TSI | 220 lf |
| Crawl spaces above Rooms 12/14, debris | Preformed-block pipe insulation | 2*$^{\alpha}$ | TSI | 35 sf |
| Crawl spaces above Rooms 12/14, pipe | Aircell-paper pipe insulation | 5* | TSI | 80 lf |
| Crawl spaces above Rooms 12/14, pipe | Layered-paper pipe insulation | 10* | TSI | 25 lf |
| Crawl spaces above Rooms 12/14, debris | Layered-paper pipe insulation | 10*$^{\alpha}$ | TSI | 5 sf |
| Room 10, pipe above ceiling | Layered-paper pipe insulation | 10* | TSI | 2 lf |
| Room 10, debris above ceiling | Layered-paper pipe insulation | 10*$^{\alpha}$ | TSI | 2 sf |
| Pipe chase between Rooms 9 and 10, pipe | Layered-paper pipe insulation | 10* | TSI | 25 lf |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the ground level (continued):*** | | | | |
| Plenum above Rooms 2/48, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 20 ftgs. |
| Plenum over Rooms 2/48, pipe | Preformed-block pipe insulation | 2 | TSI | 120 lf |
| Plenum over Rooms 2/48, debris | Preformed-block pipe insulation | 2[α] | TSI | 5 sf |
| Plenum over Rooms 2/48, pipe | Aircell-paper pipe insulation | 5 | TSI | 40 lf |
| Plenum over Rooms 2/48, pipe | No-drip pipe gum wrap, white | 9 | TSI | 4 lf |
| Corridor 44, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 8 ftgs. |
| Corridor 44, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 20 lf |
| Room 45A, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 1 ftg. |
| Room 45A, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 50 lf |
| Room 45A, wall | Ceiling tile mastic, brown | 3* | Misc. | 40 sf |
| Closet under Stairwell 1, floor | Floor tile, 9"x9" | 4 | Misc. | 35 sf |
| Room 110, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 1 ftg. |
| Room 110, pipe | No-drip pipe gum wrap, white | 9 | TSI | 1 lf |
| Mezzanine area above Rooms 109/110, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 20 ftgs. |
| Room 108, pipe above ceilings | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1* | TSI | 8 ftgs. |
| Corridor by elevator, deck | Spray-applied fireproofing | 11 | Surfacing | 70 sf |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the ground level (continued):*** | | | | |
| Garage Space 103, deck | Spray-applied fireproofing | 11 | Surfacing | 560 sf |
| Room 103, deck | Spray-applied fireproofing | 11 | Surfacing | 480 sf |
| Room 101, floor | Mastic associated with floor tile, 12"x12" white with gray and putty smear pattern | 12 | Misc. | 120 sf |
| Room 5, pipe | Aircell-paper pipe insulation | 5 | TSI | 20 lf |
| Room 5, pipe | Layered-paper pipe insulation | 10 | TSI | 20 lf |
| Room 5, floor | Floor tile, 12"x12" white with medium brown streaks pattern | 13 | Misc. | 415 sf |
| Room 5, pipe above ceiling | Cementitious fitting insulation between sections of styrofoam pipe insulation | 15 | TSI | 8 ftgs. |
| Room 4, floor | Floor tile, 9"x9" | 4 | Misc. | 120 sf |
| Room 5A, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 6 ftgs. |
| Room 5A, debris above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1[α] | TSI | 1 sf |
| Room 5A, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 60 lf |
| Room 5A, floor | Floor tiles, 12"x12": white with medium brown streaks pattern; olive with white streaks pattern | 13/14 | Misc. | 510 sf |
| Room 5A, pipe above ceiling | Cementitious fitting insulation between sections of styrofoam pipe insulation | 15 | TSI | 6 ftgs. |
| Room 27, pipe | Preformed-block pipe insulation | 2 | TSI | 30 lf |
| Room 27, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 2 ftgs. |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the ground level (continued):*** | | | | |
| High Bay Area 8, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 20 ftgs. |
| High Bay Area 8, pipe | Preformed-block pipe insulation | 2 | TSI | 550 lf |
| High Bay Area 8, pipe | Aircell-paper pipe insulation | 5 | TSI | 825 lf |
| High Bay Area 8, pipe | Layered-paper pipe insulation | 10 | TSI | 30 lf |
| Low section of Area 8, pipe | No-drip pipe gum wrap, white | 9 | TSI | 120 lf |
| Area 3, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 3 ftgs. |
| Area 3, pipe | Aircell-paper pipe insulation | 5 | TSI | 60 lf |
| Area 3, pipe | Layered-paper pipe insulation | 10 | TSI | 5 lf |
| Area 3, pipe | No-drip pipe gum wrap, white | 9 | TSI | 10 lf |
| Mezzanine above Room 4, pipe | Preformed-block pipe insulation | 2 | TSI | 20 lf |
| Mezzanine above Room 4, pipe | Aircell-paper pipe insulation | 5 | TSI | 30 lf |
| Mezzanine above Room 4, tank | Preformed-block tank insulation | 16 | TSI | 60 sf |
| Mezzanine above Room 4, debris | Pipe and tank insulations | 2/5/16[α] | TSI | 100 sf |
| Room 26, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 60 lf |
| Room 28, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 1 lf |
| ***The following area was located on the second floor level:*** | | | | |
| Area 214A/B/C/D including stair-well and foyer, pipe above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 20 ftgs. |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No | Type ACM | Material quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the second level (continued):*** | | | | |
| Area 214A/B/C/D including stair-well and foyer, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 100 lf |
| Area 214A/B/C/D including stair-well and foyer, pipe above ceiling | Layered-paper pipe insulation | 10 | TSI | 100 lf |
| Room 207, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 15 lf |
| Room 207, debris above ceiling | Preformed-block pipe insulation | $2^{\alpha}$ | TSI | 2 sf |
| Room 209, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 10 lf |
| Room 209, debris above ceiling | Preformed-block pipe insulation | $2^{\alpha}$ | TSI | 2 sf |
| Room 210, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 2 lf |
| Room 203, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 40 lf |
| Room 203, debris above ceiling | Preformed-block pipe insulation | $2^{\alpha}$ | TSI | 5 sf |
| Room 203, pipe above ceiling | Layered-paper pipe insulation | 10 | TSI | 120 lf |
| Room 202, debris above ceiling | Preformed-block pipe insulation | $2^{\alpha}$ | TSI | 1 sf |
| Room 202, pipe above ceiling | Layered-paper pipe insulation | 10 | TSI | 30 lf |
| Room 201, pipe above ceiling | Layered-paper pipe insulation | 10 | TSI | 30 lf |
| Room 201, pipe above ceiling | No-drip pipe gum wrap, white | 9 | TSI | 1 lf |
| Room 205, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 20 lf |
| Room 205, pipe above ceiling | Layered-paper pipe insulation | 10 | TSI | 90 lf |
| Stairwell 1 & Corridor 204, pipe above ceiling | Preformed-block pipe insulation | 2 | TSI | 40 lf |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| ***The following areas were located on the second level (continued):*** | | | | |
| Stairwell 1 & Corridor 204, pipe above ceiling | Layered-paper pipe insulation | 10 | TSI | 55 lf |
| Corridor 204, debris above ceiling | Layered-paper pipe insulation | 10[α] | TSI | 5 sf |
| Stairwell 3, floor | Floor tile, 9"x9" | 4 | Misc. | 25 sf |
| Janitor's Closet adjacent to Room 228, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 6 ftgs. |
| Janitor's Closet adjacent to Room 228, debris | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1[α] | TSI | 2 sf |
| ***The following areas were located in the roof penthouses:*** | | | | |
| Penthouse 252P/253P, pipe | No-drip pipe gum wrap, white | 9 | TSI | 6 lf |
| Penthouse 254P, pipe | No-drip pipe gum wrap, white | 9 | TSI | 4 lf |
| Penthouse 251P, pipe | No-drip pipe gum wrap, black | 17 | TSI | 2 lf |
| Penthouse 250P, pipe | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 5 ftgs. |
| Penthouse 250P, pipe | Preformed-block pipe insulation | 2 | TSI | 80 lf |
| Penthouse 250P, loose stock | No-drip pipe gum wrap, white | 9 | TSI | 1 roll |
| Penthouse 250P, duct | Cementitious layer applied to canvas jacket over fiberglass duct insulation | 18 | TSI | 2,200 sf |
| ***The following areas were located on the roof:*** | | | | |
| East side of building, pipe running north-south | Preformed-block pipe insulation | 2 | TSI | 260 lf |
| North-east corner of building, pipe in stanchion line | Preformed-block pipe insulation | 2 | TSI | 50 lf |

(continued)

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**M BUILDING**
**MARCH 1999**

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| ***The following area was located outside on the north side of the building:*** | | | | |
| Bewteen Utility Room 20 and Main Stanchion Line pipes | Preformed-block pipe insulation | 2 | TSI | 80 lf |
| | | | | |

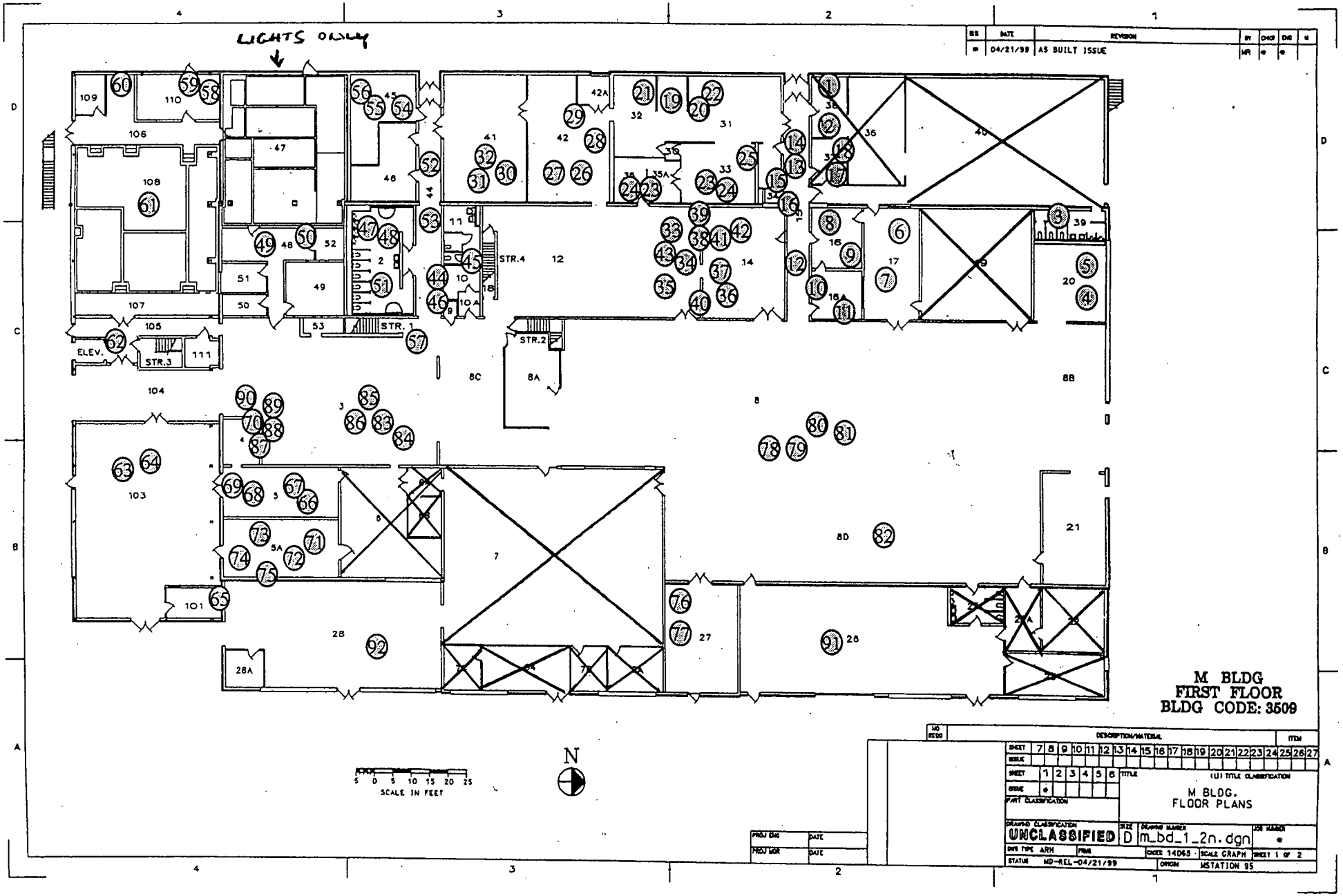
**Notes:**

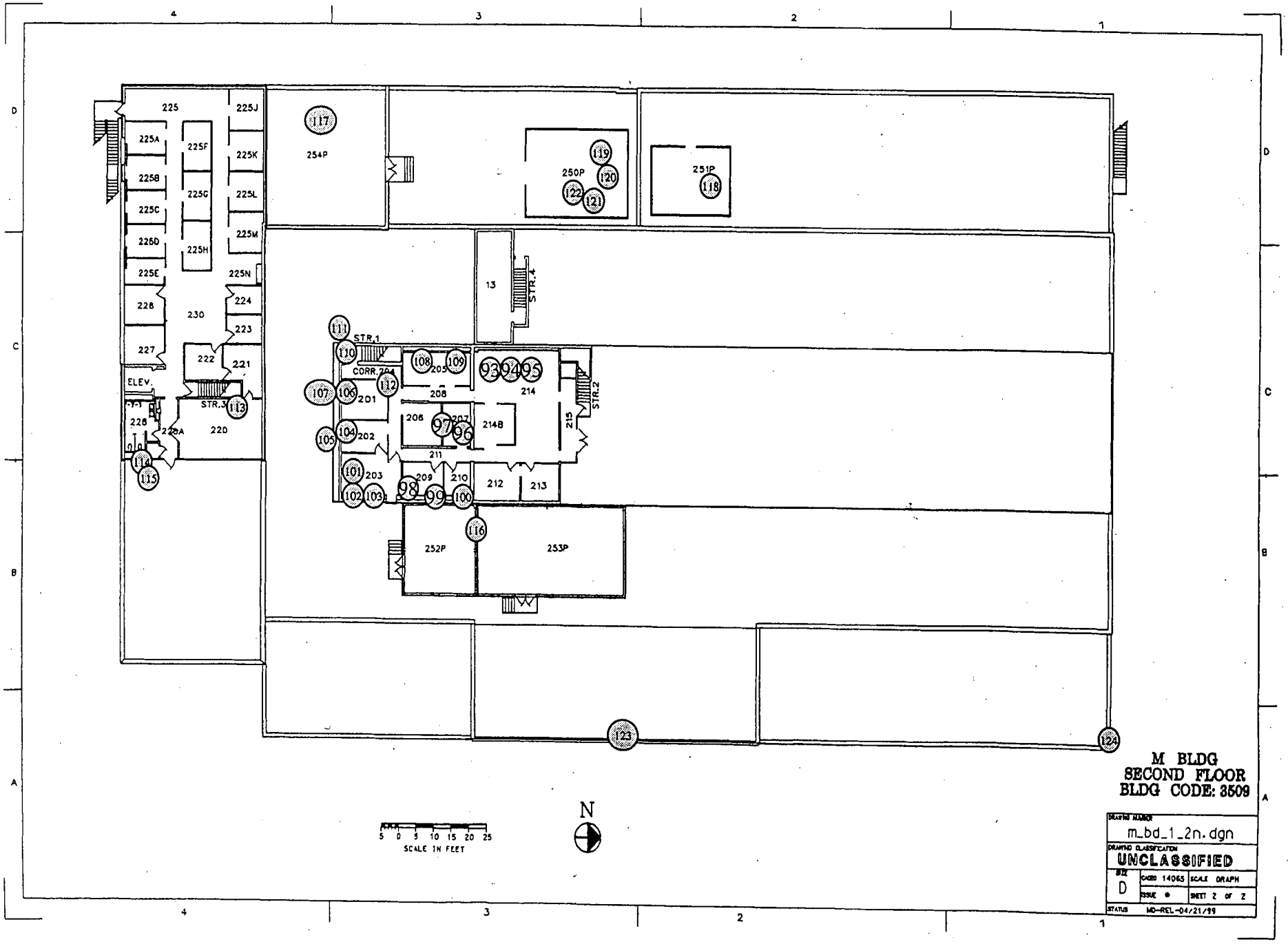
TSI = Thermal Systems Insulation
Misc. = Miscellaneous Material
Surfacing = Surfacing Material
• = This material was not fully accessible for assessment at the time of the inspection.
$^{\alpha}$ = This material was present in the form of debris resulting from previous damage to parent material.

This material is to be deleted from the scope of work

This material is to be added to the scope of work

**Asbestos-containing homogeneous area number description:**
1 - Cementitious fitting insulation between sections of fiberglass pipe insulation
2 - Preformed-block pipe insulation
3 - Ceiling tile mastic, brown
4 - Floor tile, 9"x9"
5 - Aircell-paper pipe insulation
6 - Transite panel
7 - Floor tile, 12"x12" white with orange and brown streaks pattern
8 - Ceiling tile, 12"x12" two-sizes of small holes and gray fill style
9 - No-drip pipe gum wrap, white
10 - Layered-paper pipe insulation
11 - Spray-applied fireproofing
12 - Mastic associated with floor tile, 12"x12" white with gray and putty smear pattern
13 - Floor tile, 12"x12" white with medium brown streaks pattern
14 - Floor tile, 12"x12" olive with white streaks pattern
15 - Cementitious fitting insulation between sections of styrofoam pipe insulation
16 - Preformed-block tank insulation
17 - No-drip pipe gum wrap, black
18 - Cementitious layer applied to canvas jacket covering fiberglass duct insulation


LIGHTS ONLY
ELEV.
STR.1
STR.2
STR.3
STR.4
SCALE IN FEET
N
M BLDG
FIRST FLOOR
BLDG CODE: 3509
REVISION
AS BUILT ISSUE
04/21/99
UNCLASSIFIED
M BLDG.
FLOOR PLANS
m_bd_1_2n.dgn
MD-REL-04/21/99
MSTATION 95




**M BLDG**
**SECOND FLOOR**
**BLDG CODE: 3509**

| | |
|---|---|
| DRAWING NUMBER | m_bd_1_2n.dgn |
| DRAWING CLASSIFICATION | UNCLASSIFIED |
| SIZE D | CADD 14065 / SCALE GRAPH |
| | ISSUE 0 / SHEET 2 OF 2 |
| STATUS | MO-REL-04/21/99 |

Appendix J

Lead Summary/Information

There is no lead summary/information available.

# Appendix K

## Chemical Summary/Information

# HOK/K

# PHASE I

# ENVIRONMENTAL SITE ASSESSMENT

# OF

# DOE MOUND, M BUILDING

# DOE MOUND

# MIAMISBURG, OHIO 45343-3020

# EXHIBIT F

# BUILDING M WASTE MANAGEMENT INFORMATION: PLATING SHOPS & LITHIUM PROGRAMS

for disposal at an approved off-plant disposal facility. Approximately one drum of waste is generated every three months. Solid trash is placed in dumpsters for disposal. The paint shop is still in operation (Parrett 1991).

## 3.2. PLATING SHOP

The Mound plating shop started in the M Building in the late 1940s (Figure 3.1). Plating processes and metal purification experiments were performed there. The shop itself consisted of eight to ten 150-gallon plating solution tanks that were handmade from boiler-plate steel (Shawhan 1991). Sulfuric acid anodizing solution wastes and sodium hydroxide cleaning wastes were regenerated on an infrequent basis. The plating solutions were reused and generally recycled; but, when necessary, they were dumped into a large underground tank. The tank consisted of a concrete vault structure west of the original M Building that connected to the plant sanitary sewer. Releases of solutions to the sewer would often affect the bacterial populations of the Old SD Plant (Thomas 1991). The cascade rinse systems also drained to the underground tank.

In 1962, a production plating shop and a general plating shop were installed in the M Building, and the old plating shop was dismantled. During the dismantling process, the plating solutions were removed from the equipment and neutralized. All of the old tanks and equipment were removed. The underground tank was retained and reconnected to the new equipment.

In 1981, a new production plating shop was built on the south end of the M Building. In 1985 or 1986, a new general plating shop was built next to it. The new shops were built to upgrade the old equipment and use modern technology. The old equipment still exists in the M Building, but has been cleaned out. The waste products were drummed and disposed of off-plant through the waste management system.

### 3.2.1. Process Description

The production plating shop was used to plate weapons parts and to develop weapons reserve products. Processes performed in the production plating shop included chrome, gold, cadmium, copper, nickel and silver plating, passivating, anodizing, and coating.

The plating process began with an etching of the component in hydrochloric acid, followed by a rinse, a nickel chloride strike, a primary and secondary rinse, a hand rinse, a cascade rinse, and a spray rinse using deionized water. The component was then immersed in the plating bath, and the rinses described above were repeated.

The passivating process consisted of a cleansing of the component in a nitric acid solution, followed by a primary and secondary rinse, a hand rinse, a cascade rinse, and a deionized water spray rinse. The object was then immersed in the passivating solution bath using a mixture of sodium dichromate and nitric acid. The bath was equipped with an ultrasound device. The series of rinses was then repeated.

The anodizing process involved cleaning with an Aceta 30 solution, conditioning in a nickel acetate bath, and application of the anodizing dye and a sealer.

The coating process consisted of cleansing the object in an alkaline solution, followed by nitric acid etching and subsequent immersion in an Alodine 1200S solution. This process was then followed by a series of rinses as described for the passivating process.

The general plating shop was used for tooling and fixture plating. Black oxidation was used as the plating process, which consisted of an electrocleaning of the object in an Oakite 190 solution, followed by an etching with hydrochloric acid and two tap-water cascading rinses. The object was then immersed in a caustic black oxide solution and rinsed again with two cascading tap-water rinses.

### 3.2.2. Waste Generation

Minor process changes have been made in the plating shops since they began operation. The cadmium and silver plating process has been eliminated, and the use of gold cyanide has been eliminated and replaced with gold arsenic. Wastes potentially generated in the plating shops include solutions of chromic acid, copper cyanide, Rochelle salt, sodium cyanide, sodium carbonate, electroless nickel, Woods nickel solution, Alodine waste, electrophoretic waste, dye, nickel acetate, passivating waste, sodium dichromate, acetone, isopropyl alcohol, ethanol, alkaline cleaner, freon, mixed acids (hydrofluoric, hydrochloric, nitric, sulfuric, and phosphoric), Oakite, sodium hydroxide, trichlorethene, sodium hydroxide, and potassium permanganate.

The sodium hydroxide solution and potassium permanganate were neutralized by mixing them together and then drained to the sanitary drains. In the old shop, the solutions went to the large underground tank (under the northwest corner of the M Building) and then to the sanitary sewer. A much smaller sump was installed in the new shops (under the southern end of the M Building), because the volume of waste solutions has been reduced. All other chemical wastes were drummed for pickup by Mound waste management personnel for disposal at an approved off-plant facility. Primary rinse solutions were recycled into the nickel strike bath or plating bath solutions as makeup water. Secondary and hand-rinse water were recycled for use in primary rinses. All other rinse water, including the cascade

rinses and the deionized water spray rinses, was disposed of in the sanitary sewer system. In 1989, the process of disposing of the sodium hydroxide and potassium permanganate solution in the sanitary sewer system was stopped. These solutions are now drummed and picked up by Mound waste management personnel. Currently, only the cascade rinse water drains to the small sump. The old tank is thought to still be connected to the sanitary sewer system as is the new sump. The old tank served as the sampling station for NPDES Outfall 001. The new sump in the production plating shop is currently sampled for that requirement.

Concrete containment pits with curbs are located under the plating shop process equipment to contain any spills or leaks. The pits are segregated so that acid materials do not mix with basic materials. Any material that collects in the pits is removed by pumping it into drums for disposal by Mound waste management. Floor drains within the building are connected to the sanitary sewer system. Administrative and physical controls prevent plating wastes from being disposed of in these drains (Johnson 1991).

When the original plating shop was dismantled in 1962, the plating solutions were neutralized and the solutes precipitated. The resulting wastes included sludges and a supernatant liquid. The liquid was released to the sanitary sewer through the old tank. The sludges were drummed in two 55-gallon steel drums and buried in the small parking lot on the northeast corner of the Main Hill. The old tanks were also buried at this location, as part of the expansion of the parking lot. This burial site is now known as Area F (DOE 1992g).

### 3.2.3. Vapor Degreaser

The vapor degreaser is in the plating shop in the M Building on the Main Hill (Figure 3.1). Small machined metal parts are cleaned by solvent vapors produced in the chamber of the degreaser. The fully enclosed metal chamber is approximately 3 ft long, 2 ft wide, and 4 ft deep and has a 15-gallon solvent capacity. The wastes produced in this unit are spent solvents. Spent solvents and vapors are retained in the degreaser cleaning chamber. The solvent used in the vapor degreaser is Perclene D. The unit began operating in the late 1970s and is still in use. Spent solvent is transferred to drums and transported to the hazardous waste storage area in Building 72.

## 3.3. MAINTENANCE SHOP

The Building G garage is used to maintain the automobiles, trucks, buses, and heavy-duty equipment used at Mound (Figure 3.1). The building is approximately 122 ft by 62 ft and is made of structural steel and brick with concrete floors. It has concrete floors and is located in the northwest corner of

of the B Building. Some verbal reports of the earliest operations in the WD Building state that the odors of organic decay made it an area in which it was difficult to work.

Solid wastes from the experiments included animal carcasses and parts that were in some cases preserved in formaldehyde. These are reported to have been packaged and shipped off-plant for disposal (Meyer 1991).

## 2.15. LITHIUM PROGRAMS

Three projects involving lithium were conducted at Mound. In early 1955, the Livermore Project got under way in the M Building. This program was concerned with the production of lithium deuteride blocks that were pressed and then canned in metal containers. The start-up of the Livermore Project was scheduled for March 1955. In August 1955, 82 kg of lithium deuteride material were pressed, canned, and shipped to the Lawrence Livermore National Laboratory (MCC 1955f).

The second program involving lithium also occurred in the 1950s. This program involved the characterization of the chemical and physical properties of lithium deuteride. This was essentially a laboratory-scale program where experiments involved small quantities of material.

In June 1965, the third lithium project got underway at Mound. This project was concerned with the development of analytical methods for lithium hydride, deuteride, and tritide.

### 2.15.1. Process Description

All three programs required the use of dry box operations to eliminate oxygen and water vapor. The Livermore Project was located in the M Building; and some analytical activity associated with the third project, involving development of analytical procedures, was conducted there.

The dry box atmosphere was helium. A dewpoint of -77°F was required to prepare lithium material for pressing and canning. The helium gas was treated with a number of reagents that would remove water from the helium gas stream. These reagents included barium oxide, magnesium perchlorate, and lithium hydride. A uranium furnace, operating at 350°C, was also used to remove water vapor and oxygen from the helium process gas. This system was very effective and produced dewpoints as low as -100°F. The uranium furnace proved to be unreliable, because the gasket materials developed helium leaks at high temperatures.

The lithium hydride stability studies involved the use of furnaces capable of high-temperature operation under controlled atmospheres. These studies were also performed in a dry box. The development of analytical methods for lithium hydride, deuteride, and tritide focused on the following analytes: Kjeldahl nitrogen; total hydrogen, deuterium, and tritium; lithium isotopic ratios; carbon, hydroxide, chloride, oxygen, sodium, potassium, and calcium; and free and isotopic lithium (Rhinehammer 1965).

### 2.15.2. Waste Generation

Compared with the size of the programs, the wastes generated by them were few. Lithium metal, lithium hydride, deuteride, tritide, hydrogen, deuterium, and tritium represent the majority of the waste produced in these studies. The analytical methods development work used methanol, sulfuric and hydrofluoric acids, ethylbromide, Karl Fisher reagent, tin, mercury, hydrochloric acid, sliver nitrate, hydroiodic acid, barium hydroxide, and Nessler reagent.

Based on activity levels, tritium-contaminated aqueous wastes would be treated and disposed of as discussed in the tritium section. Gaseous waste containing hydrogen, tritium, and deuterium would be sent to the effluent removal system to recover tritium.

Lithium metal, lithium hydride, and deuteride are extremely reactive metals and had to be reacted with water to produce a waste that could be stored or undergo further treatment. The disposal of such wastes reportedly took place at Mound. In the mid-1950s, lithium hydride materials were reported as being disposed of by burning in the swampy area along the lower reach of the plant drainage ditch. The highly reactive materials were simply reacted with the water and allowed to burn. This area was referred to as Area C in the CEARP Installation Assessment (DOE 1986). After Building 34 was constructed in the mid-1960s, the disposal activity was moved to the standing water pond at the historic landfill site, known as Area B (DOE 1992g). Any associated contamination at these areas would be dependent on the effectiveness of the isotope separation operation.

## 2.16. DETONATORS AND EXPLOSIVES

In July 1955, plans and proposals were prepared for a detonator facility to be constructed at Mound. Plans were made to use Building I for explosive manufacturing, and Building B was to be used for inert manufacturing (Brawley 1955). In August 1956, Mound was directed to begin work on detonator assemblies required for the weapons program (MCC 1960). Thus began a long-lived program in the development and production of detonators, igniters, and actuators; in the research, development, and manufacture of pyrotechnic material and devices; and in the surveillance testing of explosive components. These programs involved research and development of plastic, adhesive, and ceramic

There is no current chemical inventory in M Building.

Historically, the following chemicals were used in the plating shop:
Sulfuric acid anodizing solution
Sodium hydroxide cleaning solution
Chrome, gold, cadmium, copper, nickel, and silver plating solutions
Hydrochloric acid
Nickel chloride
Nitric acid
Sodium dichromate
Aceta 30 solution
Nickel acetate
Anodizing dye and sealer
Alodine 1200S solution
Oakite 190 solution
Gold cyanide
Gold arsenic
Perclene D vapor degreaser

The following wastes were generated by the Plating Shop:
Chromic acid
Copper cyanide
Rochelle salt
Sodium cyanide
Sodium carbonate
Electroless nickel
Woods nickel solution
Alodine waste
Electrophoretic waste
Nickel acetate
Passivating waste
Sodium dichromate
Acetone
Isopropyl alcohol
Ethanol
Alkaline cleaner
Freon
Mixed acids –hydrofluoric, nitric, sulfuric, phosphoric
Oakite
Sodium hydroxide
Trichlorethene
Potassium permanganate

FILE

# MOUND

INTEROFFICE CORRESPONDENCE

Date: March 4, 1996

From: Matthew W. Uelen, Industrial Hygiene

Subject: M-Building Beryllium Swipe Sampling

To: William H. Whitelow, Building Manager

**Activity/ Date**

Industrial Hygiene swipe sampled for beryllium in the seven local exhaust ports extending from the ceiling of room# 42 in M building. A single sample (sample# 95103009) was also taken at a dusty floor area within the collection hopper closet. All sampling was completed on 10/30/95 .

The sampling was performed as a follow up to a past beryllium machining operation occurring in this room. The known cutting operation was performed while submerged in deionized water; essentially catching all loose contaminant. According to sampling reports, the equipment and waste sludge was cleaned up and disposed of in August of 1987.

The local exhaust ports were sampled to validate that no other beryllium operations had occurred in the room unbeknownst to Industrial Hygiene. The exhaust ports were the most logical place for residual sediment in the room (besides the collection hopper). Ports# 7 and #9 were not sampled, as they were sealed at the false ceiling level.

**Sampling Results**

| Date | Location | Sample# | Contaminant | Level Detected | Clearance Level |
|---|---|---|---|---|---|
| 10/30/95 | Port# 1 | 95103001 | Beryllium | <0.001 ug/sq. ft. | 2 ug/sq. ft |
| 10/30/95 | Port# 2 | 95103002 | Beryllium | <0.001 ug/sq. ft | 2 ug/sq. ft. |
| 10/30/95 | Port# 3 | 95103003 | Beryllium | <0.001 ug/sq. ft. | 2 ug/sq. ft |
| 10/30/95 | Port# 4 | 95103004 | Beryllium | <0.001 ug/sq. ft. | 2 ug/sq. ft |
| 10/30/95 | Port# 5 | 95103005 | Beryllium | <0.001 ug/sq. ft | 2 ug/sq. ft. |
| 10/30/95 | Port# 6 | 95103006 | Beryllium | <0.001 ug/sq. ft. | 2 ug/sq. ft |
| 10/30/95 | Port# 8 | 95103007 | Beryllium | <0.001 ug/sq. ft. | 2 ug/sq. ft |
| 10/30/95 | Port# 10 | 95103008 | Beryllium | <0.001 ug/sq. ft. | 2 ug/sq. ft |
| 10/30/95 | floor | 95103009 | Beryllium | <0.001 ug/sq. ft. | 2 ug/sq. ft |
| 10/30/95 | Fld. blank | 95102308 | Beryllium | <0.01 ug | |
| 10/30/95 | Lab blank | 95102309 | Beryllium | <0.01 ug | |

ug/sq. ft = micrograms per square foot

**Sampling Methodology**

The sampling was accomplished by wiping a 100 square centimeter area using a 37 millimeter cellulose ester filter. Detected levels were converted to square feet for the purpose of comparison with recommended clearance levels. The Mound sampling procedure used, was developed following sampling guidelines set forth in the OSHA Technical Manual (1991) and the AIHA Hygienic Guide Series for Beryllium (1985).

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

**Recommendations**

The local exhaust trunks accumulate into a collection hopper which deposits air contaminants into a 20 gallon drum beneath the hopper. It is recommended that the drum be disposed of and it's contents be sampled by Waste Management. If Waste Management samples show significant levels of beryllium, decontamination or disposal of the hopper may be required. At this time, Industrial Hygiene suspects that it will be unnecessary. Further sampling of Ports# 7, # 9 and the flexible trunk extending from the hopper to the drum will be necessary to clear this room for the City of Miamisburg's use.

Appendix L

Noted Soil Sampling, Vicinity

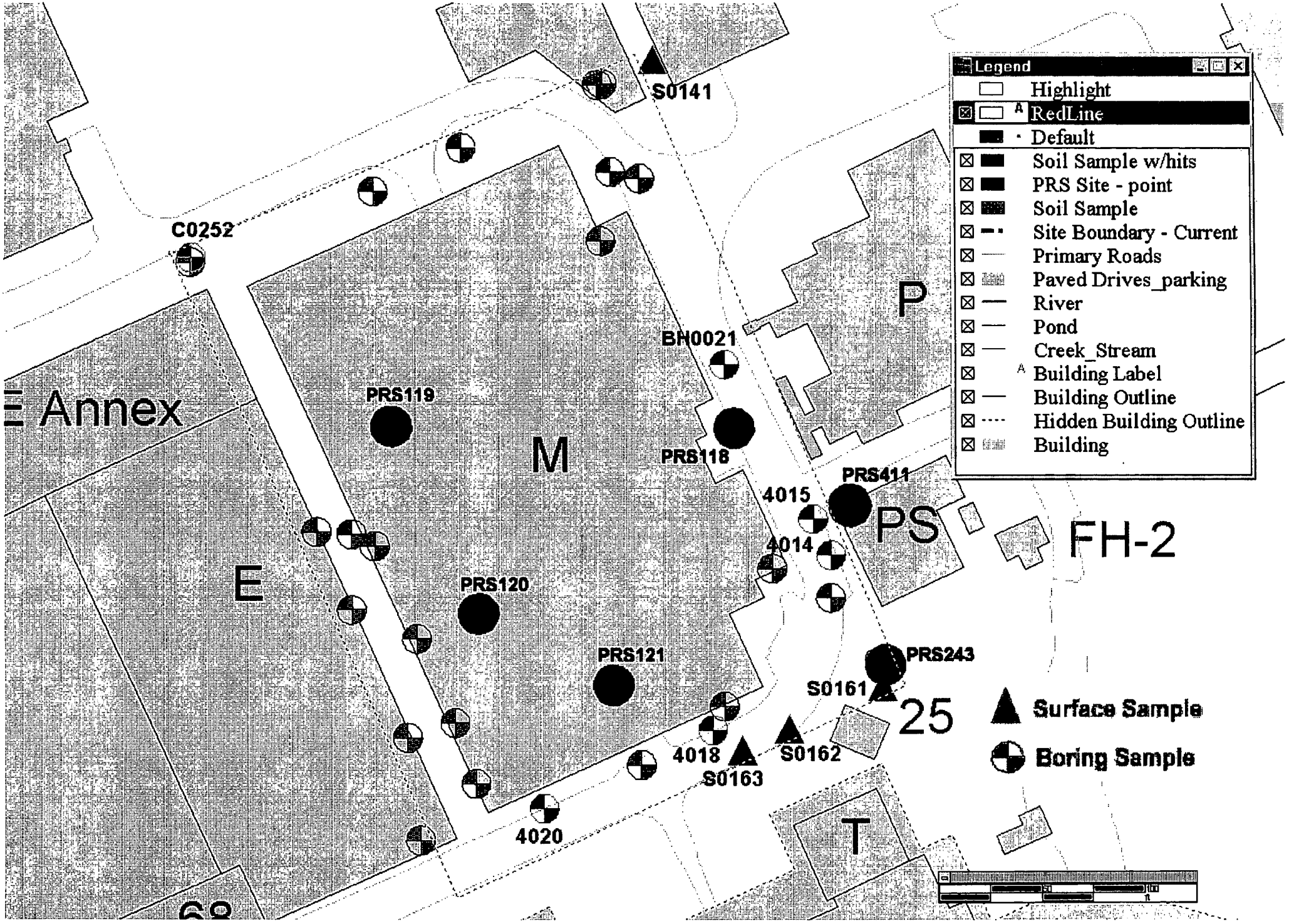
This Appendix L consists of three elements.

Element one is a graphic depiction of soil sampling in and around the subject property. Triangles signify surface sampling and circles denote boring (at dept) samples. The magenta color denotes a detection. A gray colored triangle or circle indicates a non-detection. Sampling detections are assigned a location alpha-numeric identifier.

Element two is a spreadsheet detailing the element one detections. Detections (magenta colored symbols) identified in element one are listed. The first or left-most column entries of the element two spreadsheet can be matched to the element one identifiers. Sample detections that exceed comparison values are highlighted by bold text in the "Measured Value" column of the spreadsheet. Additionally these comparison values are also identified in the "Comments" column of element two.

Element three is a table of comparison values. The constituent of concern can be found in the center column of this table, identified as "parameter name." Comparison values are located to the immediate right of these constituents. The first or left-most column of the element three table contains a single digit number identifying the basis of comparison value. Basis identification is found on the last page of the element three table, and is again, listed here:

| Comparison Value Basis Number: | Comparison Value Basis Definition |
|---|---|
| 1 | 10E-6 Risk-Based Guideline Value |
| 2 | Soil Background Value (OU9) |
| 3 | Other Criteria, Such as Mound Plant Plutonium/Thorium Protocol |
| 5 | MCL Value |
| 6 | Guideline Value Based on Hazard Index |


Legend
Highlight
RedLine
Default
Soil Sample w/hits
PRS Site - point
Soil Sample
Site Boundary - Current
Primary Roads
Paved Drives_parking
River
Pond
Creek_Stream
Building Label
Building Outline
Hidden Building Outline
Building
Surface Sample
Boring Sample
S0141
C0252
BH0021
PRS119
PRS118
PRS411
4015
4014
PRS120
PRS121
PRS243
S0161
S0162
4018
S0163
4020
E Annex
M
P
PS
FH-2
E
25
T

| Location_n | Sample_id | Location_ty | Collection_date | Media | Value_name | Measured_va | Value_uni | Detectio | Chem_class | Start | End_d | Deptl | Cas_number | Lab_ | Project_code | Date | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4014 | 4014-0002.5 | Borehole | 19940421 | Other | 1,1,1-Trichloroethane | 5263.2 | PPB | | ORVOA | 2.5 | 2.5 | FT | 71-55-6 | | SVROU2 | | |
| 4014 | 4014-0002.5 | Borehole | 19940421 | Other | 1,1-Dichloroethane | 12098.8 | PPB | | ORVOA | 2.5 | 2.5 | FT | 75-34-3 | | SVROU2 | | |
| 4014 | 4014-0002.5 | Borehole | 19940421 | Other | 1,2-cis-Dichloroethene | 5808.1 | PPB | | ORVOA | 2.5 | 2.5 | FT | 156-59-2 | | SVROU2 | | |
| 4014 | 4014-0002.5 | Borehole | 19940421 | Other | 1,2-trans-Dichloroethene | 6818.2 | PPB | | ORVOA | 2.5 | 2.5 | FT | 156-60-5 | | SVROU2 | | |
| 4014 | 4014-0002.5 | Borehole | 19940421 | Other | Toluene | 789.5 | PPB | | ORVOA | 2.5 | 2.5 | FT | 108-88-3 | | SVROU2 | | |
| 4014 | 4014-0002.5 | Borehole | 19940421 | Other | Total VOC's | 42027.7 | PPB | | ORVOA | 2.5 | 2.5 | FT | TVOC | | SVROU2 | | |
| 4014 | 4014-0002.5 | Borehole | 19940421 | Other | Trichlorofluoromethane | 11250 | PPB | | ORVOA | 2.5 | 2.5 | FT | 75-69-4 | | SVROU2 | | |
| 4014 | 4014-0005.0 | Borehole | 19940421 | Other | Total VOC's | 8394.5 | PPB | | ORVOA | 5 | 5 | FT | TVOC | | SVROU2 | | |
| 4014 | 4014-0005.0 | Borehole | 19940421 | Other | Trichlorofluoromethane | 5892.9 | PPB | | ORVOA | 5 | 5 | FT | 75-69-4 | | SVROU2 | | |
| 4015 | 4015-0005.0 | Borehole | 19940425 | Other | Total VOC's | 5844.4 | PPB | | ORVOA | 5 | 5 | FT | TVOC | | SVROU2 | | |
| 4015 | 4015-0005.0 | Borehole | 19940425 | Other | Trichlorofluoromethane | 3571.4 | PPB | | ORVOA | 5 | 5 | FT | 75-69-4 | | SVROU2 | | |
| 4015 | 4015-0007.5 | Borehole | 19940425 | Other | 1,1,1-Trichloroethane | 2280.7 | PPB | | ORVOA | 7.5 | 7.5 | FT | 71-55-6 | | SVROU2 | | |
| 4015 | 4015-0007.5 | Borehole | 19940425 | Other | 1,1-Dichloroethane | 3456.8 | PPB | | ORVOA | 7.5 | 7.5 | FT | 75-34-3 | | SVROU2 | | |
| 4015 | 4015-0007.5 | Borehole | 19940425 | Other | 1,2-cis-Dichloroethene | 2020.2 | PPB | | ORVOA | 7.5 | 7.5 | FT | 156-59-2 | | SVROU2 | | |
| 4015 | 4015-0007.5 | Borehole | 19940425 | Other | Total VOC's | 26449.6 | PPB | | ORVOA | 7.5 | 7.5 | FT | TVOC | | SVROU2 | | |
| 4015 | 4015-0007.5 | Borehole | 19940425 | Other | Trichlorofluoromethane | 15892.9 | PPB | | ORVOA | 7.5 | 7.5 | FT | 75-69-4 | | SVROU2 | | |
| 4015 | 4015-0009.2 | Borehole | 19940425 | Other | 1,1-Dichloroethane | 1975.3 | PPB | | ORVOA | 9.2 | 9.2 | FT | 75-34-3 | | SVROU2 | | |
| 4015 | 4015-0009.2 | Borehole | 19940425 | Other | Total VOC's | 12566.9 | PPB | | ORVOA | 9.2 | 9.2 | FT | TVOC | | SVROU2 | | |
| 4015 | 4015-0009.2 | Borehole | 19940425 | Other | Trichlorofluoromethane | 8571.4 | PPB | | ORVOA | 9.2 | 9.2 | FT | 75-69-4 | | SVROU2 | | |
| 4018 | 4018-0002.5 | Borehole | 19940428 | Other | Toluene | 526.3 | PPB | | ORVOA | 2.5 | 2.5 | FT | 108-88-3 | | SVROU2 | | |
| 4018 | 4018-0002.5 | Borehole | 19940428 | Other | Total VOC's | 4812 | PPB | | ORVOA | 2.5 | 2.5 | FT | TVOC | | SVROU2 | | |
| 4018 | 4018-0002.5 | Borehole | 19940428 | Other | Trichlorofluoromethane | 4285.7 | PPB | | ORVOA | 2.5 | 2.5 | FT | 75-69-4 | | SVROU2 | | |
| 4018 | 4018-0005.0 | Borehole | 19940428 | Other | Tetrachloroethene | 3235.3 | PPB | | ORVOA | 5 | 5 | FT | 127-18-4 | | SVROU2 | | |
| 4018 | 4018-0005.0 | Borehole | 19940428 | Other | Total VOC's | 3761.6 | PPB | | ORVOA | 5 | 5 | FT | TVOC | | SVROU2 | | |
| 4020 | 4020-0002.5 | Borehole | 19940428 | Other | 1,1,1-Trichloroethane | 3333.3 | PPB | | ORVOA | 2.5 | 2.5 | FT | 71-55-6 | | SVROU2 | | |
| 4020 | 4020-0002.5 | Borehole | 19940428 | Other | 1,2-cis-Dichloroethene | 3787.9 | PPB | | ORVOA | 2.5 | 2.5 | FT | 156-59-2 | | SVROU2 | | |
| 4020 | 4020-0002.5 | Borehole | 19940428 | Other | 1,2-trans-Dichloroethene | 4292.9 | PPB | | ORVOA | 2.5 | 2.5 | FT | 156-60-5 | | SVROU2 | | |
| 4020 | 4020-0002.5 | Borehole | 19940428 | Other | Toluene | 1052.6 | PPB | | ORVOA | 2.5 | 2.5 | FT | 108-88-3 | | SVROU2 | | |
| 4020 | 4020-0002.5 | Borehole | 19940428 | Other | Total VOC's | 34966.8 | PPB | | ORVOA | 2.5 | 2.5 | FT | TVOC | | SVROU2 | | |
| 4020 | 4020-0002.5 | Borehole | 19940428 | Other | Trichlorofluoromethane | 22500 | PPB | | ORVOA | 2.5 | 2.5 | FT | 75-69-4 | | SVROU2 | | |
| 4020 | 4020-0005.0 | Borehole | 19940428 | Other | Toluene | 789.5 | PPB | | ORVOA | 5 | 5 | FT | 108-88-3 | | SVROU2 | | |
| 4020 | 4020-0005.0 | Borehole | 19940428 | Other | Total VOC's | 9730.9 | PPB | | ORVOA | 5 | 5 | FT | TVOC | | SVROU2 | | |
| 4020 | 4020-0005.0 | Borehole | 19940428 | Other | Trichlorofluoromethane | 3750 | PPB | | ORVOA | 5 | 5 | FT | 75-69-4 | | SVROU2 | | |
| 4020 | 4020-0007.5 | Borehole | 19940428 | Other | 1,2-cis-Dichloroethene | 1767.7 | PPB | | ORVOA | 7.5 | 7.5 | FT | 156-59-2 | | SVROU2 | | |
| 4020 | 4020-0007.5 | Borehole | 19940428 | Other | Toluene | 789.5 | PPB | | ORVOA | 7.5 | 7.5 | FT | 108-88-3 | | SVROU2 | | |
| 4020 | 4020-0007.5 | Borehole | 19940428 | Other | Total VOC's | 13684.5 | PPB | | ORVOA | 7.5 | 7.5 | FT | TVOC | | SVROU2 | | |
| 4020 | 4020-0007.5 | Borehole | 19940428 | Other | Trichlorofluoromethane | 9107.1 | PPB | | ORVOA | 7.5 | 7.5 | FT | 75-69-4 | | SVROU2 | | |
| 4020 | 4020-0012.5 | Borehole | 19940428 | Other | 1,1,1-Trichloroethane | 1403.5 | PPB | | ORVOA | 12.5 | 12.5 | FT | 71-55-6 | | SVROU2 | | |
| 4020 | 4020-0012.5 | Borehole | 19940428 | Other | Total VOC's | 7832.1 | PPB | | ORVOA | 12.5 | 12.5 | FT | TVOC | | SVROU2 | | |
| 4020 | 4020-0012.5 | Borehole | 19940428 | Other | Trichlorofluoromethane | 6428.6 | PPB | | ORVOA | 12.5 | 12.5 | FT | 75-69-4 | | SVROU2 | | |
| 4020 | 4020-0015.0 | Borehole | 19940428 | Other | Total VOC's | 8885.5 | PPB | | ORVOA | 15 | 15 | FT | TVOC | | SVROU2 | | |
| 4020 | 4020-0015.0 | Borehole | 19940428 | Other | Trichlorofluoromethane | 5714.3 | PPB | | ORVOA | 15 | 15 | FT | 75-69-4 | | SVROU2 | | |
| 4020 | 4020-0017.5 | Borehole | 19940428 | Other | 1,2-cis-Dichloroethene | 2777.8 | PPB | | ORVOA | 17.5 | 17.5 | FT | 156-59-2 | | SVROU2 | | |
| 4020 | 4020-0017.5 | Borehole | 19940428 | Other | Total VOC's | 10333.7 | PPB | | ORVOA | 17.5 | 17.5 | FT | TVOC | | SVROU2 | | |
| 4020 | 4020-0017.5 | Borehole | 19940428 | Other | Trichlorofluoromethane | 5535.7 | PPB | | ORVOA | 17.5 | 17.5 | FT | 75-69-4 | | SVROU2 | | |
| BH0021 | 93101423 | Borehole | 19931014 | Soil | Plutonium-238 | **26** | PCI/G | | RAD | 0 | 0 | FT | 13981-16-3 | | SCRDATA | | Exceeds soil 10-6 GV. Exceeds background value. Exceeds other criteria. |
| BH0021 | 93101424 | Borehole | 19931014 | Soil | Plutonium-238 | **29** | PCI/G | | RAD | 0 | 0 | FT | 13981-16-3 | | SCRDATA | | Exceeds soil 10-6 GV. Exceeds background value. Exceeds other criteria. |
| C0252 | 8400 | Borehole | 19841201 | Soil | Plutonium-238 | 0.13 | PCI/G | 0.01 | RAD | 3 | 3 | FT | 13981-16-3 | | RSS | | |
| S0141 | 6179 | Surface loca | 19840801 | Soil | Plutonium-238 | **0.68** | PCI/G | 0.01 | RAD | 0 | 0 | FT | 13981-16-3 | | RSS | | Exceeds background value. |
| S0161 | 3093 | Surface loca | 19831001 | Soil | Plutonium-238 | **1.19** | PCI/G | 0.01 | RAD | 0 | 0 | FT | 13981-16-3 | | RSS | | Exceeds background value. |
| S0162 | 6206 | Surface loca | 19840801 | Soil | Plutonium-238 | **0.62** | PCI/G | 0.01 | RAD | 0 | 0 | FT | 13981-16-3 | | RSS | | Exceeds background value. |
| S0163 | 6207 | Surface loca | 19840801 | Soil | Plutonium-238 | **0.34** | PCI/G | 0.01 | RAD | 0 | 0 | FT | 13981-16-3 | | RSS | | Exceeds background value. |

| comp_no | par_code | parameter name | comparison value | units |
|---|---|---|---|---|
| 1 | 7440-41-7 | Beryllium | 7.00E-01 | MG/KG |
| 1 | 7440-43-9 | Cadmium | 5.00E+04 | MG/KG |
| 1 | 7440-47-3 | Chromium | 7.50E+03 | MG/KG |
| 1 | 121-82-4 | RDX | 2.70E+01 | UG/KG |
| 1 | 72-55-9 | 4,4'-DDE | 9.00E+00 | MG/KG |
| 1 | 50-29-3 | 4,4'-DDT | 9.00E+00 | MG/KG |
| 1 | 12672-29-6 | Aroclor-1248 | 3.85E-01 | MG/KG |
| 1 | 11096-82-5 | Aroclor-1260 | 3.85E-01 | MG/KG |
| 1 | 319-85-7 | Beta-BHC | 1.65E+00 | MG/KG |
| 1 | 60-57-1 | Dieldrin | 1.85E-01 | MG/KG |
| 1 | 56-55-3 | Benzo(a)anthracene | 4.10E+00 | MG/KG |
| 1 | 50-32-8 | Benzo(a)pyrene | 4.10E-01 | MG/KG |
| 1 | 205-99-2 | Benzo(b)fluoranthene | 4.10E+00 | MG/KG |
| 1 | 207-08-9 | Benzo(k)fluoranthene | 4.10E+01 | MG/KG |
| 1 | 117-81-7 | Bis(2-ethylhexyl)phthalate | 2.15E+02 | MG/KG |
| 1 | 218-01-9 | Chrysene | 4.10E+02 | MG/KG |
| 1 | 53-70-3 | Dibenz(a,h)anthracene | 4.10E-01 | MG/KG |
| 1 | 193-39-5 | Indeno(1,2,3-cd)pyrene | 4.10E+00 | MG/KG |
| 1 | 78-59-1 | Isophorone | 3.15E+03 | MG/KG |
| 1 | 86-30-6 | N-Nitrosodiphenylamine | 6.00E+02 | MG/KG |
| 1 | 87-86-5 | Pentachlorophenol | 2.50E+01 | MG/KG |
| 1 | 107-06-2 | 1,2-Dichloroethane | 1.10E+01 | MG/KG |
| 1 | 71-43-2 | Benzene | 3.20E+01 | MG/KG |
| 1 | 75-27-4 | Bromodichloromethane | 4.80E+01 | MG/KG |
| 1 | 75-25-2 | Bromoform | 3.75E+02 | MG/KG |
| 1 | 56-23-5 | Carbon Tetrachloride | 1.20E+01 | MG/KG |
| 1 | 67-66-3 | Chloroform | 1.55E+01 | MG/KG |
| 1 | 124-48-1 | Dibromochloromethane | 3.55E+01 | MG/KG |
| 1 | 75-09-2 | Dichloromethane | 3.95E+02 | MG/KG |
| 1 | 79-01-6 | Trichloroethene | 1.25E+02 | MG/KG |
| 1 | AC-227 | Actinium-227 | 1.00E+00 | PCI/G |
| 1 | 14596-10-2 | Americium-241 | 4.95E+00 | PCI/G |
| 1 | 13982-38-2 | Bismuth-207 | 1.75E-01 | PCI/G |
| 1 | BI-207 | Bismuth-207 | 1.75E-01 | PCI/G |
| 1 | 10045-97-3 | Cesium-137 | 4.60E-01 | PCI/G |
| 1 | 10198-40-0 | Cobalt-60 | 1.00E-01 | PCI/G |
| 1 | 13981-16-3 | Plutonium-238 | 5.50E+00 | PCI/G |
| 1 | 15117-48-3 | Plutonium-239 | 5.50E+00 | PCI/G |
| 1 | PU239/240 | Plutonium-240 | 5.50E+00 | PCI/G |
| 1 | 13982-63-3 | Radium-226 | 1.40E-01 | PCI/G |
| 1 | 10098-97-2 | Strontium-90 | 3.00E+00 | PCI/G |
| 1 | 14274-82-9 | Thorium-228 | 8.50E-01 | PCI/G |
| 1 | 14269-63-7 | Thorium-230 | 4.40E+01 | PCI/G |
| 1 | 7440-29-1 | Thorium-232 | 5.00E+01 | PCI/G |
| 1 | 10028-17-8 | Tritium | 2.35E+04 | PCI/G |
| 1 | U-233 | Uranium-233 | 3.70E+01 | PCI/G |
| 1 | 13966-29-5 | Uranium-234 | 3.75E+01 | PCI/G |
| 1 | 15117-96-1 | Uranium-235 | 3.35E+00 | PCI/G |
| 1 | 24678-82-8 | Uranium-238 | 1.10E+01 | PCI/G |
| 2 | 7429-90-5 | Aluminum | 19000 | MG/KG |

| comp_no | par_code | parameter name | comparison value | units |
|---|---|---|---|---|
| 2 | 7440-38-2 | Arsenic | 8.6 | MG/KG |
| 2 | 7440-39-3 | Barium | 180 | MG/KG |
| 2 | 7440-69-9 | Bismuth | ND | MG/KG |
| 2 | 7440-41-7 | Beryllium | 1.3 | MG/KG |
| 2 | 7440-43-9 | Cadmium | 2.1 | MG/KG |
| 2 | 7440-70-2 | Calcium | 310000 | MG/KG |
| 2 | 7440-47-3 | Chromium | 20 | MG/KG |
| 2 | 7440-48-4 | Cobalt | 19 | MG/KG |
| 2 | 7440-50-8 | Copper | 26 | MG/KG |
| 2 | 57-12-5 | Cyanide | ND | MG/KG |
| 2 | 7439-89-6 | Iron | 35000 | MG/KG |
| 2 | 7439-92-1 | Lead | 48 | MG/KG |
| 2 | 7439-93-2 | Lithium | 26 | MG/KG |
| 2 | 7439-95-4 | Magnesium | 40000 | MG/KG |
| 2 | 7439-96-5 | Manganese | 1400 | MG/KG |
| 2 | 7439-97-6 | Mercury | ND | MG/KG |
| 2 | 7439-98-7 | Molybdenum | 27 | MG/KG |
| 2 | 7440-02-0 | Nickel | 32 | MG/KG |
| 2 | 7440-09-7 | Potassium | 1900 | MG/KG |
| 2 | 7440-22-4 | Silver | 1.7 | MG/KG |
| 2 | 7782-49-2 | Selenium | ND | MG/KG |
| 2 | 7440-23-5 | Sodium | 240 | MG/KG |
| 2 | 7440-28-0 | Thallium | 0.46 | MG/KG |
| 2 | 7440-31-5 | Tin | 20 | MG/KG |
| 2 | 7440-62-2 | Vanadium | 25 | MG/KG |
| 2 | 7440-66-6 | Zinc | 140 | MG/KG |
| 2 | 72-54-8 | 4,4'-DDD | 4.2 | MG/KG |
| 2 | 72-55-9 | 4,4'-DDE | 4.3 | MG/KG |
| 2 | 50-29-3 | 4,4'-DDT | 13 | MG/KG |
| 2 | 309-00-2 | Aldrin | ND | MG/KG |
| 2 | 5103-71-9 | Alpha Chlordane | ND | MG/KG |
| 2 | 319-84-6 | Alpha-BHC | ND | MG/KG |
| 2 | 12672-29-6 | Aroclor-1248 | ND | MG/KG |
| 2 | 11097-69-1 | Aroclor-1254 | 58 | MG/KG |
| 2 | 11096-82-5 | Aroclor-1260 | ND | MG/KG |
| 2 | 319-85-7 | Beta-BHC | ND | MG/KG |
| 2 | 60-57-1 | Dieldrin | ND | MG/KG |
| 2 | 959-98-8 | Endosulfan I | ND | MG/KG |
| 2 | 1031-07-8 | Endosulfan Sulfate | ND | MG/KG |
| 2 | 72-20-8 | Endrin | ND | MG/KG |
| 2 | 7421-93-4 | Endrin Aldehyde | ND | MG/KG |
| 2 | 53494-70-5 | Endrin Ketone | ND | MG/KG |
| 2 | 5103-74-2 | Gamma Chlordane | ND | MG/KG |
| 2 | 58-89-9 | Gamma-BHC (Lindane) | ND | MG/KG |
| 2 | 76-44-8 | Heptachlor | ND | MG/KG |
| 2 | 1024-57-3 | Heptachlor Epoxide | ND | MG/KG |
| 2 | 72-43-5 | Methoxychlor | 30 | MG/KG |
| 2 | 77-47-4 | Hexachlorocyclopentadiene | ND | MG/KG |
| 2 | 14596-10-2 | Americium-241 | ND | MG/KG |
| 2 | 13982-38-2 | Bismuth-207 | ND | MG/KG |

| comp_no | par_code | parameter name | comparison value | units |
|---|---|---|---|---|
| 2 | BI-207 | Bismuth-207 | ND | MG/KG |
| 2 | BI-210M | Bismuth-210m | ND | MG/KG |
| 2 | 10045-97-3 | Cesium-137 | 0.42 | PCI/G |
| 2 | 13981-16-3 | Plutonium-238 | 0.13 | PCI/G |
| 2 | 13966-00-2 | Potassium-40 | 37 | PCI/G |
| 2 | 13982-63-3 | Radium-226 | 2 | PCI/G |
| 2 | 10098-97-2 | Strontium-90 | 0.72 | PCI/G |
| 2 | 14274-82-9 | Thorium-228 | 1.5 | PCI/G |
| 2 | 14269-63-7 | Thorium-230 | 1.9 | PCI/G |
| 2 | 7440-29-1 | Thorium-232 | 1.4 | PCI/G |
| 2 | 10028-17-8 | Tritium | 1.6 | PCI/G |
| 2 | 13966-29-5 | Uranium-234 | 1.1 | PCI/G |
| 2 | 15117-96-1 | Uranium-235 | 0.11 | PCI/G |
| 2 | 24678-82-8 | Uranium-238 | 1.2 | PCI/G |
| 3 | 7439-92-1 | Lead | 400 | MG/KG |
| 3 | 13982-63-3 | Radium-226 | 5 | PCI/G |
| 3 | 13981-16-3 | Plutonium-238 | 25 | PCI/G |
| 3 | 7440-29-1 | Thorium-232 | 5 | PCI/G |
| 5 | 7440-36-0 | Antimony | 0.0006 | MG/L |
| 5 | 7440-38-2 | Arsenic | 0.05 | MG/L |
| 5 | 7440-39-3 | Barium | 2 | MG/L |
| 5 | 7440-41-7 | Beryllium | 0.004 | MG/L |
| 5 | 7440-43-9 | Cadmium | 0.005 | MG/L |
| 5 | 7440-47-3 | Chromium | 0.1 | MG/L |
| 5 | 7440-50-8 | Copper | 1.3 | MG/L |
| 5 | 57-12-5 | Cyanide | 0.2 | MG/L |
| 5 | 7439-92-1 | Lead | 0.015 | MG/L |
| 5 | 7439-97-6 | Mercury | 0.002 | MG/L |
| 5 | 7440-02-0 | Nickel | 0.1 | MG/L |
| 5 | 7782-49-2 | Selenium | 0.05 | MG/L |
| 5 | 7440-28-0 | Thallium | 0.002 | MG/L |
| 5 | 16984-48-8 | Flouride | 4 | MG/L |
| 5 | NO3 | Nitrate | 10 | MG/L |
| 5 | NO2 | Nitrite | 1 | MG/L |
| 5 | 57-74-9 | Chlordane | 0.002 | MG/L |
| 5 | 72-20-8 | Endrin | 0.002 | MG/L |
| 5 | 76-44-8 | Heptachlor | 0.0004 | MG/L |
| 5 | 1024-57-3 | Heptachlor Epoxide | 0.0002 | MG/L |
| 5 | 72-43-5 | Methoxychlor | 0.04 | MG/L |
| 5 | 8001-35-2 | Toxaphene | 0.003 | MG/L |
| 5 | 120-82-1 | 1,2,4-Trichlorobenzene | 0.07 | MG/L |
| 5 | 95-95-4 | 2,4,5-Trichlorophenol | 0.05 | MG/L |
| 5 | 50-32-8 | Benzo(a)pyrene | 0.002 | MG/L |
| 5 | 118-74-1 | Hexachlorobenzene | 0.001 | MG/L |
| 5 | 77-47-4 | Hexachlorocyclopentadiene | 0.05 | MG/L |
| 5 | 87-86-5 | Pentachlorophenol | 0.001 | MG/L |
| 5 | 71-55-6 | 1,1,1-Trichloroethane | 0.2 | MG/L |
| 5 | 79-00-5 | 1,1,2-Trichloroethane | 0.005 | MG/L |
| 5 | 75-35-4 | 1,1-Dichloroethene | 0.007 | MG/L |
| 5 | 156-59-2 | 1,2-cis-Dichloroethene | 0.07 | MG/L |

| comp_no | par_code | parameter name | comparison value | units |
|---|---|---|---|---|
| 5 | 107-06-2 | 1,2-Dichloroethane | 0.005 | MG/L |
| 5 | 78-87-5 | 1,2-Dichloropropane | 0.005 | MG/L |
| 5 | 106-46-7 | 1,4-Dichlorobenzene | 0.075 | MG/L |
| 5 | 108-90-7 | Chlorobenzene | 0.1 | MG/L |
| 5 | 96-12-8 | Dibromochloropropane | 0.0002 | MG/L |
| 5 | 106-93-4 | 1,2-Dibromoethane | 0.00005 | MG/L |
| 5 | 95-50-1 | 1,2-Dichlorobenzene | 0.6 | MG/L |
| 5 | 75-09-2 | Dichloromethane (Methylene Chloride) | 0.005 | MG/L |
| 5 | 88-85-7 | Dinoseb | 0.007 | MG/L |
| 5 | 1746-01-6 | Dioxin | 0.00000003 | MG/L |
| 5 | 94-75-7 | 2,4-D | 0.07 | MG/L |
| 5 | 156-60-5 | 1,2-trans-Dichloroethene | 0.01 | MG/L |
| 5 | 71-43-2 | Benzene | 0.005 | MG/L |
| 5 | 75-27-4 | Bromodichloromethane | 0.008 | MG/L |
| 5 | 75-25-2 | Bromoform | 0.008 | MG/L |
| 5 | 56-23-5 | Carbon Tetrachloride | 0.005 | MG/L |
| 5 | 67-66-3 | Chloroform | 0.008 | MG/L |
| 5 | 100-41-4 | Ethylbenzene | 0.07 | MG/L |
| 5 | 58-89-9 | Gamma-BHC (Lindane) | 0.0002 | MG/L |
| 5 | 117-81-7 | bis(2-ethylhexyl)phthalate | 0.006 | MG/L |
| 5 | 100-42-5 | Styrene | 0.1 | MG/L |
| 5 | 127-18-4 | Tetrachloroethene | 0.005 | MG/L |
| 5 | 108-88-3 | Toluene | 1 | MG/L |
| 5 | 79-01-6 | Trichloroethene | 0.005 | MG/L |
| 5 | 75-01-4 | Vinyl Chloride | 0.002 | MG/L |
| 5 | 1330-20-7 | Xylenes, Total | 10 | MG/L |
| 5 | AC-227 | Actinium-227 | 0.4 | PCI/L |
| 5 | 14596-10-2 | Americium-241 | 1.2 | PCI/L |
| 5 | 13982-38-2 | Bismuth-207 | 1200 | PCI/L |
| 5 | 10045-97-3 | Cesium-137 | 120 | PCI/L |
| 5 | 10198-40-0 | Cobalt-60 | 400 | PCI/L |
| 5 | 13981-16-3 | Plutonium-238 | 1.6 | PCI/L |
| 5 | 13982-63-3 | Radium-226 | 4 | PCI/L |
| 5 | 10098-97-2 | Strontium-90 | 40 | PCI/L |
| 5 | 14274-82-9 | Thorium-228 | 16 | PCI/L |
| 5 | 14269-63-7 | Thorium-230 | 12 | PCI/L |
| 5 | 7440-29-1 | Thorium-232 | 2 | PCI/L |
| 5 | 10028-17-8 | Tritium | 20000 | PCI/L |
| 5 | U-233 | Uranium-233 | 20 | PCI/L |
| 5 | 13966-29-5 | Uranium-234 | 20 | PCI/L |
| 5 | 15117-96-1 | Uranium-235 | 24 | PCI/L |
| 5 | 24678-82-8 | Uranium-238 | 24 | PCI/L |
| 6 | 7440-47-3 | Chromium | 1.10E+03 | MG/KG |
| 6 | 7440-36-0 | Antimony | 8.50E+01 | MG/KG |
| 6 | 7440-38-2 | Arsenic | 6.40E+01 | MG/KG |
| 6 | 7440-39-3 | Barium | 1.50E+04 | MG/KG |
| 6 | 7440-41-7 | Beryllium | 1.10E+03 | MG/KG |
| 6 | 7440-43-9 | Cadmium | 2.10E+02 | MG/KG |
| 6 | 57-12-5 | Cyanide | 4.30E+03 | MG/KG |
| 6 | 7439-96-5 | Manganese | 2.70E+04 | MG/KG |

| comp_no | par_code | parameter name | comparison value | units |
|---|---|---|---|---|
| 6 | 7439-97-6 | Mercury | 6.40E+01 | MG/KG |
| 6 | 7440-02-0 | Nickel | 4.30E+03 | MG/KG |
| 6 | 7440-22-4 | Silver | 1.10E+03 | MG/KG |
| 6 | 7440-62-2 | Vanadium | 1.50E+03 | MG/KG |
| 6 | 7440-66-6 | Zinc | 6.40E+04 | MG/KG |
| 6 | 2691-41-0 | HMX | 1.10E+04 | UG/KG |
| 6 | 121-82-4 | RDX | 6.40E+04 | UG/KG |
| 6 | 50-29-3 | 4,4'-DDT | 1.10E+02 | MG/KG |
| 6 | 11097-69-1 | Aroclor-1254 | 4.30E+00 | MG/KG |
| 6 | 60-57-1 | Dieldrin | 1.10E+01 | MG/KG |
| 6 | 106-44-5 | 4-Methylphenol | 1.10E+03 | MG/KG |
| 6 | 120-12-7 | Anthracene | 6.40E+04 | MG/KG |
| 6 | 65-85-0 | Benzoic Acid | 8.50E+05 | MG/KG |
| 6 | 117-81-7 | Bis(2-ethylhexyl)phthalate | 4.30E+03 | MG/KG |
| 6 | 85-68-7 | Butyl Benzyl Phthalate | 4.30E+04 | MG/KG |
| 6 | 84-74-2 | Di-n-butyl Phthalate | 2.10E+04 | MG/KG |
| 6 | 117-84-0 | Di-n-octyl Phthalate | 4.30E+03 | MG/KG |
| 6 | 206-44-0 | Fluoranthene | 8.50E+03 | MG/KG |
| 6 | 78-59-1 | Isophorone | 4.30E+04 | MG/KG |
| 6 | 87-86-5 | Pentachlorophenol | 6.40E+03 | MG/KG |
| 6 | 108-95-2 | Phenol | 1.30E+05 | MG/KG |
| 6 | 129-00-0 | Pyrene | 6.40E+03 | MG/KG |
| 6 | 75-34-3 | 1,1-Dichloroethane | 7.80E+00 | MG/KG |
| 6 | 156-60-5 | 1,2-trans-Dichloroethene | 4.30E+03 | MG/KG |
| 6 | 108-10-1 | 2-Methyl-4-pentanone | 7.00E+02 | MG/KG |
| 6 | 67-64-1 | Acetone | 2.10E+04 | MG/KG |
| 6 | 75-27-4 | Bromodichloromethane | 4.30E+03 | MG/KG |
| 6 | 75-25-2 | Bromoform | 4.30E+03 | MG/KG |
| 6 | 75-15-0 | Carbon Disulfide | 2.80E+02 | MG/KG |
| 6 | 56-23-5 | Carbon Tetrachloride | 1.50E+02 | MG/KG |
| 6 | 75-00-3 | Chloroethane | 1.60E+02 | MG/KG |
| 6 | 67-66-3 | Chloroform | 2.10E+03 | MG/KG |
| 6 | 124-48-1 | Dibromochloromethane | 4.30E+03 | MG/KG |
| 6 | 75-09-2 | Dichloromethane | 1.00E+03 | MG/KG |
| 6 | 100-41-4 | Ethylbenzene | 4.80E-01 | MG/KG |
| 6 | 110-54-3 | Hexane | 9.10E+01 | MG/KG |
| 6 | 127-18-4 | Tetrachloroethene | 2.10E+03 | MG/KG |
| 6 | 108-88-3 | Toluene | 2.50E+02 | MG/KG |
| 6 | 75-69-4 | Trichlorofluoromethane | 7.30E+02 | MG/KG |
| 6 | 1330-20-7 | Xylenes, Total | 4.30E+05 | MG/KG |
| 6 | 78-93-3 | 2-Butanone | 9.30E+03 | MG/KG |

1 Value is 10-6 Risk-Based Guide Value
2 Value is OU9 Soil Background Value
3 Value is other criteria, I.e. 5 pCi/g for certain radionuclides
25 pCi/g plutonium
5 Value is MCL
6 Value is the Guide Value based on the hazard index

# Appendix M

## Occurrence Reports

# Occurrence Report

All Other Facilities

(Name of Facility)

Unknown

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

**Name:** CASTLEBERRY, V. E.
**Title:** DIRECTOR ENGINEERING **Telephone No.:** (513) 865-3458

(Facility Manager/Designee)

**Name:** MULLINS, GLENN
**Title:** MFG. SUPERVISOR **Telephone No.:** (513) 865-3700

(Originator/Transmitter)

**Name:** **Date:**

(Authorized Classifier (AC))

**1. Occurrence Report Number:** ALO-DA-EGGM-EGGMAT04-1990-0012

M-BLDG. FIRE PROTECTION SYSTEM FAILURE Condition Subset (E) Off-Normal Occurrence Subset (A)

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

| | Date | Time |
|---|---|---|
| **Notification:** | 12/28/1990 | |
| **Initial Update:** | 01/07/1991 | |
| **Latest Update:** | 01/07/1991 | |
| **Final:** | 01/11/1991 | |

**3. Occurrence Category:** Off-Normal

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

**5. Division or Project:** EGG&G MOUND

**6. Secretarial Office:** DP - Defense Programs

**7. System, Bldg., or Equipment:** M BUILDING

**8. UCNI?:** No

**9. Plant Area:** MAIN MANUFACTURING A

**10. Date and Time Discovered:** 12/28/1990 01:17 (ETZ)

**11. Date and Time Categorized:** 12/28/1990 08:45 (ETZ)

**12. DOE Notification:**

**13. Other Notifications:**

**14. Subject or Title of Occurrence:**

M-BLDG. FIRE PROTECTION SYSTEM FAILURE Condition Subset (E) Off-Normal Occurrence Subset (A)

---

**15. Nature of Occurrence:**

---

**16. Description of Occurrence:**

MOISTURE COLLECTED IN A "DRY PIPE" SPRINKLER SYSTEM WHICH FROZE AND RUPTURED THE SYSTEM CAUSING ACTIVATION (OUTSIDE OF BUILDING). THERE WAS NO SECONDARY DAMAGE.

---

**17. Operating Conditions of Facility at Time of Occurrence:**

COLD WINTER WEATHER.

---

**18. Activity Category:**

- Unknown

---

**19. Immediate Actions Taken and Results:**

THE SYSTEM WAS SHUTDOWN AND REPAIR IS IN PROCESS.

---

**20. Direct Cause:**

9) Other
~. Other Problems Reported Prior to 04/01/91

**21. Contributing Cause(s):**

3) Personnel Error
~. Personnel Errors Reported Prior to 04/01/91

**22. Root Cause:**

4) Design Problem
~. Design Problems Reported Prior to 04/01/91

**23. Description of Cause:**

UPON EXAMINATION OF THE NON-THREADED TYPE FITTINGS WHICH LEAKED, NO MECHANICAL DAMAGE WAS FOUND. HOWEVER, CORROSION WAS FOUND INSIDE OF ONE FITTING ON A SEALING SURFACE. THE MOST LIKELY CAUSE WAS A COMBINATION OF EXTERNAL AND INTERNAL CONDENSATION, POOR SEAL SURFACE CONDITION AND THE BELOW AND ABOVE FREEZING TEMPERATURES ENCOUNTERED THAT DAY. FREEZING AND THAWING TEMPERATURES WITH CONDENSATE INSIDE AND OUTSIDE OF THE DRY PIPE SYSTEM WHICH RESULTED IN ACTIVATION. FIRE PROTECTION PERSONNEL MAY HAVE BEEN LESS ATTENTIVE TO DRAINING THE DRY PIPE SYSTEM LINE RESULTING IN SMALL AMOUNTS OF WATER REMAINING IN THE SYSTEM AND VULNERABLE TO FREEZING. THE ROOT CAUSE CAN BE ATTRIBUTED TO A COMBINATION OF FACTORS SUCH AS THE NON-THREADED PIPE FITTINGS, CONDENSATE INSIDE AND OUTSIDE OF THE PIPING SYSTEM AND THE FREEZING AND THAWING WINTER WEATHER. CORROSION WAS FOUND INSIDE ONE FITTING ON THE SEALING SURFACE UNDER THE RUBBER GASKET WHICH GREATLY REDUCED THE SEALING ABILITY OF THE FITTING. BY DESIGN, THE NON THREADED FITTINGS HAVE MORE INTERNAL CAVITIES WHICH CAN RETAIN MORE CONDENSATE THAN THREADED FITTINGS. THE INTERNAL DESIGN OF THE FITTINGS ALLOWS MORE OPPORTUNITY FOR CONDENSATE TO ACCUMULATE AS WELL AS LESS THAN ADEQUATE DRAINING GREATLY INCREASED CHANCES FOR FAILURE IN WINTER WEATHER. CORROSION FOUND ON THE INTERNAL SEALING SURFACE IN ALL PROBABILITY PROMPTED THE FAILURE.

**24. Evaluation (by Facility Manager/Designee):**

THE IMPACT OF THIS OCCURRENCE TO THE PLANT WAS MINIMAL AND REPAIR WAS COMPLETED THE SAME DAY. REPLACEMENT OF THE NON- THREADED FITTINGS WITH THREADED FITTINGS WILL GREATLY INCREASE THE INTEGRITY OF THE SYSTEM AS WELL AS PREVENT REOCCURRENCE.

**25. Is Further Evaluation Required?:** No

**26. Corrective Actions**

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

1.

| | |
|---|---|
| MAINTENANCE PERSONNEL RELACED DEFECTIVE PIPEFITTINGS AND FIRE PROTECTION PERSONNEL REACTIVATED SYSTEM 12/28/90. | |
| **Target Completion Date:** 12/28/1990 | **Completion Date:** 12/28/1990 |

**27. Impact on Environment, Safety and Health:**

NO ENVIRONMENTAL, SAFETY AND HEALTH IMPACT.

**28. Programmatic Impact:**

NO PROGRAMMATIC IMPACT.

**29. Impact on Codes and Standards:**

**30. Lessons Learned:**

THREADED PIPE FITTING PROVIDES A STRONGER SYSTEM AS WELL AS REDUCE INTERNAL AND EXTERNAL AREAS WHICH CONDENSATE CAN COLLECT. ADEQUATE CONDENSATE DRAINING MUST BE PERFORMED AND PERIODICALLY PROPER DRAINING PROCEDURES MUST BE RE-ENFORCED BY MANAGEMENT.

**31. Similar Occurrence Report Numbers:**

**32. User-defined Field #1:**

**33. User-defined Field #2:**

**34. DOE Facility Representative Input:**

**35. DOE Program Manager Input:**

**36. Approvals:**

**Approved by:** CASTLEBERRY, V. E., Facility Manager/Designee
**Date:** 01/08/1991
**Telephone No.:** (513) 865-3458

**Approved by:** ILLEGIBLE, Facility Representative/Designee
**Date:** 01/08/1991
**Telephone No.:**

**Approved by:** ILLEGIBLE, Program Manager/Designee
**Date:** 01/11/1991
**Telephone No.:**

# Occurrence Report

All Other Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

**Name:** KOEHLER, KATHY G
**Title:** SITE GROUNDS MANAGER **Telephone No.:** (513) 865-4886

(Facility Manager/Designee)

**Name:** Kathy G. Koehler
**Title:** Site Grounds Manager **Telephone No.:** (513) 865-4886

(Originator/Transmitter)

**Name:** R. A. Mahan **Date:** 04/05/1995

(Authorized Classifier (AC))

**1. Occurrence Report Number:** OH-MB-EGGM-EGGMAT04-1995-0002

M Building - Loss of Control of CRD Material

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

| | Date | Time |
|---|---|---|
| **Notification:** | 02/23/1995 | 15:03 (MTZ) |
| **Initial Update:** | 03/01/1995 | 15:44 (MTZ) |
| **Latest Update:** | 03/01/1995 | 15:44 (MTZ) |
| **Final:** | 04/14/1995 | 11:17 (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:** M Building - Loss of Control of CRD Material

**8. UCNI?:** No

**9. Plant Area:** Main Hill

**10. Date and Time Discovered:** 02/22/1995 13:30 (ETZ)

**11. Date and Time Categorized:** 02/22/1995 15:30 (ETZ)

**12. DOE Notification:**

| Date | Time | Person Notified | Organization |
|---|---|---|---|
| 02/22/1995 | 15:30 (ETZ) | Fred B. Holbrook | DOE/MB |

**13. Other Notifications:**

**14. Subject or Title of Occurrence:**

M Building - Loss of Control of CRD Material

---

**15. Nature of Occurrence:**

05) Safeguards/Security
B. Unaccounted for Classified Matter/Compromised Information

---

**16. Description of Occurrence:**

On February 22, 1995, at approximately 1330 hours (ETZ), a derivative classifier made the determination that a document and a component found in two independent excess (unlocked) safes in M Building were classified as "Confidential Restricted Data (CRD)". A CRD document was discovered by a Q Cleared Contractor employee on 2/21/95 in a hanging file folder. A CRD component was discovered by another Q Cleared contractor employee on 2/22/95 below a group of hanging file folders. Both the CRD document and CRD component were forwarded to a derivative classifier for classification verification.

The Safe Declassification labels on both safes were dated 9/94. The area in which M Building resides was converted from a Limited Security Area to an Uncleared Property Protection Area on 12/5/94.

This report was reviewed by an Authorized Derivative Classifier (R. A. Mahan, Maintenance Engineer and Plant Support) on 4/05/95 at 1100 hours (ETZ) and contains no Classified or UCNI Information.

---

**17. Operating Conditions of Facility at Time of Occurrence:**

Shut Down Operations

---

**18. Activity Category:**

05 - Shutdown

---

**19. Immediate Actions Taken and Results:**

The CRD component and document are in the control of the derivative classifier in a classified safe. A Security reminder will be distributed documenting the proper process to sanitize safes.

---

**20. Direct Cause:**

3) Personnel Error
A. Inattention to Detail

**21. Contributing Cause(s):**

6) Management Problem
A. Inadequate Administrative Control

**22. Root Cause:**

2) Procedure Problem
A. Defective or Inadequate Procedure

---

**23. Description of Cause:**

The Direct Cause of this occurrence was due to inattention to detail. CRD materials were inadvertently left in a file folder in a safe and below file folders in a safe.

The Contributing Cause of this occurrence was due to inadequate management control. The current procedure only requires the safe owner to sign off that the safe has been sanitized of classified materials.

The Root Cause of this problem is due to an inadequate procedure. When safes are declassified, the safes should be completely emptied of all contents (including file folders) to minimize the potential for human error in leaving a classified material in a safe.

---

**24. Evaluation (by Facility Manager/Designee):**

In the transition from a Defense Weapons mission to one of Economic Development and Environmental Restoration, many significant changes are taking place on plant site which include conversions of Limited Security Island Areas to Uncleared Property Protection Area. Numerous safes had to be declassified to support this effort in the Fall of 1994.

---

**25. Is Further Evaluation Required?:** No

---

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

1.

| | |
|---|---|
| Send out notice to all personnel stating necessary steps to take in safe declassification. | |
| **Target Completion Date:** 05/01/1995 | ***Completion Date:** 05/02/1995 |

2.

| | |
|---|---|
| Modify Policy and procedure 7207, entitled "Using and Controlling Classified Repositories to:<br><br>a) Require line management sign off and the primary safe custodian sign off to signify that a safe does not contain classified materials. Exhibit A of Procedure 7207 must include signature lines for the authorized custodian and the manager/supervisor they report to.<br><br>b) Require that the safe be completely empty for declassification (file folders are not to be left in the safe). | |
| **Target Completion Date:** 06/15/1995 | ***Completion Date:** 06/07/1995 |

**27. Impact on Environment, Safety and Health:**

None

**28. Programmatic Impact:**

None

**29. Impact on Codes and Standards:**

None

**30. Lessons Learned:**

In Mound's transition of a Defense Weapons production mission to one of Economic Development and Environmental Restoration combined with staffing reductions, many security repositories are no longer needed. Due to a much larger volume of security repositories being declassified, it is necessary to minimize the potential of leaving CRD materials in a safe by modifying the policy and procedure for Declassification of Classified Repositories.

**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:** KOEHLER, KATHY G, Facility Manager/Designee
**Date:** 04/06/1995
**Telephone No.:** (513) 865-4886

**Approved by:** HOLBROOK, FRED B, Facility Representative/Designee
**Date:** 04/07/1995
**Telephone No.:** (513) 865-4677

**Approved by:** KUMAR, RAMENDRA, Program Manager/Designee
**Date:** 04/14/1995
**Telephone No.:** (301) 903-2865

# Occurrence Report

All Other Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

**Name:** BILLING, DAVID R
**Title:** BLDG. MGR. SW/R TRITIUM FACILITY **Telephone No.:** (513) 865-3086

(Facility Manager/Designee)

**Name:** Kathy G. Koehler
**Title:** Site Grounds Manager **Telephone No.:** (513) 865-4886

(Originator/Transmitter)

**Name:** D. W. Organ **Date:** 05/18/1995

(Authorized Classifier (AC))

**1. Occurrence Report Number:** OH-MB-EGGM-EGGMAT04-1995-0003

M Building CO2 Suppression System Activation

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

| | Date | Time |
|---|---|---|
| **Notification:** | 04/21/1995 | 09:44 (MTZ) |
| **Initial Update:** | 05/03/1995 | 16:01 (MTZ) |
| **Latest Update:** | 05/03/1995 | 16:01 (MTZ) |
| **Final:** | 06/01/1995 | 08:35 (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:** M Building - Fire Suppression System - CO2

**8. UCNI?:** No

**9. Plant Area:** Main Hill

**10. Date and Time Discovered:** 04/20/1995 10:55 (ETZ)

**11. Date and Time Categorized:** 04/20/1995 12:00 (ETZ)

**12. DOE Notification:**

| Date | Time | Person Notified | Organization |
|---|---|---|---|
| 04/20/1995 | 12:30 (ETZ) | Fred B. Holbrook | DOE/MB |

**13. Other Notifications:**

**14. Subject or Title of Occurrence:**

M Building CO2 Suppression System Activation

---

**15. Nature of Occurrence:**

01) Facility Condition
H. Operations

---

**16. Description of Occurrence:**

On April 20, 1995, at approximately 1055 hours (ETZ), upon completion of annual function testing of a CO2 Fire suppression system in the Electrical Vault of M Building, one of ten CO2 cylinders discharged 50 pounds of CO2 to the room atmosphere. The CO2 suppression system involved is a mechanical "pulley and weight" type. The previous function testing of the CO2 system had indicated that the suppression system was operating as designed.

The heat sensor which activates all ten CO2 cylinders had not detected high heat levels and therefore did not actuate the CO2 system. The activation of only one cylinder of CO2 indicates the likelihood of cylinder malfunction, possibly a faulty or failed rupture disk.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (D. W. Organ, Program Manager) on 5/18/95 at 1300 hours (ETZ), and contains no Classified or UCNI Information.

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**17. Operating Conditions of Facility at Time of Occurrence:**

Normal Plant Operations

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**18. Activity Category:**

03 - Normal Operations

---

**19. Immediate Actions Taken and Results:**

The CO2 cylinder which discharged to room atmosphere was replaced and the suppression system was reset. Industrial hygiene monitored the room.

---

**20. Direct Cause:**

1) Equipment/Material Problem
   A. Defective or Failed Part

**21. Contributing Cause(s):**

2) Procedure Problem
   A. Defective or Inadequate Procedure

**22. Root Cause:**

4) Design Problem
   A. Inadequate Work Environment

---

**23. Description of Cause:**

The direct cause of this occurrence was due to either a defective or failed part or a personnel error. The release of CO2 from one cylinder of a bank of ten was either caused by the failure of the rupture disk or as a result of human error associated with resetting the fire suppression system. The handle which forces the cutting tool to penetrate the rupture disk could have been accidentally bumped while the CO2 fire suppression system was being reset.

The contributing cause of this occurrence was due to an inadequate procedure for the annual maintenance testing for the CO2 fire suppression system. The procedure was in the process of being re-written when the annual testing was performed. The procedure will not be upgraded because corrective action #3 calls for completely disassembly of the CO2 fire suppression system.

The root cause of this occurrence was due to an inadequate design. The system design did not take into account the potential for a system malfunction which involves the release of CO2 from a cylinder without activation of a fire alarm. It is possible in a malfunction situation involving the release of CO2 to room atmosphere that personnel entering the room could become asphyxiated. It was determined that the CO2 system was more of a safety and health hazard than it was a protective device due to the potential for CO2 asphyxiation. There was no CO2 detector or CO2 alarm in the M building electrical vault.

---

**24. Evaluation (by Facility Manager/Designee):**

Although the CO2 fire suppression system was placed back into service on April 20, 1995, it was intentionally taken back out of service on April 25, 1995. When the system malfunctioned upon completion of annual maintenance testing, personnel were present to hear the malfunction of the CO2 cylinder. Had these personnel not been present, the activation would have gone undetected. An undetected activation of the CO2 fire suppression system as a result of an equipment malfunction is a potential asphyxiant hazard. The system has been taken out of service.

In the present CO2 fire suppression system design, the heat sensor in the center of the room must activate in order to send a signal to the fire alarm computer system. When the CO2 cylinder malfunctioned, the heat sensor did not activate. There were no CO2 detection devices connected to local audio/visual alarms within the electrical vault to warn people entering the room.

---

**25. Is Further Evaluation Required?:** No

---

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

1. Temporarily take the CO2 Fire Suppression system out of service due to the potential asphyxiation hazards.

| **Target Completion Date:** 04/25/1995 | **Completion Date:** 04/25/1995 |
|---|---|

2. Evaluate the need to remove, re-activate, upgrade/re-activate, or replace the existing fire suppression system in the M Building electrical vault depending upon current NFPA/NEC/OSHA/DOE requirements.

| **Target Completion Date:** 05/09/1995 | **Completion Date:** 05/09/1995 |
|---|---|

3. Implement the recommendation of Corrective action 2: Remove the CO2 cylinders from M building electrical vault. The heat sensor connected to fire alarm computer system will remain operational.

| **Target Completion Date:** 05/15/1995 | **Completion Date:** 05/15/1995 |
|---|---|

---

**27. Impact on Environment, Safety and Health:**

Removal of the CO2 fire suppression system will protect the safety and health of people entering the M building electrical vault. The construction of the M Building electrical vault meets the 3 hour fire rating requirements specified by NFPA/NEC code and therefore does not require an automatic fire suppression system.

Any fire that would take place in the M building electrical vault would likely occur as a result of a serious electrical fault resulting in an explosion. Personnel and equipment present in the electrical vault during an explosion would not have enhanced protection by having a functional CO2 fire suppression system especially if they are knocked out and unconscious.

---

**28. Programmatic Impact:**

None

---

**29. Impact on Codes and Standards:**

The removal of the CO2 fire suppression system is in compliance with NFPA/NEC code requirements.

---

**30. Lessons Learned:**

Designs for safety systems installed over 25 years ago should be evaluated to determine if the safety systems are truly beneficial.

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**31. Similar Occurrence Report Numbers:**

1. None

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**32. User-defined Field #1:**

**33. User-defined Field #2:**

---

**34. DOE Facility Representative Input:**

---

**35. DOE Program Manager Input:**

**36. Approvals:**

**Approved by:** BILLING, DAVID R, Facility Manager/Designee
**Date:** 05/18/1995
**Telephone No.:** (513) 865-3086

**Approved by:** DEV, MADAN, Facility Representative/Designee
**Date:** 05/23/1995
**Telephone No.:** (513) 865-4714

**Approved by:** KUMAR, RAMENDRA, Program Manager/Designee
**Date:** 06/01/1995
**Telephone No.:** (301) 903-2865

# Occurrence Report

All Other Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

**Name:** Koehler, Katherine G.
**Title:** Site Grounds Manager **Telephone No.:** (513) 865-4886

(Facility Manager/Designee)

**Name:** KOEHLER, KATHY G
**Title:** SITE GROUNDS MANAGER **Telephone No.:** (513) 865-4886

(Originator/Transmitter)

**Name:** R. W. Wilson **Date:** 01/25/1996

(Authorized Classifier (AC))

**1. Occurrence Report Number:** OH-MB-EGGM-EGGMAT04-1995-0026

Sprinkler Line Freeze - M Building, Rooms 47 & 48

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

| | Date | Time |
|---|---|---|
| **Notification:** | 12/12/1995 | 13:58 (MTZ) |
| **Initial Update:** | 01/25/1996 | 13:11 (MTZ) |
| **Latest Update:** | 01/25/1996 | 13:11 (MTZ) |
| **Final:** | 02/02/1996 | 14:31 (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:** EM - Environmental Management

**7. System, Bldg., or Equipment:** Sprinkler Line Freeze - M Building, Rooms 47 & 48

**8. UCNI?:** No

**9. Plant Area:** Main Hill

**10. Date and Time Discovered:** 12/11/1995 10:15 (ETZ)

**11. Date and Time Categorized:** 12/11/1995 10:45 (ETZ)

**12. DOE Notification:**

**13. Other Notifications:**

| Date | Time | Person Notified | Organization |
|---|---|---|---|
| 12/11/1995 | 11:00 (ETZ) | R. E. Berry | DOE/MB |

**14. Subject or Title of Occurrence:**

Sprinkler Line Freeze - M Building, Rooms 47 & 48

---

**15. Nature of Occurrence:**

01) Facility Condition
E. Safety Structure/System/Component Degradation

---

**16. Description of Occurrence:**

On December 11, 1995, a maintenance foreman was reviewing the temperature read outs from the direct digital controls computer display for M Building (non-nuclear building) and discovered that the readings for M-47 and M-48 were 18 degrees F. Upon investigation, it was discovered that the temperature readings displayed were accurate and that the sprinkler lines in these two rooms were frozen and sections of pipe had fallen to the floor. M-47 (small lab) and M-48 (a plating shop) had undergone Phase II safe shutdown in the fall and are presently unoccupied. The cause of the sprinkler line freeze-up was due to an exhaust fan was inadvertently left on at the completion of Phase II Safe Shutdown operations completed in Fall 1995. Prior to the Phase II Safe Shutdown operations, the plating shop HVAC system (which include the exhaust fans) was shut down shortly after operations had ceased in July 1992. Radiant heat from adjacent rooms was sufficient to prevent sprinkler line freeze-up for approximately 3 years.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (R. W. Wilson, Program Manager, Quality Systems) on 1/25/96 at 1530 hours (ETZ) and contains no Classified or UCNI Information.

---

**17. Operating Conditions of Facility at Time of Occurrence:**

Normal Operating Conditions

---

**18. Activity Category:**

03 - Normal Operations

---

**19. Immediate Actions Taken and Results:**

The sprinkler system in M Building will remain shut down until necessary repairs are completed. Heat was

## 26. Corrective Actions

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

1. Safe Shut Down Personnel to update check lists for Phase I, II, and II Safe Shut Down Operations to ensure that HVAC systems have been reset to prevent freezing conditions or overheating conditions.

| | |
|---|---|
| **Target Completion Date:** 02/29/1996 | ***Completion Date:** 02/20/1996 |

2. Reactivate sprinkler system for M Building excluding Rooms 47 and 48.

| | |
|---|---|
| **Target Completion Date:** 12/14/1995 | **Completion Date:** 12/14/1995 |

3. Determine extend of damage and repair sprinkler piping in M Building (Rooms 47 and 48) and complete sprinkler line repairs.

| | |
|---|---|
| **Target Completion Date:** 02/29/1996 | **Completion Date:** 02/01/1996 |

4. Develop a surveillance list of buildings which will require surveillance when daily low temperatures drop below 10 degrees F.

| | |
|---|---|
| **Target Completion Date:** 12/14/1995 | **Completion Date:** 12/14/1995 |

5. Initiate building surveillance for heat levels by powerhouse personnel when temperature drops below 10 degrees F.

| | |
|---|---|
| **Target Completion Date:** 12/15/1995 | **Completion Date:** 12/15/1995 |

6. Evaluate viability of expanding the low temperature alarms on the Direct Digital Controls System and provide a written recommendation and (if viable) a corresponding cost estimate for project authorization.

| | |
|---|---|
| **Target Completion Date:** 02/29/1996 | ***Completion Date:** 02/27/1996 |

7. Issue a "Lessons Learned" memo to the Maintenance planners and foremen on the importance of returning systems to their original conditions.

| | |
|---|---|
| **Target Completion Date:** 12/21/1995 | **Completion Date:** 12/21/1995 |

## 27. Impact on Environment, Safety and Health:

None

## 28. Programmatic Impact:

None

## 29. Impact on Codes and Standards:

None

## 30. Lessons Learned:

HVAC settings must be verified for areas of buildings and/or entire buildings that are undergoing various phases of safe shut down operations to ensure freezing/overheating conditions do not occur.

## 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:** Koehler, Katherine G., Facility Manager/Designee
**Date:** 01/25/1996
**Telephone No.:** (513) 865-4886

**Approved by:** BERRY, RONALD E, Facility Representative/Designee
**Date:** 01/29/1996
**Telephone No.:** (513) 865-4836

**Approved by:** WORLEY, MICHAEL NEWTON, Program Manager/Designee
**Date:** 02/02/1996
**Telephone No.:** (301) 903-2153

# Occurrence Report

Main Hill Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

**Name:** Jeffrey L. Boston
**Title:** Facilty Manager **Telephone No.:** (937) 865-3262

(Facility Manager/Designee)

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

(Originator/Transmitter)

**Name:** D. V. Dixon **Date:** 03/27/1997

(Authorized Classifier (AC))

**1. Occurrence Report Number:** OH-MB-EGGM-EGGMAT03-1996-0004

Discovery of Legacy Radioactive Contamination in M-Building (ROLL-UP)

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

| | Date | Time |
|---|---|---|
| **Notification:** | 08/01/1996 | 13:10 (MTZ) |
| **Initial Update:** | 09/09/1996 | 13:14 (MTZ) |
| **Latest Update:** | 03/27/1997 | 07:37 (MTZ) |
| **Final:** | 07/11/1997 | 11:58 (MTZ) |

**3. Occurrence Category:** Off-Normal

**4. Number of Occurrences:** 7 **Original OR:**

**5. Division or Project:** EG & G Mound Applied Technologies

**6. Secretarial Office:** EM - Environmental Management

**7. System, Bldg., or Equipment:** M Building

**8. UCNI?:** No

**9. Plant Area:** Main Hill Area

**10. Date and Time Discovered:** 07/29/1996 09:00 (ETZ)

**11. Date and Time Categorized:** 07/31/1996 16:00 (ETZ)

**12. DOE Notification:**

| Date | Time | Person Notified | Organization |
|---|---|---|---|
| 07/31/1996 | 16:00 (ETZ) | Fred Holbrook | DOE/MB |

**13. Other Notifications:**

| Date | Time | Person Notified | Organization |
|---|---|---|---|
| 09/09/1996 | 12:35 (ETZ) | Fred Holbrook | DOE/MB |
| 09/17/1996 | 07:30 (ETZ) | Fred Holbrook | DOE/MB |
| 09/24/1996 | 07:24 (ETZ) | Fred Holbrook | DOE/MB |
| 10/01/1996 | 07:15 (ETZ) | Fred Holbrook | DOE/MB |

**14. Subject or Title of Occurrence:**

Discovery of Legacy Radioactive Contamination in M-Building (ROLL-UP)

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**15. Nature of Occurrence:**

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

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**16. Description of Occurrence:**

OCCURRENCE #1 - At approximately 1330 hours (ETZ) on July 31, 1996 a member of the Safety Department contacted the Radiological Operations Manager to inform him that he discovered a metal cabinet displaying radiological posting was laying on its side in M-building, which is not posted as a Controlled Area. A Radiological Organization representative accompanied the individual to investigate. Discussions with contractor Radiographic Control Technicians revealed that radiological contamination (9500 dpm/100 cm2 - fixed beta and 250 dpm/100 cm2 - fixed alpha) was discovered on a piece of ceramic in the cabinet at 0900 on 7/29/96. Additionally, Occurrence #2, floor contamination (14000 dpm/100 cm2 fixed - beta) was discovered at 0730 on 7/30/96 and, Occurrence #3, a steel dye containing contamination (13000 dpm/100 cm2 fixed - beta) was discovered at 1500 on 7/30/96. OCCURRENCE #4 - On September 9, 1996 at 1200 (ETZ) spectroscopic analysis determined that fixed and not removable contamination, discovered on September 4, 1996 in M-building on a drum cart, to be Pu-238, Am-241, and Th-232. The highest contamination level was imbedded in the tire and measured 10,000 dpm (alpha). Transuranics Pu-238 and Am-241 are believed to be the major constituents of the contamination. OCCURRENCE #5 - On September 16, 1996 at 0830 (ETZ) Spectrographic Analysis determined that fixed contamination, discovered during performance of radiological characterization surveys on September 12, 1996 in M-Building on a waste water sulphur determination unit contained Th-232 and U-238. The highest contamination level was fixed on a ceramic pad (4" x 4") and measured 15,000 dpm/100 cm2 beta-gamma particles and 100 - 200 dpm/100 cm2 alpha particles. OCCURRENCE #6 - At 1300 (ETZ) on September 23, 1996 Radiological Control Technicians, surveying equipment in a Controlled Area of M-Building, identified approximately 8000 dpm/100 cm2 of Total alpha contamination, including 150 /100 cm2 of removable alpha on a four drawer laboratory cabinet. Due to the

lack of gamma radiation from the contamination, spectrographic analysis for isotope identification was not possible. OCCURRENCE #7 - At 1600 (ETZ) on September 30, 1996 spectographic analysis determined that fixed radiological contamination of a bundle of glass tubing direct-measuring 110,000 dpm/100 cm2 Beta-Gamma including one individual piece measuring 35,000 dpm/100 cm2 Beta-Gamma consisted of the isotopes U-235 and U-238.

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**17. Operating Conditions of Facility at Time of Occurrence:**

Normal day time operating conditions

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**18. Activity Category:**

03 - Normal Operations

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**19. Immediate Actions Taken and Results:**

OCCURRENCE 1, 2, 3, & 4 - The M-building area was posted as a Controlled Area. A survey was conducted to verify that loose contamination was not present on or around the area. The contaminated ceramic piece was sent for isotope analysis.

OCCURRENCE #5 - Upon identification of the contaminated equipment, it was moved into a posted Radioactive Materials Area. OCCURRENCE #6 - Upon identification of the contamination by direct survey, a wipe survey was performed and discovered the 150 dpm/100 cm2 removable. The contaminated area was covered and secured under plastic and the cabinet was moved to a Radioactive Materials Storage Area. OCCURRENCE #7 - Upon identification of the contaminated tubing by direct survey, a wipe survey was conducted to determine if removable contamination was present. None was found. A piece of the tubing was taken for gamma spectrographic analysis and the rest moved to a Radioactive Materials storage area.

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**20. Direct Cause:**

8) Radiological/Hazardous Material Problem
   A. Legacy Contamination

**21. Contributing Cause(s):**

**22. Root Cause:**

8) Radiological/Hazardous Material Problem
   A. Legacy Contamination

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**23. Description of Cause:**

The discovery of these "legacy material" contaminations is the result of an intensive free release survey in support of Safe-shutdown. As items are surveyed for release, relatively low level contamination has been found. The actual event that caused these items to become contaminated probably occurred years ago and is being discovered now because of increased monitoring instrumentation sensitivities.

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**24. Evaluation (by Facility Manager/Designee):**

No effect on the plant, systems, or environment is expected. The discovery of legacy contamination is expected during the monitoring and cleanup of excess equipment.

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**25. Is Further Evaluation Required?:** No

**26. Corrective Actions**

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

| | | |
|---|---|---|
| 1. | Investigate known fixed contamination areas in M-Building, decontaminate and post as required. | |
| | **Target Completion Date:** 08/08/1996 | **Completion Date:** 08/08/1996 |
| 2. | Communicate with M-Building tenants the status of M-Building contamination and posting requirements. | |
| | **Target Completion Date:** 08/05/1996 | **Completion Date:** 08/05/1996 |

**27. Impact on Environment, Safety and Health:**

No impact on the environment or worker/public safety and health as a result of this occurrence is expected.

No contamination of individuals on-site, no potential for further spread of contamination, and the affected areas or equipment have been decontaminated, removed, or posted as contamination areas.

The significance relative to applicable limits is as follows:

Occurrence #1 - 9,500 dpm/100 cm2 fixed beta contamination and 250 dpm/100 cm2 - fixed alpha contamination of an unknown radionuclide on a ceramic furnace collar. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2 for fixed beta and 1000 dpm/100 cm2 for fixed alpha contamination.

Occurrence #2 - 14,000 dpm/100 cm2 fixed beta contamination of an unknown radionuclide on the building floor. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2.

Occurrence #3 - 13,000 dpm/100 cm2 fixed beta contamination of an undetermined radionuclide on a steel dye. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2.

Occurrence #4 - 10,000 dpm/100 cm2 fixed alpha contamination of Pu-238, Am-241, and Th-232 on a drum cart. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 1,000 dpm/100 cm2 for Transuranics Pu-238 and Am-241 or 2000 dpm/100 cm2 for Th-232.

Occurrence #5 - 15,000 dpm/100 cm2 fixed beta-gamma contamination from Th-232 and U-238 on a ceramic pad. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2.

Occurrence #6 - 8000 dpm/100 cm2 total (fixed and removable) alpha contamination including 150 dpm/100 cm2 removable alpha contamination of an undetermined radionuclide on a laboratory cabinet. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 1,000 dpm/100 cm2 for fixed contamination and 40 dpm/100 cm2 for removable contamination (worst case radionuclide).

Occurrence #7 - 110,000 dpm/100 cm2 fixed beta-gamma contamination for the bundle of glass tubing including one individual piece containing 35,000 dpm/100 cm2 fixed beta-gamma contamination of U-235 and U-238. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2.

**28. Programmatic Impact:**

No programmatic impact is expected.

**29. Impact on Codes and Standards:**

None

**30. Lessons Learned:**

During the planning phase of the shutdown and clean-out of excess buildings an evaluation should be conducted in order to determine if the building should be posted as a Radiological Contamination or Controlled Area before searching for legacy contamination.

As a minimum, once legacy contamination of any level is discovered, the entire building should then be posted as a Radiological Contamination and Controlled Area.

**31. Similar Occurrence Report Numbers:**

1. OH-MB-EGGM-EGGMAT03-1996-0001

**32. User-defined Field #1:**

**33. User-defined Field #2:**

**34. DOE Facility Representative Input:**

**35. DOE Program Manager Input:**

The following information is provided to support the close out of ORPS Reports concerning legacy radioactive contamination found at Mound:

1. EG&G Mound has completed a "wall to wall" characterization survey of M and DS Buildings.

2. All radioactive contamination identified during these characterization surveys was controlled as it was found.

3. The characterization surveys and release of any site buildings was performed using the following documents: - DOE-MEMP Radiological Protection Position Determination on

Release of Material dated May 1, 1996 and revised on January 7,

1997 - MD-80043, Operation 400 - Radioactive Material Transfer and

Unrestricted Release of Property/Waste - Generic Process for the Disposition of Buildings That Have Potential or Actual Radiological Contamination dated January 1997

(Developed by the Cleanup Standards Committee for the Ohio

Federal Facilities Issues and Challenges Forum)

Entered by: TRACY, TERRANCE Date: 07/11/1997

**36. Approvals:**

**Approved by:** Jeffrey L. Boston, Facility Manager/Designee
**Date:** 03/27/1997
**Telephone No.:** (937) 865-3262

**Approved by:** HOLBROOK, FRED B, Facility Representative/Designee
**Date:** 03/27/1997
**Telephone No.:** (513) 865-4677

**Approved by:** TRACY, TERRANCE, Program Manager/Designee
**Date:** 07/11/1997
**Telephone No.:** (301) 903-2173

# Occurrence Report

Main Hill Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

**Name:** Gary L. Weidenbach
**Title:** Building Mgr./Alternate Facility Mgr **Telephone No.:** (937) 865-3241

(Facility Manager/Designee)

**Name:** WEIDENBACH, GARY L
**Title:** BUILDING MANAGER **Telephone No.:** (937) 865-3241

(Originator/Transmitter)

**Name:** Don Dixon **Date:** 12/07/1998

(Authorized Classifier (AC))

**1. Occurrence Report Number:** OH-MB-BWO-BWO03-1998-0002

Entering and removing equipment from a Controlled Area and Contamination Area without proper training. (Roll-Up)

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

| | Date | Time |
|---|---|---|
| **Notification:** | 07/15/1998 | 13:33 (MTZ) |
| **Initial Update:** | 08/17/1998 | 13:28 (MTZ) |
| **Latest Update:** | 12/07/1998 | 13:56 (MTZ) |
| **Final:** | 12/23/1998 | 10:21 (MTZ) |

**3. Occurrence Category:** Off-Normal

**4. Number of Occurrences:** 2 **Original OR:**

**5. Division or Project:** Babcock and Wilcox of Ohio

**6. Secretarial Office:** EM - Environmental Management

**7. System, Bldg., or Equipment:** M Building

**8. UCNI?:** No

**9. Plant Area:** Main Hill

**10. Date and Time Discovered:** 07/14/1998 10:30 (ETZ)

**11. Date and Time Categorized:** 07/14/1998 13:30 (ETZ)

**12. DOE Notification:**

| Date | Time | Person Notified | Organization |
|---|---|---|---|
| 07/14/1998 | 13:50 (ETZ) | Fred Holbrook | DOE/MEMP |

**13. Other Notifications:**

**14. Subject or Title of Occurrence:**

Entering and removing equipment from a Controlled Area and Contamination Area without proper training. (Roll-Up)

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**15. Nature of Occurrence:**

01) Facility Condition
F. Violation/Inadequate Procedures

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**16. Description of Occurrence:**

Occurrence Item #1

On Tuesday, July 14, 1998 at approximately 8:15 AM Advanced Machinery Movers a company under contract with Miamisburg Mound Community Improvement Corporation (MMCIC) entered M Building. An MMCIC employee had a key to M building and unlocked it for the moving company.

At 10:30 AM a Babcock and Wilcox (B&W) employee observed two individuals removing equipment from M Building's high bay area. The high bay area is a controlled area with radiological postings in place. The individuals were identified as being employees of Advanced Machinery Movers and stated they were removing equipment at the direction of a MMCIC employee. The individuals were questioned as to whether they had received GERT training before entry into the building. Neither had received the training. GERT (general employees radiological training) is required for entry into the controlled areas of M building. Rad contamination boundary roping was affixed to a piece of equipment that was being moved. One of the individuals entered a contamination area in the process of moving the equipment, which required Rad Worker II training for entry.

A radiological control technician surveyed both individuals and the six pieces of equipment (removed from the building), one flat bed truck, and one fork lift. All readings were less than release limits. The point of contact person (POC) for radiological control gave the OK to release the individuals and their equipment.

A critique meeting of the M Building incident was held at 3:00 PM, July 14, 1998. During the meeting a second truck (Advanced Machinery Movers) was identified as having left the site. Upon contacting the movers it was found that the second truck was sent in case of need basis and was not used. The driver of the second truck entered only the rad controlled area of M building.

A similar event (unreported) is under investigation for equipment that had left the building in April, 1998. (It has been determined that the equipment in question was properly removed from the building)

Occurrence #2 Roll-Up

On July 28th 1998 at 11:30am ETZ entry into the Controlled area of M-building (the High Bay area) was made by two members of an auctioneer firm escorted by two BWO employees for the purpose of removing equipment to be auctioned at a later date.

Due to the Occurrence in item #1 above, this activity was brought to the attention of a member of the Radiological Control group by other BWO employees in the general area. The Radiological Control personnel investigated the situation immediately. He determined that the equipment was properly tagged for removal from the controlled area but the two members of the auctioneer team had not received the proper training to enter this area, GERT (General Employee Radiological Training).

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**17. Operating Conditions of Facility at Time of Occurrence:**

Normal Operations, both item 1 and 2

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**18. Activity Category:**

03 - Normal Operations

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**19. Immediate Actions Taken and Results:**

Occurrence item #1

The individuals were questioned about their training history. A radiological tech, surveyed both individuals, their equipment, and the six pieces of equipment removed from the building.

Occurrence item #2

Work was stopped and the auctioneers were told of their need for training before re-entering controlled areas. The BWO employees were corrected as to their misunderstanding of being able to escort non GERT trained individuals.

---

**20. Direct Cause:**

3) Personnel Error
B. Procedure Not Used or Used Incorrectly

**21. Contributing Cause(s):**

5) Training Deficiency
D. Insufficient Refresher Training

6) Management Problem
A. Inadequate Administrative Control

**22. Root Cause:**

3) Personnel Error
C. Communication Problem

---

**23. Description of Cause:**

The Direct Cause and Root Cause relate to those involved in both Occurrence item 1 and item 2 misunderstanding the necessary requirements of entering a Controlled area. The Procedure was not used correctly and requirements were not communicated adequately to Mound personnel.

The personnel escorting the non-GERT trained individuals had received Rad Worker II training. It was their understanding they could escort these individuals into the controlled areas as visitors.

The misunderstanding of who is a general employee and who is a visitor in 10CFR835 caused this situation. In both instances those individuals being escorted would be considered as general employees and therefore they were required to have GERT training themselves. (Communication problem)

The lack of familiarization and clarification concerning General Employee Radiological Training led them to believe their actions were acceptable.(Insufficient Refresher Training)

Inadequate Administrative Control of access to M-building was a contributing cause. The key to M-building was given to a MMCIC employee for the purpose of tours, not work.

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**24. Evaluation (by Facility Manager/Designee):**

Both Occurrences of item 1 and item 2 show a lack of familiarization and understanding concerning the Control Area of M-building. Efforts to determine the extent of this matter is being reviewed by those parties involved.

10/14/98: Direct and Root cause determination and Corrective Actions are still being evaluated. A one week extension (10-21-98) has been given by the DOE Facility Representative.

The above items were not able to be reviewed until 10/22/98, then this report was resubmitted.

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**25. Is Further Evaluation Required?:** No

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

1. Control access to M-building a. Key returned from MMCIC employee on 08/03/98 b. Key access availability will be controlled and limited for specific purposes and amount of time. c. Building Manager and Project Team to routinely monitor building access and lock building when not in use.

| **Target Completion Date:** 09/01/1998 | **Completion Date:** 09/01/1998 |
|---|---|

2. Emphasize and clarify requirements for entering a Controlled area, the need for General Employee Radiological Training.

   a. Message via Mounds News to plant population concerning ENTRANCE INTO CONTROLLED AREAS, 07/30/98 b. Message via Mound News concerning Training requirements for subcontractors, 08/05/98 c. Message via GroupWise to all Building Managers emphasizing GERT requirement and clarification of escorting others, 08/20/98 d. Mound News to plant population emphasizing .

| | |
|---|---|
| personnel/subcontractors/visitors of GERT prior to entering a Controlled area, 09/18/98 f. MMCIC notified of GERT requirement for entry into Controlled areas, 09/14/98 | |
| **Target Completion Date:** 09/30/1998 | **Completion Date:** 09/30/1998 |

3. The GERT policy will be outlined completely in the GERT refresher which is sent to GERT qualified individuals in the off-year, between requalification. Currently DOE mandates GERT qualification biannually. The refresher will be of the "read and sign" variety of training consisting of policy changes and reminders to individuals regarding their responsibilities.

| | |
|---|---|
| **Target Completion Date:** 10/21/1998 | **Completion Date:** 10/21/1998 |

**27. Impact on Environment, Safety and Health:**

None

**28. Programmatic Impact:**

None

**29. Impact on Codes and Standards:**

None.

**30. Lessons Learned:**

Procedure and training requirements need to be brought to the attention of those entering Controlled areas.

Access to Controlled areas needs to be limited.

Periodic re-emphasis of General Employee Radiological Training is a good reminder to individuals regarding their responsibilities.

**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:** Gary L. Weidenbach, Facility Manager/Designee
**Date:** 12/07/1998
**Telephone No.:** (937) 865-3241

**Approved by:** HOLBROOK, FRED B, Facility Representative/Designee
**Date:** 12/23/1998
**Telephone No.:** (513) 865-4677

**Approved by:** Approval delegated to FR
**Date:** 12/23/1998
**Telephone No.:**

Appendix N

PRS/REC* Information

* Extract from Phase I Environmental Site Assessment of DOE Mound, M Building (HOK/K)

Of these 345 PRSs, four were attributed to operations at Building M (refer to Figure 2 for locations):

- PRS 118 - M Building Soils: Elevated VOCs were detected in soils (plotted on the east side of Building M) in soil gas surveys conducted in 1993. Potential hazardous substances for this PRS were listed as copper cyanide, silver cyanide, machine oils, and solvents. The Site Summary Report did not provide a rationale or confirmation as to why the M Building soils were shown to be outside an exit door on the east side of the building. The original document detailing the soil gas surveys was not readily available during our research of the DOE documents. It was also not explained as to why the cyanides were listed when these are not generally considered to be volatile compounds detectable by soil gas survey. (Refer to Exhibit C and to Photograph 1 presented in Exhibit D).

- PRS 119 - Room M-38 Metal Plating Rinse Water Sump Tank (Tank 225): Rinsewater from cascade rinse steps of the old plating operations in Building M were directed to the sanitary sewer system by first passing through this sump tank (Refer to Figure 2). It is little more than a deep manhole, measuring approximately 15 feet in depth, according to Mr. George Jones, and 350 gallons in volume. The tank is apparently still connected to the sanitary sewer line leading north of the building to a main sanitary trunk line passing east-west on the north side of Building M. However, the tank is now inactive. DOE/EG&G have indicated in the Site Summary Report that there is no evidence of release associated with this tank and that no further action is required. Tank data from the Active Underground Storage Tank Plan (November 1994) is provided in Exhibit E.

- PRS 120 - Room M-108 Metal Plating Rinse Water Tank (Tank 119): This sump tank is very similar to Tank 225, except that it is reportedly only 10 feet deep and is 250 gallons in capacity. Cascade rinsewater from the new plating operations at the south end of the building is directed first to this sump and from there to the sanitary sewer line. The tank is currently in service, although plating operations in the southern part of the site building terminated about a year ago. Mr. Jones reported that the effluent from this tank was checked daily by the plating staff, and EG&G personnel sampled the effluent monthly pursuant to the Mound Plant NPDES permit. Mr. Jones recalled that the only sampling and analysis violations of the permit of which he was aware were elevated levels of copper. OEPA suspected that this result indicated that Mound was plating with copper cyanide, according to Mr. Jones. However, Mr. Jones and Mr. Koeller indicated that this was not the case, that copper cyanide solution had not been used at Building M, but speculated that the acidic solutions were leaching out the copper from the copper piping installed in the building. Refer to Exhibit E for additional tank data.

- PRS 121 - Vapor Degreasers: Two vapor degreasers were installed for parts cleaning in the new plating shop. One is located in Room 108, and a much older one (dating from the 1950s) is located adjacent to Room 47. Both apparently used tetrachloroethylene (Perclene-D) as a solvent. Vapors from the degreasers are routed to ventilation hoods which are exhausted to air emission stacks on the roof. A 1993 OEPA air permit for these vapor degreasers was tacked to the wall of the plating shop during HOK/K's site visit; however, EG&G did not include such a permit in the package of current regulatory permits requested by HOK/K for this assessment. Presumably this is because the plating shop is no longer in operation.

4.1.3 In compliance with permit requirements under RCRA, the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), the Mound has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The Mound has submitted both a RCRA Part A and Part B Permit application and operates as a RCRA hazardous waste treatment and storage facility under interim status. Mound also maintains a NPDES surface water discharge permit with facility I.D. Number OH009857. Permits for the open burning of wastes involving explosives and other fuels have been issued by the Regional Air Pollution Control Agency (RAPCA). Other operations that produce particulate or vaporous emissions are registered with RAPCA and OEPA. The Mound also submits annual Emergency and Hazardous Chemical Inventory Forms to the OEPA, pursuant to SARA Title III, the Emergency Planning and Community Right-to-Know Act. The 1995 version of this report indicated that nitric acid, argon, helium, and sulfuric acid are stored at Building M in quantities above regulatory thresholds.

4.1.4 DOE has legal authority derived from the Atomic Energy Act of 1954 (AEA) to conduct routine operations at Mound involving, among other things, underground tanks, equipment and other facilities. "Routine operations" include both the operation of currently active sites and the Decontamination & Decommissioning (D&D) of surplus sites. DOE has authority under the AEA to respond to any environmental contamination known or discovered for both active and inactive tanks. Because DOE has signed an FFA, it also has authority and responsibility derived from CERCLA and the FFA. The authorities of the AEA and CERCLA overlap, but CERCLA explicitly recognizes the integration of the overlapping authorities. At Mound, a D&D/ER Program agreement was established April 26, 1991, to define the soil activity responsibilities between the two programs.

## 7.0 FINDINGS AND CONCLUSIONS

7.1 HOK/K Industrial, Inc. has performed a Phase I Environmental Site Assessment of the DOE Mound, M Building located at DOE Mound in Miamisburg, Ohio. Any exceptions to, or deletions from, our standard procedures are described in Section 2.3 of this report.

This assessment has revealed the following evidence of Recognized Environmental Conditions:

- Three of the four potential release sites (PRS) recognized by DOE/EG&G through the FAA/ER combined program are included in our findings as RECs: the M Building soils reported to have elevated levels of volatile organic compounds (VOCs) detected by soil gas survey, the inactive metal plating rinse sump tank in Room 38; and the in-service metal plating rinse sump tank in Room 108 (corridor 107).

  The presence of VOCs in soils on the east side of Building M needs to be confirmed or denied by follow-up investigation, which may be accomplished through a second soil gas survey or subsurface soil sampling.

  The potential exists for plating solutions to have leaked or corroded through the base of the two plating rinse tanks. The integrity of these sump tanks should be determined and, if warranted, sediment within the tanks or soil below the tanks may need to be sampled for metals and other plating compounds.

  HOK/K did not include the fourth PRS, the vapor degreasers, as RECs since these units have been drained, cleaned, and are currently out-of-service, and since there is no evidence of spills or leakage related to these units. In addition, DOE/EG&G has recommended that this PRS be managed through EG&G's Operation and Maintenance program.

- Oil leaks were noted on the wood block floor of the main high bay area. Because of its history of machine shop usage, the wood block floor has the potential to be saturated in places with machine oils and possibly solvents. The potential also exists for these chemicals to have leached through the underlying concrete slab, if released in large enough quantities. When free of its equipment inventory, the wood block floor should be inspected, sampled where appropriate, and analyzed. If the wood block analyses indicate that this floor is a hazardous waste, then it will need to be properly removed.

- The integrity of the concrete slab beneath the oil quench tank in the heat treating room should also be inspected. If the slab appears fractured, the soil beneath the slab should be sampled and analyzed.

- Extensive ductwork pertaining to the machine shops exhaust collection system and the plating shop ventilation system remains in place in Building M, as well as exhaust collectors (bag houses) and air handlers. While in place these items do not represent a significant risk to public health or the environment. However, if these pieces of equipment are to be dismantled or demolished, they must be properly inspected and decontaminated of any residual plating compounds, machine oils, and milled metal dust.

- Ten cylinders marked both as "deuterium - radioactive" and "hydrogen" are stored in a cage on the east side of Building M. While these cylinders probably do not contain deuterium, but have been reused for the storage of hydrogen, they should be checked to confirm that proper storage and labelling procedures are being followed.

- The condition of the PCB-containing electrical transformers in the Building M electrical substation should be regularly inspected. If any leaks or stains are observed, proper clean-up operations should be followed. Also, fluorescent light ballasts should also be properly disposed.

- Beryllium copper plating and/or milling was reported to have been performed in Room 42. The exhaust collector in Room 42A, which presumably serviced the beryllium operation, may contain residual beryllium dust, which can present a carcinogenic and inhalation health hazard. Appropriate safety and health protocols should be followed if the Room 42A exhaust collector is renovated or demolished.

- Mound Health Physics records indicate that uranium milling or machining was performed in Building M. The exact location has not been established. Further research of Mound records is necessary to identify the uranium machining location, and to determine whether DOE Decontamination and Decommissioning (D&D) efforts were completed for this operation. If no such documentation exists, a Health Physics survey for residual radiation may be required.

- Pressing and canning of lithium deuteride for the Lawrence Livermore National Laboratory was reportedly performed in Building M. Interviews with site personnel revealed that a "Livermore box" had been located in the Heat Treating room (Room 20). Further research of Mound records is required to verify that DOE D&D was completed for this operation. If no such documentation is available, a Health Physics survey for residual contamination may be required.

- Another lithium research program was reported to have been conducted in Building M. The project concerned the development of analytical methods for lithium hydride deuteride and tritide. Our recommendation for this REC is the same as for the Livermore Project REC.

7.2 HOK/K Industrial, Inc. also has the following recommendations for the site:

- The asbestos-containing materials (ACM) present in Building M appear to be in relatively good condition and do not represent a significant risk to public health or the environment while left in place. If renovation or demolition of the facility is planned, however, the ACM must be removed in compliance with applicable federal and state regulations.

# M Building Contamination Issues

| DESCRIPTION | CONTAMINANT(S) OF CONCERN | CURRENT INFORMATION | COMPARISON VALUE |
|---|---|---|---|
| PRS-118<br>M Building Soils | Copper Cyanide, Silver Cyanide, Machine Oils, Solvents | No analysis results exceeding comparison values for Organics or Radionuclides | |
| PRS-119<br>M-38 Metal Plating Rinse Water Tank (Tank 225) | Nickel, Cadmium, Silver, Gold, Manganese, Cyanide, Aluminum, Sodium Hydroxide, Potassium Permanganate | Aluminum = 21,300 MG/KG<br>Beryllium = 0.74 MG/KG<br>**Cadmium = 1490 MG/KG**<br>**Chromium = 5970 MG/KG**<br>Cobalt = 146 MG/KG<br>Copper = 28,400 MG/KG<br>Iron = 127,000 MG/KG<br>**Lead = 21,100 MG/KG**<br>**Nickel = 22,500 MG/KG**<br>Silver = 306 MG/KG<br>Sodium = 4370 MG/KG<br>Molybdenum = 121 MG/KG<br>Tin = 963 MG/KG | Aluminum = 19,000 MG/KG: BG<br>Beryllium = 0.7 MG/KG: BG<br>**Cadmium = 210 MG/KG: HI**<br>**Chromium = 1100 MG/KG: HI**<br>Cobalt = 19 MG/KG: BG<br>Copper = 26 MG/KG: BG<br>Iron = 35,000 MG/KG: BG<br>**Lead = 400 MG/KG: OC**<br>**Nickel = 4,300 MG/KG: HI**<br>Silver = 1.7 MG/KG: BG<br>Sodium = 240 MG/KG: BG<br>Molybdenum = 27 MG/KG: BG<br>Tin = 20 MG/KG: BG |
| PRS-120<br>M-108 Metal Plating Rinse Water Tank (Tank 119) | Copper, Gold, Nickel, Aluminum, Uranium | No analysis results exceeding comparison values for Metals, Cyanide or Radionuclides with the exception of Thallium of 2.2 MG/KG | Thallium Background = 0.46 MG/KG |
| PRS-121<br>Vapor Degreasers | Perclene D (perchloroethylene) | The Vapor Degreasers are out of service. They have been drained and cleaned | |
| High Bay Area Wood Block Floor | Uranium, Machine Oils, Solvents | All Machine Oils and Solvents were absorbed into the wood blocks. Highest levels of Uranium found prior to removal of Wood Block Floor = 42,000 dpm which equates to a dose of 0.0438 mrem/year | Acceptable exposure to the public = 100 mrem/year |

Note: BG = Background, HI = Hazard Index, OC = Other Criteria

Appendix O

Work Plan

# JOB SPECIFIC WORK PLAN

| Title: M Building Demolition | | |
|---|---|---|
| MSR (If Applicable) | JSWP No. MHNR-99-07 | Rev. No. 0 |

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

| Reference Drawings | Rev. | Reference Procedures | Rev. |
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| DOE Project Manager Approval: | Signature: | Date: |
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**Approvals:**

| Signature | Date | Department |
|---|---|---|
| | | Project Manager |
| | | Project Engineer |
| | | Project Superintendent |
| | | Building Manager |
| | | Rad Controls |
| | | IS&H |
| | | Industrial Hygiene |
| | | Waste Management |
| | | Environmental Compliance |
| See Next Page | | ISM Reviews |

**Additional Approvals:**

# JOB SPECIFIC WORK PLAN

| Title: **M Building Demolition** | | |
|---|---|---|
| **MSR (If Applicable)** | **JSWP No. MHNR-99-07** | **Rev. No. 0** |

| Signature | Date | Department |
|---|---|---|
| | | Howard Ellis / Heavy Duty |
| | | Rick Lawson / Demo Tech |
| | | |
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| Work Package Preparer: | Signature: | Date: |
|---|---|---|

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| | |
|---|---|
| **Work Package Closure:** | **The work described in this work package has been satisfactorily completed.** |
| **Job Supervisor:** | |
| **Project Manager:** | |

**NOTES:**

# JOB SPECIFIC WORK PLAN

| Title: M Building Demolition | | |
|---|---|---|
| MSR (If Applicable) | JSWP No. MHNR-99-07 | Rev. No. 0 |

## SIGN-OFF SHEET

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

| Signature | Date | Department |
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# JOB SPECIFIC WORK PLAN

| Title: **M Building Demolition** | | |
|---|---|---|
| **MSR (If Applicable)** | **JSWP No. MHNR-99-07** | **Rev. No. 0** |

## 1. Introduction

M Building has 56,000-square-feet, including two mezzanine office areas totaling 5,800-square-feet. It is a two-story structure made of concrete block with brick facing. The roof is metal with a built-up membrane of coal tar and asphalt. M Building is bordered on three sides by a roadway. The building has central steam for heat, chilled water, and electrical service of 480V.

M Building was constructed in 1948 with additions constructed later. It was used as a machine shop and electroplating facility. These process areas are now out-of-service and the majority of the building is inactive. The Electronics Maintenance Group occupied the building. The current building activities include an electrical substation and excess material staging and storing. Process history in M Building indicates that some machining of U-238 occurred within the building. No research, development, or production activities using energetic materials have occurred in the building. Unknown quantities of contaminants, consisting of arsenic, cyanide, heavy metals, and machine oils, may be present due to activites related to the Plating Shops.

Fixed contamination in the M Building high bay area was identified as U-238 when the building was being prepared for Transition. The known spots have been removed and additional spots were identified by a 100% scan of the wood block floor. As a result, the entire wood block floor was removed as LSA waste. The contamination probably came from the machining of U-238, which history indicates was performed in this building.

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## 2. Purpose

This project will demolish M Building. The Non-CERCLA Decontamination of M Building consists of dismantling and disposal of the structure, slab and any subsurface structures such as sumps, drains and abandoned utility conduit. The building materials will be segregated and disposed of in a manner and location determined by Waste Management. At the completion of demolition activities, the soils beneath and surrounding the building will be characterized to assure no residual contamination.

**Note**: Prior to the removal of the slab, environmental sampling of the soils surrounding the sump in M-38 will be conducted to determine the integrity of the sump.

## 3. Site Information

M Building is located in the center of the main hill area of the plant site. Buildings adjacent to M Building include: the area of former C Building to the north, Building 40 to the north-east, H Building to the north-west, E Building to the west, DS Building across the road to the south, Building 25 across the road to the south-east, the area of the former Paint Shop and the Power House to the east of M Building. Also adjacent to M Building are the overhead utility lines which run over the north-east corner of the building and along the north side, the A Sub Station on the north side, a roadway along the east and south sides of the building, the Power House substation to the east, the argon tank for T Building to the south-east, and the east tower to T Building to the south of the building.

## 4. Industrial Safety and Hygiene

All tasks associated with this project will concur with the JSHA(s) developed for this project. Fugitive dust emission sampling will be conducted by Industrial Hygiene.

**5. Radiation Protection Requirements**

All wastes exiting the plant site will be surveyed by Rad Protection prior to being permitted to leave.

**6. Environmental Compliance Requirements**

A NEPA checklist and NESHAP screening will be completed prior to demolition. Appropriate measures will be taken to protect the storm water collection system from water or silt run-off from the job site.

**7. Chemical and Waste Management Requirements**

**NOTE**: All demolition wastes will be segregated into the following categories: brick and concrete rubble to be transported to Mound's Spoils Area, metals to taken off-site for recycling, construction debris to be taken off-site for disposal in a landfill. See section 5.

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**7.1 Overview**

Waste generated from the demolition of M Building will consist primarily of non-radioactive demolition or construction debris such as brick, mortar and concrete.. The concrete debris will be utilized as either clean fill at the Mound Site, or transported off-site to a local landfill for disposal. Other construction debris, as defined by Chapter 3745-400-01 of Ohio's Administrative Code, will also be disposed at a local approved landfill. Recyclable metal will be segregated to a reasonable extent, and transported to a local metal recycler for processing. Hazardous waste such as asbestos or ballasts from fluorescent lighting will be removed for disposal prior to the building demolition. Hazardous waste or mixed waste generated from M Building will be minimal. Process knowledge and results obtained from sampling activities will provide the basis for waste characterization.

**7.2 Resource Conservation and Recovery Act (RCRA) Determination**

M Building formally housed a plating process in an area located on the West side of the building. Preliminary sampling indicates the presence elevated levels of undesirable metals in the sludge contained in a sump pit located in this area of the building. Any material that present a RCRA concern will be removed for proper disposal.

**7.3 Waste Packaging**

Construction debris will be packaged utilizing bulk conveyance methods such as roll-offs or end dumps. This type packaging provides containment during transportation to the disposal location, but does not remain part of the final waste form. Concrete, mortar and brick will be transported to the Spoils Area for crushing, while other types of construction debris will go to a local landfill for disposal.
Hazardous material will be properly packaged and transported to Building 72 by Hazardous Waste Operations. At Building 72 the hazardous waste is prepared for off site disposal as defined in Mound Manual MD-70523.

Asbestos will be packaged and placed into transport containers for disposal at a local landfill under the guidance of Occupational Safety and Health Administration's 29 CFR 1 910.145 and the Environmental Protection Agency's 40 CFR 61.150.

### 7.4 Waste Streams and Volumes

The primary waste streams from M Building will be an estimated 67,950 cubic feet of concrete debris, 59,031 cubic feet of construction/demolition debris and 42,468 cubic feet of recyclable metal. The asbestos identified for removal represents approximately 2,700 cubic feet of waste. Hazardous and mixed waste volumes are expected to be minimal.

### 7.5 Waste Minimization

Structural steel will be segregated from the demolition debris for recycling purposes. Concrete will be crushed and used on site as clean fill if needed.

### 7.6 Curie Value Calculation

Process knowledge and radiological surveys indicates that any radioactive waste generated during demolition will be at very low concentration levels.

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### 7.7 Transportation and Disposal

Trucks with roll-off containers or end dump trucks will be the primary mode of transportation for concrete debris to the spoils Area and construction/demolition debris to a local landfill. Radioactive waste will be transported by highway or rail for disposal at the Nevada Test Site or Envirocare. Hazardous and mixed waste will be shipped by highway to an approved disposal site.

## 8. Project Execution/General Sequence of Work

**Note:** Due to the complexity of and the issues associated with this demolition it will be broken down into a pre demolition phase and four demolition phases to better address the issues dealing with that phase of the building demolition.

### 8.1 Pre Demolition/Post Decontamination Activities

#### 8.1.1 Traffic Reroute during Demolition

See Appendix B. This reroute of traffic will be coordinated with other B&W and MMCIC field projects occurring during the same time period.

#### 8.1.2 M Building USQs

USQs will be completed for any project work which might affect any nuclear facilities prior to commencing any these tasks.

### 8.1.3 Removal of the Tritium Exit Signs

This task will be performed under a Maintenance Service Request (MSR).

### 8.1.4 Removal of all Government Locks

This task will be performed under an MSR.

### 8.1.5 Assure as much Brine has been Drained from the Lines in M Building as Possible

This task will be performed under an MSR.

### 8.1.6 Salvage Equipment or Metal Left in the Building

The equipment in the M-47 Plating Shop has been sold by DOE and will be removed from the building by the owner. This effort will be coordinated with the Main Hill Project.

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### 8.1.7 Underground Utilities Isolation

**NOTE**: Prior to any tasks that require soil disturbance, the Project Superintendent will issue an Excavation Permit.

#### 8.1.7.1 Domestic Water

The domestic water supply to the building will be shut off at the valve next to the A Substation at the north end of the building.

#### 8.1.7.2 Sanitary Sewer

All connections to the sanitary sewer system will be plugged. This will include the access to the sanitary sewer when the Plating Shop sumps are removed.

#### 8.1.7.3 Fire Suppression Water Line

The fire sprinkler system water supply to the building will be isolated at the riser valve and a thrust block poured to protect the system from pressure surges.

## 8.2 Phase 1: Demolition of the Northeast corner of the building and Preserving the Stanchion Support

(CAUTION)
The manufacturer of the mechanical shear recommends a 75-foot exclusion zone to protect against personnel injury that may be cause by flying debris. No one will be permitted within a 75-foot distance of the Shear while it's cutting. (Except-Heavy Duty Operators who will remain in the equipment cabs.)

**8.2.1 Stabilize the Pipe Stanchion**

Weld knee braces in each corner of the north and south face of the stanchion support. Weld cross braces on the east and west ends of the stanchion support.

**8.2.2 Clear the roof membrane and corrugated metal under layment from the Stanchion Support**

**8.2.3 Brace the North and East Walls**

**8.2.4 Remove the Parapet wall down to the roofline from Column 12 to Column A.**

**8.2.5 Starting at column 12 remove the east wall outer bricks and blocks starting at the roof line and working down to the ground.**

**8.2.6 Working in the northeast direction, remove the roof material and trusses so that the debris falls inward to the east. Continue to the original building at column A.**

**8.2.7 Remove the north wall making sure not to damage the pipe stanchion and allowing the wall to fall southward.**

**8.2.8 Load the building mortar and metal debris into separate roll-offs.**

**8.2.9 Remove floor slab to within four feet of the stanchion base.**

**8.2.10 Load slab debris in roll-offs.**

**8.3 Phase 4: Demolition of the South side Two Story (Electronics Shop and Plating Shop) and the South Addition**

**8.3.1 Begin demolition at East End of the south section (one story)**

Remove the brick and block facing to expose the building steel. Use the grappler at center location to hold beam/bar joist to be cut with the shears. Lower the beam to the ground.

**8.3.2 Segregate the steel from the brick and block.**

Stage building debris for possible ramp.

**8.3.3 When the one story section has been demolished, begin demolition of the two story**

Using a hoe-ram or shear, remove the brick and block to expose the building steel. Begin at the top of the second story and remove the beams/joists as for the one story, but only proceed to the first column line. Once the beams/joists have been removed from the first bay of the second story, proceed to remove the beams/joists

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from the corresponding bay on the first floor. Continue alternating between the second and first stories, removing only one bay at a time.

**8.3.4 After the beams/joists have been removed, begin to the south column line.**

Hold each column with the grappler and sever it using the shear.

**8.3.5 After the south column line has been removed, begin to remove the north column line.**

Take special care not to disturb the south wall of the original M Building.

**8.4 Phase 3: Demolition of the East and West Single Story Additions, Including the West side Penthouses**

**8.4.1 Single Story West and East Addition**

**8.4.1.1 Single Story West Addition**

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Begin demolition at the south end of the single story addition to the building. Using the hoe ram or shear, heavy duty shall cut out the masonry brick of the south wall of the building.

(CAUTION)
The manufacturer of the mechanical shear recommends a 75-foot exclusion zone to protect against personnel injury that may be cause by flying debris. No one will be permitted within a 75-foot distance of the Shear while it's cutting. (Except-Heavy Duty Operators who will remain in the equipment cabs.)

(CAUTION)
E Building entrances and exits within the 75-foot exclusion zone will be blocked off and/or protected

Using the shear cut up the roof around the 254P penthouse southeast structural steel beam.

(NOTE)
The progression and direction of the building demolition will ultimately be determined in the field.

Penthouse 254P

Using the shear cut the penthouse southeast support beam. The penthouse will begin to sag.
Proceed northwest, cutting up the roof and pulling in the west wall masonry around the 254P penthouse southwest structural steel beam. Using the shear cut the penthouse southwest support beam. The penthouse will continue to sag. Cut up the roof and the west wall masonry around the 254P penthouse northwest structural steel beam. Using the shear cut the penthouse northwest support beam. It will continue to sag. Setup the grapple on the west side of the penthouse prior to this cut, as a precautionary measure, to ensure that the it does not fall into E Building. Using the grapple, pull the penthouse down to the ground away from the original building then cut the northeast support beam with the shear. Continue north, cutting up the roof and pulling in the west wall up to the southeast corner of the 250P penthouse southeast structural steel beam.

Penthouse 250P

Using the shear cut the penthouse southeast support beam. The penthouse will begin to sag. Continue northwest, cutting up the roof and pulling in west wall masonry around the 250P penthouse southwest structural steel beam. Using the shear, cut the penthouse southwest support beam. The penthouse will continue to sag. Cut up the roof and the west wall masonry around the 250P penthouse northwest structural steel beam. Using the shear, cut the penthouse northwest support beam. It will continue to sag. Setup the grapple on the west side of the penthouse prior to this cut, as a precautionary measure, to ensure that the it does not fall into E Building. Using the grapple, pull the penthouse down to the ground away from the original building then cut the northeast support beam with the shear. Continue north, cutting up the roof and pulling in the west wall up to the southeast corner of the 251P penthouse southeast structural steel beam.

Penthouse 251P

Using the shear cut the penthouse southeast support beam. The penthouse will begin to sag. Continue northwest, cutting up the roof and pulling in the west wall masonry around the 251P penthouse southwest structural steel beam. There is a masonry wall that runs west to east just north of the 251P penthouse. This wall shall be cleared along with the west wall masonry as the building demolition proceeds north. Using the shear cut the penthouse southwest support beam. The penthouse will continue to sag. Cut up the roof and west wall masonry around the 251P penthouse northwest structural steel beam. Using the shear cut the penthouse northwest support beam. It will continue to sag. Setup the grapple on the west side of the penthouse prior to this cut, as a precautionary measure, to ensure that the it does not fall into E Building. Using the grapple, pull the penthouse down to the ground away from the original building then cut the northeast support beam with the shear. Continue north, cutting up the roof, structural steel beams and joists and pulling in the west wall up to the northwest corner of the building.

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(CAUTION)
Protect the underground utilities vault at the northwest corner of the building.

(NOTE)
Size reduce concrete and masonry brick, as necessary, to fit into a roll-off container. Load debris into waste container using the front-end loader or grapple or stage debris to be used as backfill. Segregate structural steel from the construction debris as determined practical.

### 8.4.1.2 Single Story East Addition

Begin demolition at the southwest corner of the single story addition to the building. Using the hoe ram or shear, heavy duty shall cut out the masonry brick at the southeast corner of the building. Proceed north cut up the roof and structural steel beams and joists and pulling in the east wall up to the northeast corner of the building.

## 8.5 Demolition of the Original M Building Structure

At this point of the demolition process all the additions to the original building will have been demolished.

**8.5.1 Starting with the low bay sections, remove the brick and block walls on the east, south, and west sides.**

Segregate this material and load into haulers for transport to the Mound Spoils Area.

**8.5.2 Brace the north wall.**

**8.5.3 Using the grappler and shear, remove the penthouse on the roof of the east low bay section.**

**8.5.4 Using the grappler and shear, remove the roofing material from both low bay sections and the high bay area and load into roll-offs as construction debris.**

**8.5.5 At this point only the structural steel and the north wall of the original building will be left standing.**

Starting at the south end of the building working to the north use the grappler at center location to hold beam/bar joist to be cut with the shears. Lower the beam to the ground. Hold each column with the grappler and sever it using the shear. Continue this process until only the north wall is left.

**8.5.6 Using the grappler and shear pull the north wall to the south away from the A Substation and the stanchion lines.**

**8.6 With the building demolished down to the slab, soil samples will be taken through the slab around the Plating Shop sumps and other areas of potential contamination to determine if any contamination has leached out into the surrounding soils.**

**8.7 Remove the slab, sumps and any contaminated soil identified during the sampling process.**

The footers will be removed down to two feet below grade.

**8.8 Site Restoration**

**8.8.1 Backfill the area to grade and finish with gravel so the area can be used for parking .**

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Appendix P

Operable Unit 9, Site Scoping Report: Volume 11 - Spills and Response Actions

ENVIRONMENTAL RESTORATION PROGRAM

# OPERABLE UNIT 9,
# SITE SCOPING REPORT
# VOLUME 11 - SPILLS AND RESPONSE ACTIONS

## MOUND PLANT
## MIAMISBURG, OHIO

March 1992

DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
TECHNICAL SUPPORT OFFICE
LOS ALAMOS NATIONAL LABORATORY

FINAL
(Revision 0)

Signature Page

This report is Volume 11 of a multiple-volume Site Scoping Report providing the background information pertinent to the remedial investigation/feasibility study (RI/FS) of the Mound Plant. Under the terms of the Federal Facility Agreement between DOE and US EPA, this report is submitted to US EPA for approval.

This report is approved by US EPA only for the purposes of scoping the RI/FS, and approval does not imply concurrence with the interpretations presented herein. It is recognized that additional information will be collected during the RI/FS and may supersede information contained in this report.

APPROVED: Diana Mally
Remedial Project Manager
U.S. Environmental Protection Agency
Region V

Diana Mally

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## ACRONYMS

| | |
|---|---|
| AEA | Atomic Energy Act |
| AEC | Atomic Energy Commission |
| AL | Albuquerque Operations Office |
| AOC | area of concern |
| CEARP | Comprehensive Environmental Assessment and Response Program |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| BVA | Buried Valley aquifer |
| DAO | Dayton Area Office |
| DOE | U.S. Department of Energy |
| EPA | U.S. Environmental Protection Agency |
| EG&G-MAT | EG&G-Mound Applied Technologies |
| ER | Environmental Restoration |
| EROS | Emergency Response Online System |
| ERS | Effluent Removal System |
| FFA | Federal Facilities Agreement |
| FOIA | Freedom of Information Act |
| HEPA | high efficiency particulate air filter |
| HRS | Hazard Ranking System |
| L | liter |
| mL | milliliter |
| MRC | Monsanto Research Corporation |
| NPDES | National Pollutant Discharge Elimination System |
| NPL | National Priorities List |
| OEPA | Ohio Environmental Protection Agency |
| PCB | polychlorinated biphenyl |
| PVC | polyvinyl chloride |
| PR | preliminary review |
| RAPCA | Regional Air Pollution Control Authority |
| RCG | radioactivity concentration guide |
| RCRA | Resource Conservation and Recovery Act |
| RFA | RCRA Facilities Assessment |
| RQ | reportable quantity |
| SNAPP | space nuclear auxiliary power |
| SSP | Site Survey Project |
| SWMU | solid waste management unit |
| VSI | visual site inspection |
| WTS | Waste Transfer System |

## ACKNOWLEDGEMENTS

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# 1. INTRODUCTION

The U.S. Department of Energy (DOE) Mound Plant, Miamisburg, Ohio, was placed on the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) National Priorities List (NPL) on November 21, 1989 (54 Federal Register 48184). Pursuant to its NPL status, the DOE signed a CERCLA Section 120 Federal Facilities Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) that became effective October 11, 1990. A similar agreement is in negotiation between the DOE and the Ohio EPA (OEPA) (December 1991). The terms of the FFA require that the DOE develop and implement remedial investigations and feasibility studies and conduct interim remedial actions in order to ensure that environmental impacts associated with past and present activities at the site are thoroughly investigated and appropriate action is taken to protect the public health and welfare and the environment (EPA 1990).

The Albuquerque Operations Office of the DOE established the Environmental Restoration (ER) Program in 1984 to collect and assess environmental data in order to develop a conceptual site model, assess both the nature and extent of contamination, and identify potential exposure pathways and potential human and environmental receptors. These activities have been conducted under DOE policy for all facilities to comply with applicable environmental regulations. In order to provide EPA with sufficient information and data gathered during these previous investigations, a multi-volume scoping report providing background information has been prepared. The Site Scoping Report will provide descriptions and summaries of the current conditions and characteristics of Mound Plant and will consist of at least the following volumes:

1. Groundwater Data: February 1987 - July 1990
2. Geologic Log and Well Information Report
3. Radiologic Survey Report
4. Engineering Map Series
5. Topographic Map Series
6. Photo History Report
7. Waste Management Report
8. Environmental Monitoring Data
9. Annotated Bibliography
10. Permits and Enforcement Actions
11. Spills and Response Actions

## 1.1. SCOPE OF REPORT

This report provides summaries of past product and hazardous substance spills, including identification of materials spilled, amounts and locations, and response actions conducted. Data for this report were compiled from a review of records and incident reports maintained in the plant safety office. The safety office records are maintained by the plant's operating contractor, currently EG&G - Mound Applied Technologies (EG&G-MAT), formerly Monsanto Research Corporation (MRC), a subsidiary of Monsanto Chemical Company. Limited data were also obtained from health physics reports that allowed some correlation of dates and materials. The record is not entirely complete, as some incidents appear in one record that are not correlated to the other. Safety records from the 1950s and 1960s appear to be incomplete. Records from the 1970s and 1980s increase in regularity and detail, reflecting the increased standards imposed by the Occupational Safety and Health Act (29 CFR 1904) and reporting requirements relating to compliance of federal and state environmental regulations authorized under the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act (RCRA) and CERCLA (DOE 1991b).

Only incidents that resulted in a spill or an environmental release are included in this report. Laboratory and tabletop accidents, releases that were entirely contained within buildings, and personal injuries and radiation or hazardous substance exposures that did not apparently result in an environmental release are beyond the scope of this report. Under the Privacy Act of 1974 (PL 93-579), names of individuals are additionally excluded from this report.

Summaries of response actions conducted by EPA and OEPA were requested under the Freedom of Information Act (FOIA). EPA deferred the FOIA request until early in 1992, so little information from the federal agency is available at this writing. OEPA provided information from the records in the Emergency Response Online System (EROS) database. The Emergency Response Section maintains the EROS database and is the designated reporting point for spills and unauthorized discharges in Ohio.

Summaries are also provided for 1) the visual site inspection conducted by EPA as part of the RCRA Facilities Assessment (RFA) and 2) activities conducted by DOE as part of the Comprehensive Environmental Assessment and Response Program (CEARP), the forerunner of the ER Program. Sites identified by these assessments are cross-referenced to the current potential release sites included in the ER Program.

# 2. SUMMARY OF SPILLS AND ENVIRONMENTAL RELEASES

## 2.1. RECORDS OF THE SAFETY OFFICE

As a government-owned, contractor-operated facility, Mound Plant must operate in compliance not only with Executive Orders and Orders of the DOE, formerly the Atomic Energy Commission (AEC), under the Atomic Energy Act (AEA) (42 U.S.C. 2201 et seq.), but with federal and state statutes and regulations, and corporate safety policies. EG&G-MAT has been the operational contractor since 1988, MRC was the operator from 1948 to 1988 (DOE 1991a). Under orders from the AEC and DOE, MRC and EG&G-MAT have conducted accident and incident investigations and maintained records of these investigations.

DOE Order 5484.1 establishes the requirements and procedures for the reporting of information concerning environmental protection, safety, and health protection for all DOE facilities. Three types of investigations are defined by DOE Order 5484.1: 1) Type A board investigations in which a conflict of interest or sensitive issue may permit only DOE personnel to be appointed; 2) Type B board investigations in which all contractor employees or both DOE and contractor employees may be appointed; and 3) Type C non-board investigations conducted by DOE contractor personnel when their operations are involved. Type A investigations typically involve a fatal accident or an incident so severe that an in-depth investigation is justified. At the other end of the spectrum, a "near miss" incident is defined by the operating contractor as one that meets minimum criteria for which an investigation will be conducted. An "unusual occurrence" is defined by DOE Order 5000.3 as an unplanned event that has programmatic significance such that it adversely affects, or potentially affects the performance, reliability or safety of a facility.

Table II.1 is a summary of data compiled by review of accident and incident investigation reports maintained in the plant safety office. Only incidents that apparently resulted in a spill or an environmental release are included in the compilation. By and large, the majority of spills and releases listed in Table II.1 qualified as Type C investigations, unusual occurrences or near misses. Investigation and reporting of the latter was handled by MRC and EG&G-MAT in much the same manner as Type C investigations, although they did not truly qualify as such.

Only one incident in this record was observed to have qualified to trigger a Type A investigation board. This was the tritium release of November 8, 1989, in which over 38,000 curies of tritium were accidentally released to the atmosphere. This incident resulted in a formal DOE review panel, a news release and a public press conference. The incident investigation report was completed January 1990 (Table II.1) A smaller tritium release of 132 curies on March 13, 1973, also resulted in a formal

## Table II.1. Summary of Spills and Environmental Releases from Records of the Safety Office

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 02/12/63 | South end SW Bldg. | H-3 | "Low-level" | Fire of paper covering metal during cutting and drumming for disposal (63-13). | MRC Incident Investigation Report No. 63-13 (2/14/63). |
| 03/04/63 | Historic landfill | Misc. chemicals | Unknown | Explosion of incompatible chemicals in deteriorated containers; no radioactivity. | MRC Incident Investigation Report No. 63-19 (2/19/63). |
| 10/27/64 | SM Bldg. | Pu-238 | Unknown | Methanol vapors inside fumehood exploded; possible air release. | MRC Incident Investigation Final Report 11/23/64 - record incomplete. Use of flammable solvents within gloveboxes prohibited by AEC. |
| 02/26/65 | SM Bldg. | Pu-238 | Unknown | Ruptured can of trash in Room 26; possible air release; possible water release. | MRC report 3/2/65 - record incomplete. |
| 03/06/65 | SM Bldg. | Pu-238 | Unknown | Acid release in Room 59; possible air release. | MRC report 3/8/65 - record incomplete. |
| 08/27/65 | SM Bldg. | Pu-238 | Unknown | Fire in Room 38; possible air release. | MRC report 9/7/65 - record incomplete. |
| 05/20/66 | SM Bldg. | H-3 | Unknown | Unidentified release of tritium to SW stack. | MRC Incident Investigation Report No. 66-26 (5/27/66). Recommendations to re-evaluate mechanical and engineering conditions of ERS. |
| 09/08/67 | WTS west of SM Bldg. | Pu-238 | Unknown | Flanges in line found unbolted; low-risk line contaminated, including soil to 15 ft downslope; high-risk line not in use yet. | MRC Incident Investigation Report No. 67-21 (10/10/67). Soil cleanup proposed (no cleanup guideline given) with periodic system inspections. |
| 11/09/67 | Wasteline south of SW/R Bldgs. | "Low-level radioactivity" | 1,500-2,000 gals | During wasteline repair wastewater spilled across road to storm drains and then to drainage ditch; about 7.65 millicuries released. | MRC Incident Description 11/17/67. 10 on-plant and 7 off-plant water samples collected 5 to 20 minutes after spill; highest air reading 1200 dis/min/mL; highest water reading 216.0 dis/min/mL at culvert exit to drainage ditch. |
| 03/30/68 | SM Bldg. | Pu-238 | Unknown | Reversal of air flow in SM stack; possible air release. | MRC Incident Investigation Report No. 68-8 (4/10/68). |

## Table II.1. (page 2 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 04/03/68 | SM Bldg. | Pu-238 | Unknown | Explosion in glovebox in Room 35A; possible air release. | Interim Report 4/18/68 by DAO - record incomplete. New PP Bldg. facility evaluated to ensure similar incident could not occur. |
| 01/23/69 | WTS below WD Bldg. | Pu-238 | 1,000(?) gals | High-risk caustic solution spilled from a leak in the pipeline. | MRC Investigation Report 2/11/69. Line repaired; at least seventy-five 30- and 55-gal drums filled with contaminated soil (as of 1/25/69); report of 2/11/69 noted that four known leaks occurred since May 1968. |
| 10/07/70 | R Bldg. | $MoF_6$ HF | About 1 pound | Fracture of transfer line and discharge of cylinder to fumehood and R Bldg. stack; included molybdenum hexafluoride, hydrogen fluoride, and molybdenum oxyfluorides, no radioactivity involved. | MRC Incident Investigation Report No. 70-18 (10/19/70). |
| 12/70 | T Bldg. Wasteline | Po-210 | Unknown | Routine samples at SD influent showed increased alpha activity; source traced to cracked wasteline west of T Bldg.; seepage found to have migrated across to sanitary wasteline in adjacent manhole. | Memo to AL from DAO 5/26/72 - record incomplete. 39 30-gal drums of soils excavated and shipped off-plant for disposal by mid-March 1971; estimated 20 $\mu$Ci removed; leaks repaired. |
| 02/10/71 | SM Bldg. | Pu-238 | 49.9 $\mu$Ci | Fire in Rooms 27 and 35; releases mostly through stack; little or no material tracked by firefighters. | MRC Incident Investigation Report No. 71-5 (2/24/71). Mound and Miamisburg fire departments responded; sampling at stack measured indicating 49.9 $\mu$Ci represented 62.4% of RCG. |
| 05/26/71 | SW Bldg. | H-3 | 1,100 Ci | Condensate liquid sprayed area during drainage; material vented to stack. | MRC Incident Investigation Report No. 71-16 (6/9/71). Cause of pressurization unexplained; gauges installed to monitor. |
| 09/02/71 | HH Bldg. | H-3 | 3,600 Ci | Liquid nitrogen trap ruptured causing tritium contaminated gas and oil to be vented to atmosphere. | MRC Incident Investigation Report No. 71-25 (9/14/71). |
| 11/03/71 | PP Bldg. | Pu-238 | Unknown | Fire detection sprinkler head failed, causing water to cover floors in filter banks; no significant increase in stack effluent. | MRC Incident Investigation Report No. 71-28 (11/11/71). |

## Table II.1. (page 3 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 11/03/71 | SD System/Outfall #1 Sampling Station | Pu-238 | | Increase in gross alpha concentration in standard 24-hour sample; activity increased from 0.5 (normal) to 205 dis/min/mL; dropped to 15 dis/min/mL by 11/12/71. | MRC memo to file 11/9/71 - record incomplete. Source traced to termination activities in SM Bldg. where sanitary drains left uncapped; pipes plugged. |
| 11/05/71 | Outfall #1 Sampling Station | H-3 | 3.75 Ci | Increase in tritium concentration in standard 24-hour sample; about 160,000 gals water with 6.2 $\mu$Ci/$\ell$ tritium discharged through pipeline to river. | MRC Incident Investigation Report No. 71-29 (11/12/71). Source tentatively identified as SW Bldg.; quantity of tritium released estimated to be half that released in a "normal" month and about double that released from SD system in "normal" month. |
| 12/09/71 | SW Bldg. | H-3 | 270 Ci | Seal on vacuum pump ruptured, releasing oil and water vapors to atmosphere. | MRC Incident Investigation Report No. 71-35 (12/27/71). Recommendations to check and modify all vacuum pumps. |
| 01/17/72 | SM Bldg. | Pu-238 | Unknown | Frozen water lines in filter banks burst, releasing water to building and outside areas, plant drainage ditch. | MRC Incident Investigation Report No. 72-4 (2/17/72). Release caused exceedance of annual goal for plutonium in January alone, no concentration data given; new asphalt laid on the old pavement behind SM Bldg.; formal Type B investigation committee report 5/17/72. |
| 03/09/72 | HH Bldg. | H-3 | 150 ± 75 Ci | Repair of raw gas system cut by maintenance personnel causing about 56 liters of 0.1% tritium to be released to the atmosphere. | MRC Incident Investigation Report No. 72-7 (3/16/72). Continuous sampling stations both on- and off-plant remained below 1% of RCG. |
| 04/26/72 | PP Bldg. | Pu-238 | 100 gals | Contaminated water (12,000 dis/min/mL) from process chill system ran to ground south of PP Bldg. | MRC Incident Investigation Report No. 72-12 (5/4/72). Twenty 55-gal drums (1/2 full) of contaminated soil removed from area; decontamination level not reported. |
| 05/25/72 | WD Bldg. | Pu-238 | About 4,000 gals | Overflow of low risk tanks to storm sewer and plant drainage ditch. | MRC Incident Investigation Report No. 72-16 (6/15/72). Contamination level 523 dis/m/mL below hazard reportable to AEC, but above allowable discharge; safety alarm system modified. |

## Table II.1. (page 4 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 07/23/72 | SW Bldg. | H-3 | Unknown | Repair of pipe to a drip tank in the Effluent Recovery System released tritium to the stack. | MRC Incident Investigation Report No. 72-20 (7/27/72). |
| 07/28/72 | SW Bldg. | H-3 | Unknown | Replacement of a drying tower drainline resulted in release of tritium to stack. | MRC Incident Investigation Report No. 72-21 (8/3/72). |
| 08/25/72 | PP Bldg. | Pu-238 | Unknown | Repair of glovebox by carpenter resulted in some contamination tracked around area. | MRC memo 9/6/72 - record incomplete. Work violated several standard operating procedures. |
| 09/08/72 | SW Bldg. | H-3 | Unknown | Repair on 3/8 inch copper line of Effluent Removal System resulted in about 20 mL to be leaked to floor and vapors to be emitted through the stack. | MRC Incident Investigation Report No. 72-26 (9/15/72). |
| 09/08/72 | SM Bldg. Storm Sewer | Pu-238 | Unknown | Low-risk wastewater tank overflowed onto ground and into storm sewer. | MRC Incident Investigation Report No. 72-27 (9/18/72). Elevated levels of plutonium (420 dis/m/mL) measured in storm sewer outflow to drainage ditch; water sample taken in drainage ditch 9/9/72 showed no elevated activity - actual activity level not noted. |
| 10/27/72 | Firefighter Training Pits | Stoddard solvent | About 50 gals | Solvent released from open drain to plant drainage ditch from one pit while other pit used for fire training. | MRC Incident Investigation Report No. 72-29 (11/2/72). Downstream sample indicated only a trace of solvent; no data values reported. |
| 03/13/73 | SW Bldg. | H-3 | 132 Ci | Repair of ball valve on Effluent Recovery System resulted in release of liquid to prepared container and subsequent atmospheric release. | MRC Incident Investigation Report No. 73-08 (3/23/73). Diffusion calculations indicated 2.8 times the RCG at the plant boundary as averaged over a 24-hour period; formal investigation committee was formed 3/14/73; a news release was issued 3/15/73 and a press conference was held 3/16/73. |

## Table II.1. (page 5 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 06/06/73 | Powerhouse | Fuel oil | 50-100 gals | Overflow of storage tanks during filling. | MRC Incident Investigation Report No. 73-16 (6/15/73). Earthen dike at outfall of storm sewer prevented some material from entering stream; water sample downstream showed a high of 172.5 mg/L oil and grease on 6/6/73; 8.2 mg/L on 6/7/73; and no detect on 6/8/73. |
| 07/12/73 | SM Bldg. | Pu-238 | 7.8 μCi | Installation of new HEPA filters - blowers not shut down, release noted in stack monitors and blowers immediately turned off. | MRC Incident Investigation Report No. 73-20 (7/19/73). Release of 7.8 μCi calculated from stack data; 2.6% of RCG at the fenceline and 68.6% of RCG at Library Park, Miamisburg. |
| 07/18/73 | SW Bldg. | H-3 | 865 Ci | Rupture of welded joint in thermal diffusion column ion chamber; uncombined gaseous state tritium released to atmosphere. | MRC Incident Investigation Report No. 73-21 (8/3/73). Routine and special tritium air samples at the fenceline only slightly higher than normal; no data values reported. |
| 08/30/73 | Sewer north of WD Bldg. | "Radioactivity" | Unknown | Stones tossed out of process waste sewer contaminated surrounding soil. | MRC Incident Investigation Report No. 73-23 (9/10/73). Debris bagged and placed in area involved covered about 48 square feet; one 30-gal drum for disposal. |
| 12/26/73 | Plant Drainage Ditch | Oil slick | Unknown (>100 gal?) | Oil slick observed on water in plant drainage ditch. | MRC Incident Investigation Report No. 73-33 (1/15/74). Inspection for source of spill into drainage ditch above Bldg. 51 waste incinerator; thought not to be fuel oil or waste oil from Bldg. 51 tank (although no inventory records for the tank); volume greater than 6/6/73 incident; possible source at powerhouse but no source confirmed; water samples taken, highest "oil" content 84, 247 mg/L at junction of Miami-Erie Canal on 12/16/73. |

## Table II.1. (page 6 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 02/02/74 | Miami-Erie Canal | Pu-238 | Unknown | Reinvestigation of offsite plutonium contamination in north and south canal, city ponds and plant drainage ditch. | MRC Incident Investigation Report No. 74-13 (9/16/74). Accident investigation committee formed May 1974 to find cause for plutonium in Miami-Erie Canal and city ponds; report details sequence of events surrounding 1/23/69 spill; release estimated at 400 Ci (uncertainty suggests 200-800 Ci), with 158 Ci drummed in 1969, 22 Ci left on hillside and 220 Ci left in pipe break hole; additional cleanup at hillside initiated and 2,700 cu. ft. of soil removed (Black 1974); subsequent detailed study of Miami-Erie Canal (Rogers 1975). |
| 07/18/74 | WTS below WD Bldg. | Pu-238 | Unknown | Leak at joint in transfer line discovered. | "Report of Property Damage or Loss" (Form No. AEC 283) 7/24/74 - records incomplete. Thirty-four drums of contaminated soil excavated for disposal; elimination of WTS pipeline recommended. |
| 08/23/74 | West of WD Bldg. | Pu-238 | 1 liter (7 mCi) | Leak in steel drum containing high-risk acid waste found about 40 ft west of WD Bldg. dock area. | MRC Incident Investigation Report No. 74-14 (8/30/74). Removal of silt, dirt, and asphalt to level of 0.03 nCi/g; 120 drums and 14 boxes removed by 8/27/74. |
| 01/21/75 | R Bldg. | "Radioactive dust" | Unknown | Removal of contaminated copperline and sheet metal duct work; possible air release. | MRC Incident Investigation Report No. 75-02 (1/30/75). |
| 11/12/75 | WD Bldg | Pu-238 | Unknown | Flow of air from high-risk filter bank to low-risk bank resulted in possible air release. | MRC Incident Investigation Report No. 75-10 (11/20/75). |
| 01/01/77 | SW Bldg. | H-3 | 123 Ci | Sprinkler line froze and burst causing a short in glovebox control system and release of tritium to atmosphere. | "Report of Property Damage or Loss" (Form No. AEC-283) 3/31/77 - records incomplete. |
| 12/11/77 | WD Bldg. | "Alpha" | 10,000 gals | Pipe failure in sprinkler system; spread of water controlled by temporary dike containment barrier. | "Report of Property Damage or Loss" (Form No. AEC-283) 12/13/77 - records incomplete. |

## Table II.1. (page 7 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 03/28/78 | SW Bldg. | H-3 | Unknown | Apparent atmospheric release from vane pump failure. | Informal Committee Report 5/3/78 - records incomplete. |
| 06/15/78 | SW Bldg. | H-3 | 805 Ci | Release occurred while connections were being made between a secondary storage container to proper containment. | MRC memo to file 6/16/78 of unusual occurrence. Total amount of tritium released was calculated to be 805 Ci with 99% of this as elemental tritium. |
| 03/24/83 | M Bldg. | Copper cyanide | 8 gals | About half of tank of bath solution (800 gms copper cyanide in water $Cu(CN)_2$) lost into floor drains to dilution tank; no visible evidence of dilution drainage. | MRC Incident Investigation Report No. 83-5 (4/13/83). No measurable impact to Sanitary Treatment Facility; the dilution tank observed to be losing water somewhere other than the exit drain; trace of copper found at sanitary waste treatment plant; no data values reported. |
| 04/13/83 | M Bldg. | Silver cyanide | 4.2 gals (2 lbs cyanide) | Unused plating solution released by accident to floor drains and sanitary sewer. | MRC Incident Investigation Report No. 83-5A (5/5/83). No measurable impact to Sanitary Treatment Facility; no data values reported. |
| 08/18/83 | Powerhouse | No. 2 Fuel Oil | 10 gals | Leak from oil pump drained to trench in floor and to storm sewer, the plant drainage ditch, and the Great Miami River. | MRC Incident Investigation Report No. 83-15 (8/23/83). OEPA inspected spill site. |
| 05/31/84 | Bldg. 19 | Cobalt-60<br>Cesium-137 | Unknown | About 20 linear ft of steel and iron pipes removed from sump in Room 16 of T Bldg. spread contamination to truck and pavement at Bldg. 19 during salvage operations. | MRC Incident Investigation Report No. 84-11 (6/15/84). About one-half pound of dirt removed from floors of T Bldg.; small section of asphalt removed at Bldg. 19 and some of the bed of the truck used was removed and boxed for disposal. |
| 04/17/85 | SW Bldg. | Zinc chromate<br>Brine solution | 300 gals | During turning on new pipeline, drain plug left off; brine ran onto floor and out onto driveway on west side of bldg. | MRC Incident Investigation Report No. 85-10 (4/29/85). Below EPA reportable volume; investigation report recommended replacing zinc chromate, a suspected carcinogen, with another substance. |
| 04/11/85 | Powerhouse | Refrigerant | 1,000 lbs | Loss of refrigerant occurred over period of time; released to atmosphere. | MRC Incident Investigation Report No. 85-11 (5/1/85). No environmental impact noted. |

## Table II.1. (page 8 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 08/28/85 | SW Bldg. | H-3 | 50 Ci | Unplanned transfer between holding tank and effluent removal system; tritium released through SW stack. | MRC Incident Investigation Report No. 85-22 (9/11/85). Two separate incidents recorded. |
| 08/28/85 | SW Bldg. | H-3 | Unknown | Leak in piping at condensate tank. | MRC Incident Investigation Report No. 85-22 (9/11/85). Contribution to 50 Ci released through stack unknown. |
| 01/09/86 | A Bldg. | Cooling brine (zinc chromate, calcium chloride) | 600 gals | During maintenance, a ventline was fractured that released chilled water brine (18% by volume calcium chloride and 1,600 ppm zinc chromate) into basement of A Bldg.; some unknown quantity reached drainage ditch and was diverted to overflow pond. | MRC informal investigation report 1/15/86. Since zinc chromate was not listed, the incident was not reportable; 300 gals recovered in A Bldg. basement, 360 gals (diluted) recovered in drainage ditch below Bldg. 29; about 100 gals lost downstream. |
| 04/24/87 | SW Bldg. | Cooling brine (calcium chloride, zinc chromate) | 2,100 gals | Leak in cooling pipes on roof of SW Bldg. discharged to storm sewer and plant drainage ditch; remainder of spill of brine solution (162 ppm chromium VI) controlled by diversion into 55-gal drums. | MRC Incident Investigation Report No. 87-11 (5/1/87). Spill exceeded concentration and reportable quantities and the National Response Center, OEPA, and City of Miamisburg notified; data from the composite sampler on the NPDES outfall 001 pipeline indicated that nearly all the brine was discharged to the Great Miami River. |
| 05/04/87 | Bldg. 57 | Chlorine gas | <150 lbs | Improper removal of regulator from bottle of compressed gas resulted in atmospheric release of chlorine gas. | MRC Incident Investigation Report No. 87-10 (5/8/87). No environmental impact noted. |
| 07/06/87 | Powerhouse | Cooling brine (calcium chloride, zinc chromate) | 475 gals | Leak in water makeup line resulted in discharge to storm sewer and plant drainage ditch to the overflow pond where it was contained; water contained 134 ppm chromium VI (0.54 lbs). | MRC Incident Investigation Report No. 87-13 (7/14/87). Spill did not exceed reportable quantities, no regulatory agencies notified. |
| 08/17/87 | M Bldg. | Beryllium | Unknown | Suspected air pollution problem - none positively identified; some Be found in cooling water (516 $\mu$g/L) probably splashed during machining operations. | MRC Incident Investigation Report No. 87-18 (9/30/87). RAPCA notified; no actual environmental release was documented. |
| 09/17/87 | M Bldg. | Oil (low odor 410 resaturant) | Unknown | Rainfall washed oil applied during roof repair down drains and into plant drainage ditch and the overflow pond. | OEPA notified by letter from MRC 9/17/87. No incident report found. |

## Table II.1. (page 9 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 09/17/87 | WD Bldg. | Calcium carbonate | 30,000 gals | High pH (11.7-11.8) wastewater released from WD Bldg. (87-21). | MRC Incident Investigation Report No. 87-21 (10/8/87). OEPA notified 9/17/87. |
| 12/15/87 | Bldg. 2 | Cooling water (ethylene glycol) | 22,000 gals | Leak in chilled water system resulted in discharge of solution of 30% by volume ethylene glycol to plant drainage ditch and overflow pond (87-13). | MRC Incident Investigation Report No. 87-31 (1/5/88). Did not involve hazardous substance as defined by EPA; dilution of glycol with water in overflow pond prevented discharge of concentrated glycol to Great Miami River. |
| 01/06/88 | Powerhouse | #2 Fuel oil | 200 gals | Overflow of storage tank to surrounding soil; flow contained before it reached the plant drainage ditch. | MRC Incident Investigation Report No. 88-1 (1/26/88). Spill did not reach overflow pond or Great Miami River; not reported as environmental problem. |
| 05/26/88 | M Bldg. | Waste oil (Cimperial 1011) Freon | 55 gals | Drum ruptured violently expelling contents on walls and driveway surfaces and grassy area west of M Bldg. | MRC Incident Investigation Report No. 88-13 (6/14/88). Near-miss accident; "floor dry" used to absord ponded liquid; drum moved. |
| 05/27/88 | OS West Bldg. | Cooling water (ethylene glycol) | 2,250 gals | Valve failure on new installed air conditioning units resulted in loss of chilled water solution (30% by volume ethylene glycol) to sanitary sewer and waste treatment plant. | MRC Incident Investigation Report No. 88-15 (6/7/88). Liquids contained in sanitary system and not released to environment; 200,000 gal glycol-contaminated sewage was stored; other half of waste treatment plant continued unimpeded. |
| 09/01/88 | SW Bldg. | H-3 | 300 ± 50 Ci | Erroneous use of pure hydrogen compressed gas in tritium aqueous waste recovery system resulted in release of elemental tritium to stack. | MRC memo from Tritium Environment and Safety Overview Committee (9/15/88). Below DOE and other regulatory reportable quantity (RQ) limits; calculated radiation dose to off-plant individual was 0.00001 mrem, well below RQ of 25 mrem by 40 CFR 61. |
| 07/20/89 | Powerhouse | Fuel oil | 10-15 gals | During the moving of a 500-gal tank, the drain plug was broken, releasing fuel oil to the soil on the southside of the powerplant. | EG&G-MAT Incident Investigation Report No. 89-21 (8/1/89). |

## Table II.1. (page 10 of 10)

| Date | Location | Material | Amount | Incident | Response |
|---|---|---|---|---|---|
| 11/08/89 | SW Bldg. | H-3 | 38,268 Ci | During unloading of a container, tritium was released into a fumehood and then exhausted to the stack and to the atmosphere. | DOE Type A Investigation Board Report January 1990; Ohio Emergency Management Agency, Miami Valley Emergency Management Authority, City of Miamisburg and EPA/Southwest Ohio District Officer were notified; some delay was incurred by DOE HQ's lengthy approval process; press release and press conference were held the evening of the incident; final calculated off-plant maximum individual exposure was 0.004 mrem; analysis of water, grass, and milk samples indicated no significant impact. |
| 12/21/89 | SW Bldg. | H-3 | 27 Ci | Leak occurred during removal of corroded section of condensate line resulting in tritium diffused to stack and atmosphere; initial estimate was 54 Ci. | EG&G-MAT Unusual Occurrence Report No. 89-14 (12/21/89). |
| 04/27/90 | Powerhouse | PCB oils | 2-3 qts. | Apparently seal on spare transformer failed causing leak; lab results indicated 64,500 ppm - PCB. | EG&G-MAT Unusual Occurrence Report No. 90-8 (5/9/90). Leak reported to EPA although the RQ is 1 lb or greater (the release involved less than one-half lb); subsequent sampling by ER Program resulted in Removal Action (DOE 1991d). |

AEC - Atomic Energy Commission
WTS - Waste Transfer System
RCG - radioactivity concentration guide
HEPA - high efficiency particulate air filter
EPA - U.S. Environmental Protection Agency
OEPA - Ohio Environmental Protection Agency
NPDES - National Pollutant Discharge Elimination System
RAPCA - Regional Air Pollution Control Authority
RQ - reportable quantity
SD - Sewage Disposal
dis/min/mL - disintegrations per minute per milliliter (equals $4.505 \times 10^{-7}$ $\mu$Ci per mL)

investigation committee, a news release and a press conference, which was held at Mound Plant on March 16, 1973. No evidence was found, however, that the latter was truly a Type A investigation involving only, at the time, AEC personnel.

The only formal Type B investigation was a "possible Type B occurrence" on January 17, 1972. A frozen water line burst in the penthouse of the SM Building, where the filter banks were located. Reports relating to this incident indicate elevated levels of plutonium-238 in the surface water in the plant drainage, but no data as to the actual concentrations were found in any of the documents. The levels were reportedly "very high."

Two incidents involving explosions in glovebox operations are inferred to have triggered Type B investigations, because references were made in the incident reports of joint MRC-AEC committee findings. These incidents occurred on October 27, 1964, and April 3, 1968, and both involved plutonium-238 operations. Neither of these events resulted in a proven environmental release; the atmospheric releases are inferred from the incident descriptions (Table II.1).

Informal committees were formed in the mid-1970s to investigate the presence of plutonium in the Miami-Erie Canal. The plutonium was discovered during routine environmental sampling and confirmed by core sampling in 1974. In February 1974, an investigative committee was formed to "find cause" for the off-plant deposit (Table II.1). No single event was identified as the sole cause, although effluent discharges from SM and WD Building operations, contaminated soil erosion, and the January 1969 wasteline break were highlighted. A public announcement of the off-plant plutonium deposit was made May 15, 1974. The incident investigation committee report (MRC Incident Investigation No. 74-13; Table II.1) contained a "historical picture" generated from record searches from available materials and personnel interviews. Two tables were included entitled "Documented" and "Undocumented." All of the incidents in the documented table are corroborated in Table II.1. The undocumented information has not been confirmed by this investigation nor by the 1974 investigation committee, but the entire table is retyped in Table II.2.

A second committee was formed in August 1974 to assess the impact of the wasteline break on soil contamination and the erosion of contaminated soil to the plant drainage ditch (DOE 1974). In October 1974, briefings were held for federal, state and local health agencies and congressional representatives. In January 1975, the manager of the Albuquerque Operations Office of the AEC appointed an additional investigative committee, referred to as the "Ad Hoc committee" to evaluate the health and safety aspects of the plutonium-238 in the environment of Mound Plant, then known as Mound Laboratory (DOE 1976). The results of a detailed sampling campaign in the Miami-Erie Canal were published shortly thereafter (Rogers 1975).

Table II.2. Transcription of "Undocumented" Spills from Appendix B of MRC Investigation Report No. 74-13, "Plutonium Off-Site."

| | |
|---|---|
| 1963 or 1964 | Leaking drums R&R (Feed Material) Storage and behind SM Building and Building 33 (no known contamination). |
| 1963 | Pipe break (dry) SM 20/21 during December. Airborne contamination. |
| 1963 or 1965 | Washed off truck behind R-Building decontaminated. $H_2O$ went to storm sewer. |
| 1963 to 1965 | Hot sollution possibly poured down drain (cold) SM Building, Room #3, during 1963 to 1965 time frame. |
| 1964 | Tracking problem outside SM Building. Washed area down with fire hose - run-off water went over the hill to storm sewer systems. |
| 1964 or 1965 | Someone remembered high counts on SM Hill; i.e., on rocks, tree roots, etc. |
| 1965 | Someone remembered a liquid leak in Room 34 of SM. Could not remember if contamination got outside building or size of leak. |
| 1965 to 1974 | In area between SM-PP Buildings, high and low-risk manhole contained hot dirt (drummed up). This manhole for access only; not connected to any sewer system. |
| 1965 to 1968 | SM #57 storage vault $H_2O$; where was it pumped to? Think to hot drain. |
| 1965 to 1968 | SM 28 and 60 cooling $H_2O$ to plasma torch; where did leaking $H_2O$ go? Someone thinks to storm sewer. |
| 1966 | Pipe break in lower levee near river; low contamination located west of Rt. 25. |
| 1966 | Contaminated $H_2O$ SM #39 area hot and cold sides contaminated (glovebox filled with water). |
| 1966 to 1967 | SM Building, Room 38, resin fire in glovebox, contained in same. |
| 1966 to 1973 | PP-Building acid room drains, drained to where? Appears to back field. |
| 1967 to 1971 | WDA effluent after treatment routed to storm drain. |
| 1967 or 1968 | Leaking drum R&R Building. Storage tanks overflowed at same time. No known contamination. |
| 1967 to 1968 | SM, Room 10, waste raised contamination level of WDA effluent tanks. |
| 1967 to 1969 | Repaving of SM contaminated. Bad weather (rain) run-off $H_2O$ to storm sewers. |

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| | |
|---|---|
| 1967 | Near HH Building, line breakage, February 22, 1967. (No contamination as a result of incident was remembered.) |
| 1967 | May 16 - high, low risk lines installed. Hot influent received at WD August 15, 1967. |
| 1968 or 1969 | Hot pavement behind SM Building to Building 30. Pavement dug up and drummed out. |
| 1967 to 1971 | Duct work changed top SM Building. Gravel contaminated, drummed up and removed. Rain washed $H_2O$ to storm sewer. |
| 1969 or 1970 | Scrub tower corrosive vapor system PP-Building. Room 13 overflowed. |
| 1969 | March - Building 41 overflow. |
| 1969 | April - WD charged line broken fluorinator. No known contamination. |
| 1969 | April - Leaking tank enclosure R&R (SM-PP area) (high, low risk). |
| 1972 | Overflow Building 41, $H_2O$ from SM termination. |
| 1971 | S.D. connection from SM not plugged. Contaminated $H_2O$ to SD plant. |
| 1972 | Sept. 18 - overflow to SM Building, $H_2O$ from SM termination 72-27. (very low counts) |
| 1963 to 1964 | Someone remembered a 30-gal. water leak to storm sewer (SM #1), 50,000 counts/min. |

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## 2.2. CORRELATIONS WITH OTHER RECORDS

Table II.3 presents an independent summary of radiation incidents at Mound Plant. This table was compiled by a health physics worker at Mound Plant from records and field logs in the Health Physics Office. These records are maintained to document worker exposures to radioactive materials, a task well beyond the scope of CERCLA and this report. The Privacy Act protects these data from public scrutiny; however, during the review for this report, data on documented and possible spills and environmental releases were noted in these records and are included in Table II.3. In addition to dates and locations of accidents and radiation incidents, Table II.3 provides valuable information on dates of use of isotopes, project dates and other data that proved helpful in compiling the Site Scoping Report: Volume 7 - Waste Management (DOE 1991c). The table is transcribed exactly as provided, and some original errors are noted. For example, uranium-233 was entered for January 1961, but the isotope was undoubtedly uranium-238.

Most of the incidents listed in Table II.1 have been correlated with listings in Table II.3. However, several incidents are not common to both and are known only by a single entry, and some facts remain unclear. One such example is the erroneous citation in the RCRA Facilities Assessment (RFA) (EPA 1988) concerning an "incident in October of 1971, a spontaneous fire of solvents and plutonium (resulting from improper storage of materials) released 49.9 $\mu$Ci of plutonium...". Table II.1 shows that the incident that released 49.9 $\mu$Ci of plutonium occurred in February 1971 (2/10/71, not 10/71) and was a major event in which the Miamisburg Fire Department responded. However, no such date is listed in Table II.3. Table II.3, however, lists an entry for October 12, 1971, but only personnel exposure data not included in the Table II.3 tabulation were recorded. Both Tables II.1 and II.3 include entries on March 13, 1973, for an incident that released 132 curies of tritium to the atmosphere. The RFA correctly listed the date of the latter, but stated that 163 curies were released (EPA 1988).

Table II.3. Excerpts From Radiation Incident Records - Health Physics Office

| Date | Building | Rooms | Isotope | Description of Incident |
|---|---|---|---|---|
| 2/0/49 | HH | | Po-210 | Hot operations began. |
| 3/29/49 | T | | Po-210 | Contamination spread during ventilation shutdown. |
| 6/10/49 | R | 122 | Ra-226 | Cooling jacket for volatilization condensor water in hood #6 leaked through hot waste outlet to floor, main corridor, and into 158 & 159; area unoccupied; check hot corridor drains to waste disposal plant? |
| 5/4/50 | R | 142 | Ra-226<br>Po-210 | Explosion in hood #1, fire; 0.75 Ci Po-210 in capillary intact; beaker with 100 $\mu$Ci radium spilled in hood opposite; floor & hood contaminated. |
| 1/22/52 | T | | Po-210 | Joint wind speed, direction, stability table for Mound produced. |
| 7/22/52 | R | 114 | Ac-227 | Actinium perchlorate solution leaked in safe, contaminated lab. |
| 4/3/54 | T | | | Fire in neutron source paraffin; fast n=300/cm2/s 6 ft; gamma=2 mR. |
| 3/8/55 | | | Th-230<br>Po-210 | Mention of thorium program; proposed WD handling of GP SW Building raffinate and diuranate; moving I work to T will require 5 urine/wk for Th, 3 river samples Th, 40 urines/wk Po, 10 veg/2 wks Po, 8 river water + 4 muds/wk Po. |
| 4/12/55 | | | Th | Memo: will tank truck shipping Th to Fernald have decon problems? |
| 5/24/55 | M | 20 | | LiOH fire in Livermore Project drybox. |
| 12/2/55 | | | Th-230 | Ionium program; Mallinckrodt will ship raffinate from uranium refinery. |
| 12/5/55 | R | | Th, Pu | New ionium and plutonium work in R bldg. |
| 1/1/56 | | | Th, Ra | Problems in R Building with thorium daughters commingling with daughters from radium-actinium program. Solved when Th program cancelled; 630 drums of Th decantate discharged to river; Pa separation set up HH. |
| 3/22/56 | R | 149 | Pa-231 | Microcurie quantities being handled. |
| 3/22/56 | SW | G1B | Pa-231 | Columns set up for purification, due to start 3/26/56. |
| 3/22/56 | R | 133 | Th-230 | Ionium program due to begin 3/26/56. |
| 3/22/56 | R | 116 | Pu-239 | Neutron source production scheduled to begin 6/6/56. |
| 8/6/56 | | | | Health Procedures Manual, MLM-208, prepared by J.E. Bradley. |

Table II.3. (page 2 of 4)

| Date | Building | Rooms | Isotope | Description of Incident |
|---|---|---|---|---|
| 11/27/56 | T | 277 | Po-210 | Po emitted as vapor from T-279, room filters nearly plugged. |
| 1/16/60 | R | | Pu-238 | Special metal separation and purification project. |
| 3/24/60 | | | | Fire in garbage truck, may be caused by uranium salts. |
| 5/15/60 | SW | 8 | H-3 | Manostat flow regulator and bellows pump located in thermal diffusion columns failed, Hg spilled, much of SW and R buildings hot. |
| 5/26/60 | T | 254 | Po-210 | Carbonyl reacted with oxygen, flask exploded, cracked window; little or no radioactivity escaped room. |
| 7/21/60 | SW | 8 | H-3 | Hot mercury spilled from gauge; tracked in SW and R; special investigation. |
| 10/3/60 | R | 108 | H-3 | Interior of 12 L vessel cleaned with tri and tetrachloroethylene, which was spilled on floor and tracked around a wide area. |
| 1/10/61 | M | Dumpster | U-233? | Fire in dumpster caused by uranium chips from uranium lathe. |
| 6/7/61 | SW | 8 | H-3 | Gas escaped from 100 L tank when cover removed under exhaust fan at base of West stack; replaced by type 1A tanks; planned release. |
| 2/1/62 | R | 116 | Pu-239 | Exposures to nickel carbonyl gas due to containment failure; could be Pu contamination as well. |
| 11/9/62 | R | 1208 | Pu-238 | Fire in primary HEPA filter while cutting walk-in box with torch. |
| 12/18/62 | SM | 1 | Pu-238 | High level waste PVC pipe broke. |
| 1/16/63 | R | 149 | Pu-238 | Overpressure in argon system popped glove off drybox 3 in SNAP line. |
| 4/26/63 | SM | 10 | Pu-238 | Spill during transfer. |
| 9/24/63 | SM | 21 | Pu-238 | Pu waste for calorimetry melted bag, setting off air monitor. |
| 6/11/64 | T | 275-27 | Po-210 | Material spilled from South concentration cell passbox onto floor; tracked throughout low risk side and stairwell 13, platform floors and acid storage area. |
| 10/27/64 | SM | 35 | Pu-238 | Explosion. |
| 10/30/64 | T | 267 | Po | Fire in glove box 5, line 1; 50 mR/hr gamma, indicates 500 Ci Po. E-41 exhaust = 1029 cpm/11.43 m3 (normal = 100). |
| 2/26/65 | SM | 10 | Pu-238 | Incident in facility. |
| 2/26/65 | SM | | | Opened hot waste drum without asking. |

Table II.3. (page 3 of 4)

| Date | Building | Rooms | Isotope | Description of Incident |
|---|---|---|---|---|
| 8/26/65 | R | 145 | Pu-238 | Organic and acid wastes were mixed; polyethylene bottle in hood exploded, flooding floor of hood; activity contained to hood with no personnel exposure; solution contained HNO3, sulfamic acid, ferrous ammonium sulfate, NaF, trioctylphosphine oxide, cyclohexane, ethanol, triethanolamine, 1-(2-pyridylazo)-2 napthal, Pu-238, 239, U-234. |
| 7/19/67 | T | 267 | Po-210 | Minimal release, explosion in hood, acetone addition to leach solution. |
| 8/17/67 | SM | 10 | Pu-238 | Dissolver/evaporator pot exploded; floor in vicinity of box 10-65 in 1-2M range; filters clogged, + differential. Condenser in hood 2 exploded; positive differential: floor up to 600k cpm: other air samples in 40-50k cpm range. |
| 9/8/67 | SM | WTS | Pu-238 | Flanges on both low and high risk transfer lines to WD found unbolted; about 15 feet west of road at SW corner of SM fence line; considerable contamination of pipes, soil and pipe trench sand and gravel downhill; several yards soil removed to below 2000 dpm direct. |
| 11/9/67 | environment | | Pu-238 | 2000 gallons low-level rad waste spilled during waste line tie in; total release estimated at 7.65 mCi; 10 onsite, 7 offsite water samples; maximum activity 1200 dpm/ml. |
| 4/30/68 | SM | 35A | Pu-238 | Explosion in glove box blew fronts off several boxes. |
| 4/30/68 | T | 270 | Po-210 | Fire in trash box behind alpha box 8 in P&E line 4. |
| 8/22/68 | SM | | Pu-238 | Release occurred in uncontrolled area; 80 gallon drum opened outdoors. |
| 8/22/68 | T | 260 | Po-210 | Glove ripped in glove box 10, resulting in airborne contamination. |
| 1/8/69 | PP | | Pu-238 | Valve left open, tank exchange, escape of gas. |
| 12/9/69 | R | 127 | Pu-238 | Fire in glove box 2, some floor contamination from water. |
| 10/7/70 | R | 168 | none | $MoF_6$ gas released in hood, out stack when line broke. |
| 1/17/72 | SM | lot | | Sprinkler froze, thawed, ran out through hoods onto floor and out of building into parking lot. Survey; pads north and west are hot; sealer applied 1/18; resurfaced with 2 inches new asphalt 2/17/72. |
| 5/26/72 | WDA | Tanks | Pu-238 | Low risk waste tank overflowed to environment; source valve left on at SM decon operations: remaining water 523 dpm/ml. |

Table II.3. (page 4 of 4)

| Date | Building | Rooms | Isotope | Description of Incident |
|---|---|---|---|---|
| 72 | WDA | | Pu | Overflow of untreated low risk waste. |
| 7/28/72 | SW | 231 | H-3 | Rad incident report 72-21; repair on leaking drying tower drain line. |
| 3/13/73 | SW | 8 | H-3 | 132 Ci stacked; calculated 2.8 x RCG at fence/24 hrs. |
| 7/12/85 | WD | | | "Loss of Control" unusual event on WTS near WD. |
| 8/28/85 | SW | 13 | H-3 | Accidental transfer to ERS; ERS leaks 50 Ci to room, stack (Rpt 85-22). |
| 2/3/87 | PP | corridor | 10 | Contamination spread by cutting insulation during airline removal. |

WD - WD Building (waste disposal)
GP - General Purpose building [later known as SW Building]
HEPA - high efficiency particulate air filter
PVC - polyvinyl chloride
SNAP - space nuclear auxiliary power
WTS - waste transfer system
ERS - Effluent Removal System
dpm - disintegration per minute

# 3. SUMMARY RESPONSE ACTIONS

The general response actions conducted for each spill or environmental release were summarized in Table II.1. By and large, the majority of incidents in Table II.1 include only responses by the DOE operating contractor, a standard practice in compliance with orders from DOE and AEC. These responses included investigations of the causes of the incident, as well as recommendations for cleanup and prevention of a recurrence. Available data concerning the amount of soil or materials excavated or removed have been included in Table II.1 where noted in the references.

## 3.1. RESPONSES BY OHIO ENVIRONMENTAL PROTECTION AGENCY

To augment the data compiled from Mound Plant records, inquires for this report were made to federal and state agencies. Summaries of response actions conducted by OEPA and EPA were requested under the FOIA. OEPA provided information from the records in the EROS database. The Emergency Response Section maintains the EROS database and is the designated reporting point for spills and unauthorized discharges in Ohio. Table III.1 summarizes the data supplied by the OEPA (OEPA 1991). None of the response actions listed in Table III.1 resulted in an enforcement action.

Two incidents listed in Table III.1 cannot be correlated with the data obtained from Mound Plant. References to the plutonium-contaminated liquid reported in October 1982 and the radioactive dirt reported in January 1986 cannot be reconciled in Tables II.1 and II.3. Except for the dates of the incidents, there is no information by which to trace these incidents through the records at the plant. The other entries, including cooling water, fuel oil and tritium releases, are all cross-referenced in Table III.2.

## 3.2. RESPONSES BY U.S. ENVIRONMENTAL PROTECTION AGENCY: DRAFT RCRA FACILITY ASSESSMENT

The only information currently available on federal agency response is contained in the draft RFA (EPA 1988). The Preliminary Review (PR) and Visual Site Inspection (VSI) were conducted by EPA in May 1988 as part of the RFA for the plant. This inspection included review of files and materials from OEPA, data evaluations and interviews to evaluate the potential for releases of hazardous constituents from solid waste management units (SWMU) and other areas of concern (AOC) identified during the review. This inspection resulted in the identification of 86 SWMUs and 38 AOCs. Release of hazardous substances was reported for 11 sites from file materials and the VSI. The list of 124 sites identified by the RFA is included in Table III.2. A draft PR/VSI report (EPA 1988) was prepared by A.T. Kearney, Inc. under contract to EPA, Region V, but was never finalized. All of the 124 sites originally

**Table III.1. Summary of Response Actions by Ohio Environmental Protection Agency Emergency Response Section (OEPA 1991)**

| Date Reported | Material | Amount | Spill Size | Response Priority | Areas Affected |
|---|---|---|---|---|---|
| 10/15/82 | Plutonium contaminated liquid | 2 gal | S | 3 | None |
| 08/18/83 | Fuel oil | 40 gal | S | 3 | Surface Water |
| 01/3/86 | Radioactive dirt | Unknown | L | 3 | Land |
| 04/27/87 | Calcium chloride<br>Zinc chromate | 2,100 gal<br>10 lbs | M | 2 | Surface water |
| 11/8/89 | Tritium | 4 grams | S | 3 | Other |

Note:
S - small
M - medium
L - large
2 - next working day
3 - whenever possible

**Table III.2. List of Sites Currently in the Mound Plant Environmental Restoration Program by Operable Unit Cross-Referenced to the RCRA Facilities Assessment and CEARP Phase I**

| ER Program Sites | RCRA Facility Assessment (SWMU's and Other Areas of Concern) | CEARP Phase I (Category-Site) |
|---|---|---|
| | | 1-Area A, soil fill<br>1-Area E, oil spill<br>3-Tritium in BVA<br>3-Monsanto Unit I<br>3-Monsanto Unit II<br>3-Monsanto Unit III<br>3-Monsanto Unit IV<br>3-Monsanto warehouse<br>3-Monsanto - Marion |
| Area B Groundwater, Operable Unit 1: | | |
| Site Sanitary Landfill | LF-1 lined landfill | |
| Area 18, Landfill Cover | | 3-Area 18 |
| Contaminated Soil and Pond Area | LF-2 past landfill | 1-Area B |
| Main Hill Seeps Operable Unit 2: | | |
| Seeps | D North slope springs<br>G Hillside hole | |
| Area 15, Old SW Cave | | 3-Area 15 |
| Area 6, WD Building Filter Waste | DD Main Hill-6 | 3-Area 6 |
| Area F Chromium Trench | MI-7 Chromium trench | 3-Area F |
| Cooling Tower Basins | MI-8 Cooling tower basins<br>CS-16 Cooling tower storage | |
| Building E Solvent Storage Shed | CS-2 Bldg E solvent storage | |
| Building G Garage Area | P Bldg G spills | 2-Bldg G |
| Monitoring Well 34-1 | MI-13 Monitoring well 34-1 | |
| Miscellaneous Sites, Operable Unit 3: | | |
| Farm Trash Area | LF-5 South property dump | |
| Underground Sewage Lines | SD-10 Underground sewer lines | |
| Paint Shop Area | N Paint shop spills | 2-Paint shop |
| Powerhouse Area | O Powerhouse spills | 2-Powerhouse |
| Area C, Waste Storage Area | MI-6 Lithium carbonate disposal | 1-Area C |
| Building 61, Former Equipment Area | Q Bldg 61 spills | 2-Bldg 61 |
| Oil Burn Structure | MI-3 Oil burn structure | |
| Fire-Fighting Training Facility Pit | MI-5 Fire fighter training | |
| Area I, Buildings 1, 27 Leach Pits | SI-4 Bldg 1 leach pit<br>SI-5 Bldg 27 leach pit | I-Area I |
| Building 27 Sump Area | SU-3 Bldg 27 leach pit | |
| Building 27 Concrete Flume | MI-14 Bldg 27 flume | |

Table III.2. (page 2 of 5)

| ER Program Sites | RCRA Facility Assessment (SWMU's and Other Areas of Concern) | CEARP Phase I (Category-Site) |
|---|---|---|
| Building 27 Solvent Storage Area | CS-12 Bldg 27 solvent storage | |
| Glass Melter Room Sump | SU-1 Glass melter room sump | |
| WD Building Drum Staging Area | CS-18 WD Bldg drum area | |
| Area H, Pyrotechnic Waste Disposal | OB-8 Pyrotechnic waste disposal | 1-Area H |
| Pyrotechnic Waste Shed | OB-5 Pyrotechnic waste shed | |
| Thermal Treatment Unit Area | OB-2 Thermal treatment unit | |
| Trash Burner Area | OB-1 Trash burner | |
| Waste Oil Drumfield Area | CS-6 Waste oil drumfield | |
| Old Firing Range Drum Storage Site | CS-10 Old firing range storage | |
| Building 34 Aviation Fuel Tank | UT-2 Aviation fuel tank | |
| Building 51 Waste Solvent Tank | UT-1 Waste solvent tank<br>IN-3 Waste solvent incinerator<br>AP-10 Waste solvent incinerator scrubber | |
| Miami-Erie Canal, Operable Unit 4: | | |
| (All parts comprise 1 site) | B Runoff hollow<br>I North canal<br>J South canal<br>K North pond<br>L South pond | 3-Plutonium in M-E Canal |
| Radioactively Contaminated Soils, Operable Unit 5: | | |
| Area 2, Crushed empty thorium drums | CC Valley-3 | 3-Area 2 |
| Area 3, Thorium drum storage | T Valley-1 | 3-Area 3 |
| Sewage Disposal Building area | SD-1 Grit chamber<br>SD-2 Grit conveyor<br>SD-3 Comminutor<br>SD-4 Equalizer basins<br>SD-5 Aeration basins<br>SD-6 Clarifier<br>SD-7 Sand filters<br>SD-8 Chlorine chambers | |
| Sludge Drying Beds | SD-9 Sludge drying beds | |
| Dredge Spoil Drying Beds | MI-15 Dredge spoil beds | |
| Building 72 Storage Area | CS-13 Outdoor hazardous waste storage<br>CS-14 Empty drum storage | |
| Area 5, Radioactive Waste Line Break | Z Main Hill-3 | 3-Area 5 |
| Area 7, Empty Thorium Drums | KK Valley-6 | 3-Area 7 |
| Area 8, Contaminated Soils from Area 1 | EE SM/PP Hill-4 | 3-Area 8 |
| Area 9, Former Thorium Storage | W SM/PP Hill-2 | 3-Area 9 |

Table III.2. (page 3 of 5)

| ER Program Sites | RCRA Facility Assessment (SWMU's and Other Areas of Concern) | CEARP Phase I (Category-Site) |
|---|---|---|
| Area 10, Concrete from Dayton units | FF SM/PP Hill-5 | 3-Area 10 |
| Area 12, Contaminated Soil from Area 1 and SM Building Operations | GG SM/PP Hill-6 | 3-Area 12<br>3-Area 13 |
| Area 13, Polonium-contaminated wood | HH-Valley-4 | |
| Area 20, Radioactive waste line break | BB Main Hill-5<br>R HH Bldg contamination | |
| Area 21, Old Bunker | LL SM/PP Hill-10 | |
| Area 22, Orphan soil | II SM/PP Hill-7 | |
| Area J, Hillside catch basin | SI-6 Hillside catch basin<br>LF-4 Dredged material disposal | 1-Area J |
| Spoils Disposal Area | LF-3 Spoils disposal | |
| D&D Sites, Operable Unit 6: | | |
| Area 1, Bulk transfer of thorium drums | A Thorium drum storage<br>S SM/PP-1 | 3-Area 1 |
| Area 4, WD Building Influent Tanks | U Main Hill-1 | 3-Area 4 |
| Area 4A, Overflow Area | V Main Hill-2 | 3-Area 4a<br>3-Area G |
| Area 11, Contamination from SM Building | JJ SM/PP Hill-8 | 3-Area 11 |
| Area 14, Radioactive Waste Line Break | Y Valley-2<br>AA Main Hill-4 | 3-Area 14 |
| Area 16, Sanitary Sewage Septic Tank and Leach Basin for SM Building | F SM/PP-9<br>C Septic tank and leach field | 3-Area 16 |
| Area 17, Area under the SM Building | X SM/PP Hill-3 | 3-Area 17 |
| Area 19, Underground Waste Line | MI-2 Waste disposal pipeline<br>E Waste disposal pipeline | 3-Area 19 |
| Area D, Acid Leach Field | MI-11 Acid leach field | 1-Area D |
| Contaminated Soil Box Area | M Contaminated soil box area | |
| Old Sanitary Treatment Plant | SD-11 Old treatment plant | |
| Radioactive Waste lines | | |
| Limited Action Sites, Operable Unit 7: | | |
| Scintillation Vial Storage Area | CS-1 Scintillation vial storage | |
| Building 28 Solvent Storage Area | CS-3 Bldg 28 solvent storage | |
| DS Building Solvent Storage Shed | CS-4 DS Bldg solvent storage | |
| Building B Solvent Storage Shed | CS-5 Bldg B solvent storage | |
| Hazardous Waste Storage Area | CS-7 Hazardous waste storage | |

Table III.2. (page 4 of 5)

| ER Program Sites | RCRA Facility Assessment (SWMU's and Other Areas of Concern) | CEARP Phase I (Category-Site) |
|---|---|---|
| Past Hazardous Waste Storage Area | CS-8 Past hazardous waste storage | |
| Radioactive/Mixed Waste Storage Area | CS-9 Mixed waste storage | |
| Drilling Mud Storage Area | CS-11 Drilling mud storage | |
| Building B Temporary Drum Storage | CS-15 Bldg B temporary storage | |
| Test Firing Residual Storage Area | CS-17 Test fire residual storage | |
| Retort | OB-3 Retort | |
| Building 90 Blockhouse | OB-4 Bldg 90 blockhouse | |
| Biodegradation Unit | OB-6 Biodegradation unit | |
| Explosive Waste Storage Bunker | OB-7 Explosive waste storage | |
| Building 1 Sump | SU-2 Bldg 1 sump | |
| Waste Transport Vehicles | MI-4 Waste transport vehicle | |
| Glass Melter Feed Drum | MI-9 Glass melter feed drum | |
| Trash Dumpsters | MI-10 Trash dumpsters | |
| Vapor Degreaser | MI-12 Vapor degreaser | |
| SW Building Drum Staging Area | CS-19 SW Bldg staging area | |
| Glass Melter Furnace | IN-1 Glass melter furnace | |
| Off-Gas Treatment System (9 sites) | | |
| Deluge tank | AP-1 Deluge tank | |
| Venturi scrubber | AP-2 Venturi scrubber | |
| Cyclone demister | AP-3 Cyclone demister | |
| HEPA filter | AP-4 HEPA filter | |
| WD filter bank | AP-5 WD filter bank | |
| Recycle tank | AP-6 Recycle tank | |
| Leaf solution filter | AP-7 Leaf solution filter | |
| Strainer | AP-8 Strainer | |
| Iodine absorption filter | AP-9 Iodine absorption filter | |
| Ventilation Hoods | AP-11 Ventilation hoods | |
| Epoxy Resin Disposal | H Epoxy resin disposal | |
| Alpha Wastewater Treatment | WD-2 Alpha wastewater | |
| Beta Wastewater Treatment | WD-3 Beta wastewater | |
| Cyclone Incinerator | IN-2 Cyclone incinerator | |
| Inactive Underground Storage Tanks, Operable Unit 8: | | |
| SD Building (3 tanks comprise 3 sites) WD Building Annex (3 tanks comprise 3 sites) | WD-1 Alpha influent tanks | 2-WD Bldg |

Table III.2. (page 5 of 5)

| ER Program Sites | RCRA Facility Assessment (SWMU's and Other Areas of Concern) | CEARP Phase I (Category-Site) |
|---|---|---|
| Site-Wide, Operable Unit 9: | | |
| Plant Drainage Ditch | MI-1 Plant drainage ditch | |
| Retention Basins | SI-1 Retention basins | |
| Overflow Pond | SI-2 Overflow pond | |
| Asphalt-Lined Pond | SI-3 Asphalt-lined pond | |
| 109 Sites | 124 Sites | 43 Sites |

ER - Environmental Restoration
RCRA - Resource Conservation and Recovery Act
SWMU - solid waste management unit
CEARP - Comprehensive Environmental Assessment and Response Program

identified by the RFA were included in the ER Program at the time the FFA became effective (see below). During the scoping process, however, the 124 sites have been recombined to produce 109 potential release sites. Table III.2 depicts the cross-reference of these sites in both programs. Some apparent errors in the RFA have been noted. For example, the Area 14, radioactive waste line break (Table III.2) was found to be referred to twice under two different categories in the RFA: the "Y-site, Valley-2" and the "AA-site, Main Hill-4." Area 19, the underground wasteline was similarly found to be referred to as "MI-2, Waste disposal pipeline" and "E Waste disposal pipeline." Other errors in the draft RFA report are noted in subsection 2.2 above.

## 3.3. SUMMARY OF THE DOE COMPREHENSIVE ENVIRONMENTAL ASSESSMENT AND RESPONSE PROGRAM (CEARP)

In mid-1984 the DOE Albuquerque Operations Office (AL) initiated the Comprehensive Environmental Assessment and Response Program (CEARP) to help fulfill the DOE policy that all facilities comply with applicable environmental regulations while conducting their missions. CEARP was intended to fulfill DOE obligations under the EPA CERCLA Program. It utilized the same basic approach as the EPA guidance to federal facilities (Federal Facility Program Manual for Implementating CERCLA Responsibilities of Federal Agencies, Final Draft) and was authorized by DOE Order 5480.14. CEARP was administered by Los Alamos National Laboratory under contract to AL. As the operating contractor, MRC was responsible to the Dayton Area Office (DAO) for plant operations. CEARP was implemented in five phases:

Phase I - Installation Assessment
Phase II - Confirmation
Phase III - Technology Assessment
Phase IV - Remedial Action
Phase V - Compliance and Verification

A CEARP Phase I Assessment Report was compiled for Mound Plant in 1986 (DOE 1986) with the intent of determining the extent of compliance with environmental laws, to ascertain the magnitude of potential CERCLA sites. Tasks performed under Phase I include record searches and literature surveys, employee interviews, waste management evaluation, tentative identification of contaminated areas, evaluation of compliance with environmental regulations, preliminary physical survey, a pathway evaluation and a Hazard Ranking System (HRS) scoring. The Phase I Assessment Report was submitted to EPA and OEPA for review and informational purposes.

The CEARP Phase I assessment results included the identification of 43 sites and their grouping into three categories: (1) areas that have potentially received oils or hazardous substances; (2) areas that because of past activities had potential for leaks and spills; and (3) previously identified areas of radioactive contamination. The 43 sites are listed in Table III.2 by category and are cross-referenced to the present ER Program sites. Category 1 sites were recommended for further investigation and included Areas B, C and I, which were sampled during CEARP Phase II. Two Category 1 sites, Areas A and E, were areas of minor concern and significantly small volumes of waste. Category 2 sites were considered to require no additional investigation but have, nonetheless, been carried forward in the ER Program. The CEARP Phase I Installation Assessment Report (DOE 1986) contains full descriptions and discussions of the sites.

Category 3 sites included two sites off the plant property and 20 areas recommended for further radiological investigation by the Mound Plant Site Survey Program (SSP). Data collected during the SSP (Stought et al. 1988) are reported in the Site Scoping Report: Volume III - Radiological Survey Report (DOE 1991c). The sites off the plant property comprise the Miami-Erie Canal and tritium in the Buried Valley aquifer (BVA). Six category 3 sites were former Monsanto facilities (DOE 1991a) that pre-dated Mound Plant, were not included in the NPL and hence have not been carried forward in the ER Program.

A CEARP Phase II plan (DOE 1987a) was implemented with three objectives: (1) obtain the additional information identified in Phase I; (2) complete an environmental evaluation to confirm the presence or absence of potential environmental concerns of Phase I; and (3) conduct measurements and sampling programs as required to understand potential contaminant sources and environmental pathways. A work plan consisting of a Synopsis, Sampling Plan, Health and Safety Plan, Quality Assurance/Quality Control Plan, and Technical Data Management Plan was submitted to EPA and OEPA for review. EPA Comments were received and incorporated into the revised work plan that served to guide the field work, although the work plans were never officially approved.

The Phase II work plan (DOE 1987a) provided for three stages of investigation using an iterative process whereby additional sampling stages would be guided by data from the previous stage. Stage 1 proposed an ambitious project that addressed the hydrogeochemical characterization of Mound Plant, Area B, Tritium in the Buried Valley Aquifer, and reconnaissance sampling of Areas C, I and the WD Building. The Stage 1 investigations included; (1) location survey and installation of datum markers for all existing monitoring wells, springs and seeps; (2) development of springs and seeps to facilitate sampling and measurement; (3) semi-monthly water level measurements at existing monitoring wells and springs and seeps to determine temporal fluctuations; (4) sampling and analysis of existing monitoring and production wells, springs and seeps for organic compounds; (5) soil gas sampling of

tritium sources; (6) sampling National Pollutant Discharge Elimination System (NPDES) outfalls for organic constituents; (7) sampling and analysis of monitoring wells, springs and seeps for stable isotopes and radioisotopes, including tritium; (8) hydrologic testing of existing monitoring wells; (9) exploratory drilling for tritiated water; and (10) soil sampling in Areas C, I and the WD Building. Not all of these investigations were completed or successful.

Results of the Stage 1 investigations were highlighted in the Stage 2 Supplement Plan (DOE 1987b), but a comprehensive interpretive report was never completed. Results were summarized according to tritium studies, organics in Area B, and reconnaissance sampling of soils.

Investigations of tritium in groundwater focused on the Main Hill under the direction of the Mound Tritium Groundwater Assessment Program and resulted in refinement of the conceptual model of the bedrock groundwater system. Results of the investigations included

- refinement of bedrock stratigraphy by trenching and visual logging, which suggested that some layers may act as aquitards to redirect water laterally;
- tritium concentration monitoring at the seeps, which suggested some temporal correlation with precipitation;
- measurement of flow rates, temperature, pH and conductivity of the largest onsite seep;
- installation of perforated pipe and casing both horizontally and vertically to facilitate water level and tritium concentration measurements;
- installation of drains, access manholes, and collection pumps to aid tritium monitoring and disposal of tritiated water (water with tritium levels above the standard was diverted to the WD Building for processing and water below the standard was discharged through the plant discharge ditch);
- determination that common ions and stable isotopes could act as tracers in monitoring the hydrogeologic system, but that the usefulness of uranium and plutonium as tracers was questionable; and
- elimination of a proposed soil gas sampling for tritium sources as a viable sampling technique.

The investigations of organic compounds in the groundwater targeted Area B. Stage 1 resulted in two important findings. First, the existing monitoring well network was deemed deficient in that (1) wells were found to be unsecured (i.e., unlocked, posing a potential for vandalism); (2) inappropriate drilling and well development techniques may have been used, as the wells did not perform according to calculations of the aquifer and pump test; (3) well design was locally inappropriate (e.g., wide screening intervals for determining the vertical extent of contamination); and (4) the distribution of

wells downgradient of Area B was insufficient for the Remedial Investigation activities. These deficiencies hindered the completion of Stage 1, however the combined findings were used to develop a Stage 2 sampling plan that greatly expanded and improved the monitoring well network. Second, a soil gas survey around Area B indicated that there may be two or more potential sources of volatile organic compounds in the groundwater and the areas upgradient of Area B (e.g., Area C) should be examined more carefully.

The Stage 1 reconnaissance soil sampling of Areas I, C and the WD Building were attempted by hand auger with little success. The Area 1 leach pits were sampled to depths of 1 to 1.5 ft and analyzed for volatile organic compounds, base-neutral-acid extractables and the explosives RDX, HMX, and PETN. All constituents were reported to be below the method detection limit with the exception of one sample with 6.85 $\mu$g per gram of RDX and several "tentatively identified compounds" that were suspected to be decomposing vegetation associated with the leach pit. Area C was also sampled with a hand auger. The analyses indicated no contamination, but ambiguity remained when the positive evidence from the soil gas survey was considered. Further investigations of Area C were recommended, including a geophysical survey to define the depth of fill and to determine the possible presence of buried drums. Sampling was also attempted at the WD Building without success. Further groundwater sampling was recommended as budget constraints limited the amount of sampling that could be done in the future.

The Stage 2 supplementary plan (DOE 1987b) proposed to: (1) expand and upgrade the monitoring well network in response to the soil gas survey and reconnaissance evaluation of the older well network; (2) use the new well network to verify the extent or absence of volatile organic compound contamination in the groundwater in Areas B, C and I; (3) refine the sources of tritium in the groundwater; (4) quantify the hydraulic characteristics and the boundaries of the BVA; (5) investigate tritium pathways in groundwater; and (6) determine the presence or absence of contaminants adjacent to the WD Building.

In 1988, CEARP changed its structure to the current ER Program, although the program was briefly referred to as the Comprehensive ER Program. This change resulted from the increased DOE awareness of the importance and impact that the Resource Conservation and Recovery Act (RCRA) as modified by the Hazardous and Solid Waste Amendments of 1984, would have on the DOE's environmental programs nationwide.

While the changes in program management were occurring, the results of the Stage 2 investigations were being compiled and were reported in the ER Program Stage 3 plan (DOE 1989). A comprehensive interpretive report was never completed. The most important results of Stage 2 included:

- Completion of 29 new soil borings, 22 in the unconsolidated deposits, six in the Main Hill bedrock and one in the bedrock on the SM/PP Hill just east of the Plant boundary. Twenty-eight new monitoring wells were installed in the borings. Well location and construction details are presented in the Site Scoping Report: Volume I - Geologic Log and Well Information Report. Core recovery in the bedrock was generally poor, ranging from 9 percent to 93 percent;

- Although minor differences and some correlations between seep discharge and seasonal fluctuations in common ions and stable isotope chemistry were noted, the differences were considered slight enough to warrant only occasional sampling. Quarterly sampling would continue only for contaminant species;

- Volatile organic chemicals were found to be present in the new monitoring wells at levels similar to the old monitoring wells and the soil gas survey. The recurring contaminants included trichloroethane, tetrachloroethane and 1,2-trans-dichloroethene (data from the Stage 2 sampling and analysis are reported in the Site Scoping Report: Volume 1 - Groundwater Data);

- Other contaminants were present in new wells, but below regulatory levels;

- No contaminants, other than suspected laboratory contaminants, were reported in wells off plant property;

- Nitrate/nitrite was reported in three Main Hill seeps above the regulatory level; and

- Two aquifer pump tests and eight well slug tests were conducted with inconclusive results.

The Stage 3 Remedial Investigation Plan (DOE 1989) focused on installation groundwater and identified groundwater as the primary contaminant transport pathway. Organic chemical contamination in Area B and tritium contamination of bedrock seeps on the Main Hill were targeted. Remedial investigation of other known sites was considered, but was postponed for budgetary reasons. Based on the results of Stages 1 and 2, improved conceptual models of the hydrogeochemical setting and contaminant migration were outlined. Important concepts of the models included

- groundwater contamination in the BVA was limited to a few organic chemicals in the vicinity of Area B;

- concentrations of organic chemicals were highest, although still low, adjacent to Area B and diminished to below drinking water standards away from Area B;

- groundwater contamination in Area B consisted primarily of three chlorinated solvents; trichloroethene, tetrachloroethene and 1,2-trans-dichloroethene and some associated breakdown products;

- some correlation between the soil gas survey results and groundwater contamination was apparent, although some of the newer wells did not contain some of the compounds (toluene, benzene, ethylbenzene and chloroform) reported in either the older wells or the soil gas survey;

- sources of organic chemicals other than Area B could exist, but Area B was considered to be the primary source of groundwater contamination;

- nitrate/nitrite could be a problem on the Main Hill but was considered to be of lesser importance than Area B; and

- the hydrogeology of the bedrock will be extremely difficult to characterize because the density of buildings and utilities on the Main Hill made access difficult and utility trenches have added local permeable zones to the system.

The Stage 3 plan was compiled and submitted to EPA and OEPA in early 1989, during which time DOE was actively pursuing a FFA with EPA and the State of Ohio in anticipation of the impending listing of Mound Plant on the NPL. Both agencies responded with written comments to the plan; a revised plan incorporated the comments, but the plan never officially received regulatory approval. DOE considered the groundwater pathway and Area B to be the most pressing environmental problems at Mound Plant and implemented the Stage 3 plan. Based on the need to characterize the transport pathway and evaluate the possible remedial alternatives, Stage 3 also proposed to

- install new monitoring wells in the BVA to assess contaminant migration into the deeper parts of the aquifer;

- model details of groundwater flow in the unconsolidated deposits to support the evaluation of remedial alternatives, which is still in progress;

- conduct a seismic refraction survey to define the lateral extent and continuity of the BVA;

- perform additional aquifer tests to define the hydraulic parameters and aquifer boundaries; and

- perform a risk assessment of the tritium contaminated seeps.

During the period of implementation of Stage 3, Mound Plant was among 27 Federal Facilities placed on the NPL. This listing (54 Federal Register 48184; November 21, 1989) elevated the FFA negotiations and authorized EPA to enforce the requirements of CERCLA. The agreement would require that a full Remedial Investigation/Feasibility Study (RI/FS) be conducted for the plant. Under CEARP, AL had always intended to utilize CERCLA procedures, but had lacked the regulatory recognition of CERCLA authority, and the lack of the proper forum for document comment and response had hindered true regulatory oversight.

In pursuance of the agreement, DOE subdivided the investigation into nine operable units that contained most of the known sites previously identified by the CEARP Phase 1 Assessment Report (DOE 1986) and the draft RFA Report (EPA 1988). At the time the agreement became effective (October 11, 1990) there were 109 sites in the Mound Plant ER Program (Table III.2).

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