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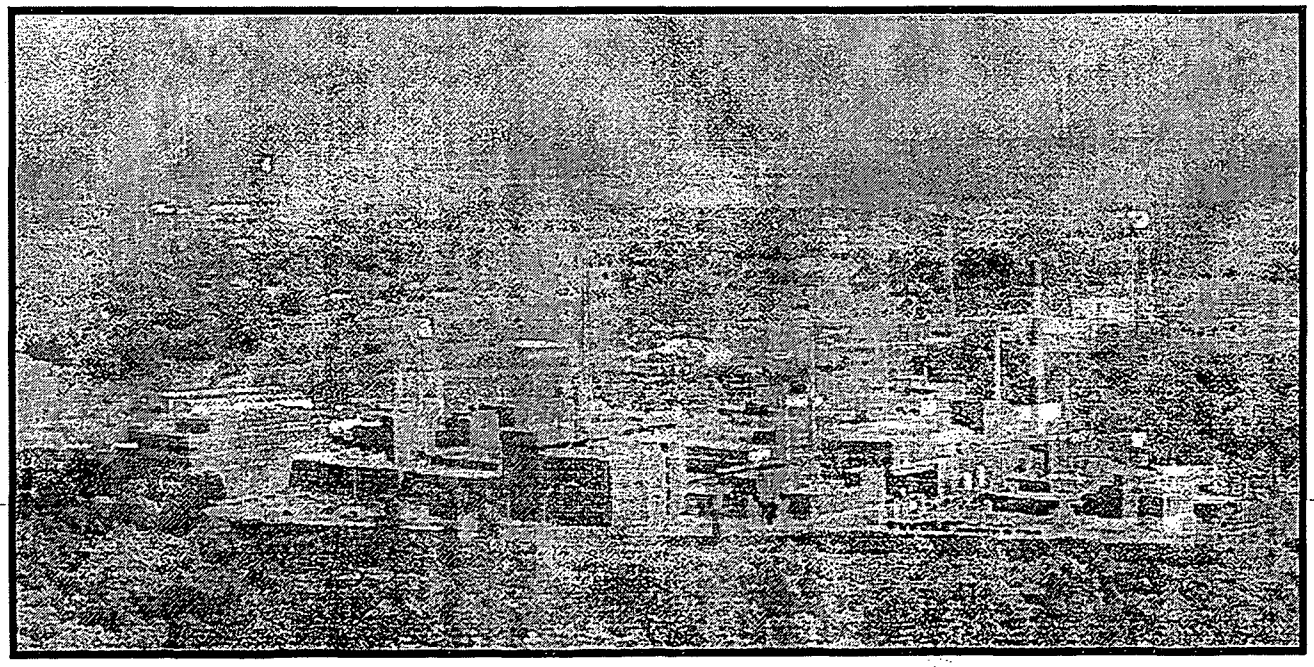
Environmental
Restoration
Program

# Miamisburg Closure Project
## Building Data Package

# Building 37

(Demolition)

Public Review Draft
October 2003



MIAMISBURG CLOSURE PROJECT

**BUILDING DATA PACKAGE**

The following document is available (October 6. 2003) for public information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

**BDP Building 37: Radioactive Heat Source Testing Facility/ Organic Materials Development**

Questions can be referred to Paul Lucas at (937) 847-8350 ext. 314

U.S. Department of Energy
U.S. Environmental Protection Agency
Ohio Environmental Protection Agency

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# BDP Building 37

| REV | DESCRIPTION | DATE |
|---|---|---|
| **WORKING DRAFT (to DOE)** | | **September 2003** |
| **DRAFT (to Core Team)** | BDPs for construction demolitions undergo simultaneous review by the Core Team and public. | **N/A** |
| **DRAFT PROPOSED WORKING DRAFT (incorporates Core Team comments)** | | **N/A** |
| **PUBLIC REVIEW DRAFT** | Comments from DOE incorporated.<br>The document will be released for public review on 6 October 2003. | **October 2003** |
| **WORKING DRAFT** | | |
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# 1.0 GENERAL OVERVIEW

## 1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the demolition of Building 37 (Radioactive Heat Source Testing Facility/Organic Materials Development) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and building.

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

## 1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for Building 37 located at the Department of Energy (DOE) Miamisburg Closure Project (MCP) in Miamisburg, Ohio. The investigation performed to support this BDP models procedures found in *ASTM Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process* (Designation E 1527-97).

The scope of the investigation included Building 37, the soil beneath, and a 30-foot wide perimeter border around the building. The investigation of Building 37 included the following:

A) A building and perimeter inspection.
B) An examination of historical aerial photographs and maps.
C) A review of federal and state regulatory agency records.
D) Personnel interviews.
E) A review of site records for:

   1) History of spills, releases and chemical inventories
   2) Past sampling data

      - Radiological survey
      - Soil sampling
      - Lead-based paint
      - Asbestos
      - Radon

In addition to the building investigation conducted by site contractor personnel, documents were reviewed. Information used to compile BDPs includes the following:

- Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes, August 1990
- Operable Unit 9 (OU-9) Site Scoping Report, Volumes 1-12
- Mound Facility Physical Characterization, December 1992
- Active Underground Storage Tank Plan, November 1994
- OU-9 Hydrological Investigation, Bedrock Report, January 1994
- OU-9 Hydrological Investigation, Buried Valley Aquifer Report, March 1994
- Environmental Appraisal Report of the Mound Plant, March 1996
- Title Search
- Lease Information
- EDR Report - Radius Map
- Building Prints
- Potential Release Site (PRS) information
- MD-22153, Mound Site Radionuclides By Location, June 1995 Contaminant Surveys
- MLM-3791, Mound Facility Physical Characterization, December 1993

## 2.0 BUILDING 37 OVERVIEW

Constructed in 1968, Building 37 is located on the east central portion of the site (Figure 1). The facility is a single-story, slab-on-grade structure with a penthouse. It is constructed of concrete block with the exception of the interior walls and the northern exterior wall at the northeastern corner of the building (Rooms 5 and 6) that are constructed of 12-inch thick poured concrete. The reinforced concrete footer/foundation sections under the penthouse sections of the building are 10½ feet deep and the reinforced concrete footer/foundation sections under the remainder of the building are 8 feet deep. The roofs on the building and the penthouse are a built-up membrane of asphalt. Building 37 has not had any major modifications, other than reconfiguration of some of the interior rooms, and contains 2,464 square feet of floor space. It is believed that no research, development, or production activities using radioactive or energetic materials have occurred in the building.

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

## 2.1 Past Uses of Building 37

Building 37 was built as a Radioactive Heat Source Testing Facility, although it was also used for other purposes (Table 1). It was constructed to handle radionuclides, having change rooms, hot corridors, and a filter bank, and it was previously included on a list of buildings requiring decontamination for the removal of plutonium-238. However, later references report that the building had not handled unsealed radionuclides.

**Table 1 - Programs and Processes Housed in Building 37**

| Timeframe | Process or Function |
|---|---|
| 1968 to 1984 | Radioactive Heat Source Testing Facility (RHST) |
| 1972 to 1981 | Nuclear Spectroscopy (part of the RHST process) |
| 1986 to 1988 | Adhesives formulation |
| 1990 to 1994 | Organic Materials Process Development |
| 1993 | US Advance Battery Consortium Support |
| 1993 | Environmental Response Cleaning Program (converting processes with freon or other hazardous materials to processes that use safer materials) |
| 1996 to 2002 | Machine Shop and Inspections supporting the Heat Source Program |

When used as a Machine Shop, activities in the building included machining, forming, cleaning, heat-treating, laser marking, and inspection. These activities continued until December 2002 when all heat source production activities at the MCP site were terminated.

## 2.2 Current Uses of Building 37

Building 37 is currently inactive. The equipment is in the process of being removed. All required equipment will be removed from the building, and any remaining equipment will be left in place and demolished/disposed of with the building. Safe Shutdown activities will be conducted prior to the commencement of demolition.

## 2.3 Summary of Environmental Concerns and Findings - Building 37

### Table 2: Summary of Environmental Concerns and Findings

| Description | Comment | Resolution |
|---|---|---|
| Lead-Based Paint | No previous lead surveys or sampling data could be found for Building 37. Many areas of painted surfaces exhibited peeling and deterioration. Representative samples of the damaged paint coatings were tested in the field and found to not contain lead within the instrument's limit of detection. As such, the damaged coatings present do not constitute a lead hazard. (Appendix J) | No further action would be necessary to protect occupant or worker health unless any coatings were to be disturbed by close worker contact (sanding, grinding, scraping, torch cutting, etc.). If these types of activities are planned, the affected paint coatings should be tested to verify the absence of lead.<br>Per Waste Management, building debris containing lead-based paint can be disposed of in a sanitary landfill. |
| Chemicals | Appendix K provides a list of chemicals reportedly used or stored in Building 37. | All chemicals will be removed prior to demolition, and dispositioned by Waste Management. |
| Fluorescent Lamps and PCBs | Fluorescent lamps were used in the building. Ballasts may contain polychlorinated biphenyls (PCBs). | Ballasts that may contain PCBs will be removed prior to demolition, and disposed of by Waste Management. |
| Air Emissions | Two processes in Room 4 were considered air emission sources:<br>1) machine tools (particulate), and<br>2) fumehoods (vapors). | All processes have been discontinued. The former processes will not affect the building demolition or debris disposal. No further action is required. |

## Table 2: Summary of Environmental Concerns and Findings

| Description | Comment | Resolution |
|---|---|---|
| Asbestos | Previous asbestos surveys for Building 37 were completed in 1989 and 1993. These surveys identified pipe insulation, transite cement board, and floor tiles as asbestos-containing materials (ACMs). The 1993 report indicated that all pipe insulation in readily accessible areas had been removed.<br><br>During August of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of Building 37 in order to identify all ACMs prior to demolition of the facility (Appendix I). His inspection confirmed that the asbestos pipe insulation in readily accessible areas had been previously removed. His inspection identified additional ACM pipe insulation (approximately 150 linear feet) located above ceilings. Fire rated doors were assumed to be ACM. The cement board previously assumed to contain asbestos was sampled and found not to contain asbestos. | ACM requiring removal before building demolition will be removed by a licensed asbestos hazard abatement contractor.<br><br>The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category II material in accordance with NESHAP, it will remain in place during demolition and be disposed of as construction waste.<br><br>All work will be performed in accordance with current state and federal regulations. |
| Drainage Sumps | The lift station (Tank 100, see Storage Tanks, Table 1) was contained within an underground concrete vault. The vault had a sump pump for groundwater that discharged into the lift station. | The sump pump was removed when Tank 100 was removed during the construction of Building 126. |
| Lead | N/A | N/A |
| Mercury | N/A | N/A |
| Radiological | The Building 37 Predemolition Survey Plan is provided in Appendix G. Radiological surveys are not yet complete. | Survey results will be documented in the Final Status Report, which will be reviewed by the Core Team prior to commencement of demolition activities. The report will be included in the Final BDP. |
| Septic System | N/A | N/A |
| Wastewater | Handled by site wastewater facility. | N/A |
| Stains & Corrosion/HVAC | N/A | N/A |

## Table 2: Summary of Environmental Concerns and Findings

| Description | Comment | Resolution |
|---|---|---|
| Storage Tanks | There are no aboveground storage tanks within 15 feet of the perimeter of Building 37.<br>Two underground tanks were installed as part of the Building 37 construction.<br>Tank 100 (PRS 271) was a 500-gallon sanitary temporary holding tank that served as a lift station for Buildings 37 and 88. It was installed in 1966, and located on the east side of the building just south of the northeast corner. The tank was set in an underground concrete vault.<br>Tank 267 (PRS 336) was a 500-gallon settling tank, also known as a "low-risk waste tank." It was installed in 1966, and located on the north side of the building at the northwest corner. Tank 267 was designed to receive "low risk" waste from the floor drains within Building 37.<br>Even though these tanks were installed for the purpose of receiving radioactively contaminated wastes, it is believed that the tanks never received such wastes because the original program for which the building was constructed was terminated before the building was operational.<br>PRS 271 (Tank 100) and PRS 336 (Tank 267) are unbinned. | Both tanks were removed in 2000/2001 during the Building 126 construction project.<br>For Tank 100, radiological surveys performed at the time of its removal cannot be located. In lieu of those surveys, the concrete vault that previously housed the tank will be removed, and disposed of (per Waste Management direction). The soil underneath the vault will be radiologically surveyed. One biased soil sample from the base of excavation (underneath the vault) will be collected and sent to the onsite laboratory for gamma spec analysis. Additional analyses may be performed with the concurrence of DOE, OEPA, and USEPA.<br>Tank 267 was removed on February 22, 2001. Appendix P includes photographs of the tank's removal, radiological surveys of the rolloff and excavated soil, and the soil disturbance permit.<br>This documentation will be presented to the Core Team for binning. The Core Team recommendation sheet will be included in the Closeout Report. |
| Solid Waste Disposal | N/A | N/A |
| Migratory Hazards | N/A | N/A |
| Radon | Within acceptable limits (Appendix H). | No further action required. |
| HVAC | HVAC refrigerant will be drained and disposed of during Safe Shutdown. | No further action required. |
| Energetic Materials | Energetic materials were not present in Building 37. | N/A |

**Table 2: Summary of Environmental Concerns and Findings**

| Description | Comment | Resolution |
|---|---|---|
| Soil Contamination | Appendix L contains a graphic showing all soil sample locations within 30 feet of the Building 37 perimeter, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). Maximum exceedances to screening levels (Core Team approved or the more stringent of either $10^{-6}$ Risk-Based Guideline Value [RBGV] plus background or Hazard Index = 1) are listed in Table 3. All other results are below applicable screening levels. (Note: a 30-foot perimeter was used instead of the standard 15-foot perimeter due to only one soil sample location within the 15-foot perimeter.) | The existing soil data does not indicate the need for further soil sampling in this area.<br>However, a soil sample will be collected to support closure of PRS 271. Refer to discussion under Storage Tanks, Table 2. |

*N/A: Not applicable*

**Table 3 - Maximum Results Exceeding Screening Levels**

| Analyte | Maximum Result | Background | RBGV ($10^{-6}$) | Screening Level |
|---|---|---|---|---|
| Benzo(a)pyrene (mg/kg) | 0.43* | NA | 0.41 | 0.41 |
| Radium-226 (pCi/g) | 2.53* | 2 | 0.09 | 2.1 |

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

NA: Not analyzed for as part of background soils investigation.

* All results are below $10^{-5}$ RBGV, which is within the acceptable risk range ($10^{-4}$ to $10^{-6}$ per the NCP).

## 2.4 Radiological Information for Building 37

A radiological assessment of Building 37 was performed by reviewing its operational history and preliminary radiological survey information. Building 37 has been used for a variety of processes and functions including Radioactive Heat Source Testing Facility, Adhesives formulation, Organic Materials Process Development, U.S. Advance Battery Consortium Support, Environmental Response Cleaning Program, and Machine Shop and Inspections supporting the Heat Source Program. The building was designed to process radioactive material although it is not clear from historical documents if it was ever used for this purpose. Since there is a potential for residual contamination to be present, Building 37 is designated as impacted.

The radiological status of all building surfaces will be determined to facilitate a free release of the structure consistent with project goals and site procedures. The Predemolition Survey Plan for Building 37 was prepared commensurate with operational history and in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), and is presented in Appendix G. The survey plan will be implemented and will provide the necessary data to dictate appropriate demolition and disposal. A Final Status Report (FSR) will summarize results from implementation of the survey plan and provide justification for the designated disposal of debris. The FSR will be reviewed by the Core Team prior to proceeding with building demolition, and will be included in the final BDP.

## 3.0 SITE DESCRIPTION

### 3.1 Site/Vicinity Location and Characteristics

Building 37 is located at the DOE MCP site, formerly known as the Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

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

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

### 3.2 Description of Structures, Roads, and Other Improvements in Proximity to Building 37

Building 37 is bordered by an asphalt roadway/parking area and Building 126 on the north; a concrete sidewalk and Building 50 on the east; a concrete sidewalk and Building 128 on the south; and an asphalt roadway, an asphalt work area, and Buildings 31 and 31A on the west. The terrain surrounding Building 37 is covered with rip-rap/rock (Figure 3).

## 3.3 Current and Past Uses of Buildings in Proximity to Building 37

Buildings in proximity to Building 37 include:

- Building 126 (PST Administration Building), located north of Building 37, is a 12,500 square-foot single-story office building that supported the Nuclear Energy mission at Mound.

- Building 50 (PST Assembly and Testing Building), located east of Building 37, is a 14,849 square-foot two-story building that provided process areas for the assembly and testing of heat sources and radioactive thermoelectric generators (RTGs) that contained sealed radioactive sources. Building 50 is currently inactive and is being prepared for demolition.

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

- Building 36 (PST Assembly and Testing Support Facility), located south of Building 37, is a 4,255 square-foot single-story structure with a penthouse that supported the general purpose heat source (GPHS) assembly and testing program. The building is currently inactive and is being prepared for demolition.

- Buildings 31 and 31A (TRU Waste Storage), 6,090 square-foot and 2,650 square-foot respectively, are single-story metal buildings that were used by Waste Management for storage and staging of transuranic (TRU) waste and low level waste prior to shipment offsite. Both buildings are located west of Building 37. Building 31 is currently inactive, and undergoing preparations for demolition. Building 31A was subsequently used to store raw materials and equipment for the heat source program. Operations are scheduled to cease in October 2003, and the building will then undergo preparations for demolition.

- Building 88 was a 7,200 square-foot, single-story modular structure that was located to the north of Building 37. It was constructed in 1984 to provide administrative offices for the RTG program, and demolished in 2000 to make room for the construction of Building 126. Other projects that were located in Building 88 include the Health Physics group, and later the Environmental Restoration (ER) project.

- Buildings WH-5/WH-6 (Warehouses 5 and 6) were temporary structures built in 1947, and demolished in 1949. WH-5 was used as a garage and had approximately 6,000 square feet of floor space. WH-6 was used as a repair shop and had approximately 2,800 square feet of floor space. These structures were located west of Building 37 in the approximate location of the current Buildings 31 and 31A.

These buildings are believed to have had no adverse environmental impact on Building 37.

## 4.0 RECORDS REVIEW

### 4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that no reportable chemicals are stored in Building 37.

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

The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach.* The Mound 2000 Process system divided the site into geographical parcels containing more than 400 PRSs with approximately equal numbers of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had releases of radioactive and/or hazardous materials. The PRSs were initially identified and documented as part of the Mound site scoping process under the Federal Facility Agreement (FFA). The original list of PRSs can be found in the OU9- Site Scoping Report Volume 12, Site Summary Report, 1994. One of the objectives of the Site Scoping report was to provide a comprehensive summary of PRSs identified through the scoping process. Subsequent to the 1994 Site Scoping Report, additional PRSs have been identified as information became available, bringing the site total to 440 PRSs. The assignment of a PRS does not necessarily mean that there is a threat to human health or the environment. The tabulation of all PRSs simply provides an explicit means of tracking

and evaluating all potential releases onsite, the need for further action, and the identification of the authority responsible for action.

Through the process described above, the specific PRSs in the vicinity of Building 37 (Section 4.2.3) are listed in Table 4 along with their binning status and their locations shown on Figure 2. Of the four PRSs in the vicinity of Building 37, two have been determined by the Core Team to require No Further Assessment (NFA), and two are unbinned PRSs associated with Building 37. For a PRS to be binned NFA, the Core Team has reviewed the PRS data and agrees that all existing environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with Building 37 have been identified.

## 4.2 Specific Record Sources for Building 37

### 4.2.1 Occurrence Reports

A search of the occurrence reporting system revealed that no occurrence reports involving any spills or releases to the environment were generated for Building 37.

### 4.2.2 Spills and Releases

- None

### 4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, four are at or near Building 37, as identified in Table 3. The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N.

**Table 4 - PRSs in Proximity to Building 37**

| PRS | CERCLA or Bldg. Related | Binning Status | Comments |
|---|---|---|---|
| 269 | CERCLA | No Further Assessment (NFA) | Building 36 Historic Gasoline Tanks (Tanks 239 and 240) |
| 271* | Building | Unbinned | Building 37 Sanitary Waste Tank (Tank 100) |
| 336* | Building | Unbinned | Building 37 Waste Tank (AKA Low Risk Waste Tank 267) |
| 392 | CERCLA | NFA | Elevated Soil Gas Location |

- *PRSs 271 and 336 will be binned by the Core Team based on information provided in the PRS Package; the Core Team recommendation will be included in the Building 37 Closeout Report.*

## 4.3 Review of Building Prints

Building prints were reviewed and no significant items were identified. Floor plans are included in Appendix D.

## 4.4 Aerial Photographs

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

## 4.5 Interviews

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

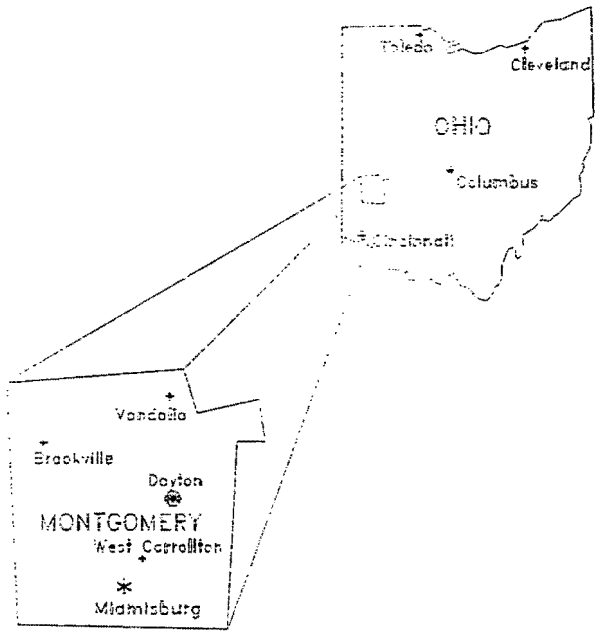
# Appendix A

## General Listing of Acronyms

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

# Appendix B

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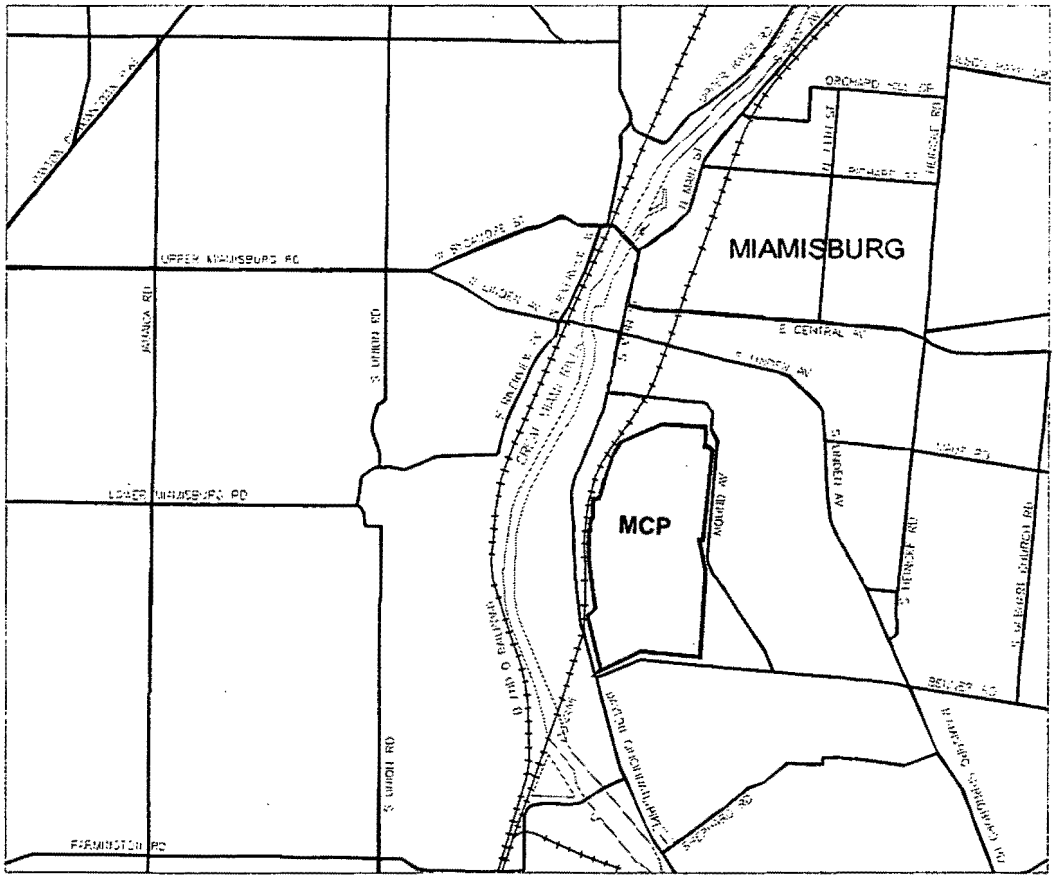
Cleveland
OHIO
Columbus
Cincinnati
Vandalia
Brookville
Dayton
MONTGOMERY
West Carrollton
Miamisburg


MIAMISBURG
MCP
UPPER MIAMISBURG RD
LOWER MIAMISBURG RD
FARMINGTON RD
S UNION RD
E CENTRAL AV
ORCHARD RD
BENDER RD

B1of1

# Appendix C

## Figures

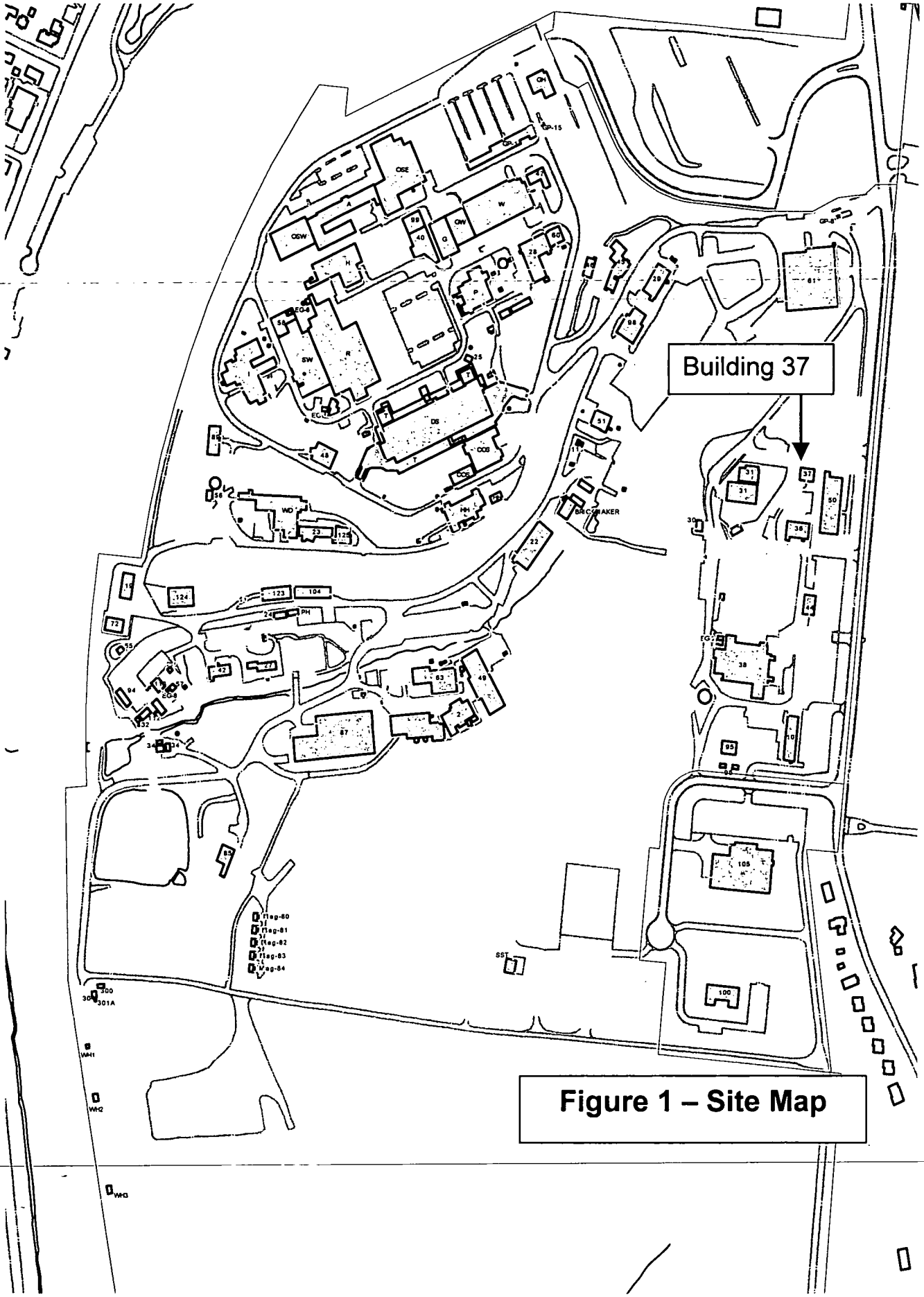



**Figure 1 – Site Map**

C 1 of 3

PRS Point

PRS Area

PRS Line

20 10 0 20 40FT

GRAPHIC SCALE

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

PART CLASSIFICATION

# Figure 2 Building 37 and Vicinity

GRAPHIC CLASSIFICATION: UNCLASSIFIED

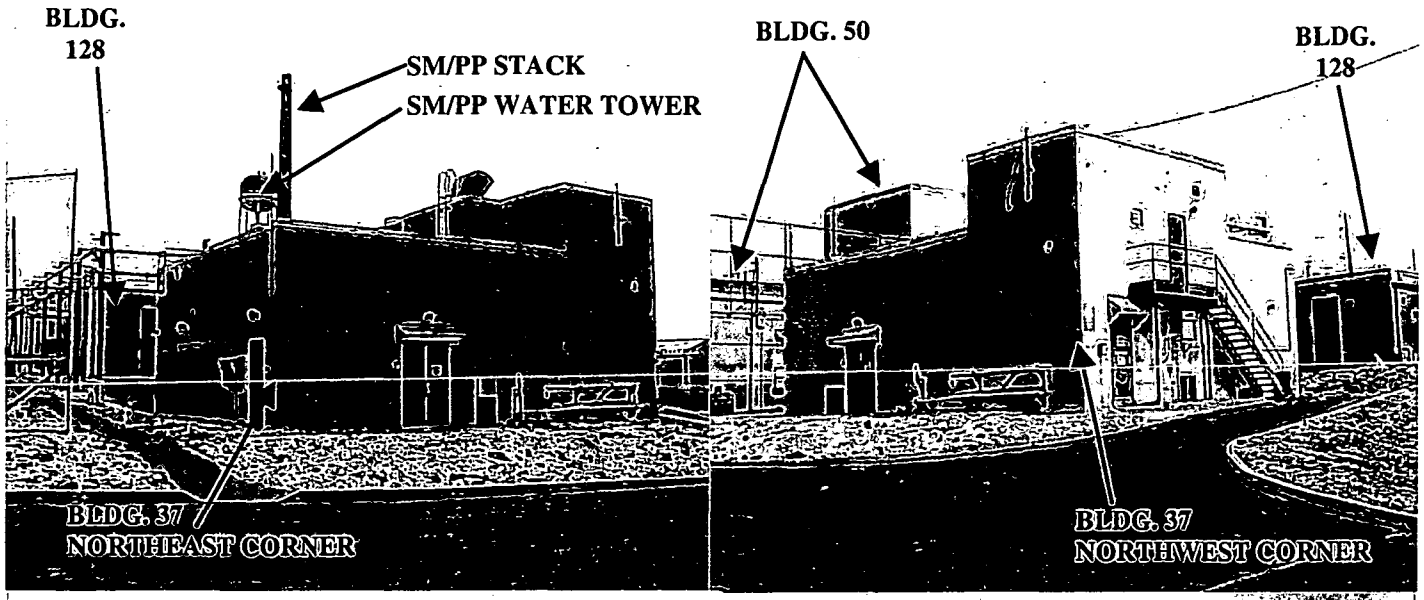
SIZE | GRAPHIC NUMBER: vicinity.dgn | JOB NUMBER

DWG TYPE STE | PROJ ER-GIS | CADD | SCALE | SHEET 1 OF

STATUS MD-REL-00/00/00 | ORIGIN MSTATION / J

| ISS | DATE | REVISION | BY | CHKR | DWG | LPMCC | APVD | B |
|---|---|---|---|---|---|---|---|---|
| | 04/29/03 | | SSF | | | | | |

C2 of 3



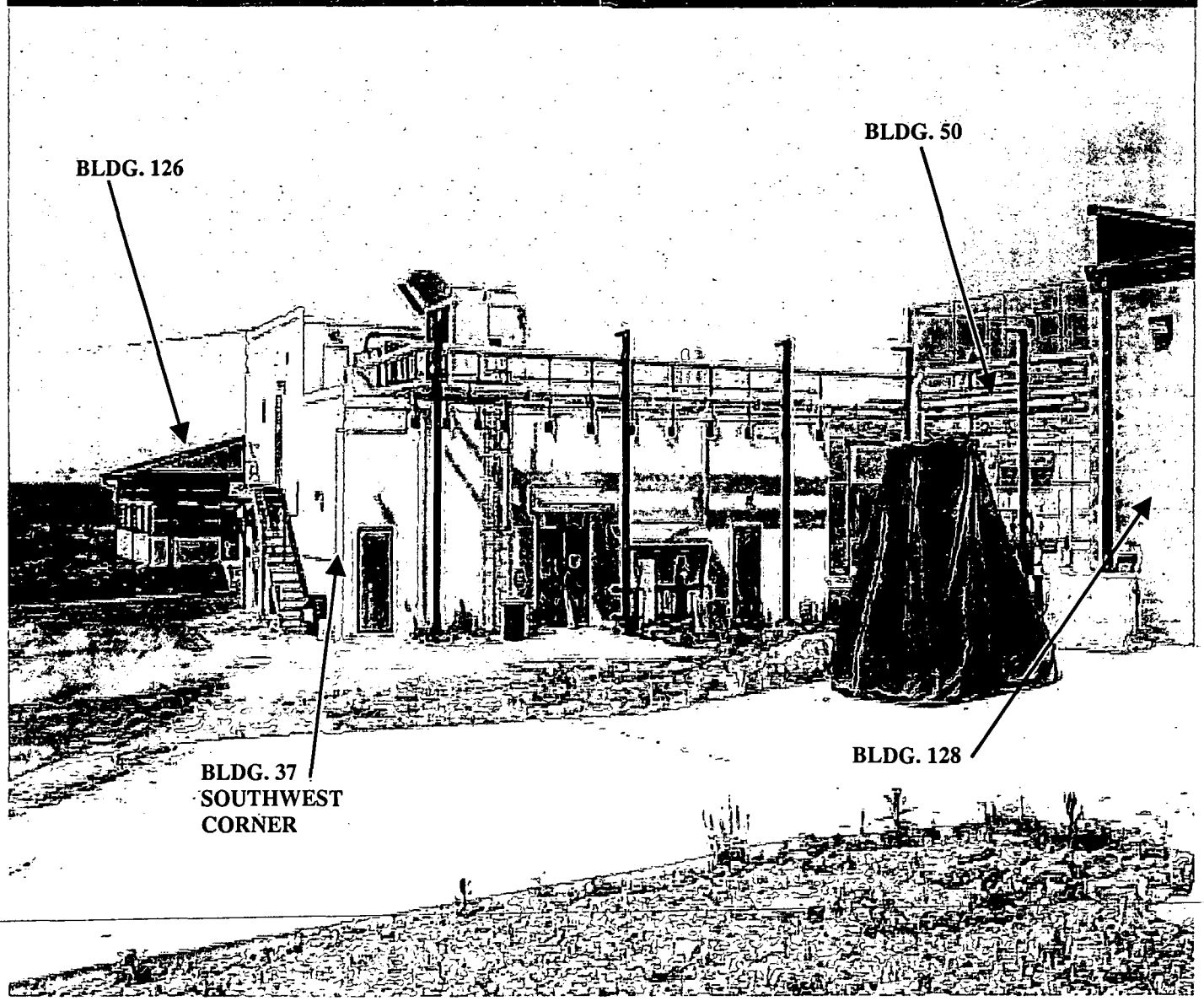
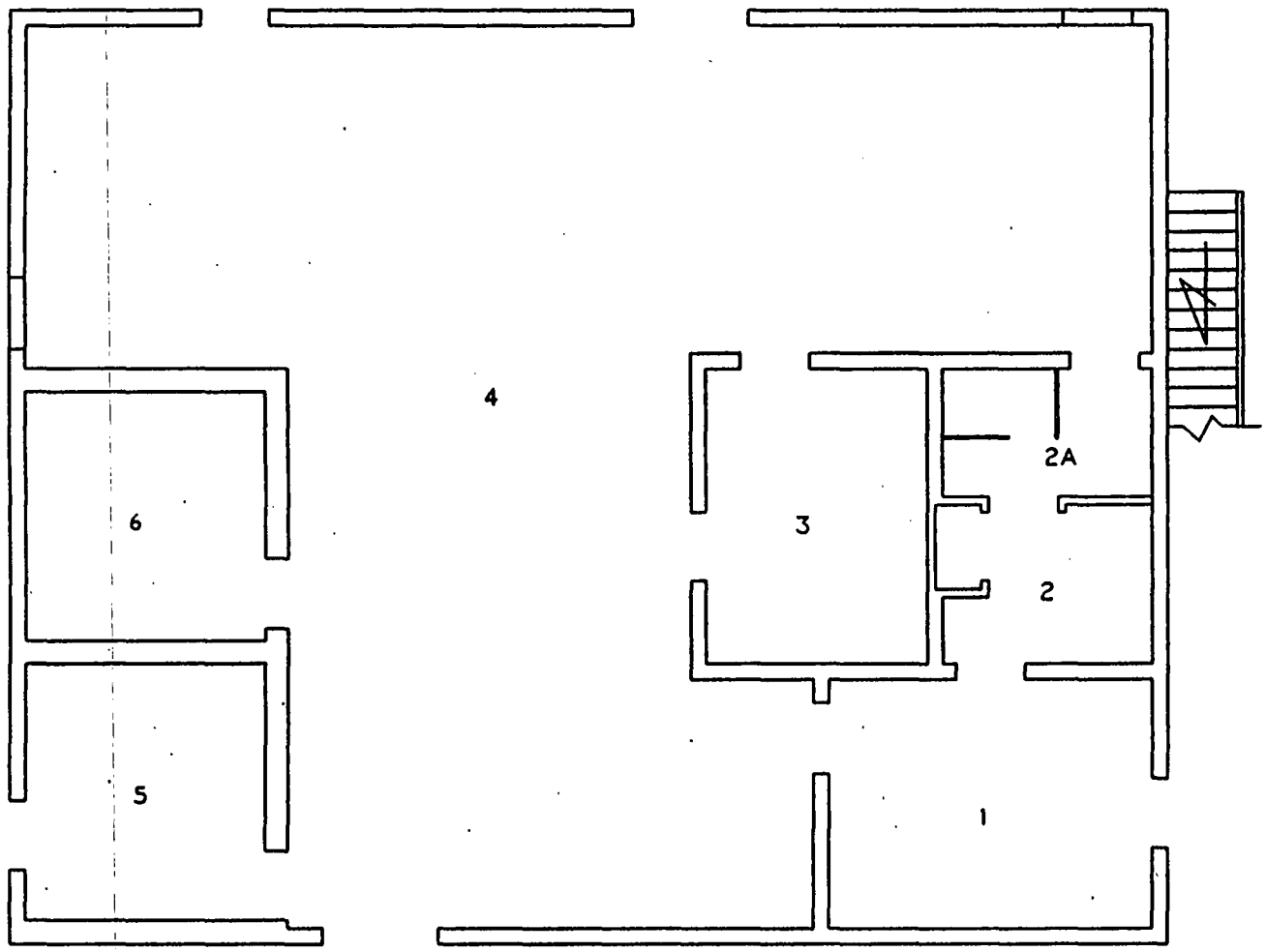




**FIGURE 3 – BLDG. 37**

# Appendix D

## Floor Plans

| ISS | DATE | REVISION | BY | CHKR | DWG | APVD | APVD | N |
|---|---|---|---|---|---|---|---|---|
| 0 | 12/12/91 | ASBUILT ISSUE | DCW | | | DVO | | |




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

UNCLASSIFIED

0 1' 3' 5' 10'

**BLDG #37**
**FIRST FLOOR**
**BLDG CODE:3037**

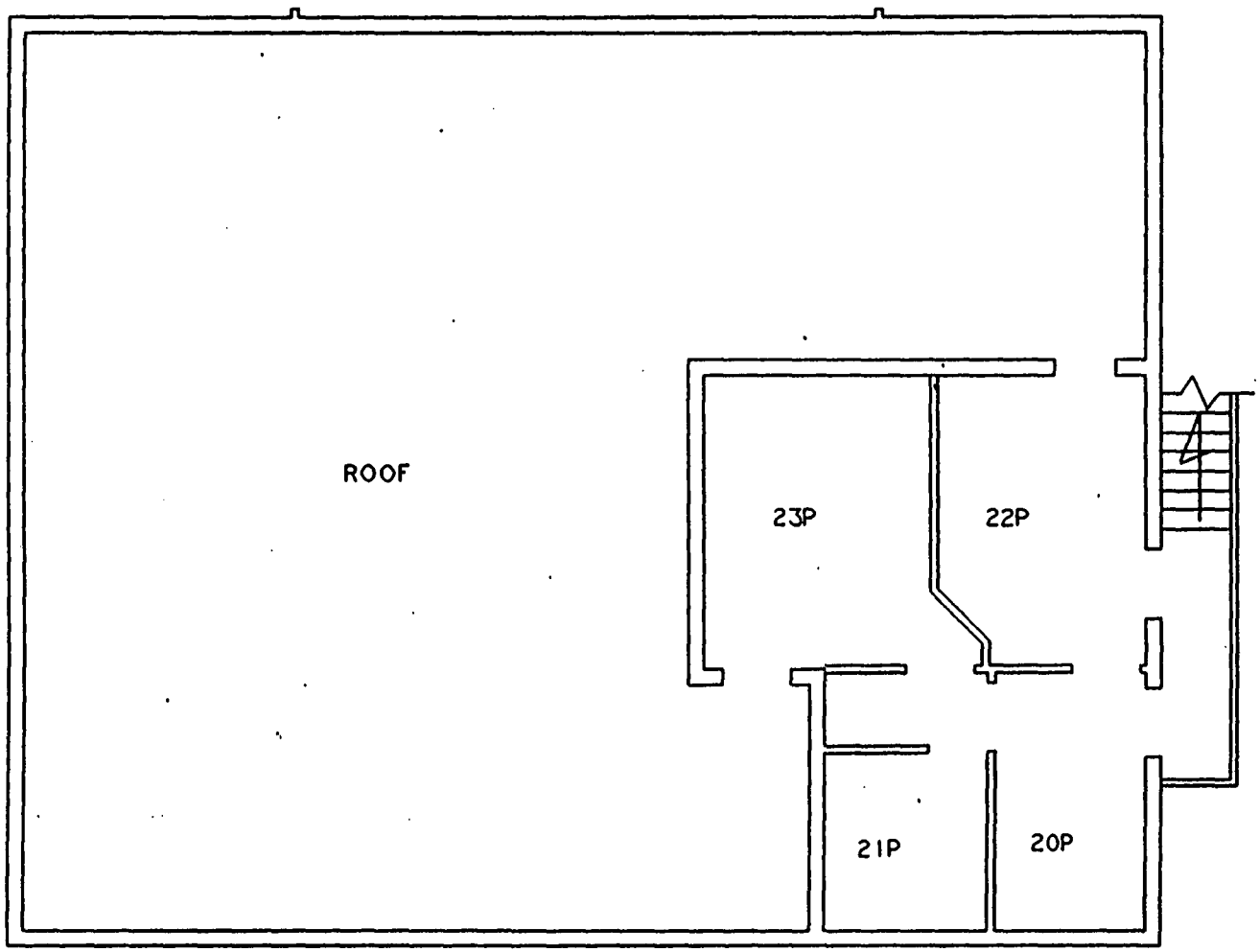
D 1 of 2

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED:
___NONE ___TRUEDOC ___YEDOC ___DWGC
TECH. REVP. ____
GR. MGR. ____
TRUEDOC ____
YEDOC ____
DWGC ____

NOT FOR PUBLIC DISSEMINATION

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

| SHEET | 1 | 2 | 3 | 4 | 11 | 6 | TITLE | (U) TITLE CLASSIFICATION |
|---|---|---|---|---|---|---|---|---|
| ISSUE | 0 | 0 | | | | | BLDG #37 FLOOR PLANS | |
| FORT CLASSIFICATION | | | | | | | | |
| DRAWING CLASSIFICATION ~~UCNI~~ | | | | | | | SIZE C | DRAWING NUMBER FSC911248 | JOB NUMBER 12335 |
| DWG TYPE SFP | | | | | | | PROJ BLDG #37 | CODE 14015 | SCALE AS NOTED | SHEET 1 OF 2 |
| STATUS MD-REL.-12/12/91 | | | | | | | | | ORIGIN MD-BR3-V3.0 |



UNCLASSIFIED

**BLDG #37**
**PENTHOUSE**
**BLDG CODE:3037**

UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification
Office. Reviewer Initials: RDM
5/14/96

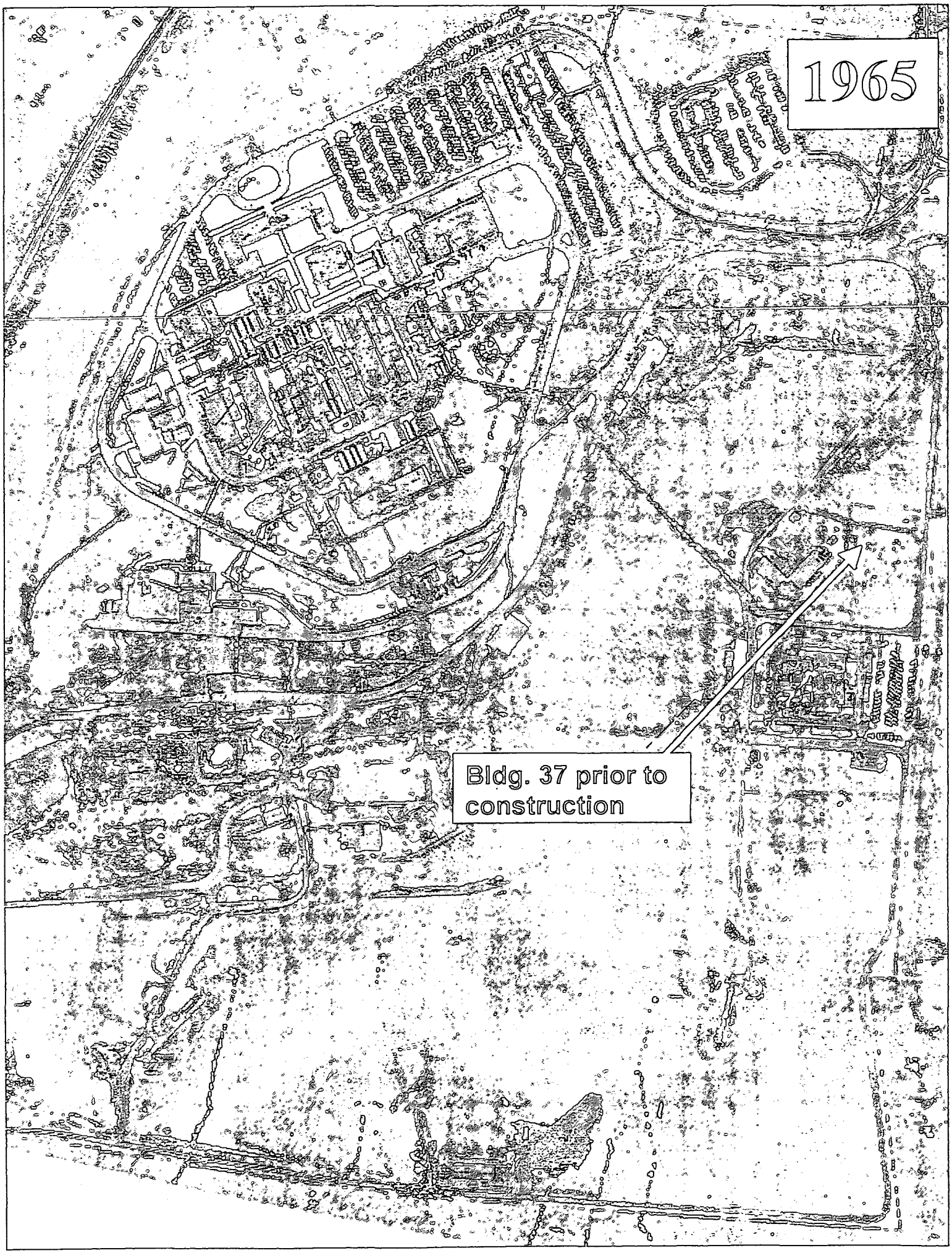
NOT FOR PUBLIC DISSEMINATION

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

| | |
|---|---|
| DRAWING NUMBER | FSC911248 |
| JOB NUMBER | 12335 |
| DRAWING CLASSIFICATION | UCNI |
| SIZE | C |
| DWG NO | 14865 |
| SCALE | AS NOTED |
| SHEET | 2 |
| STATUS | MO-REL.-12/12/91 |

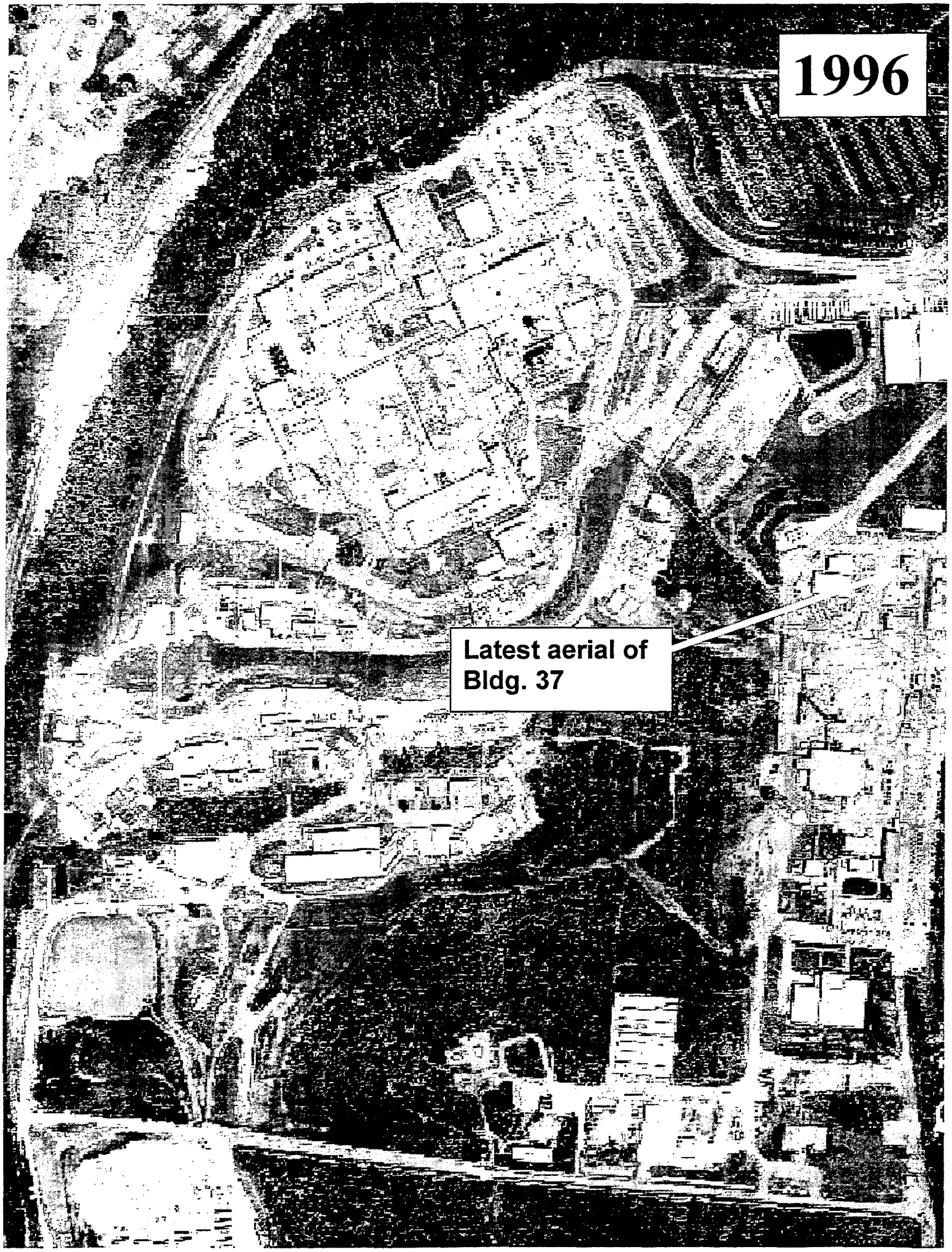
# Appendix E

## Aerial Photographs




E 1 of 3

E2063




E3063

# Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

## 9.60 BUILDING 37

### 9.60.1 Scope of Building 37 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 37 on February 27, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.60.6.1). 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 9.60.6.2).

### 9.60.2 Description of Building 37

Building 37 is a one-story structure constructed of concrete block with a penthouse. The roof is a metal built-up membrane of asphalt. The building was constructed in 1968. Building 37 is located on what is known as the SM/PP hill as shown in Attachment 3 (Section 9.60.6.3). Adjacent buildings are Building 88 to the north, Building 50 to the east, Building 36 to the south, and Building 31 to the west. The building is serviced by central steam for heat, chilled water, and electrical service of 480V (*Mound Facility Physical Characterization*, 12-1-93).

Building 37 was used for two purposes. One use was research, development, and production in conjunction with the U.S. Advance Battery Consortium. The other was converting processes with Freon or other hazardous materials to processes that use safer materials. Now the building has been converted to a machine shop in support of the heat source program. The activities being performed are machining, cleaning, heat treating, and inspection. Total area of Building 37 is 2,463-square-feet. Floor plans are presented as Attachment 4 (Section 9.60.6.4). No research, development or production activities using radiation or energetic materials have occurred in the building (*Mound Facility Physical Characterization*, 12-1-93).

### 9.60.3 Summary of Findings

The building has been recently renovated and is well-maintained. The only concern inside the building are air emissions sources. The application submitted in 1992 to the Regional Air Pollution Control Agency (RAPCA) was for previous operations and the conditions listed in the application have changed. Outside the building there are three issues. One is the handling of compressed gas cylinders, such as improper labeling and mixing of full and empty cylinders. Second is the clutter of excess equipment outside the building. Material removed during renovation is still present and the majority of it could be recyclable metal. Last, there is a potential cross-connection between the storm and sanitary system at the lift station.

### 9.60.4 Observations

#### 9.60.4.1 Air Emissions

An application was filed on March 5, 1992 for a Permit to Operate (PTO). No PTO was received from the Regional Air Pollution Control Agency (RAPCA). The application covered EF-1 in Room 4, hoods 1, 2, and 3. Building 37 renovation removed two fumehoods and a new machine shop was installed. There are eight machine shop tools being serviced by a central exhaust. It is undetermined whether particulate controls are on the exhaust. The application and Mound's air emission inventory database no longer reflect the ongoing operations. There are no fuel-burning units in the building. There was no visual evidence of fugitive dust.

#### 9.60.4.2 Wastewater Emissions

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

##### 9.60.4.2.1 Sanitary Wastewater

The building has sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.60.6.5), the building is serviced by a sanitary line. Expected discharges to the sanitary system are by sinks and toilets. Chemicals could enter the sanitary system as there is a sink in the fumehood where solvents will be used. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort, therefore, dye tests or smoke tests were not conducted. There is no monitoring of building effluent. Based on current operations identified by the process owner, effluent from Building 37 should not deviate from that expected by the sanitary treatment plant manager.

There are two underground sanitary tanks outside of the building. One is a 500-gallon settling tank for Building 37 on the north side of the building. The other is a lift station on the east side of the building. According to Attachment 5 (Section 9.60.6.5), a storm sewer line is attached to the lift station. No information was available as to which system discharged (or could discharge) into which system. A potential cross-connection could exist between the storm and sanitary system at the lift station.

#### 9.60.4.2.2 Storm Wastewater

The building is also serviced by storm drains according to Attachment 5 (Section 9.60.6.5). Roof drains discharge to the storm sewer. 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 potential exists for untreated waste to enter the storm drainage system if the storm water line is an emergency overflow for the sanitary lift station.

#### 9.60.4.2.3 Process Wastewater

This building does not create or discharge radioactive wastewater to the WD facility. According to Attachment 5 (Section 9.60.6.5), no radioactive wastewater lines service Building 37. The underground settling tank at the north end of the building is listed as an inactive low-risk waste tank in the Underground Storage Tank (UST) Program. The original program for which the building was constructed was terminated before the building was operational. No documentation was found to support the UST survey that radioactive material was used in the building. According to the UST survey it is suspected that the tank has been disconnected from the sanitary line and bypassed.

#### 9.60.4.2.3 Chemicals

Chemicals in Building 37 were evaluated against Table V of Appendix D in 40 CFR 122 and none are listed Clean Water Act (CWA) pollutants. However, two chemicals from past operations are listed in the BMQ, included as Attachment 2 (Section 9.60.6.2), under hazardous waste. Chemical storage and handling procedures are in place for proper disposal of chemicals. There have been no reported spills from Building 37. No floor drains were seen in areas of operations. There is no evidence that chemicals have entered the storm or sanitary drains.

### 9.60.4.3 Potable and Service Water

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross-connections. Potable and service water lines are uniquely marked and easily identified. The bottled water fountain in the building is not an Environmental Protection Agency (EPA)-listed model suspected of lead contamination.

### 9.60.4.4 Chemical Storage and Hazardous Materials

An updated list of chemicals used or to be used in Building 37 was attached to the BMQ, included as Attachment 2 (Section 9.60.6.5). There was no visual evidence of chemical storage incompatibility. Material Safety Data Sheets (MSDS's) are available in the building and were reviewed for completeness. There is a flammable storage cabinet which meets standard National Fire Protection Association (NFPA) requirements.

Compressed gas cylinders were improperly stored on the south side of building. Full and empty gas cylinders were mixed together. Many gas cylinders were missing full/empty tags or the tags were illegible. Gas cylinders required for operations in Building 37 are used and stored inside. Personnel from Building 37 suspect that gas cylinders are being stored, or dumped, from surrounding buildings since there is storage space available.

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

There are no aboveground storage tanks in or around the building that are associated with Building 37. There are no sumps, separators, or catch basins, in or around the building. There are two underground sanitary tanks associated with this building. Potential problems were previously discussed under the Water Emissions Section. The 500-gallon settling tank is a steel tank identified as tank No. 267 in the UST Program. The UST program identifies the lift station as tank No. 100. The lift station is a steel tank inside a concrete pit. The lift station has an audible alarm which is checked quarterly. The UST program notes that the lift station is visually checked as part of routine building activities, usually once a week. The appraisal team was unable to verify documents to verify inspections.

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

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

### 9.60.4.5 Solid, Hazardous, and Chemical Wastes

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

All hazardous wastes that will be generated by the operations in Building 37 will be stored in solvent cans as a satellite accumulation area (SAA) located inside the building. Characterization of hazardous waste was not verified because no hazardous waste has been generated at the time of the walk-through. Hazardous wastes will be 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 Resource Conservation and Recovery Act (RCRA) requirements.

The hazardous materials listed in the BMQ, included as Attachment 2 (Section 9.60.6.2), are from previous operations in Building 37 and are no longer present. The disposition of material from the 1990 listing was beyond the scope of this assessment. However, records are maintained for any chemical that is collected and disposed of by Waste Management.

There are no drums of waste, identified or unidentified, in or around the building.

### 9.60.4.6 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. Metal shavings and scraps are recycled. The excess cabinets and equipment should be removed to a metal recycle bin, unless an alternative use has been established.

### 9.60.5 Findings and Recommendations

The environmental appraisal of Building 37 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. They are included at Attachment 6 (Section 9.60.6.6).

37-1 Update Mound's air emission inventory database and air permit application for Building 37. RAPCA should be notified of this change in status (OAC 3745-31).

37-2 A potential cross-connection exists between the storm and sanitary system. The NPDES permit does not allow the discharge of untreated waste from the plant site. The system should be examined to determine whether a problem exists, and any necessary corrective action should immediately follow.

37-3 The status of the other UST should be addressed to determine whether it contains anything and if it is connected to the sanitary system.

37-4 Full and empty gas cylinders should be stored separately and in a manner that minimizes their handling. All gas cylinders should carry a legible label or marking identifying their contents (CGA P-1).

37-5 Excess clutter outside the building should be removed. The cabinets and equipment seem to have no intrinsic value other than recyclable metal.

# ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 37

Appraisers: Ronald Paulick
Name Discipline

Billie J. Atkins
Name Discipline

Philip J. Parker
Name Discipline

Name Discipline

Building Manager: Gary Miller for Paul Molloy

Process Manager:

Date: 2-27-96



9.60-9

# ENVIRONMENTAL APPRAISAL CHECKLIST

## Table of Contents


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

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Bulick/Adkins/Parker Date: 3-27-96

### 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 | Amyl/Acetate, Furfural past operations |
| | Is the building in operation?<br>What are the processes and where do they discharge to? | (Y) / N<br>_____<br>_____ | ~~Mach~~ machine shop in support RTG |
| | Do the floor drains, sinks & toilets appear to be draining properly? | (Y) / N | |
| OAC 3745-33 | Do the floor drains and sinks drain to a sanitary or storm sewer? | (Sanitary) / Storm | Not Verified. |
| | 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>_____<br>_____<br>(Y) / N<br>Y / (N) | Two sanitary sumps outside<br>sewage |
| | 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) | |

9.60-12

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Poulick/Adkins/Parker Date: 2-27-96

### Clean Air Act (CAA) Screening Checklist

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

### CAA Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| | Are there existing air permits or applications applicable to the building? | (Y)/ N | ~~Emp~~ Exempt - 3/5/96 |
| 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 | Operations have changed - now a machine. Cleaning ops R-166 moving in |
| 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 | See above. |
| OAC 3745-31-03 | Are there sources which are lab equipment of lab fumeheads used exclusively for chemical or physical analyses and bench scale lab equipment? These sources do not require a permit. However, the air emissions database should be updated. | Y/ (N) | |
| | Has there been any release of air contaminants from this building? | Y/ (N) | |

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## Environmental Appraisal Checklist

Building Name: 37

Appraisers: Paulick/Adkins/Parker Date: 2-27-96

CAA Checklist

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

TABLE A

| Process Source | Room Number | Hood Number | In Database | Active | Chemicals Used | Quantity Used | Quantity to Waste Management | Hours/Yr. Operation | Air Emissions |
|---|---|---|---|---|---|---|---|---|---|
| Machining ops. | 004 | | Y / N | Y / N | particulates | | | | |
| | | | | | operations have changed | | | | |
| Fumehood | 004 | ? | Y / N | Y / N | 2 of 3 | hoods | removed. | | |
| | | | Y / N | Y / N | | | | | |
| | | | Y / N | Y / N | | | | | |
| | | | Y / N | Y / N | | | | | |

Source: _____

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9.60-13

9.60-14

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adams/Parker Date: 2-27-96

### Hazardous Materials (HM) Screening Checklist

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

### HM Checklist

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

File 2 of 58

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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 | Halon 1211 |
| 29 CFR 1910.151 | Eyewashes/showers shall be provided within the work area. Ensure unit is operational. | (Y) / N | |
| CGA P-1 3.3 & 3.3.10 | All gas cylinders (full or empty) shall carry a legible label or marking identifying the contents. | Y / (N) | empties & full mixed; tags miss Not from this building |
| 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) | empties & full mixed. |
| CGA P-1 3.5.8 | All compressed gas containers in service or in storage shall be stored standing upright and the container shall be secured. | (Y) / N | |
| CGA P-1 4.2.2 | Oxygen cylinders shall be separated from flammable gas containers or combustible materials a minimum of 20 ft. or a noncombustible barrier 5 ft. high. | Y / N | 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) FP 3/8/96 | N/A |
| 29 CFR 1910.104 | Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES". | Y / N | N/A |
| | Is there a sign posted in each work area regarding emergency egress and emergency response action? | (Y) / N | |
| | Is there an emergency response plan available? | (Y) / N | |

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9.60-15

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### HM Checklist

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

### Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

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

Source: _____

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### Safe Drinking Water Act (SDWA) Screening Checklist

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

### SDWA Checklist

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

### TABLE C—Water Fountain Survey

| Building | Location | Model # | Comments / Date of Analysis for Lead |
|---|---|---|---|
| ~~39~~ | ~~Room 2~~ | ~~SH4R-3~~ | ~~Halsey Taylor~~ RP 3/8/96 |
| 37 | Room 5 | BISRHS-102 | EBCO bottled water ok. |
| | | | |
| | | | |
| | | | |

Source: _____

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9.60-17

## Environmental Appraisal Checklist

Building Name: 37

Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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) | |
| 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 | |

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9 60-18

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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 | There will be a potential SAA for solvents when ~~opa~~ operations begin. |
| 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 | Cleaning operations in R-Building will be moved to BD-37. |
| | Are the containers marked with the words hazardous waste, or other words denoting the hazard? | (Y)/ N | |
| | Are the containers in good condition? | (Y)/ N | |
| | Are the waste compatible with the containers? | (Y)/ N | |
| | Are containers managing ignitable hazardous waste stored at least 50 feet from the plant site boundary? | (Y)/ N | |
| | Are containers kept closed and locked except during filling? | (Y)/ N | Access to containers controlled. |
| | Are containers moved within 3 days of being filled? | (Y)/ N | |

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## Environmental Appraisal Checklist

Building Name: 37

Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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 | 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>Y / N | |
| | Are containers managing ignitable hazardous waste stored at least 50 feet from the facility boundary? | Y / N | |
| | Are incompatible wastes managed in such a way that they will not react with another incompatible waste? | Y / N | |
| OAC 3745-52-34(B) | Has any of the waste (except in Building 23, Building 72 and the Burn Area) been managed in excess of 90-days? | Y / (N) | |
| | If no go to next section. | | |
| | If yes, note. | | |
| | For Building 23, Building 72 & Burn Area use special checklist. | | |

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick / Adkins / Parker Date: 2-27-96

RCRA Checklist

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

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Atkins/Parker Date: 5-27-96

RCRA Checklist

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

General Comments:

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### Asbestos Screening Checklist

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

### Asbestos Checklist

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

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

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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 | No PCBS |
| | 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 | |
| 40 CFR 761.65 (c) (5) | Are PCB articles or containers stored in this building checked for leaks at least once every 30 days? | Y / N | |
| | If yes, are auditable records maintained. | Y / N | |
| 40 CFR.30 (a) (1) (ix) | Are any PCB transformers in use, or stored for possible reuse, that contain PCB's at concentrations of 500 ppm or greater? | Y / N | |
| | Are they visually inspected quarterly? If yes, are auditable records maintained? | Y / N | |

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### TSCA Checklist

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

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Perulick/Adkins/Parker Date: 2-27-96

TSCA Checklist

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

**GENERAL COMMENTS:**

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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 | N/A |
| 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 | |

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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 | N/A |
| | 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: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

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 | N/A |
| | 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 | |

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## Environmental Appraisal Checklist

Building Name: 37

Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### 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 | N/A |
| | 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: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### Low-Level Waste and Transuranic Waste Checklist

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

GENERAL COMMENTS:

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulsek/Atkins/Parker Date: 2-27-96

### 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 | |
| | Are there solvent wastes? | (Y) / N | |
| | Is vehicle maintenance performed? | Y / (N) | |
| | Are oils used ? | (Y) / N | |
| | Are these corrosive wastes? | Y / (N) | |
| | Are there sludges? | Y / (N) | |
| | Are there halogenated organic (nonsolvent) wastes? | (Y) / N | methy chloride being phased |
| | Are metals recovered from wastewater? | Y / (N) 3/18/96 | N/A |
| | Is waste sludge generated? | Y / (N) | |
| | Are any waste minimization practices used that reduce the generation of sludge? | Y / N | N/A |
| | Ion exchange process? | Y / N | |
| | Lead in gasoline lowered to reduce tank sludge toxicity? | Y / N | |
| | Storage tank agitators installed? | Y / N | |
| | Corrosive resistant materials used? | Y / N | |
| | Prevention of crude oil oxidation ? | Y / N | |
| | Drying? | Y / N | |

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### Waste Minimization/Pollution Prevention Activities Checklist

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

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# Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

## 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 | |
| | Is the process of evaporation of liquid wastes by heating used to leave behind a more concentrated solution? | Y / N | |
| CYANIDE AND REACTIVE WASTES | | | |
| | Has non-cyanide or low concentration of cyanide process replaced zinc cyanide bath ? | Y / N | N/A |
| | Are any of these processes used to recycle cyanide wastes? | Y / N | |
| | Refrigeration/crystallization? | Y / N | |
| | Evaporation? | Y / N | |
| | Ion exchange? | Y / N | |
| | Membrane separation which includes reverse osmosis or electrodialysis? | Y / N | |
| VEHICLE MAINTENANCE | | | |
| | How are auto parts cleaned? | Y / N | N/A |
| | Solvent sink? | Y / N | |
| | Solvent dunk bucket? | Y / N | |
| | Solvent dip tank? | Y / N | |
| | Are parts cleaning solvents used for anything else besides cleaning parts? | Y / N | |
| | Are spills reduced by locating sinks or dunk buckets near auto service bays? | Y / N | |

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### Waste Minimization/Pollution Prevention Activities Checklist

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

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## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### Waste Minimization/Pollution Prevention Activities Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| | Are these treatment techniques used to promote separation of oil/water wastes? | | N/A |
| | Reclaiming process to remove water and solvents by heat? | Y / N | |
| | Gravity setting? | Y / N | |
| | Screening? | Y / N | |
| | Centrifugation? | Y / N | |
| | Filtration? | Y / N | |
| SOLVENT WASTES | | | |
| | Has there been an attempt to reduce volume or toxicity by: | | |
| | Eliminating solvents? | (Y) / N | |
| | Reducing the use of solvents? | (Y) / N | |
| | Reducing the loss of solvents? | (Y) / N | |
| | Increasing recyclability? | (Y) / N | |
| | Are solvents segregated? | (Y) / N | |
| | Are waste solvents free from water and garbage? | (Y) / N | |
| | Are recycled solvent containers labeled as such? | (Y) / N | |
| | Are containers kept closed? | (Y) / N | |
| | Free and sheltered from the elements? | (Y) / N | |
| | Are solvent tanks kept as free from contaminations as possible so that the waste can be recycled? | Y / N | NO tanks |
| | Is a method used to minimize the use of new materials such as a countercurrent process? | Y / N | N/A |

## Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/Parker Date: 2-27-96

### Waste Minimization/Pollution Prevention Activities Checklist

| Regulatory Guideline | Question | Response | Comments |
|---|---|---|---|
| | If there is a recycling program, what technique is used? | Y / N | N/A |
| | Distillation? | Y / N | |
| | Solids removal? | Y / N | |
| | Dispersion breaking? | Y / N | |
| | Dissolved and emulsified organics recovery? | Y / N | |
| | Are any of these housekeeping procedures used to minimize the production of solvent wastes? | | |
| | Separators cleaned and checked? | Y / N | |
| | Parts not allowed to enter the degreaser while wet? | Y / N | |
| | Sludge from the bottom of the tank not allowed to accumulate? | Y / N | |
| | Lids kept on tanks? | Y / N | |
| | Freeboard space on tanks increased? | ~~Y~~ / N PCP 3/8/96 | |
| | Are better operating practices used to reduce waste? | (Y) / N | |
| | How long is solvent waste stored and where? | _____ | Until container is filled. |

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Building Name: 37 Building Manager: P.C Molloy Phone: 3869 Date: 12-07-95
Alternate: T.J. GEESNER Phone: 5568

1. What are the access requirements?

None

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

Safety glasses

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

4. Provide a physical description of the building.

This is a concrete block structure with a BUM roof (asphalt). It has central steam heating. Total area is 2,463 $ft^2$ in one story. Building is not contaminated with any radioactive or energetic materials.

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

5. Provide a drawing of the building.

Attached.

6. What is the current building use? Various machining, inspection, cleaning, and he treating operations are performed in direct support. Hy Sect Assig.

~~The building is used for two purposes. (A) Research development, and pilot plant production in conjunction with the U.S. Advanced Battery Consortium, and (B) Converting processes with Freon or other hazardous materials to processes that use safer materials.~~

Source: Mound Buildings, 5-9-95

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

Source: Mound Buildings, 5-9-95

Building Name: 37 Building Manager: P.T. Molloy Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Process(es) Housed: Organic material process development

How Wastes Are Generated: PAST OPERATIONS

Several processes and material properties are investigated in Building 37. A variety of wastes can be generated, depending upon the nature of the work being done. The current processes are briefly described below.

A very porous foam of polyacrylonitrile is formed by heating a mixture of acrylonitrile and maleic anhydride and then allowing the mixture to cool and harden. If the "web" of polymer forms inside the block of maleic anhydride as expected, the maleic anhydride is washed away with water. Maleic acid is formed, and it is washed down the drain to the sewer. If the "web" does not form properly, the block of maleic anhydride is packaged for pickup by Waste Management.

Another foam is formed by coating salt particles with phenolic resin, pressing the coated salt into a bar, infusing the bar with more of the polymer, and leaching out the salt. The coating and infusing portions of this work is done in Building 37. Acetone is the medium in which the salt and phenolic resin are mixed for the initial coating. The mixture is dried by allowing the acetone to evaporate. Acetone is also used to clean the equipment. Any liquid acetone wastes are poured into a waste can for pickup by Waste Management. Any dry phenolic resin powder that must be discarded is packaged for Waste Management.

Studies of alternatives to chlorinated hydrocarbons as cleaners and degreasers generate some miscellaneous solvents which are put into waste cans. Studies of alternatives to coolants and lubricants generate small amounts of miscellaneous coolant wastes which are also put into waste cans for Waste Management.

Some classified work generates a very small amount of toxic wastes which are handled by Waste Management.

Over the past year, Building 37's chemical inventory has been reduced by two thirds, and excess chemicals were discarded through Waste Management. Only those chemicals required for current or anticipated investigations have been kept.

Contact:
Phone #: SEE ATTACHMENT

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



9.60-42

Building Name: 37 Building Manager: P.T. Molloy 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) No

| Process Source | Room Number | Hood Number | Active | Chemicals Used | Quantity Used | Quantity to Waste Management | Lbs./Yr. Operation | Air Emissions |
|---|---|---|---|---|---|---|---|---|
| Standby | 004 | 3700 40001 | ~~Y / N~~ | (Y) HF/HCl propanol ethyl alcohol acetone | | | | |
| Standby | 004 | 3700 40002 | ~~Y~~ (N) | | | | | |
| Standby | 004 | 3700 40003 | ~~Y~~ (N) | | | | | |
| machine operation | 004 | | (Y) / N | particulates | | | | |
| | | | Y / N | | | | | |

Source: Mound Air Emissions Database 11/30/95

Building Name: 37 Building Manager: P.T. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95

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

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

Source: Air Permits 2/4/95

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

14. Does the building discharge to the storm sewer? (Yes) No
Where? Furnace cooling water to storm drain.

15. Does the building discharge to the sanitary sewer? (Yes) No
Where? 8D restroom.

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

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

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9.60-44

Building Name: 37 Building Manager: P.T. Molloy Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Source: PCB ANNUAL DOCUMENT LOG

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

Source: PCB ANNUAL DOCUMENT LOG

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

| Chemical Name | State | Amount (MAX) |
|---|---|---|
| ~~NONE~~ | | |
| SEE ATTACHMENT | | |
| | | |
| | | |
| | | |

Source: ~~Chemical Inventory 1994~~

Building Name: 37 Building Manager: P.T. Molloy 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?

Excess materials transferred to Waste Mgmt.

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

In restroom.

23. Where do excess janitorial supplies go?

Excess materials transferred to Waste Mgmt.

Source: _____

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

| Chemical | Amount | Chemical | Amount |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Source: _____



9.60-46

Building Name: 37 Building Manager: P.T. Molloy Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

NONE

26. Is there a sump or pit or underground tank in or around the building?
(Yes) No (Unknown) OUTSIDE 2 Sanitary tan
Is it double-walled? What does it contain? How many days per year is it filled?
Is there an emergency overflow tank? Have there been previous overflows?

| Double-Walled | Contents | Days/Year in Use | Overflow Tank | Previous Overflows |
|---|---|---|---|---|
| Y / N | Sanitary | 365 | Y / N | Y / N |

Source: _____

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

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

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

| | | | |
|---|---|---|---|
| BLDG 37 | ACETONE, PHENOLIC RESIN WASTE | D001 F003 | 224.6 |
| BLDG 37 | ACRYLIC ACID | D002 | 0.9 |
| BLDG 37 | ACRYLONITRILE | NONE | 15.7 |
| BLDG 37 | ACSARITE II | NONE | 2.2 |
| BLDG 37 | ACTIVATED CARBON | NONE | 3.5 |
| BLDG 37 | ACTIVATED CARBON, WET POWDER | NONE | 3.5 |
| BLDG 37 | ACTREL CLEANER | NONE | 40.2 |
| BLDG 37 | ADIPRENE L-100 | NONE | 1.2 |
| BLDG 37 | AIRTHANE 75D | NONE | 4.4 |
| BLDG 37 | AIRTHANE 90 | NONE | 2.2 |
| BLDG 37 | AIRTHANE 90A | NONE | 2.5 |
| BLDG 37 | AIRTHANE 95 | NONE | 1.8 |
| BLDG 37 | AIRTHANE 95A | NONE | 4.9 |
| BLDG 37 | ALIQUAT 336 | NONE | 0.3 |
| BLDG 37 | ALUMINA | NONE | 1.4 |
| BLDG 37 | ALUMINUM NITRIDE | NONE | 0.6 |
| BLDG 37 | ALUMINUM OXIDE | NONE | 3.3 |
| BLDG 37 | ALUMINUM OXIDE | NONE | 1.9 |
| BLDG 37 | ALUMINUM SULFATE | NONE | 1.2 |
| BLDG 37 | AMBERLITE | NONE | 1.0 |
| BLDG 37 | AMMONIUM GOLD CYANIDE | D003 | 1.0 |
| BLDG 37 | AMMONIUM HEXACHLORO IRIDIUM | NONE | 0.3 |
| BLDG 37 | AMMONIUM HYDROXIDE | D002 | 20.7 |
| BLDG 37 | AMMONIUM TETRACHLORO GOLD | NONE | 2.6 |
| BLDG 37 | AMMONIUM TETRACHLORO PLATINATE | NONE | 0.9 |
| BLDG 37 | AMMONIUM TETRACHLORO PLATINUM | NONE | 0.2 |
| BLDG 37 | AMMONIUM TETRACHLORO PLATINUM IN ACETONE | D001 | 0.5 |
| BLDG 37 | AMORPHOUS SILICA | NONE | 1.7 |
| BLDG 37 | AMYL ACETATE | D001 | 3.2 |
| BLDG 37 | ANCAMINE 2049 | D002 | 2.6 |
| BLDG 37 | ARALDITE MY510 EPOXY RESIN | NONE | 4.1 |
| BLDG 37 | ARALDITE MY731 EPOXY RESIN | NONE | 3.2 |
| BLDG 37 | ASILAMINE | NONE | 0.1 |
| BLDG 37 | ASILAMINE DIAMINE | NONE | 7.0 |
| BLDG 37 | BAYTEC 1604 | NONE | 9.8 |
| BLDG 37 | BENZOIC ACID | NONE | 2.3 |
| BLDG 37 | BETA 5 CURING AGENT | D001 | 0.5 |
| BLDG 37 | BIOACT-EC7 | D001 F003 | 91.2 |
| BLDG 37 | BIOACT, ACETONE WASTE | D001 F003 | 450.0 |
| BLDG 37 | BISMUTH | D003 | 0.1 |
| BLDG 37 | BORIC ACID, BORIC ANHYDRIDE | NONE | 1.9 |
| BLDG 37 | BORON | D003 | 0.1 |
| BLDG 37 | BORON POWDER | D003 | 1.2 |
| BLDG 37 | BUTANEDIOL (1,4-) | NONE | 0.2 |
| BLDG 37 | BUTANEDIOL (1,4-) | NONE | 2.3 |
| BLDG 37 | BUTANOL | D001 U031 | 1.6 |
| BLDG 37 | BUTANOL (1) | D001 U031 | 25.0 |
| BLDG 37 | BUTANONE | D001 D035 U159 F005 | 4.7 |
| BLDG 37 | BUTOXYETHOXY ETHYL ACETATE | D003 | 3.2 |
| BLDG 37 | BUTYRLOACETONE | NONE | 9.9 |
| BLDG 37 | CAB-O-SIL | NONE | 0.6 |
| BLDG 37 | CALCIUM CHLORIDE | NONE | 1.1 |
| BLDG 37 | CALCIUM HYDRIDE | D003 | 0.2 |
| BLDG 37 | CALCIUM NITRATE | D001 | 1.5 |

| | | | |
|---|---|---|---|
| BLDG 37 | CALCIUM OXIDE | NONE | 7.0 |
| BLDG 37 | CALCIUM PHOSPHATE | NONE | 1.4 |
| BI 37 | CALCIUM SULFATE | NONE | 2.5 |
| B 37 | CAMPHORQUINONE | NONE | 0.6 |
| BL 7 | CARBON | NONE | 0.3 |
| BLDG 37 | CARBON | NONE | 1.1 |
| BLDG 37 | CARBON BLACK | NONE | 1.1 |
| BLDG 37 | CARBOWAX PEG | NONE | 5.1 |
| BLDG 37 | CELLULOSE ACETATE | NONE | 12.2 |
| BLDG 37 | CELLULOSE ACETATE | NONE | 2.3 |
| BLDG 37 | CELLULOSE MICROCRYSTALLINE | NONE | 4.0 |
| BLDG 37 | CESIUM BROMIDE | NONE | 0.6 |
| BLDG 37 | CESIUM BROMIDE | NONE | 0.1 |
| BLDG 37 | CHLORO NORBORNADIENE IRIDIUM | NONE | 0.6 |
| BLDG 37 | CHROMIUM (III) OXIDE | D007 | 0.3 |
| BLDG 37 | CITRACONIC ANHYDRIDE | NONE | 1.8 |
| BLDG 37 | CITRIC ACID MONOHYDRATE | NONE | 2.3 |
| BLDG 37 | CITRICONINC ANHYDRIDE | NONE | 1.4 |
| BLDG 37 | COBALT CHLORIDE | NONE | 1.7 |
| BLDG 37 | COBALTOUS ACETATE | NONE | 0.5 |
| BLDG 37 | CONAP EN7 PART B | NONE | 0.9 |
| BLDG 37 | CONATHANE EN7 PART A | NONE | 2.4 |
| BLDG 37 | CORDOVA ATC-3 | D007 | 0.1 |
| BLDG 37 | CORDOVA ATC-3 | D007 | 0.6 |
| BLDG 37 | CYANOCURE | NONE | 3.3 |
| BLDG 37 | CYANOPHENYL (3,4-) DECANE DIAMIDE | NONE | 0.1 |
| BLDG 37 | CYCLO HEXANE | D001 U056 | 3.5 |
| : 37 | CYCLO HEXANOL | NONE | 3.4 |
| • 37 | CYCLOHEXANE | D001 | 87.0 |
| b... 37 | CYCLOHEXYL PYRROLIDONE | D001 | 3.7 |
| BLDG 37 | CYCLOOCTADIENE PLATINUM CHLORIDE (1,5-) | NONE | 2.6 |
| BLDG 37 | DECAHYDRO NAPHTHALENE | D001 | 1.6 |
| BLDG 37 | DECAHYDRONAPTHALENE | NONE | 6.7 |
| BLDG 37 | DIBUTYL TIN DILAURATE | NONE | 0.3 |
| BLDG 37 | DICARBONYL ACETYLACETONATOIRIDIUM | NONE | 0.6 |
| BLDG 37 | DICHLORO CYCLOOCTADIENE (1,5-) | NONE | 0.6 |
| BLDG 37 | DICHLORO ETHANE (1,2-) | D001 D028 | 8.7 |
| BLDG 37 | DICHLOROETHANE | D001 D028 | 0.2 |
| BLDG 37 | DICYANO BENZENE (1,2-) | D003 D018 | 0.6 |
| BLDG 37 | DICYANO BENZENE (1,3-) | D003 D018 | 0.5 |
| BLDG 37 | DICYANO BENZENE (1,4-) | D003 D018 | 1.4 |
| BLDG 37 | DIETHANOL AMINE | NONE | 2.8 |
| BLDG 37 | DIETHANOL AMINE | NONE | 0.3 |
| BLDG 37 | DIETHYL ACETAMIDE | NONE | 0.5 |
| BLDG 37 | DIETHYL ETHANOL AMINE | D001 | 3.2 |
| BLDG 37 | DIETHYLENE GLYCOL | NONE | 11.9 |
| BLDG 37 | DIMETHYL ACETOMIDE | NONE | 16.0 |
| BLDG 37 | DIMETHYL ACETOMIDE | NONE | 15.0 |
| BLDG 37 | DIMETHYL BENZAMIDE | NONE | 0.5 |
| BLDG 37 | DIMETHYL CARBONATE | D001 | 1.8 |
| ...G 37 | DIMETHYL FORMAMIDE | D001 | 1.8 |
| ...G 37 | DIPHENYLOXAZOLE (2,5-) | NONE | 0.3 |
| ... 37 | DIVINYL BENZENE | D003 | 3.2 |
| ; 37 | DODECYL SULFATE SODIUM SALT | NONE | 0.3 |

| | | | |
|---|---|---|---|
| BLDG 37 | DOW CATALYST RTV 1 | NONE | 0.6 |
| BLDG 37 | DOW CATALYST RTV 4 | D001 D007 | 0.1 |
| BLDG 37 | DOW CORNING 1200 PRIME COAT | D001 | 1.6 |
| [illegible] 37 | DOW CORNING 3112 | NONE | 8.7 |
| BLDG 37 | DYNASOLVE 2 | D002 | 7.5 |
| BLDG 37 | DYNASOLVE 210 | F002 | 4.5 |
| BLDG 37 | EPIBOND 1555 B | D002 | 4.8 |
| BLDG 37 | EPON 828 | NONE | 28.0 |
| BLDG 37 | EPON 828 | NONE | 3.0 |
| BLDG 37 | EPOXY RESIN XU-71790 | NONE | 2.4 |
| BLDG 37 | EPOXYLITE 8822 PART A | NONE | 4.1 |
| BLDG 37 | EPOXYLITE 8822 PART A | NONE | 0.6 |
| BLDG 37 | EPOXYLITE 8822 PART B | D002 D003 | 1.5 |
| BLDG 37 | EPOXYLITE 8822 PART B | D002 | 1.8 |
| BLDG 37 | EPOXYSOLVE A1003 | D002 | 6.4 |
| BLDG 37 | ETHACURE 100 | NONE | 22.6 |
| BLDG 37 | ETHACURE 100 | NONE | 4.3 |
| BLDG 37 | ETHACURE 100, SALICYLIC ACID | NONE | 6.3 |
| BLDG 37 | ETHACURE 300 | NONE | 3.2 |
| BLDG 37 | ETHACURE BKC | D001 | 2.9 |
| BLDG 37 | ETHYL ACETATE | D001 F003 U112 | 12.3 |
| BLDG 37 | ETHYL BENZOATE | NONE | 2.0 |
| BLDG 37 | ETHYL CINNAMATE | NONE | 2.2 |
| BLDG 37 | ETHYL METHYLIMIDAZOLE (2-)(-4-) | NONE | 0.6 |
| BLDG 37 | ETHYL PYRROLIDINONE | NONE | 5.3 |
| [illegible] 37 | ETHYLENE CARBONATE | NONE | 0.4 |
| [illegible]7 | ETHYLENE CARBONATE | NONE | 5.5 |
| [illegible]7 | ETHYLENE DINITRILOTETRAACETIC ACID | NONE | 1.1 |
| [illegible]37 | ETHYLENE GLYCOL | NONE | 17.6 |
| [illegible] 37 | ETHYLENE GLYCOL | NONE | 17.0 |
| BLDG 37 | EXXATE 1000 SOLVENT | NONE | 7.3 |
| BLDG 37 | EXXATE 1300 SOLVENT | NONE | 5.5 |
| BLDG 37 | EXXATE 800 SOLVENT | NONE | 6.3 |
| BLDG 37 | FERRIC ACTYLACETONATE | NONE | 0.1 |
| BLDG 37 | FERRIC CHLORIDE | D002 | 3.5 |
| BLDG 37 | FERRIC SULFATE | NONE | 2.2 |
| BLDG 37 | FLUORAD SURFACTANT | NONE | 3.0 |
| BLDG 37 | FORMAMIDE | NONE | 22.3 |
| BLDG 37 | FORMIC ACID | D002 U123 | 9.7 |
| BLDG 37 | FURFURYL ALCOHOL | NONE | 17.0 |
| BLDG 37 | FURFURYL ALCOHOL | D001 U125 | 1.0 |
| BLDG 37 | GE SILICONE RTV 11 | NONE | 4.2 |
| BLDG 37 | GE SILICONE RTV 31 | NONE | 13.8 |
| BLDG 37 | GE SILICONE RTV 60 | NONE | 16.6 |
| BLDG 37 | GE SILICONE RTV 630A | NONE | 14.0 |
| BLDG 37 | GE SILICONE RTV 630B | F005 | 0.6 |
| BLDG 37 | GE SILICONE RTV 700 | NONE | 1.2 |
| BLDG 37 | GLYCEROL, ANHYDROUS | NONE | 7.7 |
| BLDG 37 | GOLD POWDER | NONE | 0.1 |
| BLDG 37 | HALTHANE 73-18 CURING AGENT | NONE | 0.1 |
| BLDG 37 | HALTHANE 73-18 RESIN | NONE | 0.2 |
| BLDG 37 | HALTHANE 88-2 | NONE | 1.1 |
| BLDG 37 | HEPTANE | D001 | 2.0 |
| BLDG 37 | HEPTANOIC ACID | D002 | 0.4 |
| [illegible] 37 | HEXA HYDRO METHYLPHTHALIC ANHYDRIDE | NONE | 4.3 |

| | | | |
|---|---|---|---|
| BLDG 37 | HEXANOIC ACID | D002 | 3.1 |
| BLDG 37 | HYCAR X-16 | NONE | 2.2 |
| B' 37 | HYCAR X-42 | D002 | 2.2 |
| L 37 | HYDRAZINE HYDRATE | D001 D002 | 1.1 |
| BLDG 37 | HYDROXYETHYL PYRROLIDONE | D001 | 1.0 |
| BL | HYDROXYLAMINE HYDROCHLORIDE | NONE | 8.9 |
| BLDG 37 | HYDROXYLAMINE HYDROCHLORIDE | NONE | 0.5 |
| BLDG 37 | HYSOL 9394 PART A, PART B | D002 | 1.9 |
| BLDG 37 | HYSOL 9394 PART A, PART B | D002 | 2.0 |
| BLDG 37 | HYSOL 9396 PART A, PART B | D002 | 0.7 |
| BLDG 37 | IMICURE EI-24 CURING AGENT | NONE | 3.5 |
| BLDG 37 | INSTA-GEL SCINTILLATION VIALS | D001 F003 | 9.0 |
| BLDG 37 | IRGACURE 184 | NONE | 0.6 |
| BLDG 37 | IRGACURE 651 | NONE | 0.5 |
| BLDG 37 | IRIDIUM ACETYLACETONATE | NONE | 0.5 |
| BLDG 37 | IRON MICRO FIBER | D003 | 2.1 |
| BLDG 37 | ISOAMYL ACETATE | D001 | 2.3 |
| BLDG 37 | ISOPROPANOL | D001 | 15.0 |
| BLDG 37 | ISOPROPANOL | D001 | 18.0 |
| BLDG 37 | ISOPROPENYL ACETATE | D001 | 1.2 |
| BLDG 37 | ISOPROPYLIDENE DIPHENYL (4,4-) | NONE | 1.2 |
| BLDG 37 | ITACONIC ANHYDRIDE | NONE | 0.4 |
| BLDG 37 | KEPRO KP-1G | D001 | 19.8 |
| BLDG 37 | LEAD (II) NITRATE | D001 D008 | 0.1 |
| BLDG 37 | LITHIUM BROMIDE | NONE | 1.0 |
| BLDG 37 | LITHIUM CARBONATE | NONE | 1.1 |
| BLDG 37 | LITHIUM CHLORIDE | NONE | 1.2 |
| 37 | LONZACURE 73-18 RESIN | NONE | 0.4 |
| 37 | MAGNESIUM SULFATE | NONE | 2.1 |
| 7 | MALEIC ACID | NONE | 8.2 |
| BL 37 | MALEIC ACID | D003 | 1.1 |
| BLDG 37 | MALEIC ANHYDRIDE | U147 | 0.8 |
| BLDG 37 | MALEIC ANHYDRIDE | U147 | 4.8 |
| BLDG 37 | MALEIC ANHYDRIDE WASTE | NONE | 240.0 |
| BLDG 37 | MERCURY | D009 U151 | 0.1 |
| BLDG 37 | MERCURY (II) CYANIDE | D003 D009 | 0.2 |
| BLDG 37 | MERCURY (II) CYANIDE | D003 D009 P030 | 0.9 |
| BLDG 37 | MERCURY CYANIDE IN ACETONE | D009 | 0.3 |
| BLDG 37 | MERCURY INSTRUMENTS, THERMOMETER | D009 | 3.4 |
| BLDG 37 | MESITYL GOLD | NONE | 0.5 |
| BLDG 37 | MESITYLENE | D001 | 1.9 |
| BLDG 37 | METHANOL | D001 U154 | 9.5 |
| BLDG 37 | METHYL (1-) 2-PYRRILIDINONE | NONE | 12.4 |
| BLDG 37 | METHYL (2) -2-PROPANOL | D001 | 50.0 |
| BLDG 37 | METHYL BUTANOL (2-) | D001 | 2.7 |
| BLDG 37 | METHYL BUTANOL (3-) | D001 | 4.8 |
| BLDG 37 | METHYL ETHYL KETONE, LUPERSOL DDM-9 (FORMERLY LPR91-004) | D001 D003 | 0.5 |
| BLDG 37 | METHYL PROPANOL | D001 | 2.7 |
| BLDG 37 | METHYL PROPANOL | D001 | 12.8 |
| BLDG 37 | METHYL PYRROLIDONE | NONE | 5.8 |
| BLDG 37 | METHYL SULFONE | NONE | 3.5 |
| 37 | METHYL SULFONE | NONE | 2.4 |
| 37 | METHYLENE BENZAMIDE | NONE | 0.1 |
| 37 | MICA DUST | NONE | 0.4 |

| | | | |
|---|---|---|---|
| BLDG 37 | MOLECULAR SEIVES | NONE | 1.8 |
| BLDG 37 | MOLECULAR SEIVES | NONE | 12.4 |
| BLDG 37 | MOLYBDENUM POWDER | D003 | 0.5 |
| BLDG 37 | MOLYBDENYL ACETYLACETONATE | NONE | 0.2 |
| BLDG 37 | MOUND GREEN GLUE | NONE | 1.1 |
| BLDG 37 | NADIC METHYL ANHYDRIDE | D002 D003 | 0.2 |
| BLDG 37 | NADIC METHYL ANHYDRIDE | D002 | 1.1 |
| BLDG 37 | NADIC METHYL ANHYDRIDE | D002 | 3.1 |
| BLDG 37 | NADIC METHYL ANHYDRIDE | D002 | 1.5 |
| BLDG 37 | NAPHTHALENE | U165 | 2.3 |
| BLDG 37 | NAPTHALENE | NONE | 2.2 |
| BLDG 37 | NIAX POLYOL LA-475 | NONE | 2.7 |
| BLDG 37 | NIAX POLYOL LA-700 | NONE | 3.0 |
| BLDG 37 | NIAX POLYOL PPG-1025 | NONE | 1.9 |
| BLDG 37 | NICKEL POWDER | D003 | 4.6 |
| BLDG 37 | NICKEL WIRE | NONE | 0.3 |
| BLDG 37 | NITRIC ACID | D002 | 11.8 |
| BLDG 37 | NORCAMPHOR | D003 | 21.0 |
| BLDG 37 | NORCAMPHOR | NONE | 1.1 |
| BLDG 37 | OXALIC ACID | NONE | 0.5 |
| BLDG 37 | PALLADIUM CHLORIDE | NONE | 0.1 |
| BLDG 37 | PENTADECAFLUOROCTANOIC ACID | NONE | 0.1 |
| BLDG 37 | PETROLEUM ETHER | D001 | 12.0 |
| BLDG 37 | PETROLEUM ETHER | D001 | 7.2 |
| BLDG 37 | PHENOLIC RESIN | NONE | 1.1 |
| BLDG 37 | PHENOLIC RESIN | NONE | 0.8 |
| BLDG 37 | PHENOLIC RESIN | NONE | 113.8 |
| BLDG 37 | PHENOLIC RESIN IN ACETONE | D001 | 0.5 |
| BLDG 37 | PHENOLIC RESIN SOLUTION | D001 | 2.6 |
| BLDG 37 | PHENOLIC RESIN WASTE | NONE | 1.0 |
| BLDG 37 | PHENOLIC RESIN, ACETONE, ETHYLENE GLYCOL | D001 F003 | 1.5 |
| BLDG 37 | PHENOLIC RESIN, PAN, DMF WASTE | NONE | 6.0 |
| BLDG 37 | PHOSPHORIC ACID (o-) | D002 | 1.4 |
| BLDG 37 | PLASTICIZER HB-40 | NONE | 46.6 |
| BLDG 37 | PLATINIUM CHLORIDE | NONE | 0.3 |
| BLDG 37 | PLATINUM | NONE | 0.1 |
| BLDG 37 | PLATINUM ACETYLACETONATE | NONE | 0.6 |
| BLDG 37 | PLATINUM CHLORIDE | NONE | 0.2 |
| BLDG 37 | POLAROID DIPPIT | D001 | 0.7 |
| BLDG 37 | POLY ACRYLONITRILE | NONE | 0.6 |
| BLDG 37 | POLY ACRYLONITRILE, SULFURIC ACID | D002 | 1.0 |
| BLDG 37 | POLY ETHYLENEIMINE | NONE | 0.4 |
| BLDG 37 | POLY ETHYLENEIMINE | NONE | 1.7 |
| BLDG 37 | POLY-4-METHYL-1-PENTANE | D003 | 0.2 |
| BLDG 37 | POLYACRYLIC ACID | NONE | 0.2 |
| BLDG 37 | POLYACRYLIC NITRILE | NONE | 5.0 |
| BLDG 37 | POLYACRYLONITRILE | NONE | 0.1 |
| BLDG 37 | POLYACRYLONITRILE | NONE | 0.4 |
| BLDG 37 | POLYSTYRENE | NONE | 0.7 |
| BLDG 37 | POLYSTYRENE BEADS | NONE | 1.7 |
| BLDG 37 | POLYSTYRENE Q DOPE | D001 | 0.6 |
| BLDG 37 | POLYSTYRENE STANDARD | NONE | 1.1 |
| BLDG 37 | POLYVINYL ALCOHOL | NONE | 4.2 |
| BLDG 37 | POLYVINYL PYRROLIDONE | NONE | 2.8 |

| | | | |
|---|---|---|---|
| BLDG 37 | POTASSIUM ACID PHTHALATE | NONE | 0.2 |
| BLDG 37 | POTASSIUM BROMIDE | NONE | 0.3 |
| B 37 | POTASSIUM CARBONATE | NONE | 1.2 |
| E 37 | POTASSIUM CHLORIDE | NONE | 1.7 |
| 37 | POTASSIUM HYDROXIDE | NONE | 13.2 |
| BLDG 37 | POTASSIUM HYDROXIDE | NONE | 6.8 |
| BLDG 37 | POTASSIUM PHOSPHATE | NONE | 1.2 |
| BLDG 37 | POTASSIUM PHOSPHATE, TRIBASIC | NONE | 0.8 |
| BLDG 37 | PPG-1025 | NONE | 0.8 |
| BLDG 37 | PRIMAX UH-1250 | NONE | 5.8 |
| BLDG 37 | PROPYLENE CARBONATE | NONE | 32.5 |
| BLDG 37 | PROPYLENE GLYCOL | NONE | 11.2 |
| BLDG 37 | PROTON SPONGE | NONE | 0.7 |
| BLDG 37 | RADIO TV CEMENT SOLVENT | D001 F003 F005 | 2.8 |
| BLDG 37 | RC-20 | D001 | 0.2 |
| BLDG 37 | RC-20 REACTOMER | NONE | 1.8 |
| BLDG 37 | REACTOMER RC-20 | NONE | 10.1 |
| BLDG 37 | RESIN FLUX REMOVER | D001 | 3.6 |
| BLDG 37 | RICON RESIN R-130 | NONE | 2.1 |
| BLDG 37 | RICON RESIN R-156 | NONE | 2.2 |
| BLDG 37 | RTV 615 A | NONE | 11.3 |
| BLDG 37 | RTV 615 B | NONE | 3.1 |
| BLDG 37 | RUBBER TO METAL CEMENT | D001 D035 F005 U003 | 1.1 |
| BLDG 37 | RUBIDIUM BROMIDE | NONE | 0.4 |
| BLDG 37 | RUBIDIUM FLUORIDE | NONE | 0.2 |
| BLDG 37 | RUBIDIUM FLUORIDE | NONE | 0.2 |
| BLDG 37 | RUBIDIUM HYDROXIDE | D002 | 0.3 |
| 37 | RUBINIUM BROMIDE | D001 | 0.2 |
| 37 | SALICYLIC ACID | D003 | 0.6 |
| 37 | SENTINEL 7200 | NONE | 231.9 |
| BLDG 37 | SILASTIC E CURING AGENT | F003 | 0.3 |
| BLDG 37 | SILASTIC L CURING AGENT | D001 D007 F003 | 1.4 |
| BLDG 37 | SILASTIC RTV E | NONE | 1.2 |
| BLDG 37 | SILASTIC RTV L | D001 D007 F003 | 6.6 |
| BLDG 37 | SILASTIC RTV-732 | NONE | 0.8 |
| BLDG 37 | SILVER ACETATE | D001 D011 | 0.1 |
| BLDG 37 | SILVER FLAKES | D011 | 9.3 |
| BLDG 37 | SILVER NITRATE | D001 | 0.3 |
| BLDG 37 | SILVER POWDER | D011 | 1.7 |
| BLDG 37 | SLYGARD 184 | NONE | 2.2 |
| BLDG 37 | SLYGARD 184 CURING AGENT | NONE | 0.7 |
| BLDG 37 | SODIUM ACETATE | NONE | 1.9 |
| BLDG 37 | SODIUM BICARBONATE | NONE | 4.3 |
| BLDG 37 | SODIUM BISULFITE | NONE | 1.1 |
| BLDG 37 | SODIUM BORATE DECAHYDRATE | NONE | 1.3 |
| BLDG 37 | SODIUM CARBONATE | NONE | 3.3 |
| BLDG 37 | SODIUM HYDROXIDE | NONE | 22.0 |
| BLDG 37 | SODIUM HYDROXIDE, SODIUM CYANIDE | D002 D003 | 13.0 |
| BLDG 37 | SODIUM HYDROXIDE, SODIUM CYANIDE WASTE | D002 D003 | 3.9 |
| BLDG 37 | SODIUM HYPOPHOSPHITE | D003 | 1.8 |
| BLDG 37 | SODIUM THIOSULFATE | NONE | 0.9 |
| BLDG 37 | SOLUENE 100 | D001 F005 | 0.5 |
| BLDG 37 | SOLVENT 140-66 | D001 | 2.8 |
| 37 | SOTEX N | NONE | 0.5 |

| | | | |
|---|---|---|---|
| BLDG 37 | SPAN 80 | NONE | 0.7 |
| BLDG 37 | SS 4155 DIP | D001 | 1.0 |
| BLDG 37 | STANNIC CHLORIDE | NONE | 1.0 |
| BLDG 37 | STANNOUS OCTOATE | NONE | 0.4 |
| BLDG 37 | STRIPPER MS-111 | D002 F002 | 2.1 |
| BLDG 37 | STRONTIUM FLUORIDE | NONE | 0.3 |
| BLDG 37 | SUCCINIC ANHYDRIDE | NONE | 2.2 |
| BLDG 37 | SUCCINIC ANHYDRIDE | NONE | 2.5 |
| BLDG 37 | SUCCINIMIDE | NONE | 1.3 |
| BLDG 37 | SUCCINONITRILE | NONE | 26.0 |
| BLDG 37 | SUCCINONITRILE | D003 | 2.3 |
| BLDG 37 | SUCCINONITRILE | D003 | 2.3 |
| BLDG 37 | SULFAMIC ACID | NONE | 1.8 |
| BLDG 37 | SULFUR | NONE | 1.9 |
| BLDG 37 | SULFUR | D003 | 1.8 |
| BLDG 37 | SULFURIC ACID | D002 | 3.2 |
| BLDG 37 | SULFURIC ACID | D002 | 16.8 |
| BLDG 37 | TATIX 742 | NONE | 0.5 |
| BLDG 37 | TDI DIMER | NONE | 1.0 |
| BLDG 37 | TETRA METHYLENE SULFONE | NONE | 1.8 |
| BLDG 37 | TETRA METHYLENE SULFONE | NONE | 1.8 |
| BLDG 37 | TETRACHLOROETHANE (1,1,2,2) | U209 | 13.3 |
| BLDG 37 | TETRACHLOROPHTHALIC | NONE | 1.1 |
| BLDG 37 | TETRACYANOETHYLENE | D003 | 0.1 |
| BLDG 37 | TETRAETHYLENE GLYCOL DIMETHYL ETHER | NONE | 0.6 |
| BLDG 37 | TETRAHYDROFURAN | D001 U213 | 1.4 |
| BLDG 37 | TETRAMETHYL BENZENE (1,2,4,5-) | NONE | 8.5 |
| BLDG 37 | TETRAMETHYLENE SULFONE | NONE | 33.0 |
| BLDG 37 | TETRAMETHYLENE SULFONE | NONE | 7.7 |
| BLDG 37 | THALLIUM CHLORIDE | NONE | 0.7 |
| BLDG 37 | THALLIUM PIVALATE | NONE | 1.8 |
| BLDG 37 | THERMINOL 44 | NONE | 1.4 |
| BLDG 37 | THERMINOL 60 | NONE | 39.4 |
| BLDG 37 | THERMINOL 75 | NONE | 3.0 |
| BLDG 37 | THERMINOL 88 | NONE | 2.8 |
| BLDG 37 | THERMINOL VP-1 | D001 | 1.5 |
| BLDG 37 | THERMOMETER | D009 | 0.5 |
| BLDG 37 | THERMOMETER | D009 | 0.5 |
| BLDG 37 | TITANIUM DIOXIDE | NONE | 1.1 |
| BLDG 37 | TOLUENE | D001 F005 | 30.0 |
| BLDG 37 | TOLUENE | D001 U220 | 3.1 |
| BLDG 37 | TOLUENE SULFONIC ACID | NONE | 0.3 |
| BLDG 37 | TRICHLOROETHANE (1,1,1-) | F002 | 14.3 |
| BLDG 37 | TRICHLOROETHYLENE | D040 F002 | 5.0 |
| BLDG 37 | TRIETHYLENE TETRAMINE | D002 | 2.9 |
| BLDG 37 | TRIETHYLPHOSPHATE | NONE | 2.0 |
| BLDG 37 | TRIFLUOROACETIC ACID | D002 | 2.4 |
| BLDG 37 | TRIMETHYL BENZENE | D001 | 2.2 |
| BLDG 37 | TRIMETHYLPROPANE | NONE | 0.1 |
| BLDG 37 | TRIPHENYL PHOSPHATE | NONE | 0.2 |
| BLDG 37 | TRITON 101 SURFACTANT | NONE | 1.0 |
| BLDG 37 | TUNGSTEN POWDER | D003 | 3.2 |
| BLDG 37 | TUNGSTUN | D003 | 33.5 |
| BLDG 37 | UREA | NONE | 2.4 |
| BLDG 37 | UVE 1014 CURING AGENT | NONE | 2.2 |

| | | | |
|---|---|---|---|
| BLDG 37 | UVITHANE 783 | NONE | 10.6 |
| BLDG 37 | VERSAMID 125 | NONE | 1.2 |
| BLDG 37 | VERSAMID 140 | NONE | 6.2 |
| BLDG 37 | VERSIMID 140 | NONE | 10.0 |
| BLDG 37 | VINYL PYRROLIDINONE (1-)(-2-) | NONE | 6.8 |
| BLDG 37 | VORANOL 220-530 POLYOL | NONE | 10.3 |
| BLDG 37 | XCE-155 | NONE | 0.8 |
| BLDG 37 | XCE-89 POLYURETHANE | NONE | 0.9 |
| BLDG 37 | XU-205 | NONE | 0.2 |
| BLDG 37 | XYLENE | D001 | 1.5 |
| BLDG 37 | XYLENE | D001 F003 U239 | 4.3 |
| BLDG 37 | ZEOSPHERES | NONE | 0.2 |
| BLDG 37 | ZEOSPHERES | NONE | 1.6 |
| BLDG 37 | ZINC CHLORIDE | NONE | 1.8 |
| BLDG 37 | ZINC CHLORIDE SOLDERING PASTE | NONE | 0.6 |
| BLDG 37 | ZINC METAL | D003 | 0.8 |
| BLDG 37-ETSC | TERT- BUTYL PEROXY BENZOATE, FORMERLY LP93-066 | D001 | 2.3 |
| BLDG 37 | 3M STRUCTURAL ADHESIVE 2214 | D003 | 6.9 |
| BLDG 37 | ACETIC ACID | D001 D002 | 4.7 |
| BLDG 37 | ACETONE, BIOACT WASTE | D001 F003 | 326.8 |
| BLDG 37 | ACETONE, BIOACT WASTE SOLVENT | D001 F003 | 416.2 |
| BLDG 37 | ACETONE, PHENOLIC RESIN | D001 F003 | 7.1 |
| BLDG 37 | ACETONE, PHENOLIC RESIN WASTE | D001 F003 | 470.0 |

Building Name: 37 Building Manager: P.T. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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

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

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

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

Source: _____

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9.60-56

Building Name: 37 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

# Building Manager's Questionnaire

Building Name: 37 Building Manager: P.T. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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

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Building Name: 37 Building Manager: P.T. Molloy 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.

In process of reducing excess materials & transfer to Waste Mgmt.

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

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9.60-59

page 2 # 8 How Wastes are generated:

Several cutting fluids and processing lubricants are used during machining and press operations in the fabrication of HS/RTG Hardware components and tooling.

Some of these waste become vapors and are discharged through the house exhaust system. Other are absorbed into rags or towels and disposed of in plastic bags and removed by waste management. Any bulk residual used lubricants are placed into containers and removed by waste management.

Some machine lubricants such as vacuum pump oil are drained into containers and removed by waste management. Any excess machine lubricants that may collect in a small pool are absorbed with rags or towels which are disposed of in plastic bags and removed by waste management.

Parts cleaned in solvents/acids are rinsed by water flushing into fume hood drain. Parts are air dried inside the fume hood and vapors are discharged through the house exhaust system.

Bulk used solvents are placed into containers and disposed of by waste management. Used acids are diluted with large amounts of water and allowed to drain into the fume hood sink drain.



9.60-60

| MOUND NO. | PRODUCT NAME | MANUFACTURER | LOCATION |
|---|---|---|---|
| | ace kleen-kut P3-VL | Lube-Tech | Bd 37 |
| | acetone | various | R166 |
| A0208 | adhesive/sealant 242 | Loctite | Bd 37 |
| A0046 | aluminum alloys | various | Bd 37 |
| D0158 | Amplex compound & thinner | Amplex | Bd 37 |
| | Aquadag | Acheson | Bd 37 |
| A0139 | argon | various | Bd 37 |
| B0061 | brass | various | Bd 37 |
| B0077 | bronze alloys (ampco) | Copper & Brass Sales | Bd 37 |
| | calci-solve | NYCO | R166 |
| C0008 | carbide C1 thru C4 | various | Bd 37 |
| C0285 | castone | Ransom & Randolph | Bd 37 |
| C0044-45 | cemented cobalt carbide | various | Bd 37 |
| T0057 | cemented tungsten carbide | various | Bd 37 |
| | cerafiber Thermolyne furn insl | Manville | Bd 37 |
| | Chestron oil | Chestron | Bd 37 |
| | Cimcool sdf65 | Cin. Milacron | Bd 37 |
| C0333 | Cimflo 10 | Cin. Milacron | Bd 37 |
| | Cimflo 20 | Cin. Milacron | Bd 37 |
| | Cimstar 40 | Cin. Milacron | Bd 37 |
| | coconut oil | Capital City | Bd 37 |
| C0120 | copper | various | Bd 37 |
| | Cratex | Superior Abras. | Bd 37 |
| D0141 | diamond, CBN,resin bond | Citco | Bd 37 |
| D0208 | diamond or CBN wheels | Norton | Bd 37 |
| | diamond resin,metal,plated | Accurate | Bd 37 |
| | diamond slicing | DoAll | Bd 37 |
| D0220 | diffusion pump fluid 704 | Dow Cornong | Bd 37 |
| D0099 | dry graphite lubricant | Crown Ind. | Bd 37 |
| | Duct sealer | Nashua | Bd 37 |
| D0123 | duo seal oil 1407k | Sargent-Welch | Bd 37 |
| D0115&118 | Dykem layout fluid | Dykem | Bd 37 |
| E0072 | ethyl alcohol 190 proof | various | Bd 37 R166 |
| E0071 | ethyl alcohol 200 proof | various | Bd 37 R166 |
| G0029 | Grafoil | Union Carbide | Bd 37 |

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| MOUND NO. | PRODUCT NAME | MANUFACTURER | LOCATION |
|---|---|---|---|
| H0020 | helium | Air Products | Bd 37 |
| H0031 | high nickel alloys | Cabot | Bd 37 |
| H0165 | high vacuum grease | Dow Corning | Bd 37 |
| H0033 | HP corrosion resistant alloys | Cabot | Bd 37 |
| H0032 | HP heat resistant alloys | Cabot | Bd 37 |
| H0034 | HP heat resistant alloys | Cabot | Bd 37 |
| | hydrochloric acid | various | R166 |
| | hydrofluoric acid | various | R166 |
| | isoproyl alcohol | various | R166 |
| K0073 | Kester 197 resin flux | Kester | Bd 37 |
| K0047 | Kleen-surf aerosol | DoAll | Bd 37 |
| L0015 | lexan | General Electric | Bd 37 |
| | liquid detergent | Alconox | Bd 37 |
| L0070 | Liquid Paper | Gillette | Bd 37 R166 |
| C0023 | Low carbon steel | various | Bd 37 |
| | Macor | Corning | Bd 37 |
| M0237 | Met-All | Dars Met-All | Bd 37 |
| | methylene chloride | various | R166 |
| M0068 | Micro 100 super carbide | Micro 100 | Bd 37 |
| N0024 | nickel base alloy | various | Bd 37 |
| | nitric acid | various | R166 |
| | nylatron | Polymer Corp. | Bd 37 |
| P0312 | petrolatum | Fisher Scientific | Bd 37 |
| | plastic polish (mirror glaze) | Mequiar's | Bd 37 |
| | Platinum | Engelhard | Bd 37 R166 |
| P0371 | Platinum Powder | Engelhard | Bd 37 |
| P0102 | Plexiglass | various | Bd 37 |
| | polyurethane foam | Airway Foam | Bd 37 |
| R0119 | Regal Oil R&O 32, 00700 | Texaco | Bd 37 |
| | Rhodium | Engelhard | Bd 37 R166 |
| R0015 | RTV 102 | General Electric | Bd 37 |
| R0023 | rubber bonded silicon carbide | Bay State Abrasive | Bd 37 |
| | scouring powder | | R166 |
| S0016 | silicon carbide | Sohio | Bd 37 |
| S0029 | soap | Calgon Corp. | Bd 37 |
| | sodium hydroxide | Mallinckrodt | R166 |

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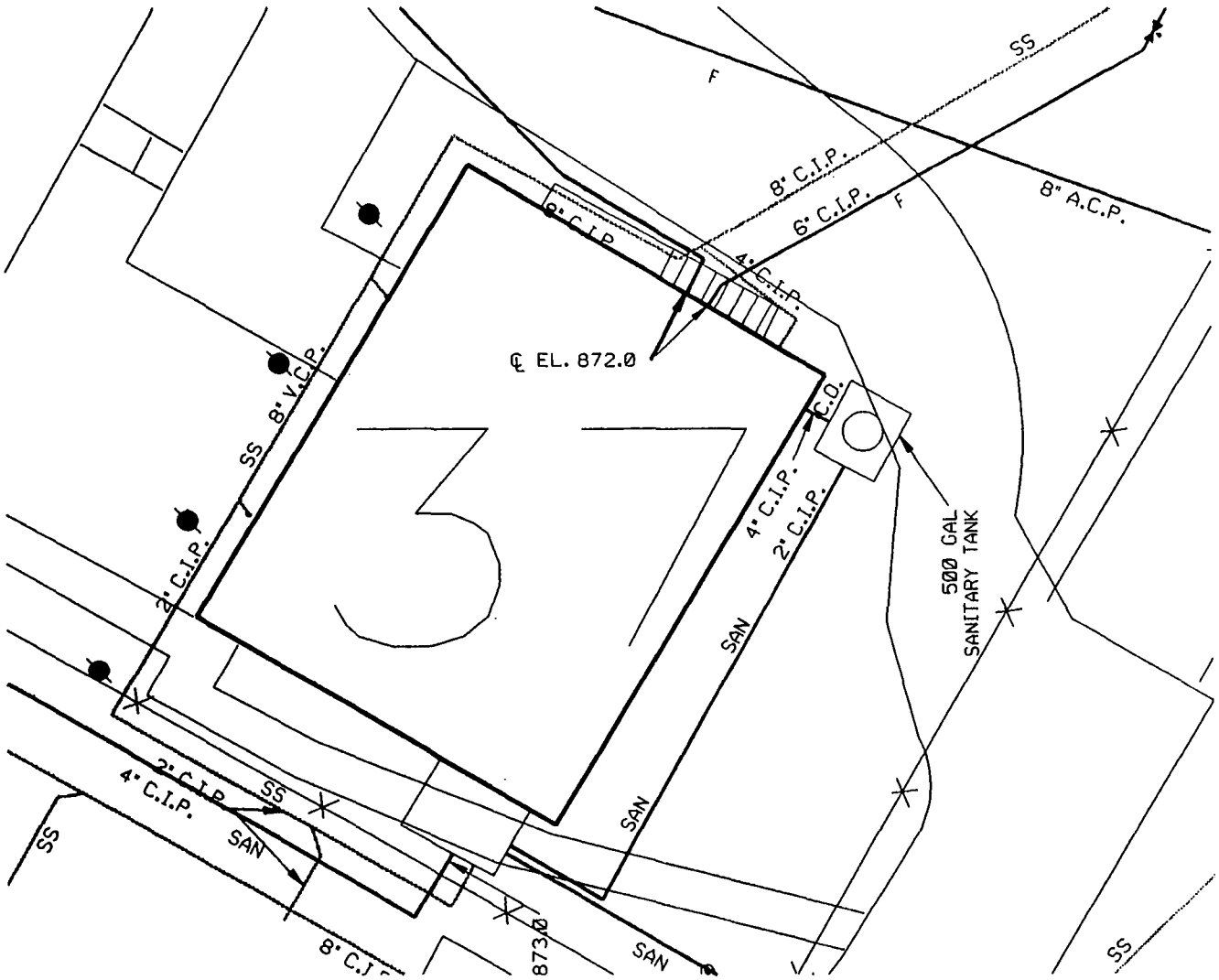
| MOUND NO. | PRODUCT NAME | MANUFACTURER | LOCATION |
|---|---|---|---|
| S0332 | Solder seal liquid wrench #1 | Radiaator Spect. | Bd 37 |
| S0095 | Spray Tap | Chem-Tech | Bd 37 |
| .J100 | stainless steel | vaarious | Bd 37 |
| S0108 | steel | various | Bd 37 |
| | sulfuric acid | various | R166 |
| | Super 77 | 3M | Bd 37 |
| T0004 | Tantalum | Cabot | Bd 37 |
| T0005 | Tap Magic | Steco Corp. | Bd 37 |
| T0113 | Teflon | duPont | Bd 37 |
| T0208 | Three-in-one oil | Amer. home prod. | Bd 37 |
| V0030 | Vaseline Intensive care lotion | Chesebro. Ponds | Bd 37 |
| W0012 | WD-40 aerosol | WD-40 company | Bd 37 |
| W0016 | wetting agent | Glendo Corp | Bd 37 |
| | Yttrium platelets | Ames Laboratory | Bd 37 |




FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL

N

UNCLASSIFIED

**E.G.&G.-MOUND**

UNDERGROUND WATER & WASTE LINES

BLDG. 37
DATE: 03-12-96



9.60-77

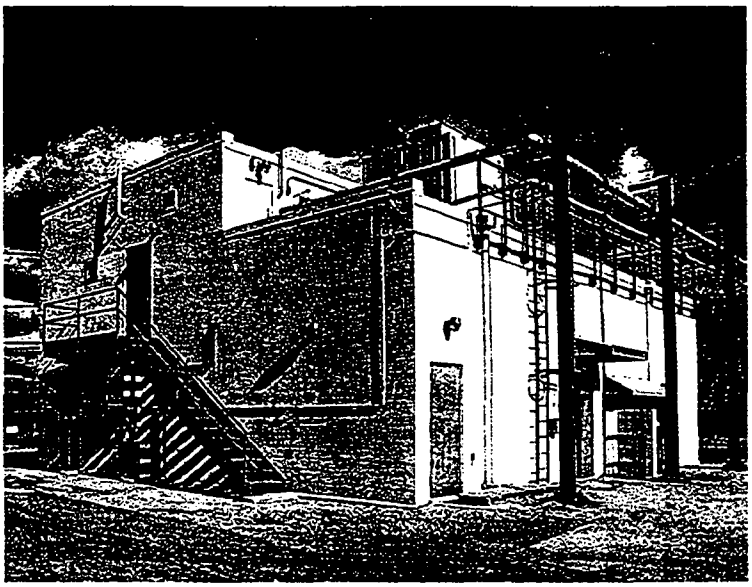
# Appendix G

## Radiological Information

# Pre-demolition Survey Plan

## For

# Building 37



| | | | |
|---|---|---|---|
| **Prepared By:** | **Roderick C. Case** / | **Date:** | **9/2/03** |
| **Reviewed By:** | **Kevin Doody** / CHP | **Date:** | 9/4/03 |
| **Approved By:** | **A. Stephen Collas** / | **Date:** | 9/4/03 |

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## 1.0 Historical Overview

Building 37 was constructed in 1969 and named the Radioactive Heat Source Testing Facility. The square footage is 2,463-ft$^2$. Building 37 was constructed to handle radionuclides, having change rooms, hot corridors, filter bank, etc. Building 37 has not had any major modifications, other than the reconfiguration of some of the interior rooms. The original "as-built" building footprint resembles the building, as it exists today.

Building 37 through its nearly 35-year-plus history has been used for a variety of processes and functions as noted in by various site documents. These processes and functions, and the timeframes identified by the documents cited above are summarized in the following table:

| TIME FRAME | BUILDING 37 PROCESS OR FUNCTION |
|---|---|
| 1968 to 1984 | Radioactive Heat Source Testing Facility |
| 1986 to 1988 | Adhesives formulation |
| 1990 to 1994 | Organic Materials Process Development |
| 1993 | U.S. Advance Battery Consortium Support |
| 1993 | Environmental Response Cleaning Program |
| 1996 | Machine Shop and Inspections supporting the Heat Source Program |

Based upon engineering design drawings, Building 37 was designed with two underground tanks. As is indicated by these drawings, one of these tanks, a sewage lift station was located just outside Room 5. The other tank, on the northern side of the building, at the northwestern corner of the building was a 500-gallon low risk waste tank. A 1996 appraisal of the Underground Storage Tank (UST) Program reported that Building 37 does not create or discharge radioactive wastewater. The underground settling tank is listed as an inactive low-risk waste tank. According to this report, the original program for which the building was constructed was terminated before the building was operational. This report notes that no research, development, or production activities using radioactive or energetic materials have occurred in the building.[1]

However, the Waste Management Reports from 1972 to 1981 lists Building 37 and all of its square footage as a building requirement D&D for the removal of Pu-238. In the 1982 report, there is no longer any mention of Building 37 in the contaminated building table. Later references such as the 1996 Environmental Appraisal Report, the 1993 Facility Characterization Report, and the OU7-Volume 9 Waste Management report claim that the building did not handle radionuclides. No definitive information was discovered to resolve

[1] CH2MHill, EC&AS Department, White Paper: *Building G Structural History and Process History Summary Background Document*, April 2003

this disparity. Since there is a potential for residual contamination to be present, Building 37 is designated as impacted. A complete history of Building 37 can be found in Reference 1.

### 1.1 Current Status

Building 37 is scheduled for demolition in accordance with the Miamisburg Closure Project goals. The radiological status of building surfaces must be determined to facilitate a free release of the structure in accordance with site procedures. A characterization study of the radiological condition of this building will direct the appropriate decisions of its final status.

## 2.0 Data Quality Objectives

The Data Quality Objectives (DQO) process is a series of planning steps that have been defined by the EPA (USEPA, 1994) to ensure that the type, quantity, and quality of survey data used in decision making are appropriate for the intended application. The DQO's for this survey plan are derived from Mound procedures and consistent with the Mound 2000 Approach for building disposition (Reference 2).

### 2.1 Problem Statement

Determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 37 satisfies the release criteria specified in DOE Order 5400.5.

### 2.2 Decision Statement

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

$H_0$ = The average concentration of residual radioactivity in the survey unit is greater than the release criteria.

The alternate hypothesis is:

$H_a$ = The average concentration of residual radioactivity in the survey unit is less than the release criteria.

If all the measurements are below the $DCGL_w$, the release criteria will be met and the survey unit passes. Any measurement from the survey unit will be considered elevated if it exceeds the $DCGL_w$. However, the elevated measurement alone does not indicate that the survey unit fails to meet the release criterion, only that further investigation will be necessary to determine the extent and concentration of the elevated area.
This survey plan will provide the necessary data to make this decision.

### 2.3 Inputs to the Decision

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

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

Surface scanning will be performed to locate anomalies that might indicate elevated areas of residual activity and that require further investigation or remedial action. A floor

scan for alpha contamination will be performed using a Ludlum 2350/43-37 Floor Probe at a scan speed of 1 inch per second, with the probe located within 1/4 inch to the surface being scanned. The minimum detectable activity (MDA) is 85dpm/100 $cm^2$ with 95% detection probability, at a background level equal to or less than 10 cpm. A 30 second integrated count will be performed at locations where elevated measurements are observed. The MDA in the integrated mode is 49dpm/100 $cm^2$ or 286 dpm/probe.

Direct measurements of building surfaces will be made at fixed locations using a Ludlum 2350/43-68 gas flow proportional probe (or equivalent) for alpha and beta contamination. The integrated count time is two minutes. The alpha MDA is 50 dpm/100$cm^2$ at a background of less than 3 cpm. The beta MDA is 375 dpm/100$cm^2$ at a background of less than 400 cpm.

The presence of loose surface activity, including $H^3$ will be determined using coin smears. An area of 100$cm^2$ will be smeared at each data point. Smears will be counted in an alpha/beta counter. A liquid scintillation counter (LSC) will measure removable tritium. Smear samples with gross activity above the $DCGL_w$ and sediment samples will be analyzed by alpha and/or gamma spectroscopy.

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

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

**2.4 Study Boundaries**

Defining the study boundaries helps ensure the data taken during the final status survey are representative of the survey unit. The area under consideration is the physical surfaces inside and outside of the Building 37 structure. Subsurface material (under-slab, footers, etc) and associated soil is not evaluated in this survey, but will be assessed separately when surfaces are accessible in accordance with Mound procedures.

Each survey unit is classified in accordance with Reference 5 based on historical data and current characterization surveys. Class 1 areas are those areas where contamination was found above the $DCGL_w$ prior to remediation and have the greatest potential for residual contamination. Class 1 areas receive the highest degree of survey effort (100% surface scan). Class 2 areas are areas where radioactive material may have been present, but are not expected to exceed the $DCGL_w$. Class 2 areas receive a moderate degree of survey effort (50% surface scan). Class 3 areas are areas that are impacted by building operations, but are not expected to have any residual radioactivity. Class 3 areas may also be buffer areas to Class 1 or 2 areas and receive a smaller degree of survey effort (up to 25% surface scan). Non-impacted areas have no reasonable potential for residual contamination and are judgmentally (bias) surveyed to confirm this designation. The following table shows the classification of survey units:

Building 37 is impacted since some references to facility contamination were found in historical documents. The greatest potential for residual radioactivity is expected on floor areas. Since the historical record indicates that all of the floor area may have been contaminated at one time, the floors will be divided into three (3) Class 1 survey units in

accordance with Reference 5. The interior walls up to six feet are given a Class 3 designation as buffer areas. The remainder of the building surfaces will be judgmentally surveyed. A characterization SPF will be written to specify the specific survey and sampling requirements.

**Building 37 Survey Units**

| Survey Unit Number | Survey Unit Room Designation | Area ($ft^2$) | Class | Data Points | Surface Scan |
|---|---|---|---|---|---|
| 1 | Main Floor | 1000 | 1 | 20 | 100% |
| 2 | Main Floor | 1000 | 1 | 20 | 100% |
| 3 | Penthouse Floor | 521 | 1 | 20 | 100% |
| 4 | First Floor Walls to 6' | 2352 | 3 | 20 | 25% |
| 5 | Penthouse Walls to 6' | 453 | 3 | 20 | 25% |
| 6 | Exterior Walls | 2700 | 3 | 20 | 25% |
| 7 | Roof | 2000 | 3 | 20 | 25% |

Sampling of building materials will include removable loose surface contamination (smears) and sediment sampling of floor drains, sumps, and ventilation units. Smears (100cm2) will be collected at survey data point locations. Paint samples will be obtained from six (6) randomly selected data points in each Class 1 survey unit. Any areas of elevated activity above the $DCGL_w$ will be evaluated for isotopic content by intrusive sampling or insitu analysis.

In Class 1 survey units, the starting point is randomly selected and data points are located within the survey unit using the square grid method. The spacing of data points is determined by:

$$L = \sqrt{\frac{A}{0.866n}}$$

Where: A = Survey unit area
n = # of data points
L = Distance between data points in feet

In Class 3 areas, the location of each data point is determined by multiplying the east-west (Y) and the north-south (X) dimensions of each survey unit by a randomly generated number for each dimension. A calculator, computer, or tables may be used to determine random numbers. If additional surveys are required due to area reclassification or remediation, the survey design parameters will be specified as necessary in accordance with Reference 5 and incorporated into the Final Status Report.

The data points are then located on a scaled drawing and transferred to the survey unit. Professional judgment (biased) surveys will be performed to supplement the random survey data, but will not be combined with the statistical data. Judgmental survey data will be compared directly to the release criteria.

The number of data points is determined by calculating the relative shift ($\Delta/\sigma$) from the DCGL value, the lower bound of the gray region (LBGR), and the standard deviation of the contaminant in the survey unit ($\Delta/\sigma$ = DCGL-LBGR/$\sigma$). The standard deviation is estimated to be 17dpm/100cm$^2$ based on characterization surveys of similar building surfaces. The LBGR is set at one-half the release limit. The relative shift is calculated as 2.95. For survey planning, the number of data points ($n$ = 20) in the survey unit was obtained from Table 5.5, Reference 5.

## 2.5 The Decision Rule

A decision rule relates the concentration of residual radioactivity in the survey unit to the release criterion so that decisions can be made based on the results of the final status survey. Reference 6, DOE Order 5400.5, Radiation Protection of the Public and the Environment, offers generic release criteria for building surfaces. Table 1 lists these permissible surface contamination guidelines which were adapted from NRC Regulatory Guide 1.86. Tritium at the Mound facility is an exception. For tritium, 10,000 dpm/100cm$^2$ was selected based on technical information presented in Reference 4.

**Table 1**

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

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

The average activity levels shown in Table 1 assumes that the residual contamination is uniformly distributed across the survey unit and are designated $DCGL_W$ in this plan. Biased measurements will be taken in non-impacted areas and compared directly to the release criteria to supplement the statistical data. The maximum activity shown in Table 1 represents the $DCGL_{EMC}$. Since Pu-238 is the major contaminant of concern, Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta/gamma measurements.

If the average of the measurements is above the $DCGL_W$, the survey unit will not meet the release criterion. If the average surface activity within each survey unit is below the

$DCGL_w$ and the maximum activity is less than the $DCGL_w$, then it will be accepted as the Final Status Survey and no further survey action is required.

If the average of the residual activity in the survey unit is less than the $DCGL_w$, but some areas are greater than the $DCGL_w$, the Sign test will be used to determine if the release criteria have been met. Each measured value, when subtracted from the DCGL, will yield a positive or negative number. If the sum of the positive signs (S+) is greater than the Critical Value (Table I.3, Reference 5), then the null hypothesis is rejected and survey unit passes. The power of the Sign test is given in Reference 5, I.9.1. A prospective power curve constructed using MARSSIM Power 2000 software demonstrates sufficient power exists at the LBGR to detect residual contamination (Attachment 1). A retrospective power curve will be used to test the assumptions made in this survey plan.

The decision rule for the elevated measurement comparison will be a two-stage process. In the first stage, areas will be flagged as potentially elevated if the direct measurement or scanning measurement indicates concentrations above the $DCGL_w$. If any measurements are found to be above the $DCGL_w$, and the elevated activity can not be attributed to naturally occurring radioisotopes, the area will be considered impacted and reclassified, remediated, and resurveyed in accordance with Reference 5.

**2.6 The Limits on Decision Errors**

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

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

**2.7 Optimizing the Design**

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

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

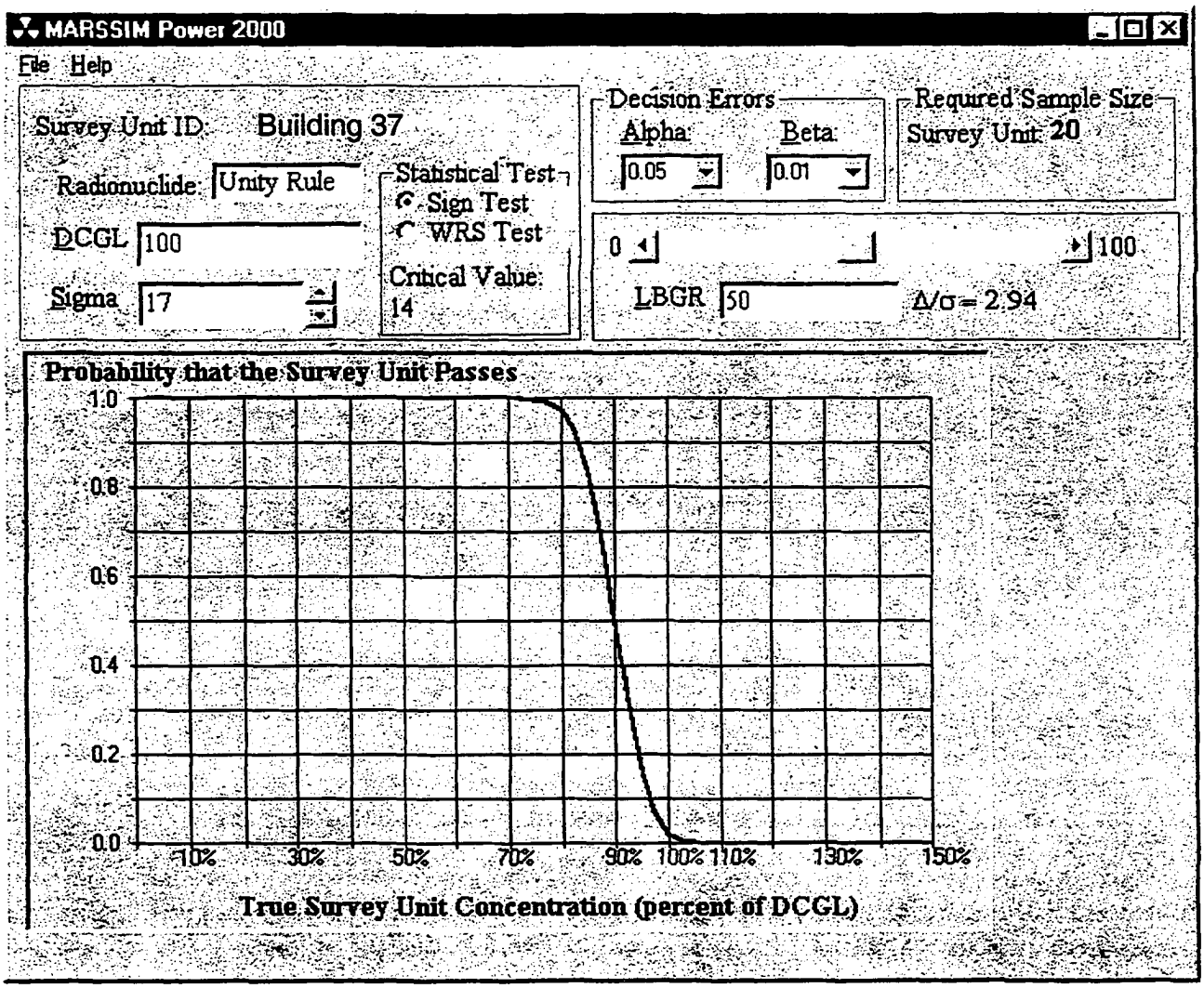
### 2.8 Final Status Survey Report

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

### 3.0 References

1. CH2MHill, EC&AS Department, White Paper: *Building G Structural History and Process History Summary Background Document*, April 2003
2. Work Plan, *Mound 2000 Approach*, DOE/MEMP, 1995
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op 402
4. DOE, 1991, *Recommended Tritium Surface Contamination Release Guides,* DOE, EH, 0201T, March, 1991; Mound Tritium Committee, Appendix A, Health-Based Risk Assessment for Unconditional Release of Items Contaminated with Tritium
5. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
6. DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

## Sign Test Prospective Power Curve




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

# Appendix H

## Radon Information

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

UNC Geotech

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

April 12, 1990

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

Dear Mr. Murphy:

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

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

Sincerely yours,

Mark D. Pearson

Mark D. Pearson
Project Manager
UNC Geotech

cc: DOE Points of Contact



A subsidiary of UNC Incorporated

| Bldg | Bldg Description | Room | pCi/l | pCi/l | Manid | Dupid | Date | Date | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 21 | | ABOVE AIR SAMPLER | 161.1 | 125.8 | 1678055 | 1666782 | 12/14/89 | 2/16/90 | MET - OLD THORIUM STORAGE |
| 21 | | ABOVE AIR SAMPLERS | 115.7 | | 1668508 | | 12/14/89 | 2/16/90 | MET - OLD THORIUM STORAGE |
| | SM | 19 MID EAST WALL | 4.8 | | 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 SD BLDG | BASEMENT RIGHT CABINET | 2.4 | | 1681595 | | 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 | |
| 67 | | 143 | 1.5 | | 1681563 | | 12/13/89 | 2/19/90 | |
| 998 | FIRE STATION | ROOM 002 EQUIPMENT ROOM WITH SUMP | 1.4 | | 1654460 | | 12/12/89 | 2/19/90 | |
| 24 | | ROOM 1 PLANT NORTH WALL | 1.3 | | 1672087 | | 12/12/89 | 2/19/90 | |
| | PAINT SHOP | PS 4 | 1.2 | | 1661516 | | 12/12/89 | 2/16/90 | |
| 30 | | ROOM 3 EAST | 1.1 | | 1671262 | | 12/12/89 | 2/16/90 | |
| 100 | | 103 MIDDLE OF NORTH WALL | 1.0 | | 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 | | 1678020 | | 12/12/89 | 2/19/90 | |
| G-13 | LOG | G-514 WEST WALL | .9 | | 1661544 | | 12/12/89 | 2/16/90 | |
| | T | CORRIDOR 24 | .9 | | 1678039 | | 1/15/90 | 2/19/90 | |
| | T | 153 | .9 | | 1678067 | | 1/15/90 | 2/19/90 | |
| | T | 78 | .9 | | 1678077 | | 1/15/90 | 2/19/90 | |
| | T | 30 | .9 | | 1681586 | | 1/15/90 | 2/19/90 | |
| 105 | PARTS MACHINING BUILDING | STAIRWELL NEXT TO ROOM 127 | .8 | | 1681564 | | 12/12/89 | 2/19/90 | |
| 25 | ARAC | 3 ON BOOK CASE MIDDLE | .8 | | 1671316 | | 12/16/89 | 2/19/90 | |
| 60 | | 1 ON DOOR TO ROOM 3 | .8 | | 1678049 | | 12/12/89 | 2/19/90 | |
| | A | 153C CENTER CUBICLE WEST WALL | .8 | | 1672056 | | 12/14/89 | 2/16/90 | |
| | C BUILDING OLD CAFETERIA | NORTHEAST SECTION INTERNAL WALL BK2 | .8 | | 1672052 | | 12/12/89 | 2/16/90 | |
| | R BUILDING | 60 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 | |
| | MO BLDG | MO 8 | .8 | | 1678045 | | 12/18/89 | 2/16/90 | |
| 87 | | 124 | .8 | | 1678032 | | 12/12/89 | 2/19/90 | |
| 88 | | ROOM 116 ON NORTH WALL RIGHT OF CEN | .7 | .5 | 1661524 | 1661535 | 12/12/89 | 2/19/90 | |
| 89 | | 101 NEAR BACK CORNER BY ROOF DRAIN | .7 | .5 | 1666703 | 1668532 | 12/15/89 | 2/19/90 | |
| 22 | | RM 1 EAST CORRIDOR ON STORAGE RACK | .7 | | 1678070 | | 12/12/89 | 2/19/90 | |
| 56 | FIRE PUMP HOUSE | ROOM 1 THERE IS ONLY 1 ROOM | .7 | | 1678065 | | 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 | |
| | N BLDG | N-135 | .7 | | 1681553 | | 12/12/89 | 2/16/90 | |
| 26 | | ROOM 84 SOUTH WEST WALL | .6 | .8 | 1672048 | 1667158 | 12/13/89 | 2/16/90 | |
| 69 | | RM T ON NORTH WALL | .6 | .4 | 1672044 | 1672077 | 12/12/89 | 2/19/90 | |
| 26 | | ROOM 84 SOUTH WEST WALL | .6 | | 1671279 | | 12/12/89 | 2/16/90 | |
| 35 | | RM 7 | .6 | | 1654458 | | 12/14/89 | 2/19/90 | |
| 34 | 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 (HIGHWAY) | .6 | | 1681629 | | 12/13/89 | 2/20/90 | |
| 98 | FIRE STATION | ROOM 114 DORM | .6 | | 1661507 | | 12/12/89 | 2/19/90 | |
| | COS | RM STAIRWELL AT BASEMENT LEVEL | .6 | | 1672066 | | 12/14/89 | 2/19/90 | |
| | OSM | 120 C | .6 | | 1681573 | | 12/12/89 | 2/16/90 | |
| | SM | 150 WEST END GAS BOX | .6 | | 1678043 | | 12/11/89 | 2/16/90 | |
| | A | 34 EAST WALL | .5 | .7 | 1672075 | 1672051 | 12/14/89 | 2/16/90 | |
| 47 | | 102 MIDDLE OF EAST WALL | .5 | .5 | 1650110 | 1666819 | 12/12/89 | 2/16/90 | |

| Area | Bldg | Bldg Description | Room | Avg Radon pCi/l | Duplicate Radon pCi/l | Monid | Dupid | Monitor Install Date | Monitor Retrieve Date | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | 45 | | WORK STATION AREA | .4 | | 1681568 | | 12/14/89 | 2/19/90 | |
| | 46 | | 81 EAST WALL | .4 | | 1672070 | | 12/12/89 | 2/19/90 | |
| | 49 | | WALL OUTSIDE RM 125 | .4 | | 1678020 | | 12/14/89 | 2/19/90 | |
| | 51 | | 107 TOP OF FUME HOOD | .4 | | 1681575 | | 12/12/89 | 2/19/90 | |
| | 63 | | ROOM 134 | .4 | | 1672059 | | 12/13/89 | 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 | | 170 MEETING ROOM CENTER WALL | .4 | | 1678041 | | 12/12/89 | 2/19/90 | |
| | 88 | | ROOM 116 | .4 | | 1671295 | | 12/12/89 | 2/19/90 | |
| | 95 | SH/PP | 95- BLD-ROOM81 | .4 | | 1661531 | | 12/12/89 | 2/20/90 | |
| | | BS BUILDING | CORRIDOR 2 - 6 FT. ABOVE FLOOR | .4 | | 1678071 | | 12/13/89 | 2/19/90 | |
| | | I | I HALLWAY | .4 | | 1667194 | | 12/12/89 | 2/19/90 | |
| | | N BUILDING | N 21 WEST WALL | .4 | | 1678057 | | 12/15/89 | 2/20/90 | |
| | | POWER HOUSE PH-1 | OFFICE SUPERVISOR | .4 | | 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 | 143 NEXT TO NORTH WALL | .5 | .5 | 1660533 | 1660816 | 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 | | 1678040 | | 12/12/89 | 2/16/90 | |
| | | ELECTRICAL PANEL RM IN ELEC/RONICS | .5 | | 1678062 | | 12/12/89 | 2/19/90 | |
| 6 | | 100 | .5 | | 1654480 | | 12/13/89 | 2/16/90 | |
| 40 | | 1 EAST WALL OVER WATER DISPENSER | .5 | | 1678076 | | 12/12/89 | 2/20/90 | |
| 43 | | ON BULLETIN BOARD | .5 | | 1678047 | | 12/12/89 | 2/16/90 | |
| 44 | | 102 MIDDLE OF EAST WALL | .5 | | 1678059 | | 12/12/89 | 2/16/90 | |
| 47 | | CELL 113 | .5 | | 1661502 | | 12/13/89 | 2/19/90 | |
| 50 | | CENTRAL HALLWAY WEST OF DOOR TO RM7 | .5 | | 1661605 | | 12/18/89 | 2/16/90 | |
| 79 | | 101 NEAR BACK CORNER BY ROOF DRAIN | .5 | | 1678078 | | 12/15/89 | 2/19/90 | |
| 89 | | 1ST FLOOR | .5 | | 1661525 | | 12/15/89 | 2/16/90 | |
| 91 | | 2ND FLOOR OUTSIDE RM215 | .5 | | 1661593 | | 12/15/89 | 2/16/90 | |
| 91 | | HALLWAY RIGHT OFF ROOM 8 | .5 | | 1661509 | | 12/12/89 | 2/19/90 | |
| 92 | | BAY 2 NORTH WALL | .5 | | 1654477 | | 12/12/89 | 2/19/90 | |
| 94 | | 215 WEST WALL | .5 | | 1661572 | | 12/14/89 | 2/16/90 | |
| | A | 1000 WEST WALL | .5 | | 1661580 | | 12/14/89 | 2/16/90 | |
| | A | 119 N WALL NEAR PUNCH PRESS | .5 | | 1654456 | | 12/12/89 | 2/19/90 | |
| | COS | 319 WALL CABINET TO RIGHT OF SINK | .5 | | 1661590 | | 12/12/89 | 2/19/90 | |
| | COS | 159 WEST WALL | .5 | | 1678033 | | 12/14/89 | 2/16/90 | |
| | E BUILDING | 103 WEST WALL | .5 | | 1678072 | | 12/14/89 | 2/16/90 | |
| | E BUILDING | E 212 NORTH WALL | .5 | | 1661507 | | 12/19/89 | 2/16/90 | |
| | E ANNEX | ROOM 2 | .5 | | 1678065 | | 12/12/89 | 2/16/90 | |
| | GH BUILDING | 1A MIDDLE OF WEST WALL | .5 | | 1678056 | | 12/12/89 | 2/19/90 | |
| | GP B1 | ROOM 121 | .5 | | 1661571 | | 12/12/89 | 2/16/90 | |
| | H BLDG | HH-8 | .5 | | 1671268 | | 12/18/89 | 2/19/90 | |
| | HH | BASEMENT LEFT CRAWL SPACE DOOR | .5 | | 1671260 | | 12/12/89 | 2/19/90 | |
| | I BUILDING | N 108 | .5 | | 1678056 | | 12/15/89 | 2/19/90 | |
| | N BUILDING | CORRIDOR 437 | .5 | | 1661536 | | 12/15/89 | 2/16/90 | |
| | OSE | CORRIDOR 301 ACROSS FROM WATER FOUN | .5 | | 1672084 | | 12/15/89 | 2/16/90 | |
| | OSE | 4NT FLOOR | .5 | | 1678028 | | 12/12/89 | 2/16/90 | |
| | OSM | CORR 212 SOUTH WALL NEAR 218 DOOR | .5 | | 1678036 | | 12/15/89 | 2/16/90 | |
| | OSE | 319 | .5 | | 1678069 | | 12/13/89 | 2/16/90 | |
| | OSM | 2ND FLOOR | .5 | | 1661611 | | 12/12/89 | 2/16/90 | |
| | OSM | STATIONARY BOARD CORNER | .5 | | 1678073 | | 12/12/89 | 2/19/90 | |
| | POWER HOUSE PH-1 | 145 WEST WALL ABOVE BALANCE | .5 | | 1654538 | | 12/14/89 | 2/16/90 | |
| | R BUILDING | 128 OVER LARGE METAL FLOOR DISC | .5 | | 1678019 | | 12/12/89 | 2/16/90 | |
| | SW/R TRITIUM COMPLEX | M125 WEST CENTRAL WALL | .5 | | 1671293 | | 12/12/89 | 2/16/90 | |
| | W BLDG | WOA 110 | .5 | | 1671301 | | 12/18/89 | 2/16/90 | |
| | WO BLDG | EAST WALL | .5 | | 1667189 | | 12/12/89 | 2/16/90 | |
| | "B" 124 | 113 BULLETIN BOARD OPPOSITE ELEVATO | .5 | | 1678027 | | 12/15/89 | 2/16/90 | |
| | OSE | 114 EAST WALL CENTER OF ROOM | .4 | | 1678064 | | 12/12/89 | 2/19/90 | |
| TF-2 | | HH-24 | .4 | | 1667187 | | 12/14/89 | 2/19/90 | |
| | HH | CORRIDOR 7 NEXT TO ROOM 216 | .4 | | 1661514 | | 12/12/89 | 2/19/90 | |
| | OS BUILDING | 1A MIDDLE OF WEST WALL | .4 | .6 | 1672135 | 1661542 | 12/12/89 | 2/19/90 | |
| | GP B1 | 136 QC OFFICE | .4 | | 1678017 | | 12/12/89 | 2/19/90 | |
| 105 | PARTS MACHINING BUILDING | CELL 8 - WALL | .4 | | 1661503 | | 12/12/89 | 2/19/90 | |
| 27 | | 101 | .4 | | 1672061 | | 12/12/89 | 2/19/90 | |
| 28 | CERAMIC PRODUCTION | HALLWAY | .4 | | 1672105 | | 12/14/89 | 2/19/90 | |
| 29 | | 3-315 | .4 | | 1672036 | | 12/12/89 | 2/19/90 | |
| | TEST FIRE BUILDING 3 | PP CORR 16/BAY 2 WALL | .4 | | 1661570 | | 12/14/89 | 2/19/90 | |
| 38 | PP BLDG | BREAK RM | .4 | | 1678050 | | 12/14/89 | 2/19/90 | |
| 39 | | 101 B EAST WALL | .4 | | 1678031 | | 12/13/89 | 2/19/90 | |
| 42 | | | | | | | | | |

# Appendix I

## Asbestos Information

**From:** Christopher Ahlquist
**To:** Darnell, Val
**Date:** 9/4/03 10:08AM
**Subject:** Building 37 Asbestos & Lead

Val -

For Buildings 37 asbestos and lead paint concerns, the following is provided for your use:

**Asbestos**

Previous asbestos surveys for Building 37 were completed in 1989 and 1993. These surveys were intended to identify all reasonably accessible asbestos-containing materials within the building for the purposes of identifying damaged material and managing asbestos in place. Asbestos pipe insulation, transite cement board, and floor tiles were previously identified. The later report (1993) indicated that all pipe insulation had been removed during a project in June of 1992.

During August of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of Building 37 in order to identify all asbestos-containing materials prior to demolition of the facility. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. The previous assertion that all asbestos pipe insulation had been removed was found to be incorrect. Approximately 150 linear feet of asbestos pipe insulation was identified above ceilings in the building, and fire rated doors were assumed to contain asbestos. These materials will be removed by a licensed asbestos hazard abatement contractor under contract to CH2M Hill Mound in accordance with NESHAP requirements prior to commencement of demolition activities; notification of such will be made to the EPA and the Ohio Department of Health. The cement board previously assumed to contain asbestos was sampled and found not to contain asbestos.

The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category II material in accordance with NESHAP it will remain in place during demolition and be disposed of as construction waste.

**Lead**

No previous lead surveys or sampling data could be found for Buildings 37. Many areas of painted surfaces exhibited peeling and deterioration. Representative samples of the damaged paint coatings were tested in the field using a Niton Model XR-309 XRF lead detector. All tested samples were found to not contain lead within the instrument's limit of detection. As such, the damaged coatings present do not constitute a lead hazard.

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

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

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

Let me know if I can be of further assistance,

Chris Ahlquist

**CC:** Davis, Steve; Kramer, Donald

Date: September 4, 2003

From: Christopher Ahlquist
BOSS Project Team, Safety & Health

To: Steve Davis
BOSS Project Team, Engineering

Re: Building 37: Asbestos-Containing Materials

During August of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc. (CH2M), completed a survey of Building 37 at the Mound site in Miamisburg, Ohio for purpose of identifying asbestos-containing materials contained therein. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by Ohio Department of Health regulations. During the course of the survey, Mr. Ahlquist reviewed previous survey reports and sampling data and collected additional bulk samples of materials found within Building 37 as necessary in order to determine the asbestos content of said materials. A room-by-room inspection of all accessible spaces was then conducted in order to prepare an inventory of the location and approximate quantities of identified asbestos-containing materials. Two (2) distinct types of materials were found to contain greater than one percent (>1%) asbestos content which defines a material as asbestos-containing by EPA and OSHA regulations. Additionally, fire rated doors were assumed to contain asbestos. No asphalt roofing materials were sampled during the course of this or previous referenced surveys, and all such materials should be assumed to contain asbestos until analysis indicates otherwise.

**Sample Method**

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

**Analysis of Samples**

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

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

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

**Conclusions**

The locations of asbestos-containing materials identified, material descriptions, quantities, and other pertinent information can be found on *Table: Inventory of Asbestos-Containing Materials* attached with this report. Three (3) different materials (each represented by a unique assigned homogeneous area number) were identified through analysis or assumption to be asbestos-containing (>1%) per EPA and OSHA definition. Since the building is scheduled for demolition, the EPA regulates activities related to asbestos-containing materials identified within or on the structure. The EPA will have to be notified in writing on the proper forms and all asbestos-containing materials (with the possible exception of Category I nonfriable roofing) removed before demolition can occur. Removal activities must be accomplished by properly trained individuals employing appropriate work methods and engineering controls.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

**TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS**
**BUILDING 37**
**SEPTEMBER 4, 2003**

| Location of ACM | Material Description | Homo-geneous Area No. | Type ACM | Material Quantity (approx.) |
|---|---|---|---|---|
| Room 1, pipe fittings inside south wall | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 4 ftgs* |
| Room 2/2A, pipe fittings inside east wall and above ceiling | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 10 ftgs* |
| Room 6, pipe fittings inside east wall | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 2 ftgs* |
| Entire ground floor, pipe fittings above plaster ceiling** | Cementitious fitting insulation between sections of fiberglass pipe insulation | 1 | TSI | 15 ftgs |
| Entire ground floor, debris above plaster ceiling** | Pipe fitting insulation debris | 1 | TSI | 25 sf |
| Penthouse, pipes above plaster ceiling*** | Preformed-block pipe insulation | 2 | TSI | 120 lf |
| Penthouse, debris above plaster ceiling*** | Pipe insulation debris | 2 | TSI | 10 sf |
| Entire building, exterior doors | Fire doors | 3 | Misc. | 10 count |

**Notes:**

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

*Area not accessible at time of inspection - the location and amount of this material is assumed.
**Access to this material is through hatch in Penthouse.
***Material not currently accessible to remove - access must be made by contractor.

# Appendix J

## Lead Information

**From:** Christopher Ahlquist
**To:** Darnell, Val
**Date:** 9/4/03 10:08AM
**Subject:** Building 37 Asbestos & Lead

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

Let me know if I can be of further assistance,

Chris Ahlquist

**CC:** Davis, Steve; Kramer, Donald

# Appendix K

## Chemical Information

**Chemicals and Products Previously Used or Stored in Building 37**

3M Structural Adhesive 2214
Ace Kleen-Kut
Acetic Acid
Acetone, Bioact Waste
Acetone, Bioact Waste Solvent
acetone, phenolic resin
acetone, phenolic resin waste
acrylic acid
Acrylonitrile
Acsarite II
activated carbon
activated carbon, wet powder
Actrel Cleaner
Adiprene L-100
Airthane 75D
Airthane 90
Airthane 90A
Airthane 95
Airthane 95A
alcohol
Aliquat 336
alumina
aluminum nitride
aluminum oxide
aluminum sulfate
Amberlite
Ammonium Gold Cyanide
Ammonium Hexachloro Iridium
Ammonium Hydroxide
Ammonium Tetrachloro Gold
Ammonium Tetrachloro Platinate
Ammonium Tetrachloro Platinum
Ammonium Tetrachloro Platinum in Acetone
Amorphous Silica
Amplex compound
Amyl Acetate
Ancamine 2049
Apiezon
Araldite MY510 Epoxy Resin
Araldite MY731 Epoxy Resin
Asilamine
Asilamine Diamine
Baytec 1604
Benzene
Benzoic Acid
Beta 5 Curing Agent
Bioact EC7
Bioact, acetone waste
bismuth
Blue glass cleaner
boric acid, boric anhydride
boron
Boron Nitride
boron powder
Butanedoil (1,4-)
Butanol
Butanone
Butoxyethoxy Ethyl Acetate
Butyrloacetone
Cab-O-Sil
calcium chloride
calcium hydride
calcium nitrate
calcium oxide
calcium phosphate
calcium sulfate
Camphorquinone
carbon
Carbon Black
Carbowax Peg
Cellulose Acetate
Cellulose Microcrystalline
cesium bromide
Chestron
Chloro Norbornadiene Iridium
chlorodifluoromethane
Chromium ( I I I ) Oxide
Cimflo 10
Citraconic Anhydride
Citric Acid Monohydrate
Cobalt Chloride
Cobaltous Acetate
Conap EN7 Part B
Conathane EN7 Part A
Cool-Tool
Cordova ATC-3
Curtis systems
Cyanocure
Cyanophenyl (3,4-) Decane Diamide
Cyclo Hexanol
Cyclohexane
Cyclohexyl Pyrrolidone

Cyclooctadiene Platinum Chloride (1,5-)
Decahydro Naphthalene
Decahydronapthalene
Diamond paste
Dibutyl Tin Dilaurate
Dicarbonyl Acetylacetonatoiridium
Dichloro Cyclooctadiene (1,5-)
Dichloro Ethane (1,2-)
Dichlorodifluoromethane
Dichloroethane
Dicyano Benzene (1,2-)
Dicyano Benzene (1,3-)
Dicyano Benzene (1,4-)
Diethanol Amine
Diethyl Acetamide
Diethyl Ethanol Amine
Diethylene Glycol
Diffusion pump oil
Dimethyl Acetomide
Dimethyl Benzamide
Dimethyl Carbonate
Dimethyl Formamide
Diphenlyoxazole (2,5-)
Divinyl Benzene
Dodecyl Sulfate Sodium Salt
Dow Catalyst RTV 1
Dow Catalyst RTV 4
Dow Corning 1200 Prime Coat
Dow Corning 3112
DTE Mobil heavy med
DTE Mobil light
Duct sealer
Dykem layout fluid
Dynasolve 2
Dynasolve 210
EnSolv
Epibond 1555 B
Epon 828
Epoxy Resin XU-71790
Epoxylite 8822 Part A
Epoxylite 8822 part B
Epoxysolve A1003
Ethacure 100
Ethacure 100, Salicyclic Acid
Ethacure 300
Ethacure BKC
ethanol
Ethyl Acetate
Ethyl Alcohol
Ethyl Benzoate
Ethyl Cinnamate
Ethyl Methylimidazole (2-) (-4-)
Ethyl Pyrrolidinone
Ethylene Carbonate
Ethylene Dinitrilotetraacetic Acid
Ethylene Glycol
Exxate 1000 Solvent
Exxate 1300 Solvent
Exxate 800 Solvent
Ferric Actylacetonate
Ferric Chloride
Ferric Sulfate
Fluorad Surfactant
Formaldehyde
Formamide
Formic Acid
Furfuryl Alcohol
GE Silicone RTV 11
GE Silicone RTV 31
GE Silicone RTV 60
GE Silicone RTV 630A
GE Silicone RTV 630B
GE Silicone RTV 700
Gear oil
Gear oil
Glycerol, Anhydrous
Gold Powder
grease high vacuum
Halthane 73-18 Curing Agent
Halthane 73-18 Resin
Halthane 88-2
Helium
Heptane
Heptanoic Acid
Hexa Hydro Methylphthalic Anhydride
Hexanoic Acid
High vacuum grease
Hycar X-16
Hycar X-42
hydraulic fluid
Hydrazine Hydrate
Hydrochloric acid (HCl)
Hydrofluoric acid (HF)
Hydroxyethyl Pyrrolidone
Hydroxylamine Hydrochloride
Hysol 9394 Part A, Part B

Hysol 9396 Part A, Part B
Imicure EI-24 Curing Agent
Insta-Gel Scintillation Vials
Irgacure 184
Irgacure 651
Iridium Acetylacetonate
Iron Micro Fiber
Isoamyl Acetate
Isopropanol
Isopropenyl Acetate
isopropyiidene Diphenyi (4,4-)
Itaconic Anhydride
Kepro KP-1G
Kleen-surf
Lead ( I I ) Nitrate
Liquid wrench
Liquid wrench, perchlorethylene
Lithium Bromide
Lithium Carbonate
Lithium Chloride
Lock lube
Lonzacure 73-18 Resin
Luberex
Magnesium Sulfate
Maleic Acid
Maleic Anhydride
Maleic Anhydride Waste
Mercury
Mercury ( I I ) Cyanide
Mercury Cyanide in Acetone
Mercury Instruments, Thermometer
Mesityl Gold
Mesitylene
Met All polish
Metal Luster
Methanol
Methyl (1-) 2-Pyrrilidinone
Methyl (2) -2-Propanol
Methyl Butanol (2-)
Methyl Butanol (3-)
Methyl Ethyl Ketone, Lupersol DDM-9
Methyl Propanol
Methyl Pyrrolidone
Methyl Sulfone
Methylene Benzamide
Methylene chloride
Mica Dust
Mobil Vacuoline oil
Mobil Velocite oil
Molecular Seives
Molybdemum Powder
Molybdenyl Acetylacetonate
Mound Green Glue
Nadic Methyl Anhydride
Naphthalene
Niax Polyol LA-475
Niax Polyol LA-700
Niax Polyol PPG-1025
Nickel Powder
Nickel Wire
Nitric Acid
Norcamphor
oil
oil Vacuum rough
oil, 3 in 1
Oxalic Acid
Palladium Chloride
Pentadecafluoroctanoic Acid
Petrolatum lube
Petroleum Ether
Phenolic Resin
Phenolic Resin in Acetone
Phenolic Resin Solution
Phenolic Resin Waste
Phenolic Resin, Acetone, Ethylene Glycol
Phenolic Resin, Pan, DMF Waste
Phosphoric Acid
Plasticizer HB-40
Platinum
Platinum Acetylacetonate
Platinum Chloride
Polaroid Dippit
Polish Met-All Alum.
Poly Acrylonitrile
Poly Acrylonitrile, Sulfuric Acid
Poly Ethyleneimine
Poly-4-Methyl-1-Pentane
Polyacrylic Acid
Polyacrylic Nitrile
Polyacrylonitrile
Polystryene Standard
Polystyrene
Polystyrene Beads
Polystyrene Q Dope
Polyvinyl Alcohol
Polyvinyl Pyrrolidone

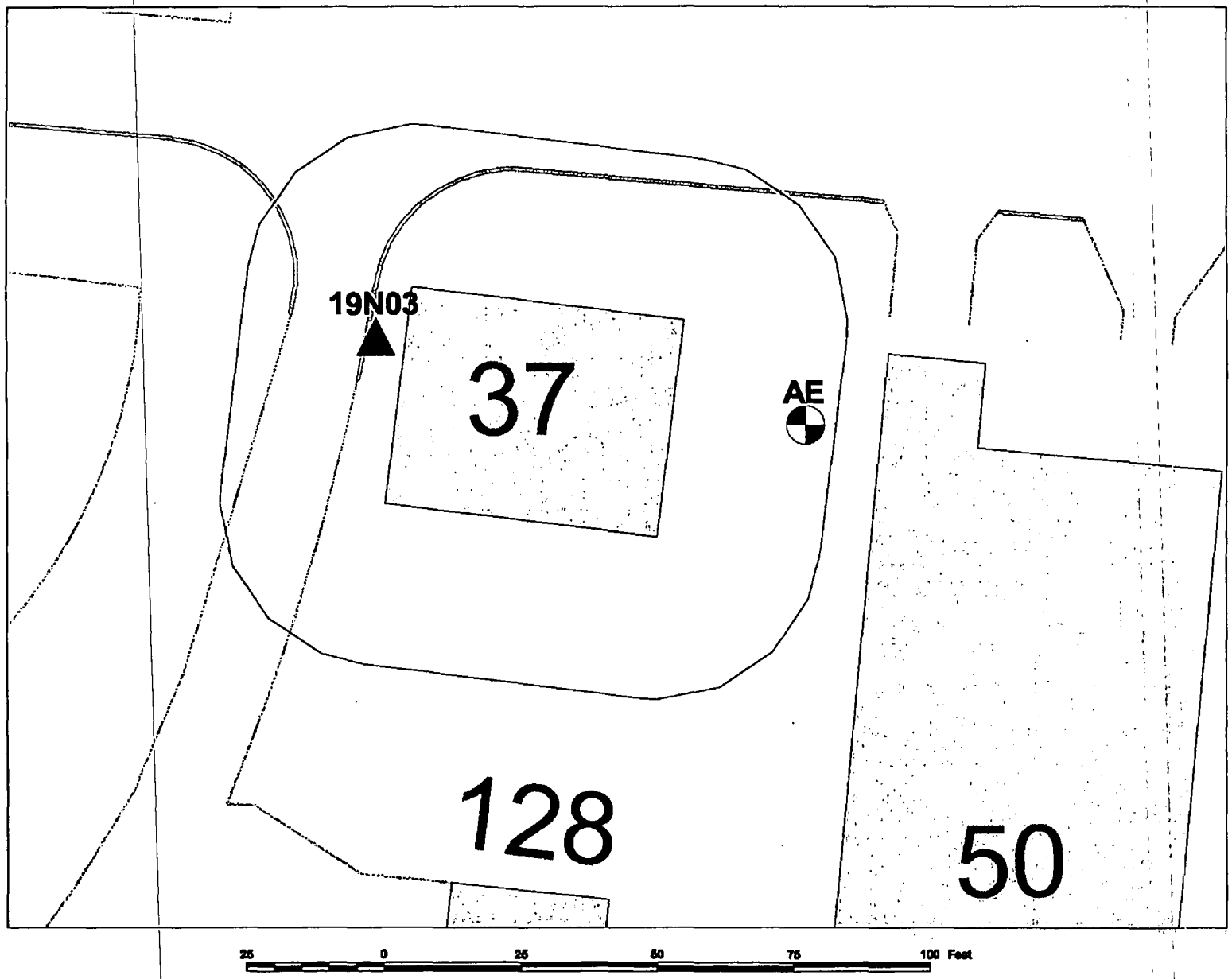
Potassium Acid Phthalate
Potassium Bromide
Potassium Carbonate
Potassium Chloride
Potassium Hydroxide
Potassium Phosphate
Potassium Phosphate, Tribasic
PPG-1025
Primax UH-1250
Propylene Carbonate
Propylene Glycol
Proton Sponge
Radio TV Cement Solvent
RC-20
RC-20 Reactomer
Reactomer RC-20
Resin Flux Remover
Ricon Resin R-130
Ricon Resin R-156
RTV 615 A
RTV 615 B
Rubber to Metal Cement
Rubidium Bromide
Rubidium Fluoride
Rubidium Hydroxide
Salicylic Acid
Salistic RTV-732
Sentinel 7200
Silastic E Curing Agent
Silastic L Curing Agent
Silastic RTV E
Silastic RTV L
Silver Acetate
Silver Flakes
Silver Nitrate
Silver Powder
Slygard 184
Slygard 184 Curing Agent
Sodium Acetate
Sodium Bicarbonate
Sodium Bisulfite
Sodium Borate Decahydrate
Sodium Carbonate
Sodium Hydroxide
Sodium Hydroxide, Sodium Cyanide
Sodium Hydroxide, Sodium Cyanide Waste
Sodium Hypophosphite
Sodium Thiosulfate
Soluene 100
Solvent 140-66
Sotex N
Span 80
SS 4155 Dip
Stannic Chloride
Stannous Octoate
Stripper MS-111
Strontium Fluoride
Succinic Anhydride
Succinimide
Succinonitrile
Sulfamic Acid
Sulfur
Sulfuric Acid
Sun Lubeway 1706
Tan Mask
Tap Magic
Tatix 742
TDI Dimer
Tert-Butyl Peroxy Bensoate
Tetra Methylene Sulfone
Tetrachloroethane (1,1,2,2)
Tetrachlorophthalic
Tetracyanoethylene
Tetraethylene Glycol Dimethyl Ether
Tetrahydrofuran
Tetramethyl Benzene (1,2,4,5-)
Tetramethylene Sulfone
TFE dry lube
TFE dry lube
Thallium Chloride
Thallium Pivalate
Therminol 44
Therminol 75
Therminol 88
Therminol VP-1
Thermometer
Titanium Dioxide
Toluene
Toluene Sulfonic Acid
Transmission Fluid
Trichloroethane (1,1,1-)
Trichloroethylene
Triethlyphosphate
Triethylene Tetramine
Trifluoroacetic Acid
Trimethyl Benzene

Trimethylpropane
Triphenyl Phospate
Triton 101 Surfactant
Tungsten
Tungsten Powder
Urea
Uve 1014 Curing Agent
Uvithane 783
Vactra oil #2
Vacuum rough oil
Versamid 125
Versamid 140
Vinyl Pyrrolidinone (1-) (-2-)
Voranol 220-530 Polyol
WD-40
WD-40 lube
Wetting Agent
XCE-155
XCE-89 Polyurethane
XU-205
Xylene
Zeospheres
Zinc Chloride
Zinc Chloride Soldering Paste
Zinc Metal

# Appendix L

Soil Sampling, Vicinity

# Historic Sample Locations within 30 feet of Building 37




△ surface

⊕ bore hole

■ Sample Detect

MOUND

Environmental Restoration Geographic Information System

L1 of 22

e:\cad_proj\bldg_37\surf\bldg37_30ft_050103.apr

05/01/03

# Building 37 Detects

| Locatio | Sample_ id | Collection _date | Value_name | Measured_valu e | Value_ units | Detect | Chem_ class | Start_ depth | End_ depth | Lab | Data | Project_ | Media | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE306 | 19940413 | 1,1,2-Trichloro-1,2,2-Trifluoro-ethane | 3.0000 | UG/KG | | ORVOA | 18.0 | 24.0 | J | J | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Aluminum | 15400.0000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Aluminum | 12300.0000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Arsenic | 14.6000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | 2 |
| AE | RAE306 | 19940413 | Arsenic | 10.7000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | 2 |
| AE | RAE306 | 19940413 | Barium | 109.0000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Barium | 82.5000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Benzo(a)anthracene | 350.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | J | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Benzo(a)pyrene | 430.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | | J | 04-2768 | Soil | 1 |
| AE | RAE305 | 19940413 | Benzo(b)fluoranthene | 430.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Benzo(g,h,i)perylene | 260.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | J | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Benzo(k)fluoranthene | 490.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Benzoic Acid | 120.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | J | J | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Benzoic Acid | 70.0000 | UG/KG | | ORSVO | 18.0 | 24.0 | J | J | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Beryllium | 0.7100 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | 1 |
| AE | RAE305 | 19940413 | Beryllium | 0.6900 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Bis(2-ethylhexyl)phthalate | 46.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | J | J | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Calcium | 34000.0000 | MG/KG | | INORG | 18.0 | 24.0 | * | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Calcium | 13800.0000 | MG/KG | | INORG | 0.0 | 6.0 | * | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Cesium-137 | 0.6810 | PCI/G | | RAD | 0.0 | 6.0 | | J | 04-2768 | Soil | 12 |
| AE | RAE305 | 19940413 | Chloride | 203.0000 | MG/KG | | ANION | 0.0 | 6.0 | | J | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Chloride | 86.8000 | MG/KG | | ANION | 18.0 | 24.0 | | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Chromium | 22.3000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | 2 |
| AE | RAE306 | 19940413 | Chromium | 20.3000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | 2 |
| AE | RAE305 | 19940413 | Chrysene | 610.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Cobalt | 11.1000 | MG/KG | | INORG | 0.0 | 6.0 | B | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Cobalt | 9.2000 | MG/KG | | INORG | 18.0 | 24.0 | B | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Copper | 21.8000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Copper | 18.2000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Dichloromethane (Methylene Chloride) | 8.0000 | UG/KG | | ORVOA | 18.0 | 24.0 | | J | 04-2768 | Soil | |

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| Locatio | Sample_ id | Collection _date | Value_name | Measured_valu e | Value_ units | Detect | Chem_ class | Start_ depth | End_ depth | Lab | Data | Project_ | Media | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE305 | 19940413 | Dichloromethane (Methylene Chloride) | 4.0000 | UG/KG | | ORVOA | 0.0 | 6.0 | J | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Fluoranthene | 810.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | | J | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Fluoride | 1.9000 | MG/KG | | ANION | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Fluoride | 1.9000 | MG/KG | | ANION | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Indeno(1,2,3-cd)pyrene | 270.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | J | J | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Iron | 27000.0000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Iron | 21300.0000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Lead | 88.3000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | 2 |
| AE | RAE306 | 19940413 | Lead | 17.6000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Magnesium | 23400.0000 | MG/KG | | INORG | 18.0 | 24.0 | * | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Magnesium | 7020.0000 | MG/KG | | INORG | 0.0 | 6.0 | * | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Manganese | 505.0000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Manganese | 444.0000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Nickel | 25.5000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Nickel | 18.4000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Nitrate/Nitrite | 11.1000 | MG/KG | | ANION | 0.0 | 6.0 | | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Nitrate/Nitrite | 6.7000 | MG/KG | | ANION | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Phenanthrene | 250.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | J | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Plutonium-238 | 34.0000 | PCI/G | | RAD | 0.0 | 6.0 | | | 04-2768 | Soil | 12 |
| AE | RAE303 | 19940413 | Plutonium-238 | 8.1700 | PCI/G | | RAD | 0.0 | 2.0 | | | 04-2768 | Soil | 12 |
| AE | RAE304 | 19940413 | Plutonium-238 | 5.3300 | PCI/G | | RAD | 2.0 | 12.0 | | J | 04-2768 | Soil | 2 |
| AE | RAE303 | 19940413 | Plutonium-239/240 | 0.0361 | PCI/G | | RAD | 0.0 | 2.0 | | | 04-2768 | Soil | |
| AE | RAE304 | 19940413 | Plutonium-239/240 | 0.0293 | PCI/G | | RAD | 2.0 | 12.0 | | J | 04-2768 | Soil | |
| AE | RAE303 | 19940413 | Plutonium-242 | 0.0085 | PCI/G | | RAD | 0.0 | 2.0 | | | 04-2768 | Soil | |
| AE | RAE306 | 19940413 | Potassium | 1260.0000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Potassium | 1160.0000 | MG/KG | | INORG | 0.0 | 6.0 | B | | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Potassium-40 | 16.3000 | PCI/G | | RAD | 0.0 | 6.0 | | J | 04-2768 | Soil | 1 |
| AE | RAE306 | 19940413 | Potassium-40 | 14.6000 | PCI/G | | RAD | 18.0 | 24.0 | | J | 04-2768 | Soil | 1 |
| AE | RAE305 | 19940413 | Pyrene | 700.0000 | UG/KG | | ORSVO | 0.0 | 6.0 | | J | 04-2768 | Soil | |
| AE | RAE305 | 19940413 | Radium-226 | 2.5300 | PCI/G | | RAD | 0.0 | 6.0 | | | 04-2768 | Soil | 123 |
| AE | RAE306 | 19940413 | Radium-226 | 2.3000 | PCI/G | | RAD | 18.0 | 24.0 | | | 04-2768 | Soil | 123 |
| AE | RAE305 | 19940413 | Sodium | 811.0000 | MG/KG | | INORG | 0.0 | 6.0 | B | J | 04-2768 | Soil | 2 |
| AE | RAE303 | 19940413 | Thorium-228 | 1.3200 | PCI/G | | RAD | 0.0 | 2.0 | | J | 04-2768 | Soil | 1 |
| AE | RAE303 | 19940413 | Thorium-230 | 1.4700 | PCI/G | | RAD | 0.0 | 2.0 | CJ | J | 04-2768 | Soil | 1 |

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| Locatio | Sample_ id | Collection _date | Value_name | Measured_valu e | Value_ units | Detect | Chem_ class | Start_ depth | End_ depth | Lab | Data | Project_ | Media | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE303 | 19940413 | Thorium-232 | 1.3700 | PCI/G | | RAD | 0.0 | 2.0 | | J | 04-2768 | Soil | 1 |
| 19N03 | 19N03 | 19940922 | Total Aromatic Hydrocarbons | 1485269.0000 | IC** | | GENER | 0.0 | 1.5 | | | 2680 | Soil | |
| 19N03 | 19N03 | 19940922 | Total C5 TO C11 Petroleum Hydrocarbons | 3157673.0000 | IC** | | GENER | 0.0 | 1.5 | | | 2680 | Soil | |
| 19N03 | 19N03 | 19940922 | Total Halogenated Hydrocarbons | 5493.0000 | IC** | | GENER | 0.0 | 1.5 | | | 2680 | Soil | |
| 19N03 | 19N03 | 19940922 | Total Semivolatile Hydrocarbons | 11379.0000 | IC** | | GENER | 0.0 | 1.5 | | | 2680 | Soil | |
| AE | RAE303 | 19940413 | Uranium-234 | 0.7730 | PCI/G | | RAD | 0.0 | 2.0 | | | 04-2768 | Soil | |
| AE | RAE303 | 19940413 | Uranium-235 | 0.0689 | PCI/G | | RAD | 0.0 | 2.0 | | | 04-2768 | Soil | |
| AE | RAE303 | 19940413 | Uranium-238 | 0.8510 | PCI/G | | RAD | 0.0 | 2.0 | | | 04-2768 | Soil | 1 |
| AE | RAE306 | 19940413 | Vanadium | 29.8000 | MG/KG | | INORG | 18.0 | 24.0 | | | 04-2768 | Soil | 2 |
| AE | RAE305 | 19940413 | Vanadium | 26.6000 | MG/KG | | INORG | 0.0 | 6.0 | | | 04-2768 | Soil | 2 |
| AE | RAE305 | 19940413 | Zinc | 328.0000 | MG/KG | | INORG | 0.0 | 6.0 | * | | 04-2768 | Soil | 2 |
| AE | RAE306 | 19940413 | Zinc | 80.1000 | MG/KG | | INORG | 18.0 | 24.0 | * | | 04-2768 | Soil | |

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

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

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

**Units are ion counts (IC). Results are not quantitative and only relative to each other.

# Building 37 Non-Detects

| Location_name | Sample_id | Collection_date | Value_name | Measured_value | Value_units | Detection_limit | Start_depth | End_depth | Lab | Data | Project_code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE306 | 19940413 | 1,1,1-Trichloroethane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,1,1-Trichloroethane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,1,2,2-Tetrachloroethane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,1,2,2-Tetrachloroethane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,1,2-Trichloro-1,2,2-Trifluoroethane | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,1,2-Trichloroethane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,1,2-Trichloroethane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,1-Dichloroethane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,1-Dichloroethane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,1-Dichloroethene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,1-Dichloroethene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,2,4-Trichlorobenzene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,2,4-Trichlorobenzene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,2-Dichlorobenzene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,2-Dichlorobenzene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,2-Dichloroethane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,2-Dichloroethane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,2-Dichloroethene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,2-Dichloroethene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,2-Dichloropropane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,2-Dichloropropane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,2-Diethylbenzene | 25.0000 | UG/KG | 25.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,2-Diethylbenzene | 26.0000 | UG/KG | 26.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,3-cis-Dichloropropene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,3-cis-Dichloropropene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,3-Dichlorobenzene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,3-Dichlorobenzene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,3-trans-Dichloropropene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,3-trans-Dichloropropene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 1,4-Dichlorobenzene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1,4-Dichlorobenzene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |

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| Location_name | Sample_id | Collection_date | Value_name | Measured_value | Value_units | Detection_limit | Start_depth | End_depth | Lab | Data | Project_code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE306 | 19940413 | 1-chloro-4-phenoxybenzene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 1-chloro-4-phenoxybenzene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,2'-oxybis(1-chloropropane) | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,2'-oxybis(1-chloropropane) | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,4,5-Trichlorophenol | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,4,5-Trichlorophenol | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,4,6-Trichlorophenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,4,6-Trichlorophenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,4-Dichlorophenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,4-Dichlorophenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,4-Dimethylphenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,4-Dimethylphenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,4-Dinitrophenol | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,4-Dinitrophenol | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,4-Dinitrotoluene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,4-Dinitrotoluene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2,6-Dinitrotoluene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2,6-Dinitrotoluene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Benzyl-4-Chlorophenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Benzyl-4-Chlorophenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Butanone | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Butanone | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Chloronaphthalene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Chloronaphthalene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Chlorophenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Chlorophenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Hexanone | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Hexanone | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Methylnaphthalene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Methylnaphthalene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Methylphenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Methylphenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Nitroaniline | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |

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| Location _name | Sample_id | Collection_ date | Value_name | Measured_ value | Value_ units | Detection_ limit | Start_ depth | End_ depth | Lab | Data | Project_ code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE305 | 19940413 | 2-Nitroaniline | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 2-Nitrophenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 2-Nitrophenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 3,3'-Dichlorobenzidine | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 3,3'-Dichlorobenzidine | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 3-Nitroaniline | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 3-Nitroaniline | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4,4'-DDD | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4,4'-DDD | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4,4'-DDE | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4,4'-DDE | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4,4'-DDT | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4,4'-DDT | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4,6-Dinitro-o-Cresol | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4,6-Dinitro-o-Cresol | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4-Bromophenyl-phenyl Ether | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4-Bromophenyl-phenyl Ether | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4-Chloro-3-methylphenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4-Chloro-3-methylphenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4-Chloroaniline | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4-Chloroaniline | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4-Methyl-2-pentanone | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4-Methyl-2-pentanone | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4-Methylphenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4-Methylphenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4-Nitroaniline | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4-Nitroaniline | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | 4-Nitrophenol | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | 4-Nitrophenol | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Acenaphthene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Acenaphthene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Acenaphthylene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Acenaphthylene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |

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| Location _name | Sample_id | Collection_ date | Value_name | Measured_ value | Value_ units | Detection_ limit | Start_ depth | End_ depth | Lab | Data | Project_ code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE306 | 19940413 | Acetone | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Acetone | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Acetonitrile | 125.0000 | UG/KG | 125.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Acetonitrile | 128.0000 | UG/KG | 128.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Acrylonitrile | 125.0000 | UG/KG | 125.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Acrylonitrile | 128.0000 | UG/KG | 128.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aldrin | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aldrin | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Alpha Chlordane | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Alpha Chlordane | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Alpha-BHC | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Alpha-BHC | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Americium-241 | 0.0862 | PCI/G | 0.0862 | 18.0 | 24.0 | ND | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Americium-241 | 0.1130 | PCI/G | 0.1130 | 0.0 | 6.0 | ND | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Anthracene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Anthracene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Antimony | 0.7700 | MG/KG | 0.7700 | 18.0 | 24.0 | UN | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Antimony | 0.7900 | MG/KG | 0.7900 | 0.0 | 6.0 | UN | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aroclor-1016 | 8.1000 | UG/KG | 8.1000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aroclor-1016 | 33.0000 | UG/KG | 33.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aroclor-1221 | 16.0000 | UG/KG | 16.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aroclor-1221 | 66.0000 | UG/KG | 66.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aroclor-1232 | 8.1000 | UG/KG | 8.1000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aroclor-1232 | 33.0000 | UG/KG | 33.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aroclor-1242 | 8.1000 | UG/KG | 8.1000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aroclor-1242 | 33.0000 | UG/KG | 33.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aroclor-1248 | 8.1000 | UG/KG | 8.1000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aroclor-1248 | 33.0000 | UG/KG | 33.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aroclor-1254 | 8.1000 | UG/KG | 8.1000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aroclor-1254 | 33.0000 | UG/KG | 33.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Aroclor-1260 | 8.1000 | UG/KG | 8.1000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Aroclor-1260 | 33.0000 | UG/KG | 33.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Benzene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |

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| Location _name | Sample_id | Collection_ date | Value_name | Measured_ value | Value_ units | Detection_ limit | Start_ depth | End_ depth | Lab | Data | Project_ code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE305 | 19940413 | Benzene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Benzo(a)anthracene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Benzo(a)pyrene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Benzo(b)fluoranthene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Benzo(g,h,i)perylene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Benzo(k)fluoranthene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Benzyl Alcohol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Benzyl Alcohol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Beta-BHC | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Beta-BHC | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bis(2-chloroethoxy)methane | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bis(2-chloroethoxy)methane | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bis(2-chloroethyl)ether | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bis(2-chloroethyl)ether | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bis(2-ethylhexyl)phthalate | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bismuth | 6.4000 | MG/KG | 6.4000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bismuth | 6.5000 | MG/KG | 6.5000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bismuth-207 | 0.0258 | PCI/G | 0.0258 | 18.0 | 24.0 | ND | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bismuth-207 | 0.0267 | PCI/G | 0.0267 | 0.0 | 6.0 | ND | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bismuth-210 | 0.0285 | PCI/G | 0.0285 | 18.0 | 24.0 | ND | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bismuth-210 | 0.0326 | PCI/G | 0.0326 | 0.0 | 6.0 | ND | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bromodichloromethane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bromodichloromethane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bromoform | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bromoform | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Bromomethane | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Bromomethane | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Butyl Benzyl Phthalate | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Butyl Benzyl Phthalate | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Cadmium | 0.5700 | MG/KG | 0.5700 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Cadmium | 0.5900 | MG/KG | 0.5900 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Carbazole | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Carbazole | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |

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| Location _name | Sample_id | Collection_ date | Value_name | Measured_ value | Value_ units | Detection_ limit | Start_ depth | End_ depth | Lab | Data | Project_ code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE306 | 19940413 | Carbon Disulfide | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Carbon Disulfide | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Carbon Tetrachloride | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Carbon Tetrachloride | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Cesium-137 | 0.0297 | PCI/G | 0.0297 | 18.0 | 24.0 | ND | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Chlorobenzene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Chlorobenzene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Chloroethane | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Chloroethane | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Chloroform | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Chloroform | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Chloromethane | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Chloromethane | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Chrysene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Cobalt-60 | 0.0311 | PCI/G | 0.0311 | 18.0 | 24.0 | ND | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Cobalt-60 | 0.0339 | PCI/G | 0.0339 | 0.0 | 6.0 | ND | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Cyanide | 0.6200 | MG/KG | 0.6200 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Cyanide | 0.6400 | MG/KG | 0.6400 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Delta-BHC | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Delta-BHC | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Dibenz(a,h)anthracene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Dibenz(a,h)anthracene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Dibenzofuran | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Dibenzofuran | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Dibromochloromethane | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Dibromochloromethane | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Dieldrin | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Dieldrin | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Diethyl Phthalate | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Diethyl Phthalate | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Dimethyl Phthalate | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Dimethyl Phthalate | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Di-n-butyl Phthalate | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |

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| Location _name | Sample_id | Collection_ date | Value_name | Measured_ value | Value_ units | Detection_ limit | Start_ depth | End_ depth | Lab | Data | Project_ code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE305 | 19940413 | Di-n-butyl Phthalate | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Di-n-octyl Phthalate | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Di-n-octyl Phthalate | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Endosulfan I | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Endosulfan I | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Endosulfan II | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Endosulfan II | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Endosulfan Sulfate | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Endosulfan Sulfate | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Endrin | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Endrin | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Endrin Aldehyde | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Endrin Aldehyde | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Endrin Ketone | 0.8100 | UG/KG | 0.8100 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Endrin Ketone | 3.3000 | UG/KG | 3.3000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Ethylbenzene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Ethylbenzene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Fluoranthene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Fluorene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Fluorene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Gamma Chlordane | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Gamma Chlordane | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Gamma-BHC (Lindane) | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Gamma-BHC (Lindane) | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Heptachlor | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Heptachlor | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Heptachlor Epoxide | 0.4200 | UG/KG | 0.4200 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Heptachlor Epoxide | 1.7000 | UG/KG | 1.7000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Hexachlorobenzene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Hexachlorobenzene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Hexachlorobutadiene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Hexachlorobutadiene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Hexachlorocyclopentadiene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |

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| Location_name | Sample_id | Collection_date | Value_name | Measured_value | Value_units | Detection_limit | Start_depth | End_depth | Lab | Data | Project_code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE305 | 19940413 | Hexachlorocyclopentadiene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Hexachloroethane | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Hexachloroethane | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Hexane | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Hexane | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Indeno(1,2,3-cd)pyrene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Iodomethane | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Iodomethane | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Isophorone | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Isophorone | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Mercury | 0.1200 | MG/KG | 0.1200 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Mercury | 0.1300 | MG/KG | 0.1300 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Methoxychlor | 4.2000 | UG/KG | 4.2000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Methoxychlor | 17.0000 | UG/KG | 17.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Naphthalene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Naphthalene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Nitrobenzene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Nitrobenzene | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | N-Nitroso-di-n-propylamine | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | N-Nitroso-di-n-propylamine | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | N-Nitrosodiphenylamine | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | N-Nitrosodiphenylamine | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Pentachlorophenol | 1000.0000 | UG/KG | 1000.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Pentachlorophenol | 1100.0000 | UG/KG | 1100.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Phenanthrene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Phenol | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Phenol | 430.0000 | UG/KG | 430.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| 19N03 | 19N03 | 19940922 | Plutonium-238 | 4.0000 | PCI/G | 4.0000 | 0.0 | 1.5 | | U | 2680 | Soil |
| AE | RAE306 | 19940413 | Plutonium-238 | 21.0000 | PCI/G | | 18.0 | 24.0 | U | | 04-2768 | Soil |
| AE | RAE304 | 19940413 | Plutonium-242 | 0.0038 | PCI/G | 0.0038 | 2.0 | 12.0 | ND | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Pyrene | 420.0000 | UG/KG | 420.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Selenium | 1.1000 | MG/KG | 1.1000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Selenium | 1.2000 | MG/KG | 1.2000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |

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| Location _name | Sample_id | Collection_ date | Value_name | Measured_ value | Value_ units | Detection_ limit | Start_ depth | End_ depth | Lab | Data | Project_ code | Media |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE | RAE306 | 19940413 | Silver | 1.2000 | MG/KG | 1.2000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Silver | 1.2000 | MG/KG | 1.2000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Sodium | 471.0000 | MG/KG | 471.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Strontium-90 | 0.8590 | PCI/G | 0.8590 | 0.0 | 6.0 | ND/ | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Strontium-90 | 1.1200 | PCI/G | 1.1200 | 18.0 | 24.0 | ND/ | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Styrene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Styrene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Sulfate | 31.2000 | MG/KG | 31.2000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Sulfate | 31.9000 | MG/KG | 31.9000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Tetrachloroethene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Tetrachloroethene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Thallium | 0.9000 | MG/KG | 0.9000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Thallium | 0.9200 | MG/KG | 0.9200 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| 19N03 | 19N03 | 19940922 | Thorium-232 | 0.8000 | PCI/G | 0.8000 | 0.0 | 1.5 | | U | 2680 | Soil |
| AE | RAE306 | 19940413 | Thorium-232 | 1.7000 | PCI/G | | 18.0 | 24.0 | U | | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Thorium-232 | 1.7000 | PCI/G | | 0.0 | 6.0 | U | | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Toluene | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Toluene | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Toxaphene | 42.0000 | UG/KG | 42.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Toxaphene | 170.0000 | UG/KG | 170.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Trichloroethylene (TCE) | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Trichloroethylene (TCE) | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |
| AE | RAE301 | 19940413 | Tritium | 0.1360 | PCI/G | 0.1360 | 0.0 | 12.0 | ND | U | 04-2768 | Soil |
| AE | RAE302 | 19940413 | Tritium | 0.1590 | PCI/G | 0.1590 | 12.0 | 24.0 | ND | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Vinyl Acetate | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Vinyl Acetate | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Vinyl Chloride | 12.0000 | UG/KG | 12.0000 | 18.0 | 24.0 | U | U | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Vinyl Chloride | 13.0000 | UG/KG | 13.0000 | 0.0 | 6.0 | U | U | 04-2768 | Soil |
| AE | RAE306 | 19940413 | Xylenes, Total | 6.0000 | UG/KG | 6.0000 | 18.0 | 24.0 | U | UJ | 04-2768 | Soil |
| AE | RAE305 | 19940413 | Xylenes, Total | 6.0000 | UG/KG | 6.0000 | 0.0 | 6.0 | U | UJ | 04-2768 | Soil |

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

**LABORATORY DATA QUALIFIERS (LABQUAL)**

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

ORGANICS

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

INORGANICS

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

**DATA QUALIFIER CODES (DATAQUAL)**

ORGANICS AND INORGANICS

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

**SUB-QUALIFIER CODES**

ORGANICS

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

INORGANICS

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

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

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

# Comparisons for Soil Analytical Results

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

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

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

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

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

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

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

# Appendix M

## Occurrence Reports

A search of the occurrence reporting system revealed that no occurrence reports involving any spills or releases to the environment were generated for Building 37.

# Appendix N

## PRS Information

Recommendation pages are not generated for PRSs that require Further Assessment (FA) or that are unbinned. Accordingly, there are no recommendation pages for PRSs 271 and 336 included herein.

# MIAMISBURG CLOSURE PROJECT
## PRS 269

**RECOMMENDATION:**

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

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

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

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

**CONCURRENCE:**

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

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

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



N 1082

# MOUND PLANT
# PRS 389/392
# SOIL CONTAMINATION

## RECOMMENDATION:

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

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

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

CONCURRENCE:

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

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

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

SUMMARY OF COMMENTS AND RESPONSES:

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

☒ No comments were received during the comment period.

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

# Appendix O

Work Plan (Draft)

**Building 37**

An addendum to the Building 37 Demolition Work Package is being prepared. The addendum will include the removal of the concrete vault that previously housed Tank 100 (PRS 271). One biased soil sample will be collected from the base of excavation (below the vault) and sent to the onsite laboratory for gamma spec analysis. Additional analyses may be performed with the concurrence of DOE, OEPA, and USEPA.

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**WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS**

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

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

**1. WORK PACKAGE TITLE:** **Building 37 Demolition**

**2. WORK PACKAGE NUMBER: BOSS-36961-00** | **REQUESTOR: Steve Davis**

**3. WORK PACKAGE SCOPE:**

The purpose of this effort is to demolish Building 37. Using heavy equipment to demolish the facility (including concrete block structure, slab, foundation, exterior stairwells, sidewalks, and stanchions adjacent to Bldg. 37), remove and dispose of the debris, provide site restoration, grading, and erosion mitigation with seeding and mulching.

This is a non-radiological demolition project and no RWP is required.

Safe shutdown and utility isolation activities will have already been completed prior to demolition.

**4. WORK LOCATION:** **Building 37, PST Area**

| **5. WORK PACKAGE PHASES:** | **LIST OF APPENDICES:** |
|---|---|
| 1. Site Information | A – PHA/JSHA |
| 2. Site Preparation | B – Pre-job Briefings/Job Status Log |
| 3. Building Demolition Sequence of Work | C – Drawings/Sketches |
| 4. Site Remediation & Demobilization | D – Miscellaneous (RWP, USQ, etc.) |
| | E – Post-job Conference/Lessons Learned |

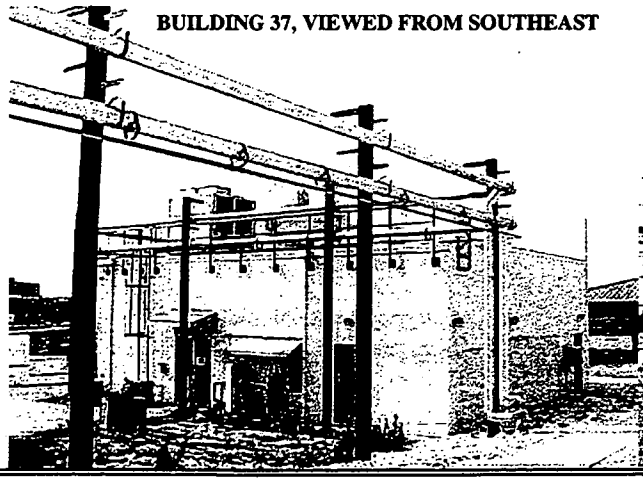
*Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.*

**6. SPECIAL MATERIALS AND EQUIPMENT:**

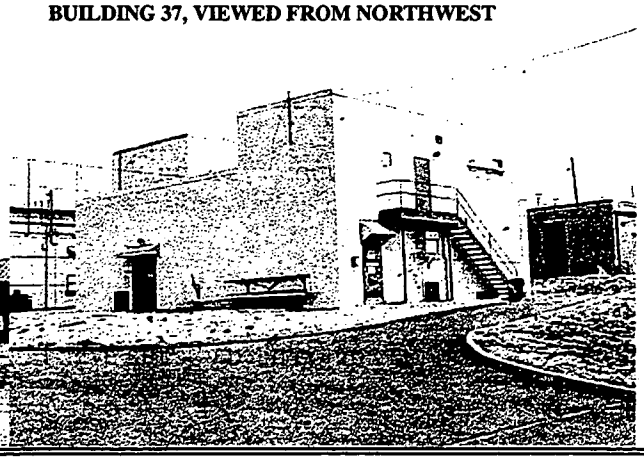
1. Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment.
2. Rock crusher.
3. Rubber tired and tracked front-end loaders.
4. Transport equipment for debris as required.
5. Fog Cannon
6. Aerial lift/manlift

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

**BUILDING 37, VIEWED FROM SOUTHEAST**



**BUILDING 37, VIEWED FROM NORTHWEST**



## 7. DETAILED WORK STEPS:

### 7.1 SITE INFORMATION

#### 7.1.1 Building 37 Construction

Building 37 was constructed in about 1969, as the "Radioactive Heat Source Testing Facility." The square footage of Building 37 is 2,463-$ft^2$.
In 1988/89, Building 37 was modified to its current configuration. The modifications were primarily to the HVAC/cooling system, however some wall removals were done on the first floor and the penthouse. The current configuration is described as follows (See current floor plans in Appendix C):
The reinforced concrete footer/foundation sections under the penthouse section of the building are 10 ½ feet deep. The reinforced concrete footer/foundation sections under the remainder of the building are 8 feet deep. The footer/foundation sections under the exterior walls are 9 inches thick with #3 @18"vertical reinforcing rods and 2 - #6 rods, top & bottom (except for a 12 ft section on the east side of the north-wall footer, which is 12" thick and has the same reinforcing). The footer/foundation sections under the interior walls (below the penthouse) are 8 inches thick with #3 @18"vertical reinforcing rods and 2 - #6 rods, top & bottom. The footer/foundation sections under the interior walls in the northeast corner of the building are 12 inches thick with #3 @18"vertical reinforcing rods and 2 - #6 rods, top & bottom; with additional 3 ft. long #3 @ 12", each face, at the slab interface.
The first floor slab is 6" thick concrete, with 6" x 6" – 21# WWM reinforcing. The concrete slab rests on a 6" thick gravel bed.
The first floor walls are 8" concrete block on most interior and exterior walls, with the exception of the interior walls in the northeast corner of the building and a 12 foot section the northern exterior wall is 12" thick concrete. These 12" thick concrete wall sections are reinforced with #3 vertical rebar every 12", E.F. and #4 horizontal rebar every 13", E.F. The block wall sections are reinforced with #5 rebar running the full height of the walls, every 48" in the block cores, with additional #5 rebar at wall openings and wall joints. In the block interior walls and at wall joints, the rebar extends into the penthouse bond beams. The block interior walls are covered with metal lathe and plaster.
Building 37 was constructed with a crawl space, approximately 4-1/2' in height, over the first floor, except for the rooms located directly below the penthouse area (Rooms 1, 2, and 3).
Exterior walls of the penthouse are constructed of 8" concrete block, reinforced with #4 rebar @ 48" which extend into the floor and roof bond beams. The interior walls in the penthouse are constructed of plaster on metal stud.
The floor of the penthouse is a 2-1/2" thick slab on a truss.
The roof area, over the first floor and the penthouse, is a built-up type on a 20 Ga. metal over a metal frame truss.

#### 7.1.2 Additional Building 37 information

As part of the 1988/9 FCAP upgrade for Building 37, asbestos abatement of piping insulation was performed.

Based upon engineering design drawings for Building 37 (Engineering Design Drawing 3037-04007), the building was designed with two underground tanks. One of these tanks (a sewage lift station), designated as Tank #100, was located just outside Room 5 (along the eastern wall, at the northeastern corner of the building. The other tank, designated as Tank #267, on the northern side of the building, at the northwestern corner of the building (just outside of Room 1) was a "500-gallon low risk waste tank." During construction activities for Building 126, both the lift station/tank and the low risk waste tank were removed. However, there are still Unbinned PRSs (PRS 271 and 336) which are associated with the removed tanks (see Appendix C).

Building 37 is located west of Building 50 and south of Building 126. See aerial map in Appendix C.

### 7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 37 is not listed as a historic structure with the Ohio of Historic Preservation Office (OHPO). No mitigative documentation package is required.

**IMPORTANT:** However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at extension 3691. If necessary, work will be suspended until which time the items or

artifacts have been recovered.

## 7.3 SITE PREPARATION & MOBILIZATION

### 7.3.1 Site Access Control

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

The work zone is not to be entered by anyone not directly involved with the demolition unless they have contacted the Project Construction Manager or Project Foreman in advance.

Emergency egress for Building 126 occupants shall be maintained, if personnel are still occupying Building 126.

IMPORTANT NOTE: **During demolition activities, when Building 37 structures are being collapsed, access to Building 126 from the south entryways will be restricted.**

### 7.3.2 Sediment/Storm Water Control

Install sediment/storm water control on sewer gratings around designated construction area (See maps Appendix C). Install storm water control silt fences, as needed. Coordinate and evaluate effectiveness of controls periodically throughout demolition activities with Environmental Compliance PoC.

Ensure spill kit is in area and available and adequate to prevent glycol or any other contaminant from entering storm drains.

### 7.3.3 Clear Area and Mark/Protect Utility Equipment

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

Using a GPS unit, obtain and record the coordinates for field grates and manhole covers that may be covered with soil or debris during demolition activities.

Mark and/or protect utility equipment/PIVs (Post Indicator Valves) with visible stakes (fire line PIV west of Bldg. 37). Cover field grates with covers/sheeting for silt protection. Protect Sanitary Sewer and utility access manholes with steel plates, as needed.

### 7.3.4 Temporary Utilities

The only temporary utilities that may be required are water and electricity. If domestic water is utilized, ensure backflow prevention is present. Coordinate with site Safety and Health and Environmental Compliance PoCs. Water will be used to control dust emissions. Coordinate with Utilities Group/Utilities Package for services needed.

### 7.3.5 Temporary Facilities

This project will use the existing BOSS project trailer complex located in the existing Mound "C" parking lot.

### 7.3.6 Temporary Communications

Temporary communications are required (cell phone, radios) due to the functions and equipment for hearing plant announcements and emergency notifications have been removed prior to demolition. At the job site, plant announcements and emergency notifications can be heard on the Plant radio channel.

### 7.3.7 Staging Areas

The project site is of sufficient size to be used as a staging area for materials needed/generated.

## 7.4 PRELIMINARY ACTIVITIES AND VERIFICATIONS

**IMPORTANT**

7.4.1 Verify all Building Safe Shutdown Activities have been completed per workpackage BOSS-36867

verified by _____ date: _____
Bill Wahler or designee/email

7.4.2 Verify all Building Utility Isolation Activities have been completed per workpackage FTS-36962.

verified by _____ date: _____
Allen Upshaw or designee/email

7.4.3 Verify the Radiological Final Status Survey Complete, by contacting Steve Collas @ 4522.

verified by _____ date: _____
Bill Wahler or designee/email

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

Verified by _____ date: _____
Mike Stromberg or designee/email

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

Verified by _____ date: _____
Mike Stromberg or designee/email

7.4.6 Notify Timothy Hoye, X4847or William Bohne, X4523 - PoCs Building 126/PST area occupants of demolition schedule, potential traffic pattern delays, and building access/egress coordination, if Building 126 still occupied.

Verified by _____ date: _____
Mike Stromberg or designee/email

## 7.5 BUILDING DEMOLITION SEQUENCE OF WORK

7.5.1 Structural Demolition

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

**HOLD POINT**: RAPCA Notification verification

Environmental Compliance PoC_____ Date to Proceed with Demo_____

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

Project Manager:_____ Date and Time:_____

Review Team: Program Manager, Construction Manager/Foreman, and Project Engineer, at minimum.

**IMPORTANT NOTE**: All workers have Stop Work Authority. Situations where stop work authority is to be exercised are:
To stop unsafe work.
To stop unauthorized work, i.e., work outside the scope of this workpackage.

7.5.1.1 Using heavy equipment, demolish the eastern section of the structure, leaving debris in-place as part of the ramp to allow equipment to reach the penthouse section of Building 37.

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

7.5.1.3 Demolish the associated utility stanchions and piping located south of Building 37; excavation permit required. (See attached photographs). Stanchion and pipes over 14' above the ground should be stabilized using the excavator with the grapple attachment to hold the elevated parts to be demolished steady while the shears cut the ends free material. The concrete pier footings for the stanchions will be removed and surveyed/ scanned by Rad. Control technicians. The materials will be sized, surveyed and placed into appropriate hauling containers or trucks.

**Note: The progression of the building demolition and selection/sizing of demolition equipment will ultimately be determined in the field.**

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**CAUTION HAZARD:** Vehicle traffic hazard. Control traffic flow with sufficient number of flagmen when necessary. Project Engineering will coordinate the posting of notice on GroupWise/Mound News, several days in advance and during ongoing demolition work, that traffic routes around the demolition area may be interrupted or diverted. Also, notify the following organizations/personnel that traffic patterns may be disrupted: Security (Ron Parr, X3958 or 608-8291), Fire Dept. (Tom Beal, X4897 or 608-8295), Transportation (Steve Romage, X4518 or 608-8283), and the Building Manager (Gary Weidenbach (X3241 or 608-8207).

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

**WARNING HAZARD:** Dust Control – Utilize misting & fogging during demolition & road wetting during waste hauling. The goal is no visible dust emissions. Periodically evaluate control methods to determine their effectiveness.

**CAUTION HAZARD:** Contact with overhead power lines with heavy-duty equipment. If any part of heavy-duty equipment has the potential to come within 10' of street lighting circuit (line to pole, northwest of 37), perform LOTO to de-energize electrical power source. This circuit must be re-energized each evening when demolition is complete for that day.

**CAUTION HAZARD:** Struck by flying debris. Establish construction boundary. Wear hard hat, safety glasses, safety shoes, (Level D PPE) and reflective vest inside construction area.

**CAUTION HAZARD:** Struck by moving equipment.

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

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

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

**CAUTION HAZARD:** A Hot Work Permit will be required if a torch is used for cutting. Coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel). Obtain and follow Hot Work permit per MD-10286 O2

**CAUTION HAZARD:** Terrain surrounding Bldg. 37 is covered with rip-rap/rock. Poor footing, slipping, and tripping hazards may exist due to poor footing from loose rock. Use caution traversing the area.

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7.5.2 Slab and Foundation Demolition

**IMPORTANT:** Exercise caution when demolishing and removing slab and foundation/footers to not damage underground utilities. Be alert to and reference Underground Utilities Vista Maps in Appendix C for the following utility system lines running near or under the foundation/slab of Buildings 37.

- Sanitary System Line running along the east side of the foundation of Building 37.
- Storm Sewer System lines running along the south and east sides of the foundation of Building 37.
- Fire Protection System lines running along the west side of Building 37.
- Domestic Water System lines running along the west side of Building 37.
- Power Supply lines on the east sides of Building 37.

**IMPORTANT:** At the northwest corner (low risk Rad waste) and on the east side (sanitary lift station) of Building 37 were underground storage tanks. The tanks are believed to have been removed. However, there are two PRSs associated with these tanks (status: unbinned). If soil staining or unusual fumes/odors are noted during foundation/footer excavation, contact IH (Chris Ahlquist X3737 or 608-8203) or Safety (Doug Hanson X3769 or 608-8008) and Environmental Compliance (Ron Paulick X4080).

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

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

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

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

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

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

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

**CAUTION HAZARD:** Struck by flying debris. Establish construction boundary. Wear hard hat, safety glasses, safety shoes, and high visibility clothing (i.e.; highway reflective vests; fluorescent shirts) inside construction area.

**CAUTION HAZARD:** A Hot Work Permit will be required if a torch is used for cutting. Coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel).

**CAUTION HAZARD:** Struck by moving equipment.

- Maintain the following distances from operating equipment:
- Shear – 75 feet
- Hoe Ram – 50 feet

- Other heavy duty equipment – 30 feet
- Bobcat – 15 feet

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

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

**CAUTION HAZARD:** Terrain surrounding Bldg. 37 is covered with rip-rap/rock. Poor footing, slipping, and tripping hazards may exist due to poor footing from loose rock. Use caution traversing the area.

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**7.6 Site Remediation & demobilization**

7.6.1 Grading, Seeding, & Mulching

7.6.1.1 Remove rip-rap/rock as necessary to provide smooth continuous grade and restore the area by grading and filling with appropriate amount of gravel/soil to grade to drain.

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

7.6.1.3 Remove any temporary protection/structures used to protect utility equipment/PIVs, Sanitary Sewers, and utility access manholes

7.6.1.4 Remove silt protection covers from field grates and any remaining sediment/storm water control fences, straw bales and sand bags, unless it is beneficial to keep silt/sediment control devices in-place for further demolition/remediation work.

7.6.1.5 Remove sediment and debris that has collected at the storm sewer gratings and along roadways and curbing.

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

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

**CAUTION HAZARD:** Struck by moving equipment.
- Maintain the following distances from operating equipment:
- Shear – 75 feet
- Hoe Ram – 50 feet
- Other heavy duty equipment – 30 feet
- Bobcat – 15 feet

**CAUTION HAZARD:** Terrain surrounding Bldg. 37 is covered with rip-rap/rock. Poor footing, slipping, and tripping hazards may exist due to poor footing from loose rock. Use caution traversing the area.

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7.6.2 Demobilize Construction Equipment

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

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

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

## Work Package /Preliminary Hazard Analysis

**8.COMMENTS:**

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

**9. REVIEW SIGNATURES:**

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

Superintendent: _____ Date: ___/___/___ Phone:_____

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

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

Safety _____ Date: ___/___/___ Phone:_____

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

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

ES&C: _____ Date: ___/___/___ Phone:_____

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

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

Classification: _____ Date: ___/___/___ Phone:_____

Other: _____ Date: ___/___/___ Phone _____

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

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

Brief Explaination This work will have no affect upon a Nuclear or Radiological Building

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

**11. AUTHORIZATION SIGNATURE:**

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

**12. WORK PACKAGE CLOSURE:**

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

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

**RETURN PHA TO IS&H AT JOB COMPLETION.**

# APPROVAL CONTINUATION SHEET

**Reviews:**

| Name | Signature | Date | Department |
|---|---|---|---|
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| Reference Drawings | Rev. | Reference Procedures | Rev. |
|---|---|---|---|
| AYC 303700 – (Bldg. 37) Radioactive Heat Source Testing Facility | 3 | | |
| AYC 303702 – (Bldg. 37) FY88 FCAP HVAC and Process Cooling Upgrades | 1 | | |
| | | | |
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# Appendix A

# PHA/JSHA

## APPENDIX A

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

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

| Item | Exist | Work Package Phase | Comments, Controls, Methods of Compliance |
|---|---|---|---|
| *Access/Blockage:* | | | |
| Blockage of exits or means of egress | YES | 2 | [EGRESS] Building 126 South side access restricted during demolition/collapse of building. |
| Blockages/obstructions (Identify) | YES | 2 | Roadway around bldg. 37 |
| Confined space entry (permit) | N/A | N/A | [CONFINE] |
| Emergency alarms or evacuation plans required | YES | 2 | [EMERG] Plant Public Address system will be used to announce any plant emergency over the plant radio channel, cell phones will be used also, no specific added hazards exist in the demolition of this building. |
| Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.) | YES | All | Fire utilities available for emergency use. |
| Traffic control/flagman | YES | 2 | [TRAFIC] as needed basis, during equipment movement & demolition activities |
| *Flammable/Explosive:* | | | |
| Burning, welding, hot-work (Fire Watch) (permit) | YES | 2 | [BURN] Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286, Ops. H-1. Coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel). |
| Chemical compatibility of corrosives/flammables | N/A | N/A | |
| Explosive/flammable atmosphere | N/A | N/A | |
| Explosives | N/A | N/A | |
| Fire protection system/equipment outage | YES | 2 | [FIRE/EFIRE] ] FAS & fire protection system isolated during Utilities Isolation activities. |
| Fire Hazards Analysis/Fire Engineer Approval | YES | 2 | [FHA/ADJA] FHA walkthrough of facility is accomplished during Utilities Isolation activities |
| Flammable liquids/gases | YES | 3 | [FLAM] Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286 ops. H-1. |
| Powder-actuated tools (permit) | N/A | N/A | |
| Special Fire Protection Equipment Required | N/A | N/A | [FIREQU] |
| *Chemicals:* | | | |
| Chemical process safety | N/A | N/A | |
| Compressed gas cylinders | YES | 2, 3 | Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286, Ops. H-1. |
| Emergency eyewash/shower available | N/A | N/A | [EWASH] |
| *Elevated/Aerial Work:* | | | |
| Crane operations, overhead or mobile | N/A | N/A | |
| Critical lifts (heavy or high value loads) | N/A | N/A | [CLIFT] |
| Elevated work/fall protection | YES | 2, 4 | [ELEV] Utilize fall protection, as necessary, per Op M8 of MD 10286. |
| Forklift, aerial lifts or material handling equip | YES | 2, 3 | |
| Hoisting and rigging | YES | 2,3,4 | [HOIST] Initiate Hoisting/Rigging permit. Implement applicable sections of M10508 |
| Overhead utilities (Identify) | YES | ALL | [UITL] See Vista Maps in Appendix C |

## APPENDIX A

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

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

| Item | Exist | Work Package Phase | Comments, Controls, Methods of Compliance |
|---|---|---|---|
| ***Lockout/tagout, outages, disconnects*** (permit) | | | [LOTO/ISO] |
| • Electrical | YES | 2 | Electrical Isolation of facility is accomplished during Utilities Isolation activities. Street light circuit to be LOTO as needed. |
| • Mechanical (steam, hydraulic, pneumatic, gravity) | YES | 2 | Isolation of facility utilities is accomplished during Utilities Isolation activities. Street light circuit to be LOTO as needed. |
| • Interlocks | N/A | N/A | [ILOCK] |
| • Chemical | N/A | N/A | |
| • Radiological | N/A | N/A | |
| Outages of the plant public announcement (PA) system or the emergency notification system | N/A | N/A | [OUTAGE] |
| Building Systems Alarms - Ensure systems are not functional by contacting:<br>Fire Department<br>Security<br>Facilities Services. | YES | 2 | -Fire Alarm Pull Boxes x<br>-Fire Suppression Water Flow Alarms x<br>-Smoke Detector Alarms x<br>-Security Systems x<br>-DDC signals x |
| Alarm Disable/Disconnect | YES | 2 | FAS & fire protection system isolated during Utilities Isolation activities. |
| ***Structure Related:*** | | | |
| Modification to Fire Wall/Door | N/A | N/A | [FIREWAL] |
| Penetrations into walls, floors, etc. (permit) | N/A | N/A | [PENETR] |
| Plastic sheeting or wood framing/enclosures | N/A | N/A | |
| Structural Modification | YES | 2,3,4 | [STRUCT] Structure/slab being demolished |
| Work impacting adjacent normally occupied areas | YES | 2,3 | [ADJAC/BMAPP/SIGNS/NOTIF] Building 126 alternative access provided. |
| ***Temporary Requirements:*** | | | |
| Temporary heating facilities | N/A | N/A | |
| Temporary/portable buildings or structures | N/A | N/A | [FACIL] |
| Temporary service hook-ups (Identify) | YES | 2,3,4 | Temporary water & electricity hook-ups, as needed |
| Public utilities (Identify) | N/A | N/A | [WATER] |
| Lighting/illumination/adequacy | N/A | N/A | [MLITE] |
| ***Miscellaneous:*** | | | |
| Machine guards | N/A | N/A | |
| Off-shift work | YES | 2,3,4 | |
| Repetitive work | N/A | N/A | [ERGO] |
| Other (Specify) | N/A | N/A | |
| Work in attics, ceilings, chases, or crawlspaces | N/A | N/A | |
| Work Requiring Scaffolding (inspection required) | N/A | N/A | [SCAFF] |
| ***Electrical:*** | | | |
| Electrical hazards | YES | 2,3,4 | [LIVEL] Electrical Isolation of facility is accomplished during Utilities Isolation activities. LOTO overhead & underground utilities, as needed. |

## APPENDIX A

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

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

| Item | Exist | Work Package Phase | Comments, Controls, Methods of Compliance |
|---|---|---|---|
| Grounding of electrical equipment | N/A | N/A | |
| *Soils/Excavation:* | | | |
| Underground utilities (Identify) | YES | 2,3,4 | [UITL] Isolation of facility utilities is accomplished during Utilities Isolation activities. OH hot water/street light utilities to be LOTO as needed. |
| Trenching/Shoring (permit) | YES | 2,3,4 | [DIG] Excavation Permit required |
| Hazards due to condition of facility or terrain (Identify) | N/A | N/A | |
| Any soil disturbance | YES | 2,3,4 | [DIG] (Note: Check for URMAs) Excavation Permit required |
| | | | |
| | | | |

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

| Item | Exist | Work Package Phase | Comments, Controls, Methods of Compliance |
|---|---|---|---|
| *Asbestos/Fibers:* | | | |
| Asbestos | YES | 3 | [ASBEST]. Assumed to be in asphalt roofing. Demolition of roof by normal remote (using Heavy Duty) means only. |
| Removal of ceiling tiles* | N/A | N/A | |
| Insulation/man-made mineral fibers (☐ MSDS available)* | N/A | N/A | |
| *Hazardous Materials:* | | | |
| Beryllium | N/A | N/A | |
| Cadmium | N/A | N/A | |
| Chlorofluorcarbon (CFC) | N/A | N/A | [CFC] |
| Coal, tar or asphalt products | Yes | 2 | Roofing material contains tar and asphalt products; to be disposed of as construction debris. |
| Lead | N/A | N/A | Coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel). |
| Mercury | N/A | N/A | |
| Polychlorinated biphenyl's (PCBs) | N/A | N/A | |
| Carcinogens (☐ MSDS available)* | N/A | N/A | [CARC] |
| *Chemical/Corrosives:* | | | |
| Chemicals/solvents (☐ MSDS available)* | N/A | N/A | [CHEM/MSDS] |
| Corrosives/acids/caustics (☐ MSDS available)* | N/A | N/A | |

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



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## APPENDIX A

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

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

| Item | Exist | Work Package Phase | Comments, Controls, Methods of Compliance |
|---|---|---|---|
| *Ventilation/Air:* | | | |
| Abrasive blast (☐ MSDS available)* | N/A | N/A | |
| Coating/painting (☐ MSDS available)* | N/A | N/A | |
| Dusty operations | YES | 2,3,4 | [POWDER] Potential dust generation controlled via water misting during demolition and road wetting during waste hauling. |
| Foam in Place Operations | N/A | N/A | |
| Spraying/generation of mists* | YES | 3,4 | Potential dust generation controlled via water misting during demolition and road wetting during waste hauling. |
| Ventilation or Air Monitoring requirements | YES | 2,3,4 | [VENTIL/IH] Air monitoring for potential silica during demolition activities will be performed as needed for annual site assessment. |
| *Miscellaneous:* | | | |
| High Pressure systems | N/A | N/A | [HIPRES] |
| Lasers | N/A | N/A | |
| Noise in excess of 85 dBA | YES | 2,3,4 | [NOISE] Hearing protection required |
| Blood-borne pathogens* | N/A | N/A | |
| Temperature extremes (heat or cold stress) | YES | 2,3,4 | [CRYRO/COLD/HEAT] Discuss in Pre-job/daily briefings & monitor work. |
| Welding, brazing, or thermal cutting operations (permit) | YES | 3,4 | [BURN] Hot Work Permit required. |
| Hazardous Waste Operations (HAZWOPER)* | N/A | N/A | |
| Other (specify) | N/A | N/A | - |

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

## APPENDIX A

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

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

| Item | | Exist | Work Package Phase | Comments, Controls, Methods of Compliance |
|---|---|---|---|---|
| *Location:* | Controlled Areas (Specify) | N/A | N/A | Non-Rad area/building |
| | | | | |
| | | | | |
| | | | | |
| | Other (Specify) | N/A | N/A | |
| | | | | |
| *Activities:* | Digging/Soil Removal (permit) | YES | 2,3,4 | [DIG] Survey soils and concrete (soil contact side) following slab removal. Excavation Permit required. Flip slab sections to survey before release. |
| | • URMA | N/A | N/A | |
| | Welding, burning, grinding, hammering, chipping, or scraping of contaminated materials | N/A | N/A | Hot work permit required |
| | Decontamination | N/A | N/A | |
| | | | | |
| | | | | |
| | Other (Specify) | N/A | N/A | |
| *Sources:* | X-Ray equipment, sealed, or unsealed sources | N/A | N/A | |
| | | | | |
| *Controls:* | Radiological Work Permit | N/A | N/A | [RWP/RWP=JS/RWP=N/R/RPGEN] |
| | ALARA Plan | N/A | N/A | [ALARA] |
| | | | | |
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| | Other | N/A | N/A | |
| | | | | |

## APPENDIX A

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

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

| | | Exist | Work Package Phase | Comments, Controls, Methods of Compliance |
|---|---|---|---|---|
| *Conditions:* | Fugitive Dust (refer to Table 1 below) | YES | 2,3,4 | OPA 980014 Section 2.11; Use water misting during demolition & road wetting during waste hauling. |
| | Storm Water Runoff | Yes | 2,3,4 | Cover field grates with covers/sheeting. Install sand bags/silt fences, as needed. |
| | Erosion Control | YES | 4 | Grading, seeding, & mulching |
| | NESHAPS Calculation | YES | N/A | Emission Levels determined to be below requirement. No US EPA approval required for this building. |
| | National Historic Preservation | N/A | N/A | |
| | • Artifacts found | | | • |
| | Safe Drinking Water Act | Yes | 2 & 3 | Ensure backflow prevention for water misting source. |
| | • Potable water | Yes | 2 & 3 | Ensure backflow prevention for water misting source. |
| | • Backflow preventers for misting | Yes | 2 & 3 | Ensue backflow prevention for water misting source. |
| | Emergency Spill Response Materials (Confirm process lines are drained) | Yes | 3 | Ensure glycol spill kit is available. Isolation of facility utilities is accomplished during Utilities Isolation Workpackage activities. |
| | Locate Monitoring Wells | No | N/A | Vista Maps show none located in area near bldgs 37 |
| | | | | |
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| | | | | |
| *Notifications:* | RAPCA Notification for Asbestos | N/A | N/A | Asbestos abatement completed prior to demolition. |
| | RAPCA Notification for Demolition | Yes | 3 | Required 10 business before beginning demolition activity |
| | Emergency Spill Response Notification | Yes | 3 | Call 911 or 854-4040, have spill kit at job site. |
| | | | | |
| | | | | |
| | Other | | | |
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## APPENDIX A

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

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

| | Quantity Expected | Work Package Phase | Radiological Characterization | Packaging Requirements | Mode of Disposal |
|---|---|---|---|---|---|
| *Types:* | | | | | |
| Sanitary Landfill Waste:<br>• Concrete<br>• Steel & Copper Piping<br>• Metal Roofing<br>• PVC<br>• Electrical Wiring<br>• Fiberglass Insulation<br>• Wood | Total 650 Cubic Yards | 3 | No elevated radioactivity levels | 30 Cu. Yd. Roll-Off/End Dumps | Offsite disposal via Waste Management Operations/Journey LTD |
| Hazardous Waste:<br>• RCRA Hazardous Waste<br>• Asbestos<br>• Other | N/A | N/A | | | |
| Mixed Waste | N/A | N/A | | | |
| Low Level Radiological Waste:<br>• Building Debris<br>• Below grade | N/A | N/A | | | |
| Transuranic (TRU) Waste | N/A | N/A | | | |
| NOTE: 1. Sealed pressure vessels will need to be at <1.5 atmosphere if present.<br>2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal. | | | | | |
| Other: | | | | | |
| Material sent off-site<br>Fill out MD-22180 Attachment 1 (see Appendix D) | | | | | |
| Material sent to concrete crusher<br>Fill out MD-22180 Attachments 1 &2 (see Appendix D) | | | | | |

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

EMERGENCY PREPAREDNESS

- **Site Notification Procedures**
  Use **911** for all emergency services onsite. This is the first response for any emergency, spill, or release. If using a cell phone, dial **865-4040**. This number will ring into the plant 911 system. Any injury, no matter how minor, shall be reported immediately to the Medical Department for evaluation and treatment. The injured employee shall report any injury to the supervisor in charge or designee.
  Employees will be notified of emergency or abnormal conditions by the project two-way radios. Additionally, unique sheltering and evacuation signals are available should site-wide protective actions be necessary.
- **Evacuation Route/Assembly Areas**
  Assembly area is northeast of Buildings 37 in the parking lot southeast of Building 126. See map in Appendix C.
- **Take Shelter Area** (Be aware of threatening weather and take shelter when life-threatening storms are imminent)
  The take shelter area is Building 50, corridor 118. See map per Appendix C.

APPLICABLE LESSONS LEARNED – See Appendix E

**Table 1 Airborne Contaminant Protection Methods**

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

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**Table 1 Airborne Contaminant Protection Methods (continued)**

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



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Project/Activity: **DEMOLITION OF BUILDINGS 37.**

Name: **Stephen Davis, X4436**

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

# JOB SAFETY AND HEALTH ANALYSIS FORM

**JSHA MASTER DOCUMENT CONTROL NO:**
**BOSS – 37- 36961**

| | | | |
|---|---|---|---|
| **DATE:** 08/11/03 | _X_ NEW<br>___ REV | **BUILDING:** 37 | **JOB:** **Demolish Building 37** |
| **DEPARTMENT/COMPANY:** BOSS Project/CH2M Hill Mound, Inc. | | | **SECTION:** N/A |
| **OCCUPATIONS:** Heavy Duty Operators, Demolition Tech's, Demolition Crafts, & Electricians.<br>Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety | | | |

## SIGNATURES

| |
|---|
| ORIGINATOR: Steve Davis |
| REVIEW/REV: Safety/IH |
| REVIEW/REV: Foreman |
| REVIEW/REV: Bldg Mgr |
| APPROVED: Project Manager |

| | |
|---|---|
| **REQUIRED PERSONAL PROTECTIVE EQUIPMENT:**<br>Hard Hat, Safety Glasses with side shields, safety shoes, safety vest | **MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:**<br>None |

| BASIC JOB STEPS | POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS | SAFE JOB PROCEDURES |
|---|---|---|
| Break the job down into basic steps that tell what is done first, what is done next, and so on.<br><br>Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows:<br><br>1. Bring and set up ladder<br>2. Ascend ladder<br>3. Remove light globe & bulb<br>4. Replace light bulb<br>5. Replace light globe<br>6. Descend ladder<br>7. Remove and store ladder | Ask yourself for each job what accidents/illnesses could occur to the employee doing the job.<br><br>Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident.<br><br>SB - Struck by<br>CB - Contacted by<br>SA - Struck against<br>CW - Contact with<br>CI - Caught in<br>CO - Caught on<br>IB - Caught between<br>F - Fall<br>SO - Strain-overexertion*<br>E - Exposure (occ. illness)<br>*Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position) | For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness.<br><br>Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment.<br><br>Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.) |
| **General Safety Note** | A wide variety of incidents occur on a regular basis that potentially could result in injury or illness | -Be cognizant of your own safe work practices as well as those of your co-workers<br>-Review any related safety procedures of which you are unsure<br>-Utilize STOP WORK Authority as necessary |
| Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily. | N/A | -This project engages in Enhanced Work Planning (EWP), an ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed. |
| 1. Site Preparation & Mobilization | Standard construction hazards.<br><br>Poor footing/slipping/trip hazard. | -Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel.<br><br>-Terrain surrounding Bldg. 37 is covered with rip-rap/rock. Use caution traversing the area due to poor footing from loose rock. |
| 1a. Site Access Control | Struck by equipment, debris | -Once the work area is defined, only authorized personnel are permitted in the construction perimeter.<br>-Unescorted, non-project and non-emergency personnel must have acceptance of the BOSS Project Manager for entry. |
| 1b. Emergency egress/access | Blocked access | -Emergency access to the work zone will be maintained to the extent possible. Bldg. 126 emergency egress will be maintained for occupants, if still occupied.. |

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# JOB SAFETY AND HEALTH ANALYSIS FORM
## (CONTINUATION SHEET)



| BASIC JOB STEPS | POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS | SAFE JOB PROCEDURES |
|---|---|---|
| 1c. Clear Area and Mark/Protect Utility Equipment | Running into utility equipment, manhole covers, or grates over field drains. | -Mark/protect fire PIV west of bldg. 37, fire and potable water lines and other utility equipment with wooden boxes, visible stakes, and/or colored flags. -Cover field grates with covers/sheeting for silt protection. |
| 2. Operation of heavy equipment near electric overhead lines | Shock Hazard | -All utilities to the building including electrical have been disconnected by project electricians at a point away from the building.<br>-Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit. |
| 2a. Demolish building, pipe stanchions, building structure and slab using excavator mounted shear, hoe ram, grapple, loader, and bobcat. | Struck by flying debris<br>Struck by moving equipment<br><br><br><br><br><br><br><br>Possible asbestos in roofing material<br><br>Noise Hazard | -Establish construction boundary.<br>-Wear hard hat, safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent.<br>-Maintain the following distances from operating equipment:<br>Shear – 75 feet; Hoe Ram – 50 feet<br>Other heavy duty equipment – 30 feet<br>Bobcat – 15 feet<br>-Make sure equipment is in safe working order. Use spotter if vision is obstructed.<br>-Demolish roof by normal remote means only (using Heavy Duty)<br>-Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9 |
| 2b. Torch cut rebar or to weaken structural members | Burns, fire<br><br>Potential lead paint | -Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone.<br>-Test for lead paint; coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel). |
| 2c. Working in excessive heat/cold | Heat Stress/Cold Stress | -Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings. |
| 2d. Building & Slab Demolition | Vehicle Traffic Hazard<br><br>Operating Heavy Duty equipment on debris slope/ pile/heap | -Control traffic with flagmen as necessary<br><br>-Exercise caution operation equipment on slope/heap<br>-Coordinate with Safety & check stability of debris slope/heap often.<br>-Maintain safe distance from debris slope/heap edge. |

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# JOB SAFETY AND HEALTH ANALYSIS FORM
## (CONTINUATION SHEET)



| BASIC JOB STEPS | POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS | SAFE JOB PROCEDURES |
|---|---|---|
| 2e..Slab removal | Strike underground utilities<br>Radiological Contamination | -Obtain Excavation permit and follow its requirements per MD-10286 O5.<br>-Coordinate in-process Rad Surveys with Rad Techs. |
| 3. Site Remediation & Demobilization | **General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness | -Be cognizant of your own safe work practices as well as those of your co-workers.<br>-Review any related safety procedures of which you are unsure.<br>-Utilize STOP WORK Authority as necessary. |
| 3a. Rough grading | Equipment/ personnel mixture. | -Stay clear of operating heavy equipment. |
| 3b. Seeding & Mulching | Slip – Trip – Fall<br>Lifting /twisting strain. | -Uneven walking and/or working surfaces –use extra caution.<br>-Follow accepted practices. |
| 3c Remove temporary protection structures/barriers from hydrants/PIVs. | Lifting /twisting strain.<br>Cuts and abrasions.<br>Slip trips and falls. | -2 man rule; follow standard practice lifting.<br>-Wear appropriate PPE.<br>-Be cognizant of your own safe work practices as well as those of your co-workers. |
| 3d. Demobilize Construction Equipment<br>Remove dust control water distribution system<br>Remove temporary power<br>Remove fencing | Equipment/ personnel mixture.<br>Cuts and abrasions.<br>Lifting /twisting strains.<br>Radiological contamination of equipment if required by in-process surveys | -Be cognizant of your own safe work practices as well as those of your co-workers.<br>-Review any related safety procedures of which you are unsure.<br>-Utilize STOP WORK Authority as necessary.<br>-Coordinate in-process Rad Surveys with Rad Techs. |
| | | |
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**SIGN-OFF SHEET**

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

| Signature | Date | Department |
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# WORK PLAN REVISION SHEET

| |
|---|
| 1. WORK PACKAGE TITLE: **Building 37 Demolition** |
| 2. WORK PACKAGE NUMBER: BOSS-36961-00 |

**[Note: Mark this section in color]**

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

**Revision Description:** (attach page revisions to form)

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

**Approved by:**

**CH2M HILL Project Manager**_____
**Name** **Signature** **Date**

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# REVISION LOG

1. WORK PACKAGE TITLE: **Building 37 Demolition**

2. WORK PACKAGE NUMBER: BOSS-36961-00

| Revision | Reason | By | Date |
|---|---|---|---|
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# Appendix B

# JOB STATUS LOG

# JOB STATUS LOG

1. WORK PACKAGE TITLE: **Building 37 Demolition**

2. WORK PACKAGE NUMBER: BOSS-36961-00

| DATE | TIME | WORK PKG. SECTION | % Complete | BY | STATUS |
|---|---|---|---|---|---|
| | | | | | |
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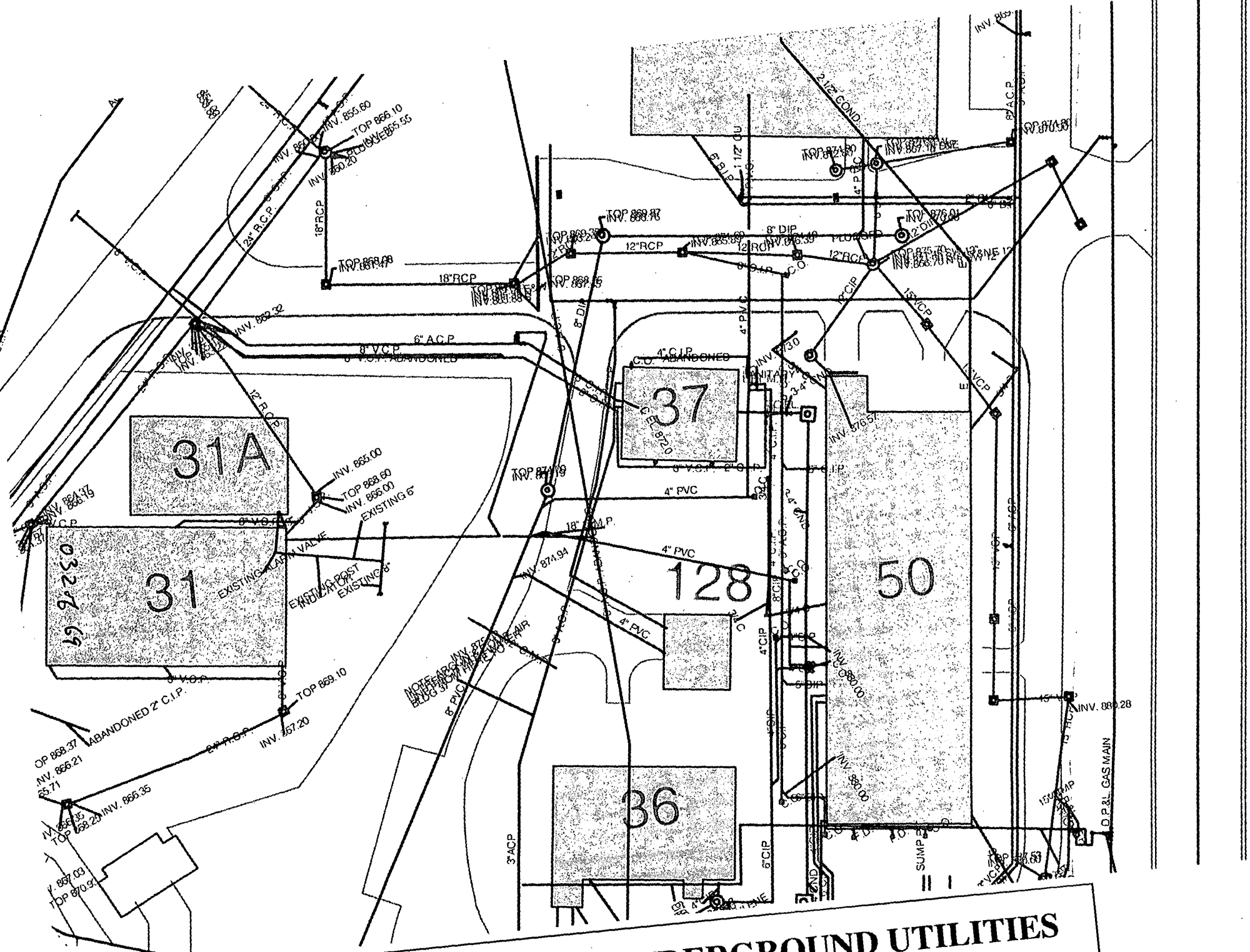
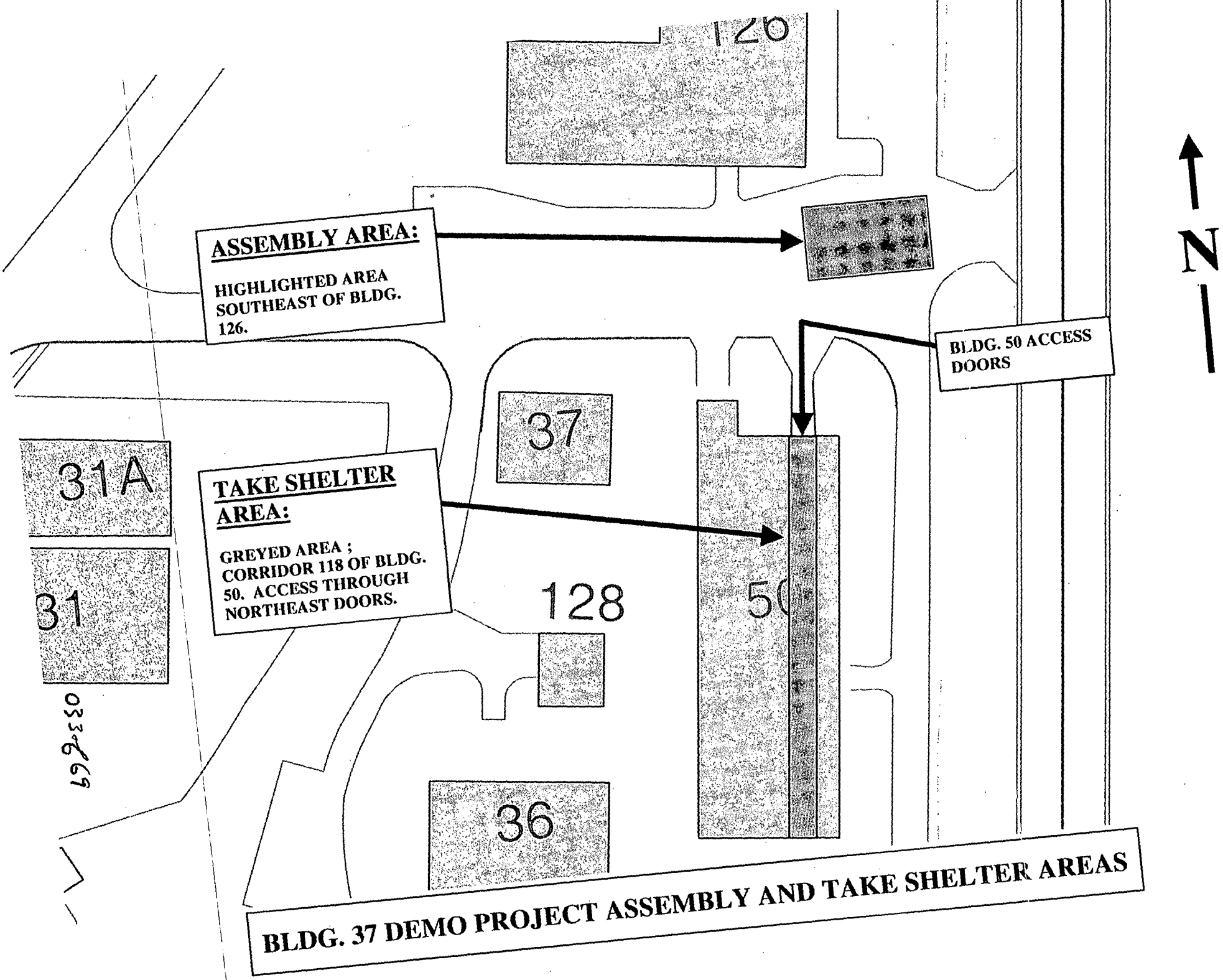
# Appendix C

# DRAWINGS/SKETCHES

- Structural and Mechanical Drawings -Foundation Plan, Wall Sections, Floor Plans, and Mechanical Details
    - AYC 303700 – (Bldg. 37) Radioactive Heat Source Testing Facility Construction Drawing
    - AYE 303702 – (Bldg. 37) FY88 FCAP HVAC and Process Cooling Upgrades
- Building 37 Surrounding Underground Utilities Vista Map
- Evacuation Assembly Area/Take Shelter Area Sketch
- Other Vista Maps
    - Building 37 First Floor Plan
    - Building 37 Penthouse Plan
    - Building 37 Grounding Wire System
    - Storm Sewer System Lines/Manholes
    - Sanitary Sewer System Lines
    - Domestic Water Lines
    - Underground Fire Protection Lines
    - Underground Power Supply Lines
    - Underground Gas Supply Lines
    - Stanchions/Aboveground Pipes
    - PRS Point Sites/Historic Tanks
    - URMAs/Monitoring Wells
    - Aerial View




# BUILDING 37 – UNDERGROUND UTILITIES




BLDG. 37 DEMO PROJECT ASSEMBLY AND TAKE SHELTER AREAS

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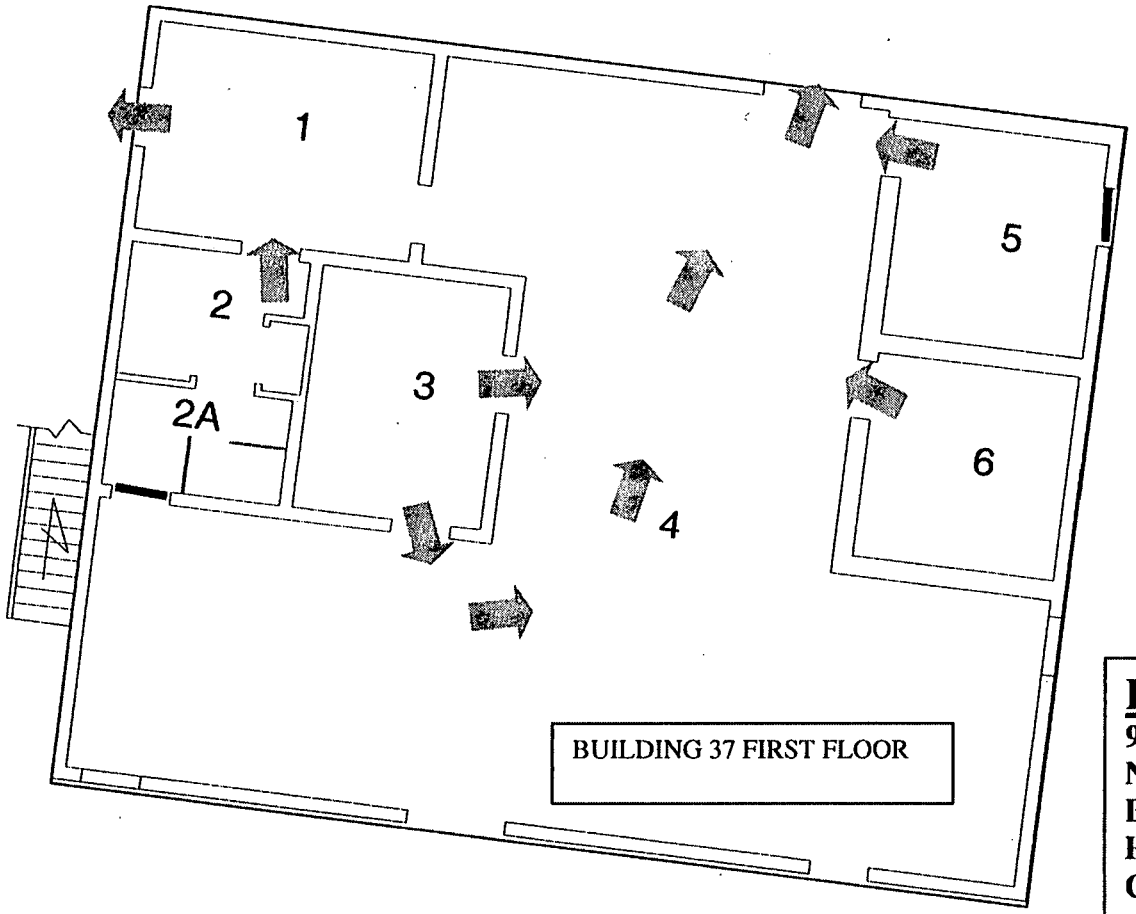
**EMERGENCY HORN BLASTS:**
**EVACUATION: CONTINUOUS HORN BLAST**
**TAKE SHELTER: 2 HORN BLASTS – PAUSE – 2 HORN BLASTS**

ASSEMBLY AREA
SOUTHEAST OF
BLDG. 126

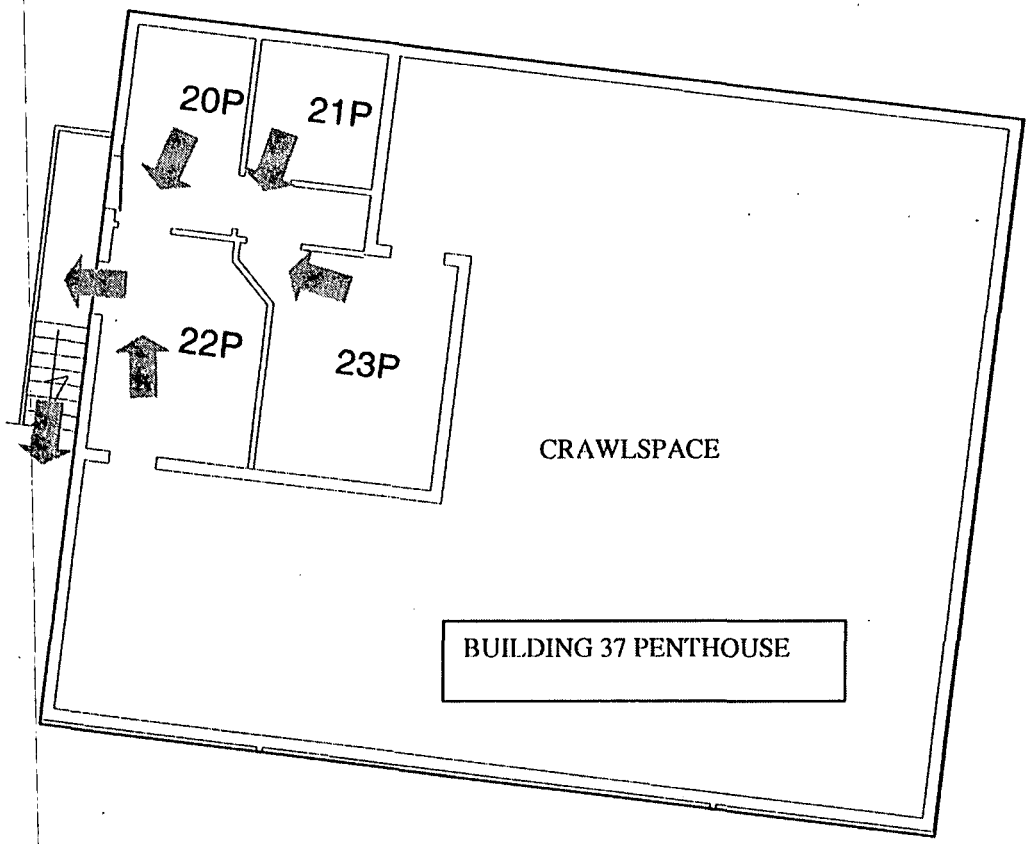



**EMERGENCY TELEPHONE:**
**937-865-4040**
**Nextel AA911**
**Building Manager-Gary Weidenbach**
**Phone: 937-865-3241**
**Cell: 937-608-8207**

# BUILDING 37 FIRST FLOOR EVACUATION SKETCH

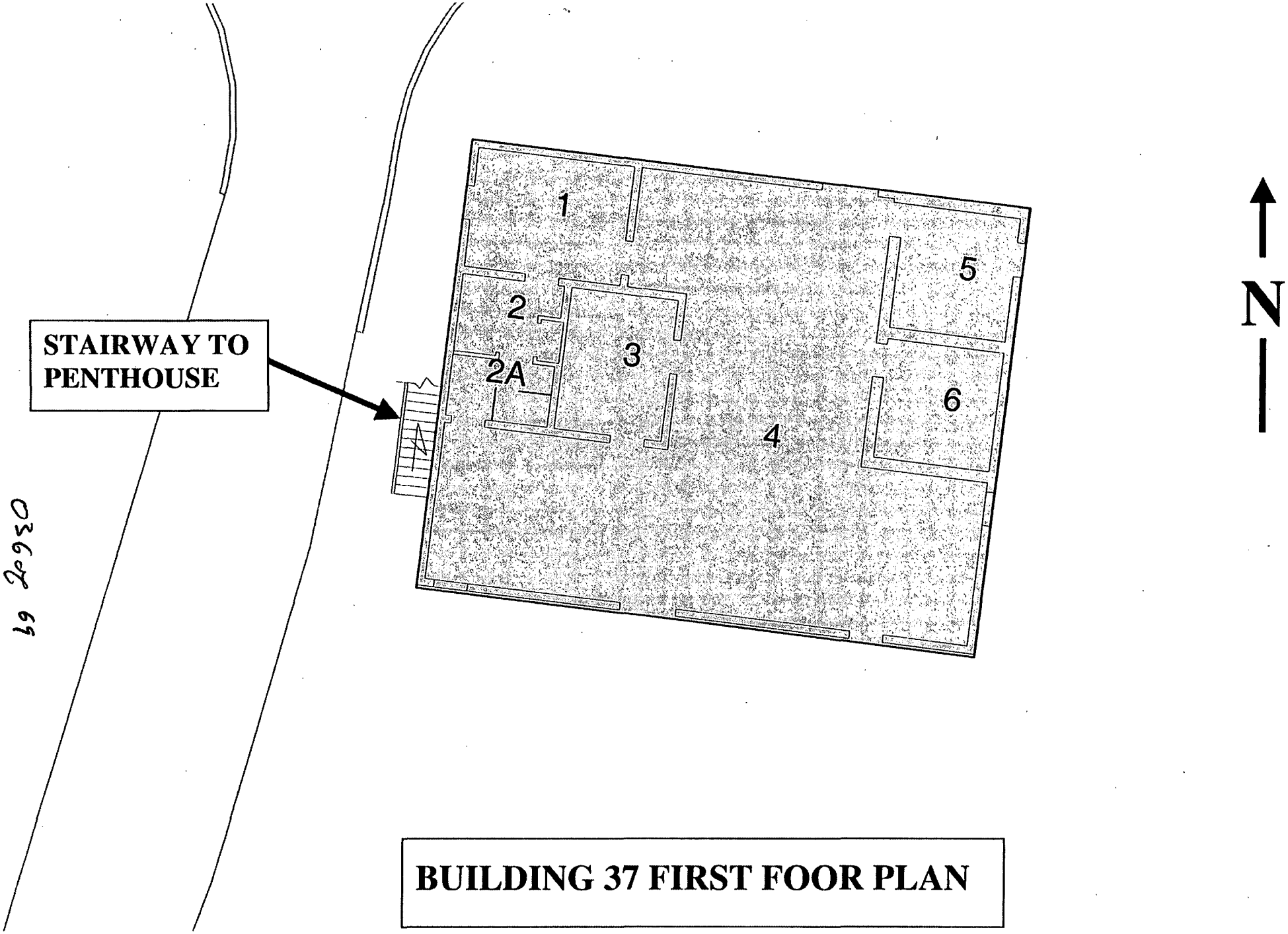
**EMERGENCY HORN BLASTS:**
**EVACUATION: CONTINUOUS HORN BLAST**
**TAKE SHELTER: 2 HORN BLASTS – PAUSE – 2 HORN BLASTS**

ASSEMBLY AREA
SOUTHEAST OF
BLDG. 126




**EMERGENCY TELEPHONE:**
**937-865-4040**
**Nextel AA911**
**Building Manager-Gary Weidenbach**
**Phone: 937-865-3241**
**Cell: 937-608-8207**

# BUILDING 37 PENTHOUSE EVACUATION SKETCH




**BUILDING 37 FIRST FOOR PLAN**

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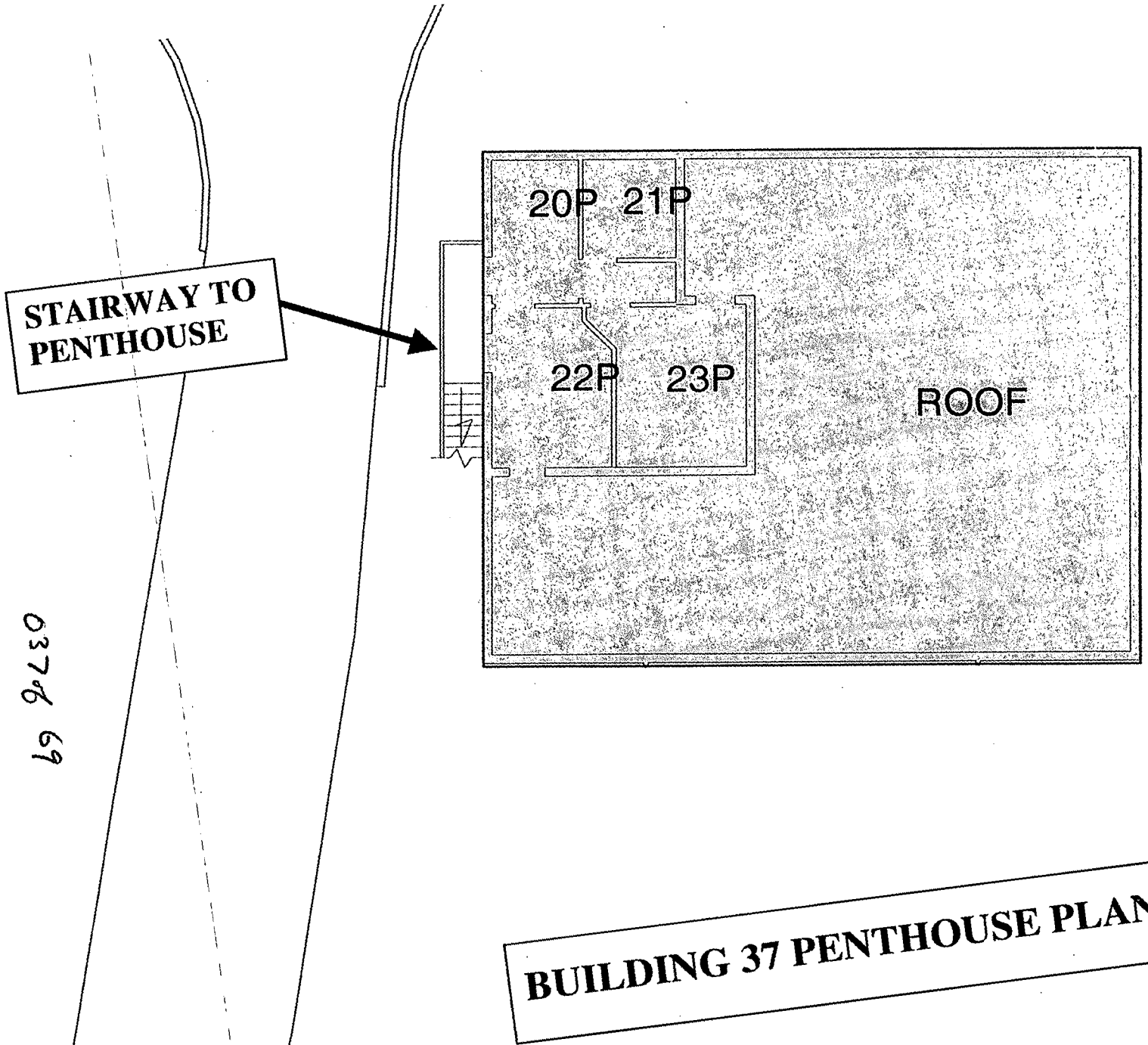
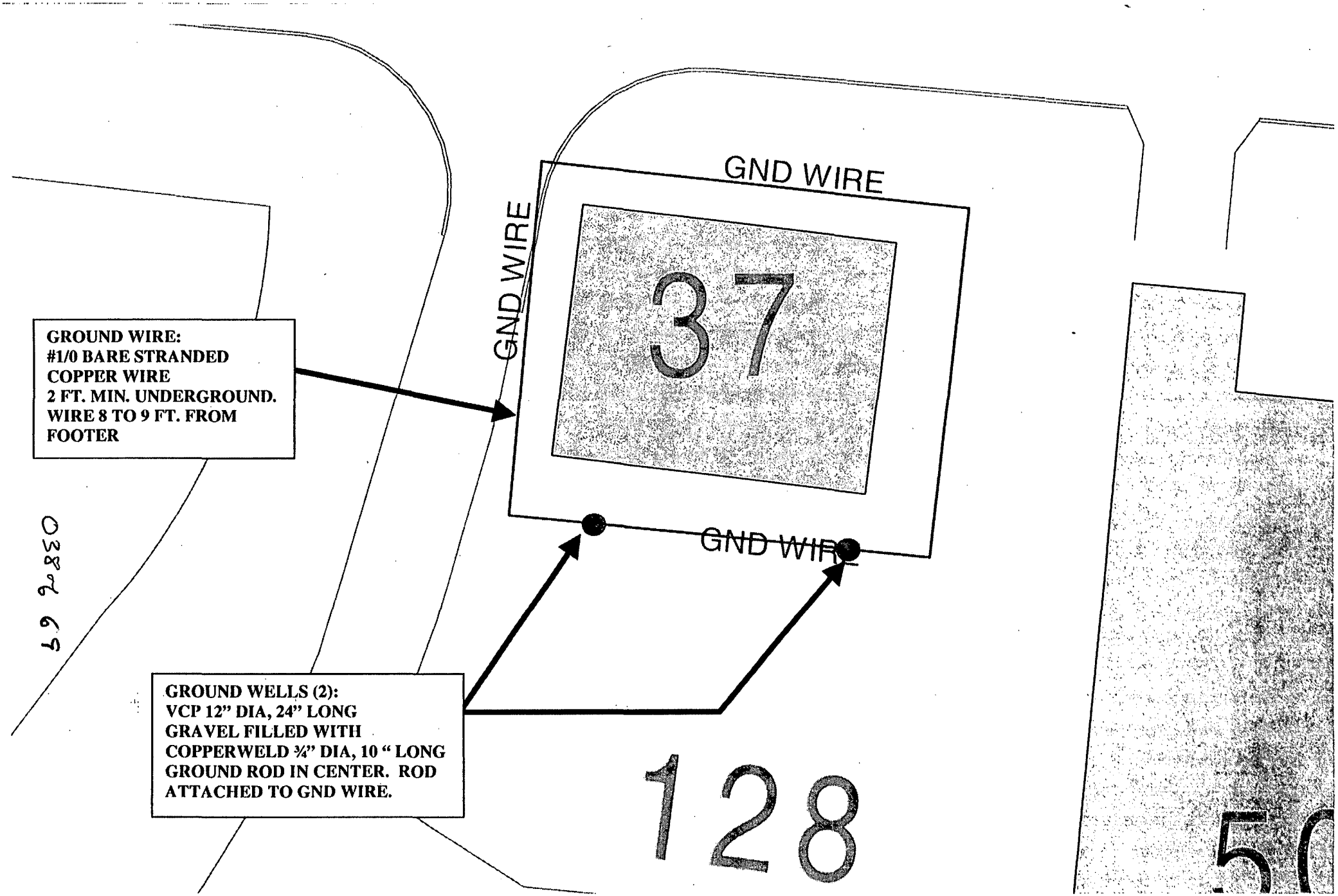
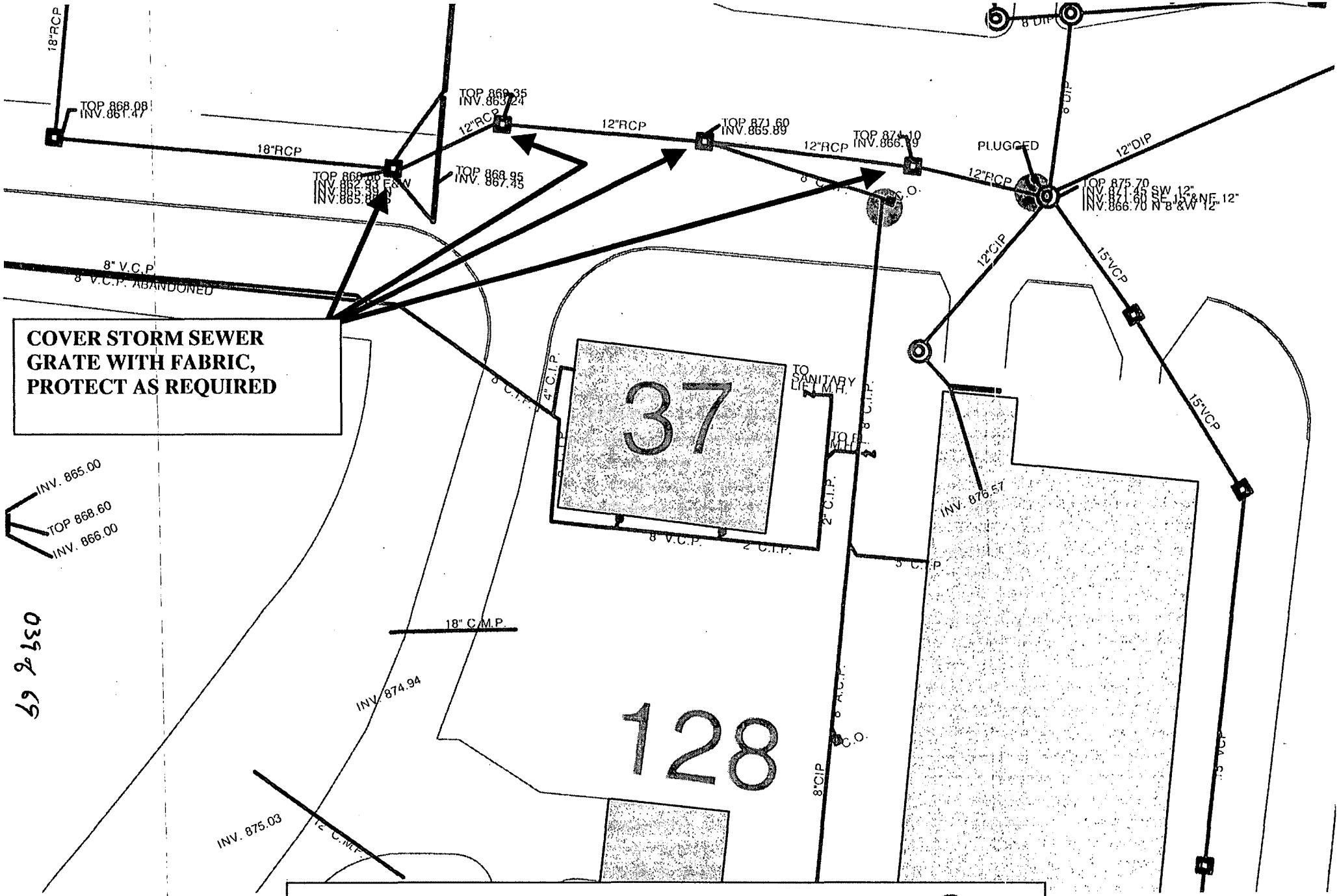



BUILDING 37 PENTHOUSE PLAN

69 9270




# BUILDING 37 – GROUNDING WIRE SYSTEM

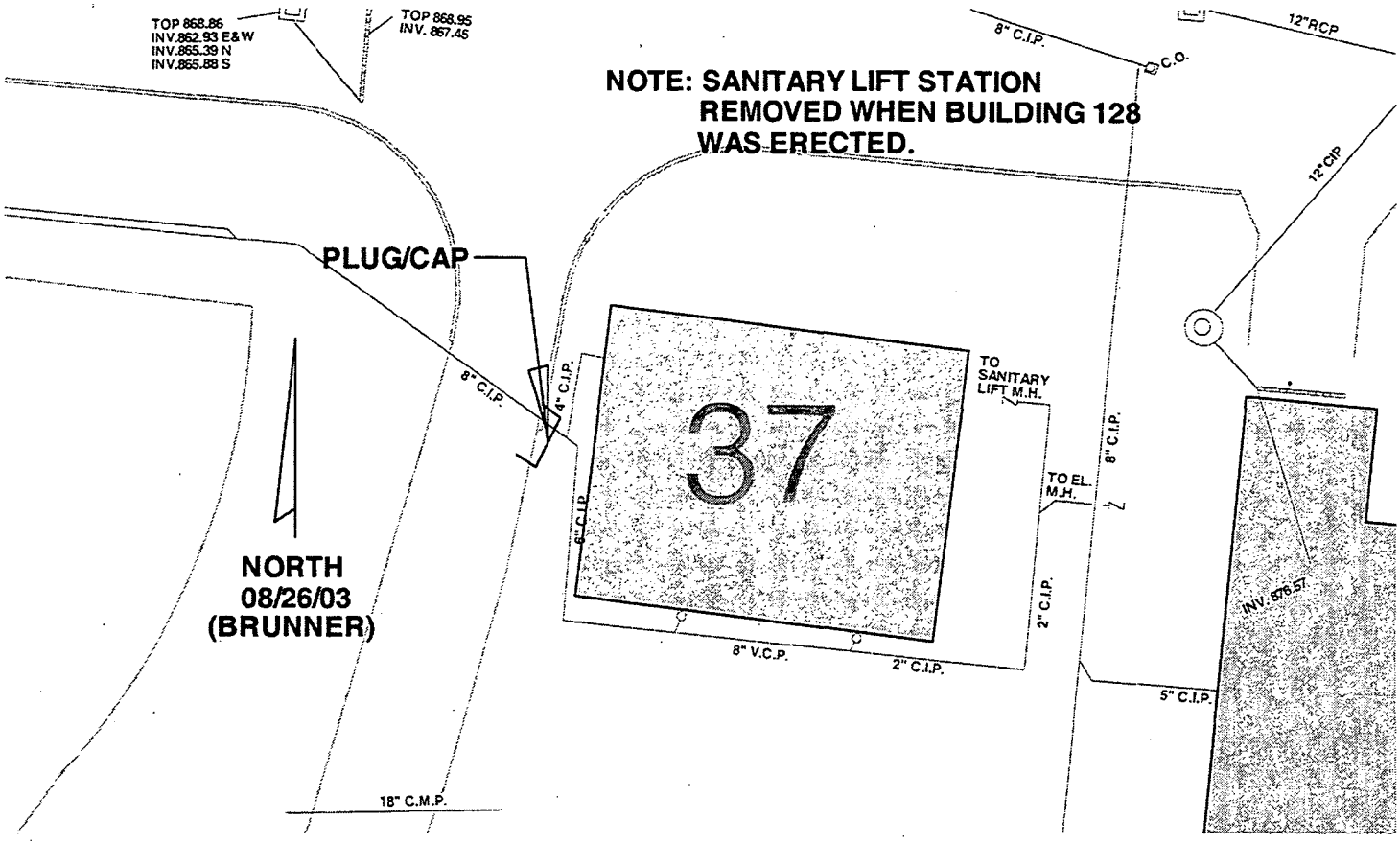



**STORM SEWER SYSTEM/MANHOLES**

034 of 69

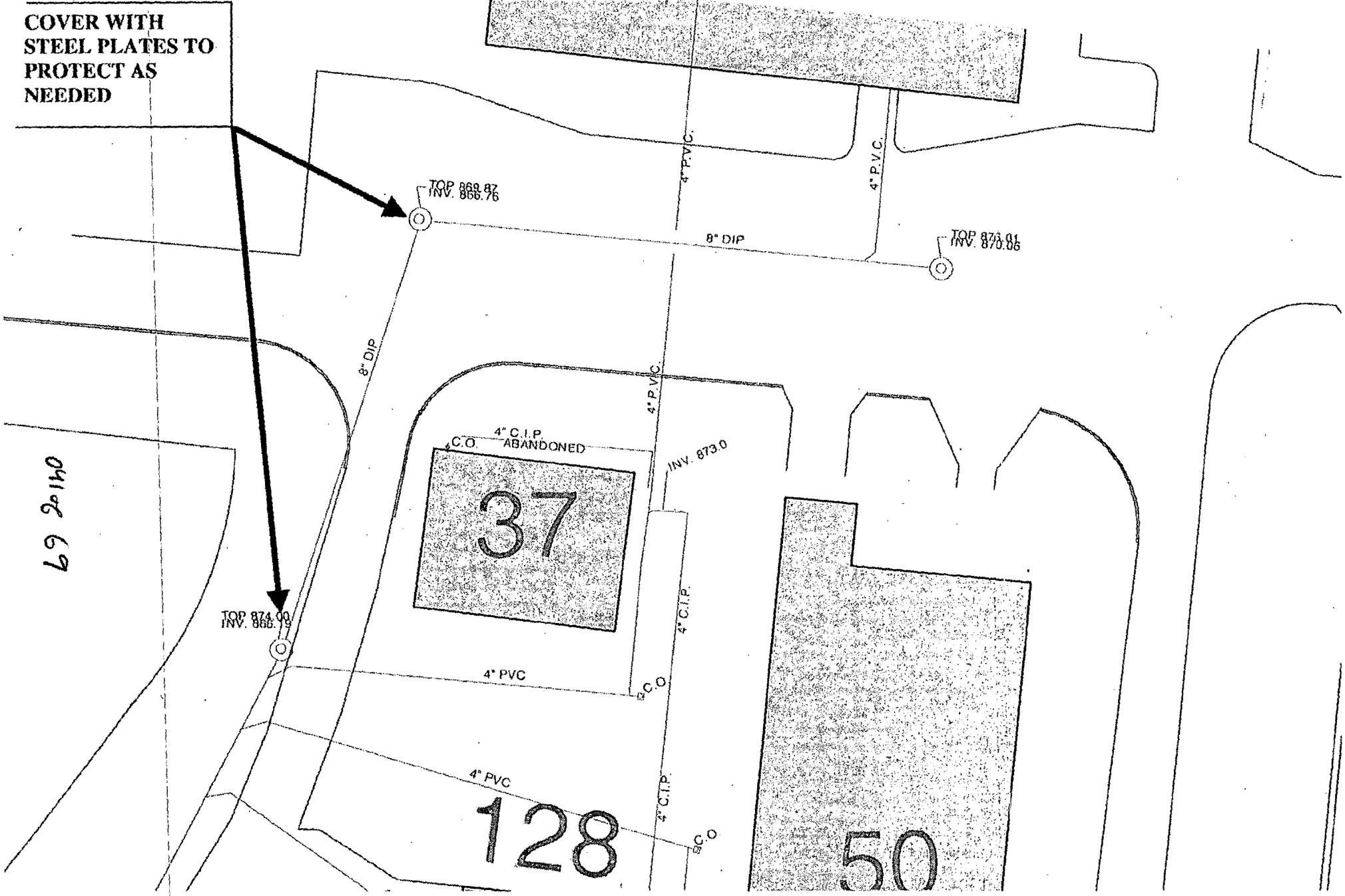
## STORM SEWER ISOLATION:

This section provides information to isolate the storm sewer(s) serving Building 37.




**SKETCH 6: VISTAMAP OF STORM SEWER - BLDG. 37**

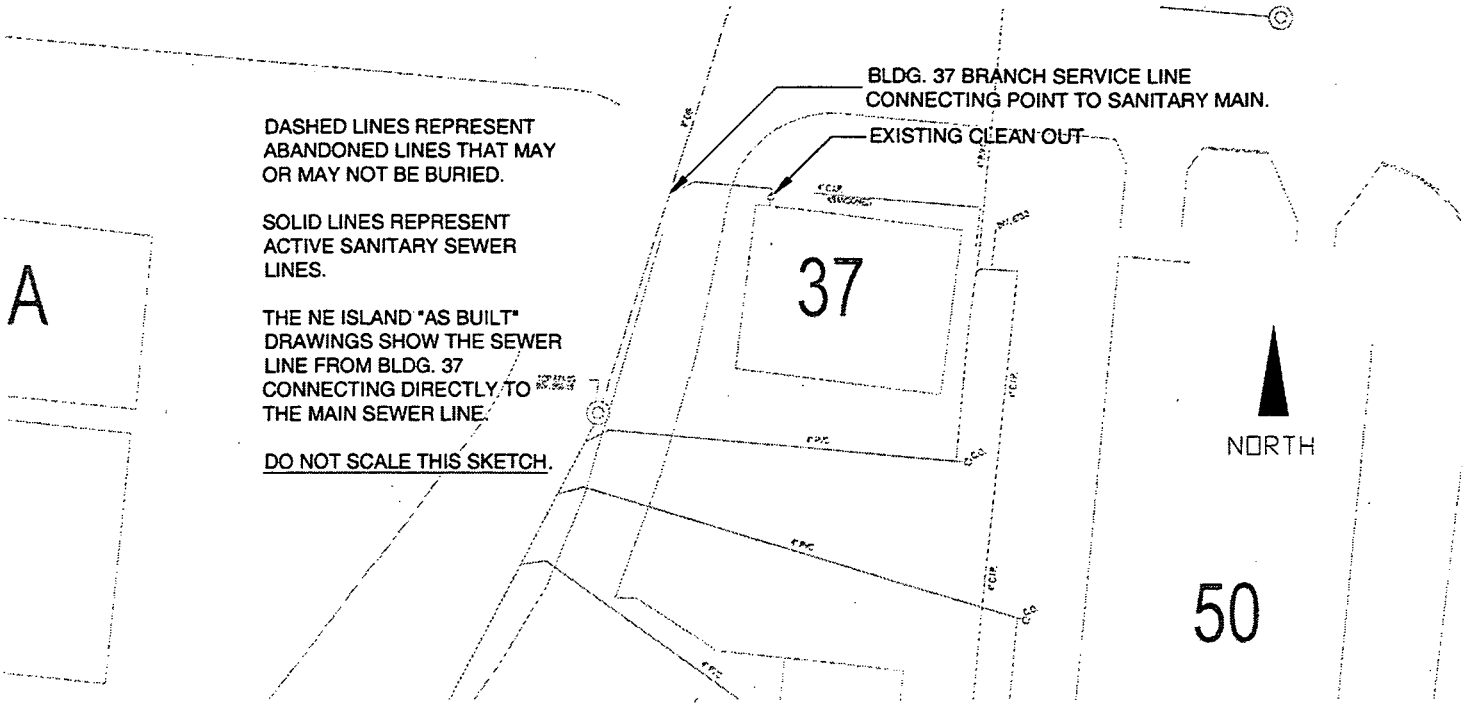
Sketch 6 shows the storm sewers near Building 37. Not all storm sewers are shown on VistaMap. When the foundation is removed, plug or cap any open sewer lines.




**BUILDING 37 – SANITARY SEWER SYSTEM LINES**

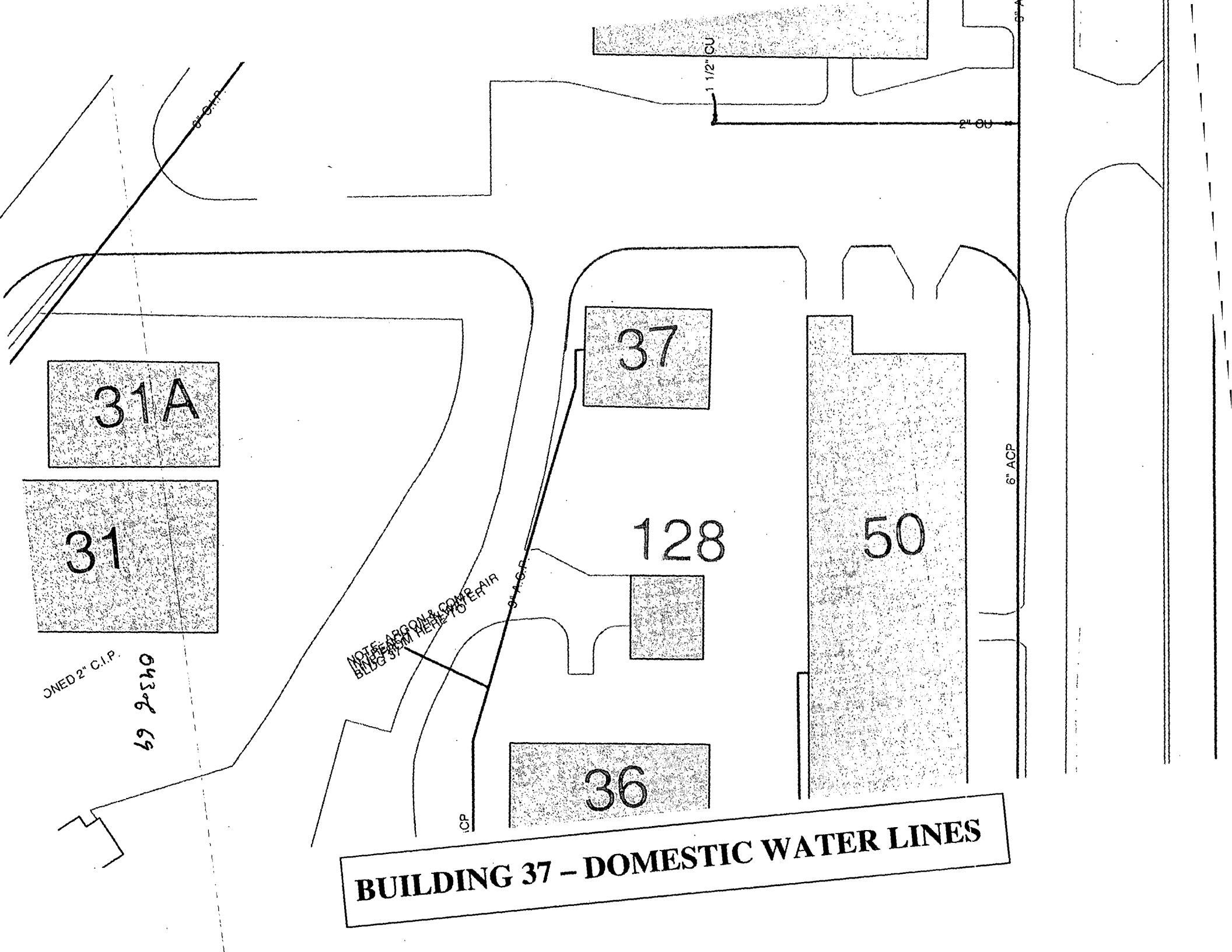
## SANITARY SEWER ISOLATION:

This section provides information to isolate the sanitary sewer serving Building 37.




**SKETCH 5: SANITARY SEWER – BUILDING 37**

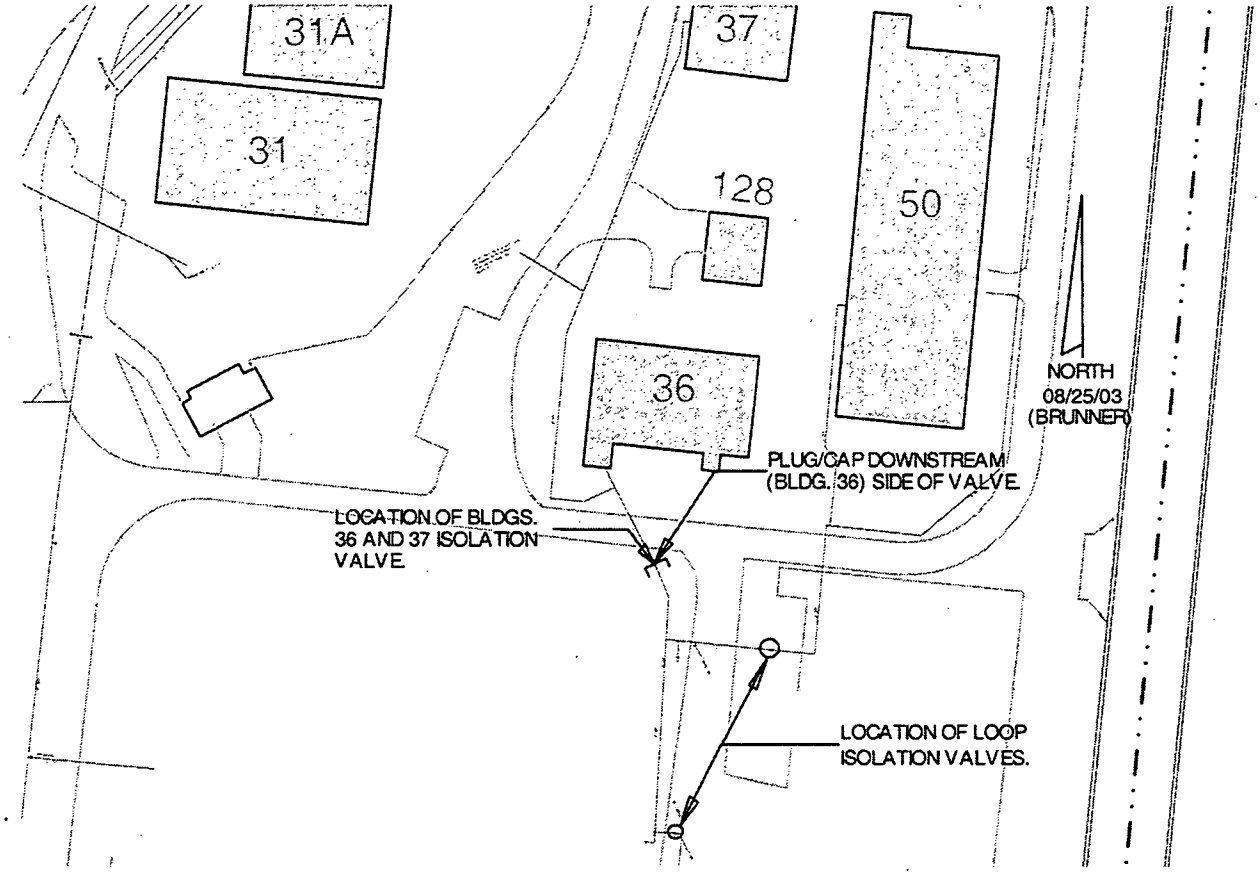
According to the "as-built" NE island drawings, the sewer line from Bldg. 37 is installed as shown in Sketch 5. Cut the service main at some convenient location and cap the lines.




**BUILDING 37 – DOMESTIC WATER LINES**

**DOMESTIC WATER ISOLATION:**

This section provides information to isolate the domestic water to both Building 36 and Building 37.




**SKETCH 2: BUILDINGS 36 & 37 DOMESTIC WATER MAIN AND VALVES**

The following instructions assumes that Buildings 36 and 37 can be isolated together.

VistaMap indicates that domestic main is CIP (Cast Iron Pipe).

The following discourse assumes that the fire service line to Bldg. 37 is CIP:

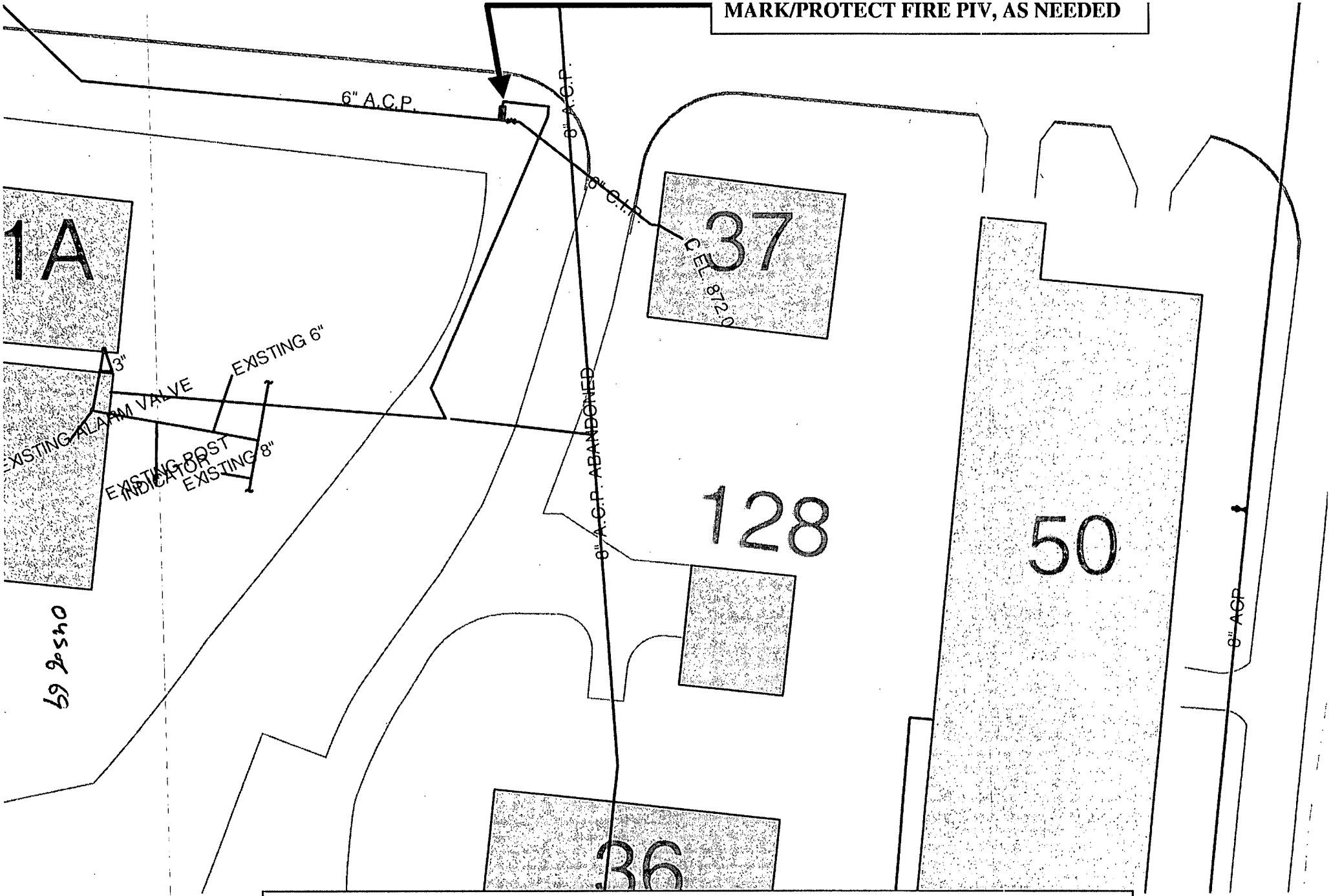
1. Close the valve indicated in Sketch 2 and remove the post indicator.

2. Excavate and completely expose the valve. If the valve is a mechanical joint valve and held fast to the pipe via locking glands that contain set screws, cut the pipe downstream of the valve and plug the valve. If the valve is a slip on type valve or if the valve is a mechanical joint valve with no set screws in the retainer glands, isolate the domestic loop. Cut the pipe downstream of the valve and plug the valve. Provide a thrust block to hold the plug, valve and remaining piping in place. The thrust block should not impose a vertical load on the valve, plug, etc.

3. Leaving the closed valve in place, back fill the excavation.

4. Bury the closed valve in place; do not install a curb box.

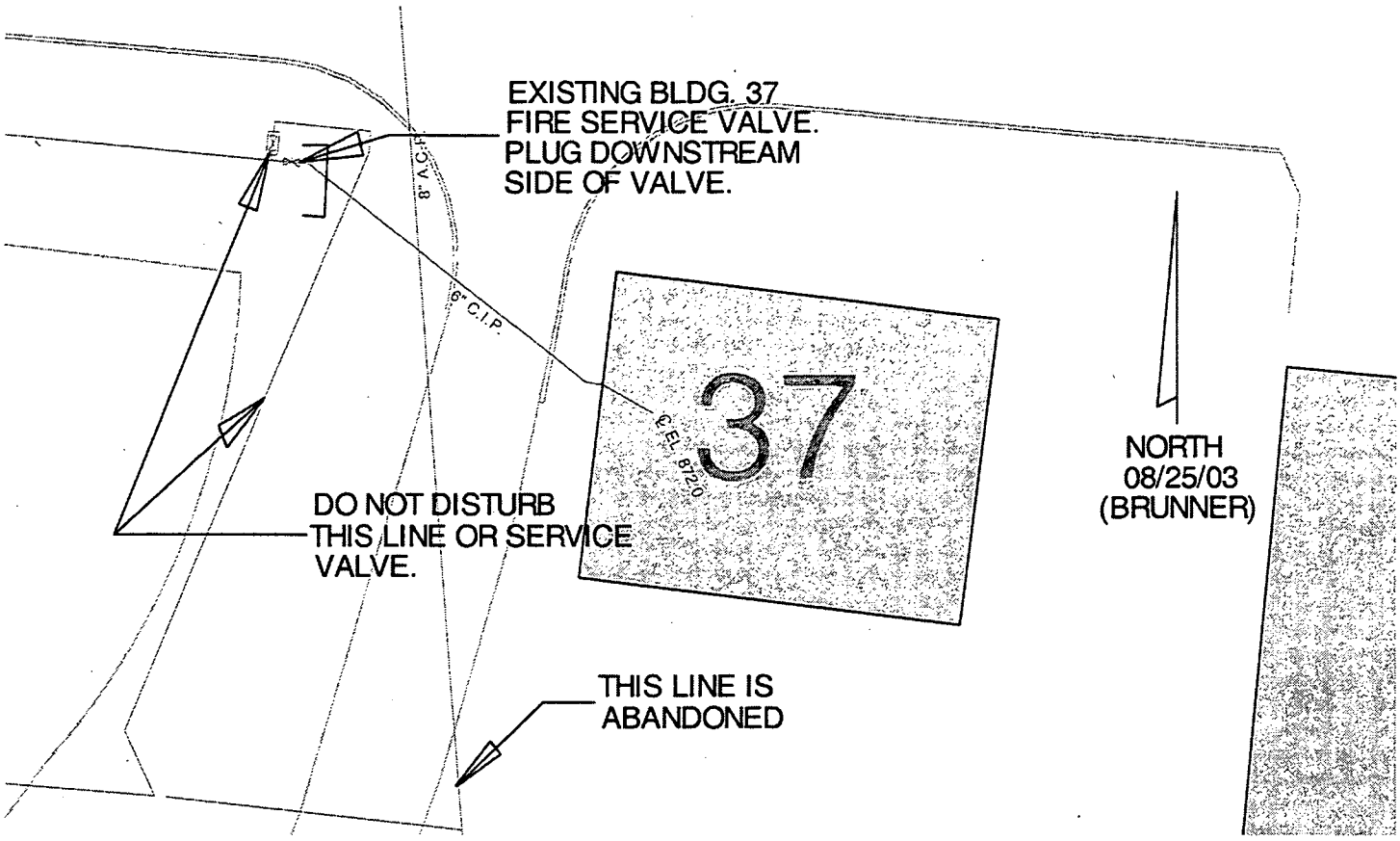
Contact Frank Raker to isolate, depressurize and pressurize the domestic main.




**BUILDING 37 – FIRE PROTECTION SYSTEM LINES**

**FIRE WATER ISOLATION:**

This section provides information to isolate the fire water serving Building 37




**SKETCH 3: BUILDING 37 FIRE MAIN & SERVICE VALVE**

VistaMap indicates that fire service main is CIP (Cast Iron Pipe).

The following discourse assumes that the fire service line to Bldg. 37 is CIP:

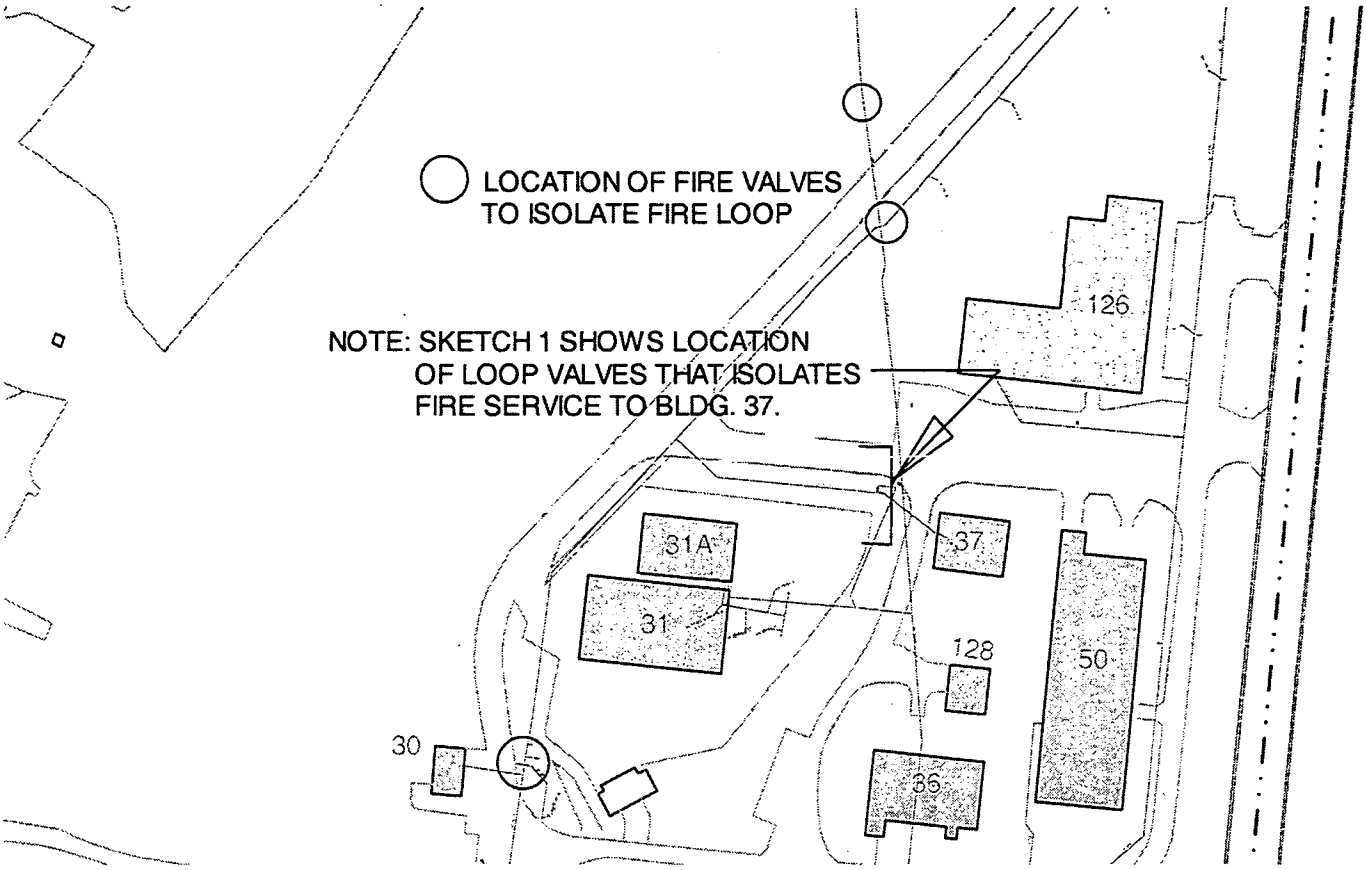
1. Close the valve indicated in Sketch 3 and remove the post indicator.

2. Excavate and completely expose the valve. If the valve is a mechanical joint valve and held fast to the pipe via locking glands that contain set screws, cut the pipe downstream of the valve and plug the valve. If the valve is a slip on type valve or if the valve is a mechanical joint valve with no set screws in the retainer glands, see Sketch 4 and isolate the fire loop. Cut the pipe downstream of the valve and plug the valve. Provide a thrust block to hold the plug, valve and remaining piping in place. The thrust block should not impose a vertical load on the valve, plug, etc.

3. Leaving the closed valve in place, back fill the excavation.

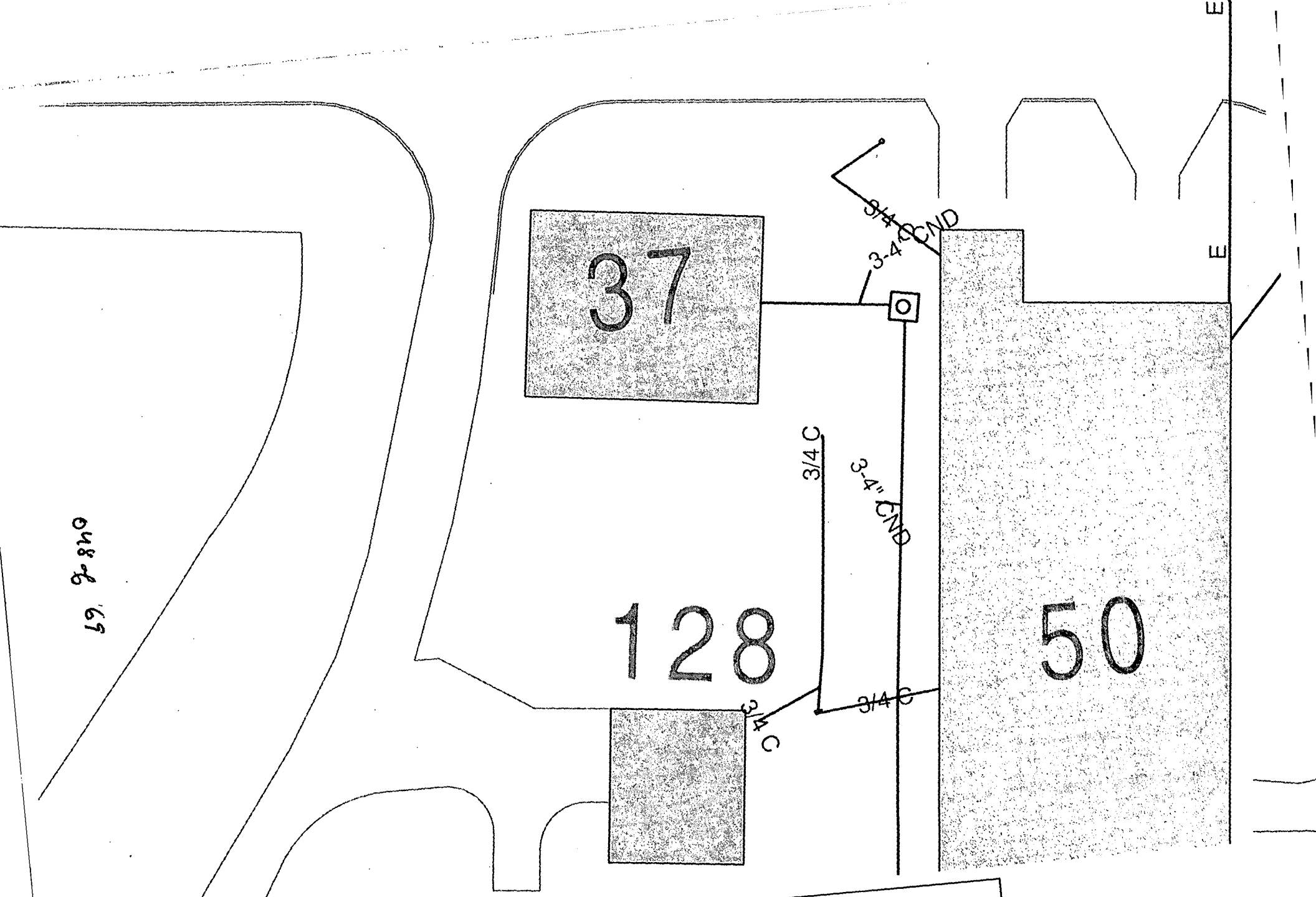
The fire main loop has a future use by MMCIC. Check and verify (by someone other than the persons doing the work) that no leaks existing on any of the piping/fittings after the fire loop is pressurized.

The fire department isolates, depressurizes and pressurizes the fire main.

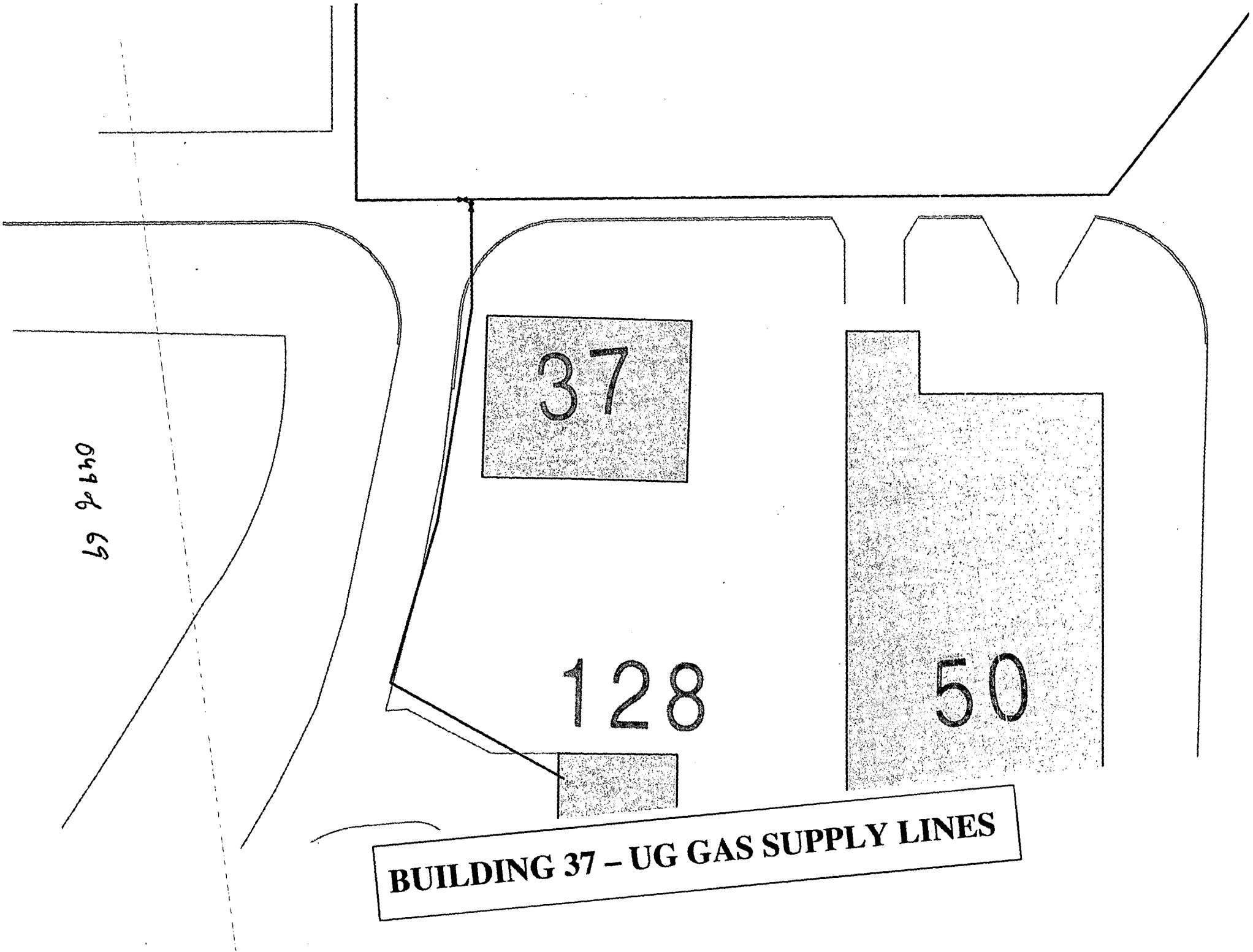


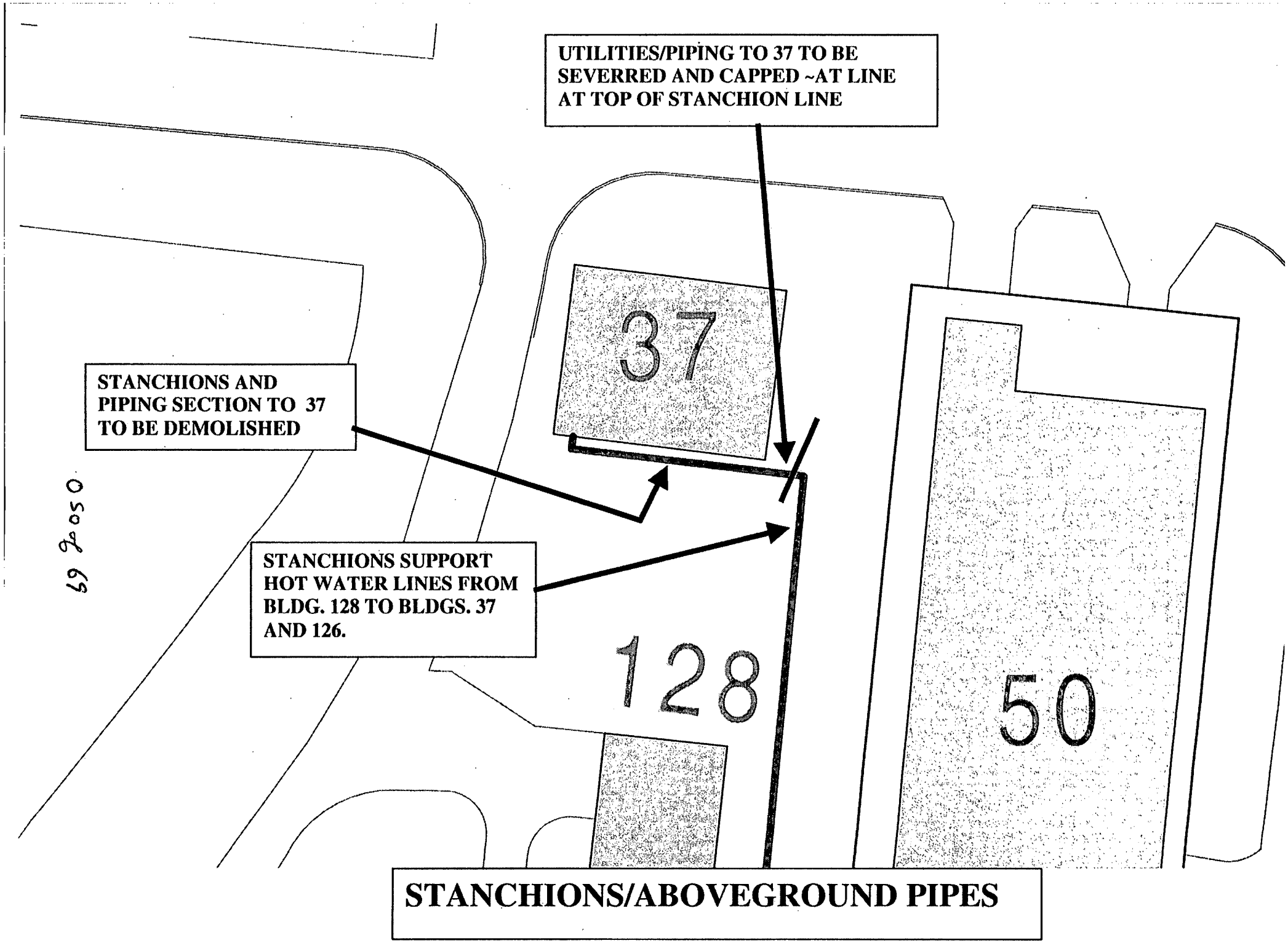

**SKETCH 4: LOCATION OF FIRE LOOP ISOLATION VALVES**

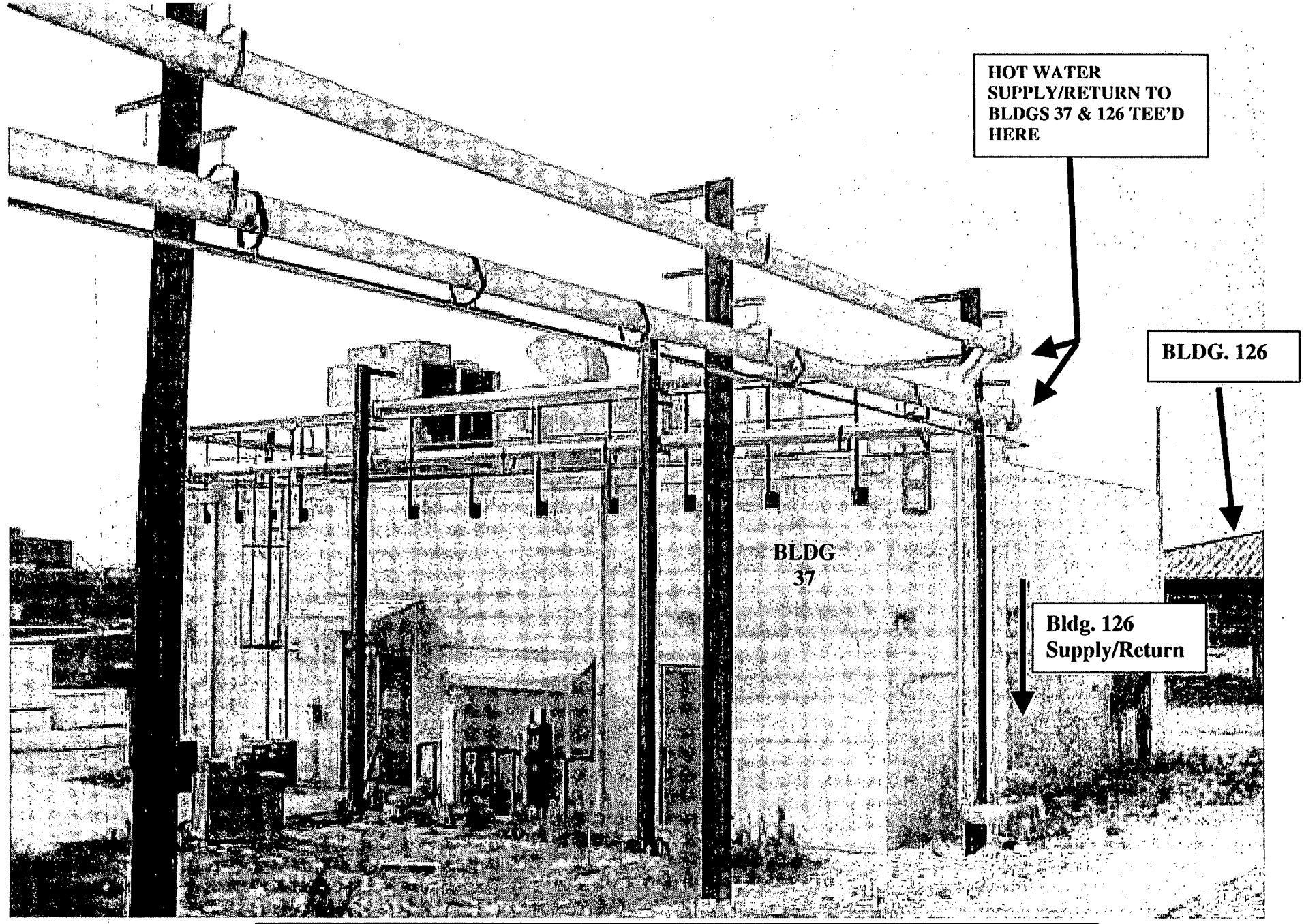
VistaMap indicates that the line upstream of the valve is asbestos cement pipe (ACP). If the line downstream of the valve is ACP, contact Chris Ahlquist (3737) to provide instruction for cutting and handling ACP. (The valve in a ACP line is a slip on type valve. Follow the instructions stated in "2" for that type valve.)



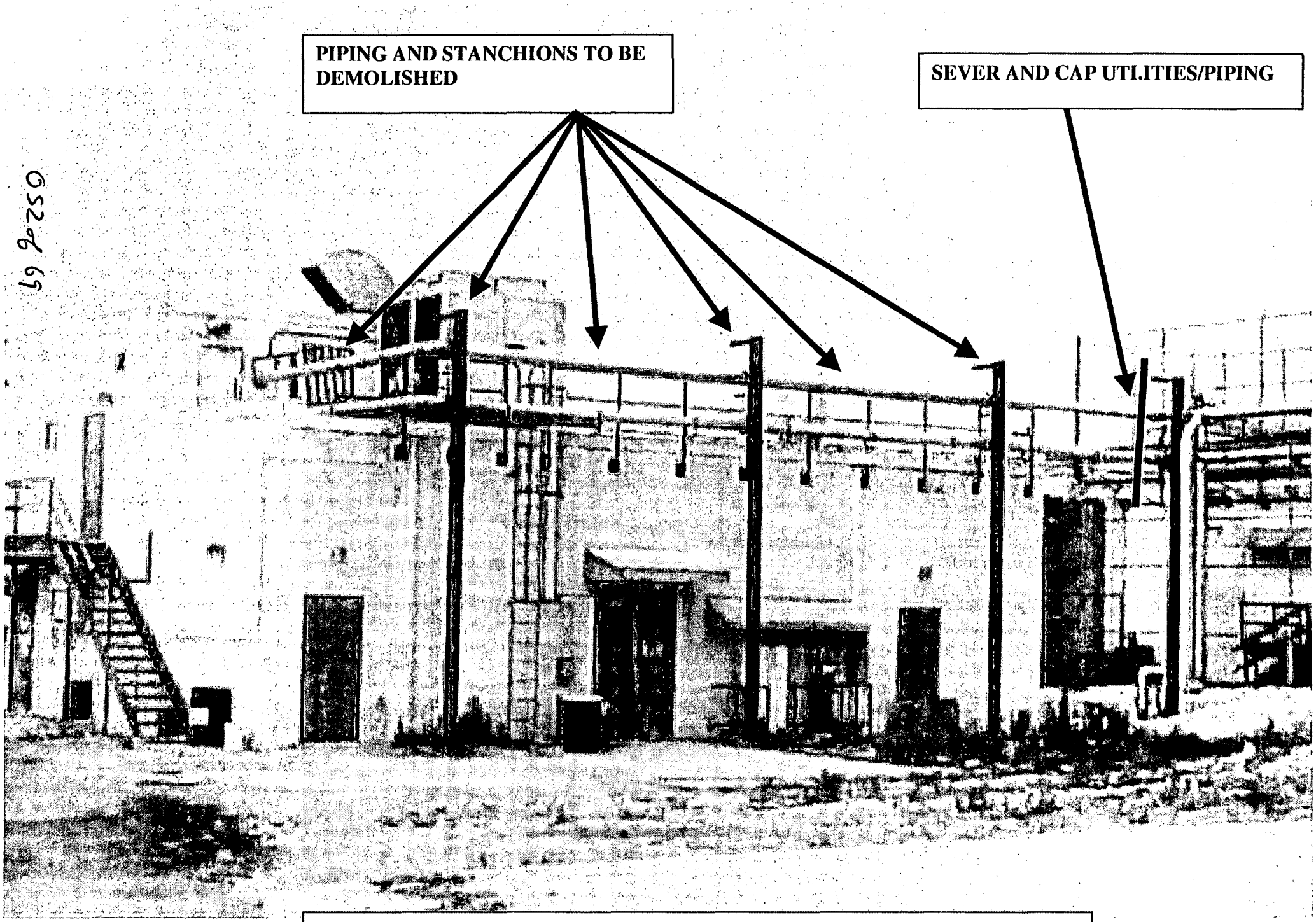

**BUILDING 37 – UG POWER LINES**


37
128
50
BUILDING 37 – UG GAS SUPPLY LINES


UTILITIES/PIPING TO 37 TO BE SEVERRED AND CAPPED ~AT LINE AT TOP OF STANCHION LINE
37
STANCHIONS AND PIPING SECTION TO 37 TO BE DEMOLISHED
STANCHIONS SUPPORT HOT WATER LINES FROM BLDG. 128 TO BLDGS. 37 AND 126.
128
50
STANCHIONS/ABOVEGROUND PIPES



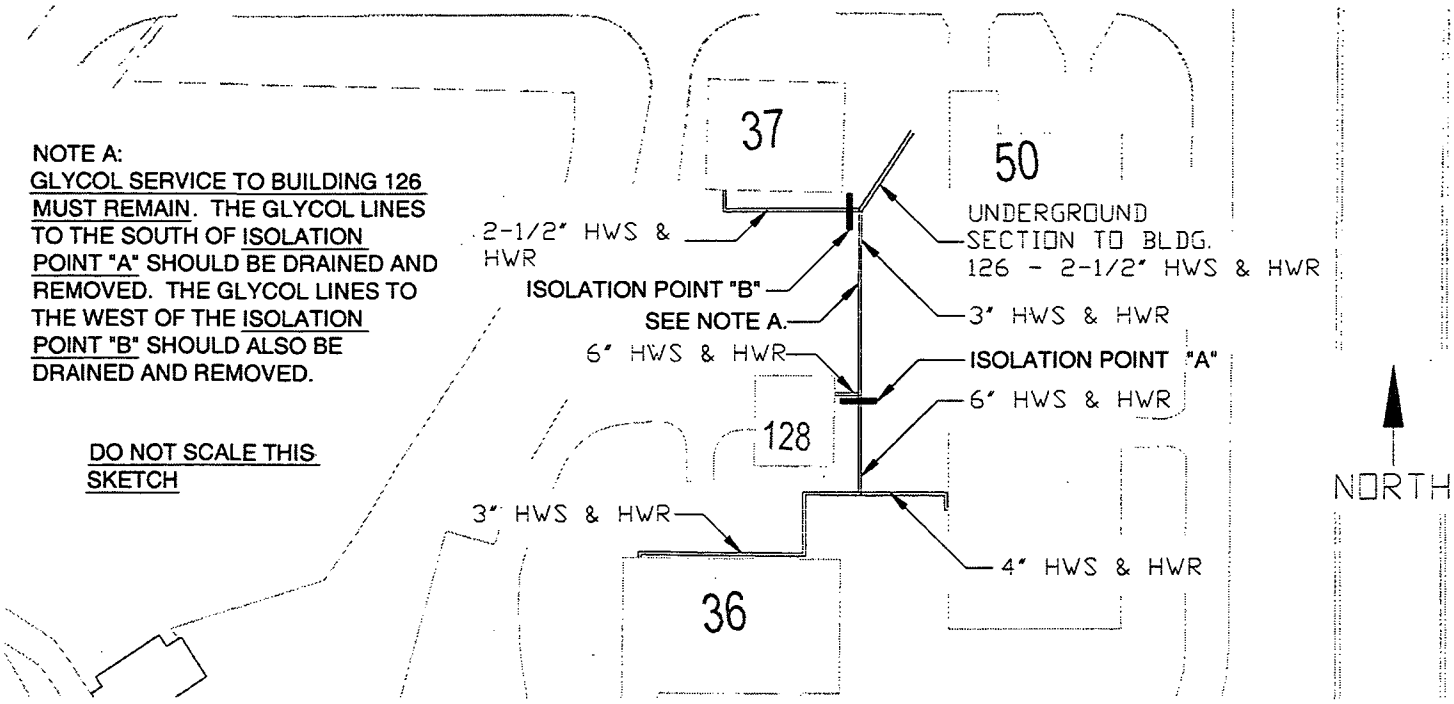

**BLDG. 37 - STANCHIONS/ABOVE GROUND LINES/PIPES**




BLDG. 37 - STANCHIONS/ABOVE GROUND LINES/PIPES

## GLYCOL DISCONNECT:

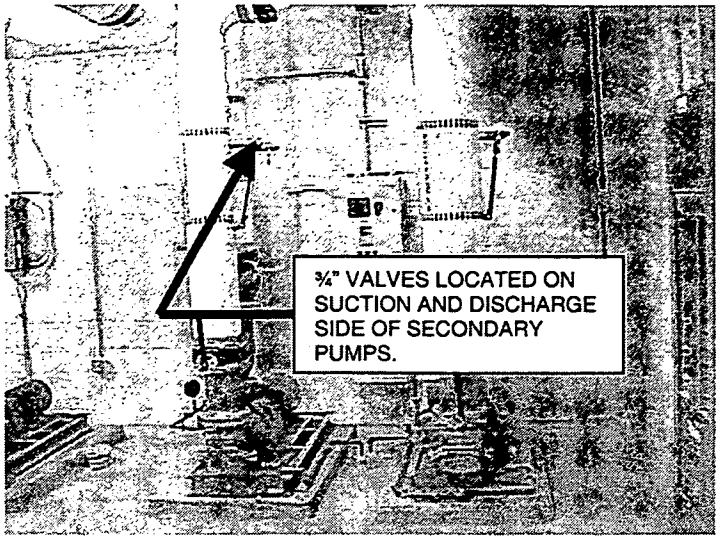
This section isolates the glycol to Building 36, 37 and 50



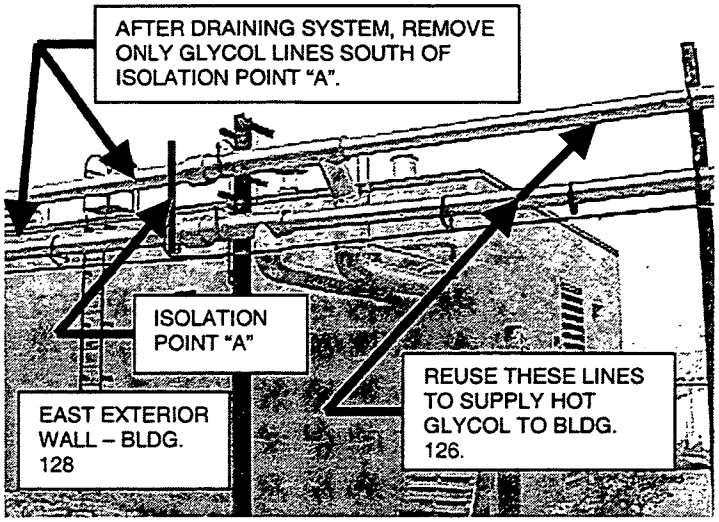

**SKETCH 1: HOT WATER GLYCOL PIPING**

1. The glycol piping serving the above listed buildings originates in the heat plant (Bldg. 128). Notify Frank Raker (865-3438) to lock out and tag out the hot water generators and pumps electrically.
2. No isolation valves are installed on the branch lines. The whole system must be drained below a predetermined level in order to cap the glycol lines that must remain active. Open vent lines at the highest point in the system.
3. Picture 1 shows a suggested point to drain the glycol in Building 128.
4. Cap the lines. Isolation points shown on Sketch 1. See Pictures 2 and 3.
5. Pump the necessary glycol back into the lines. Picture 4 shows where to vent the lines while adding the glycol. Add sufficient glycol so that the pressure gauge at the pump reads 10 psig.
6. Notify Frank Raker to circulate the glycol through the piping system. Turn the pumps off and bled air from the system at the vent point shown in Picture 4.
7. After all the air is bled from the system, restore normal power to the hot water generators and pumps.

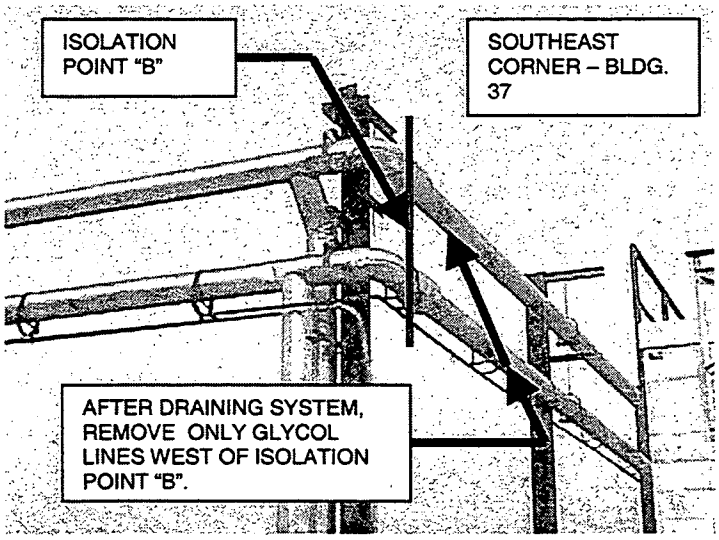
**Exercise care in handling glycol. If glycol inadvertently enters a sewer, the Ohio EPA must be notified via Ron Paulick (4080).**



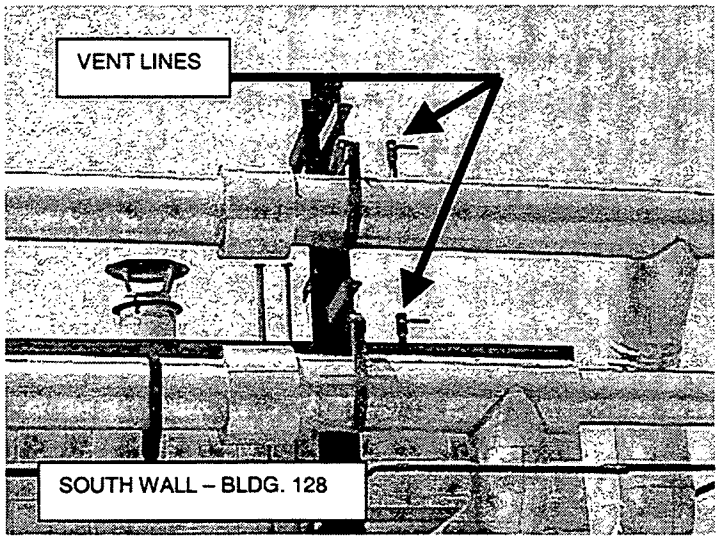

**PICTURE 1: POSSIBLE GLYCOL DRAIN POINTS - BLDG. 128**




**PICTURE 2: ISOLATION POINT "A"**




**PICTURE 3: ISOLATION POINT "B"**




**PICTURE 4: GLYCOL VENT LINES**

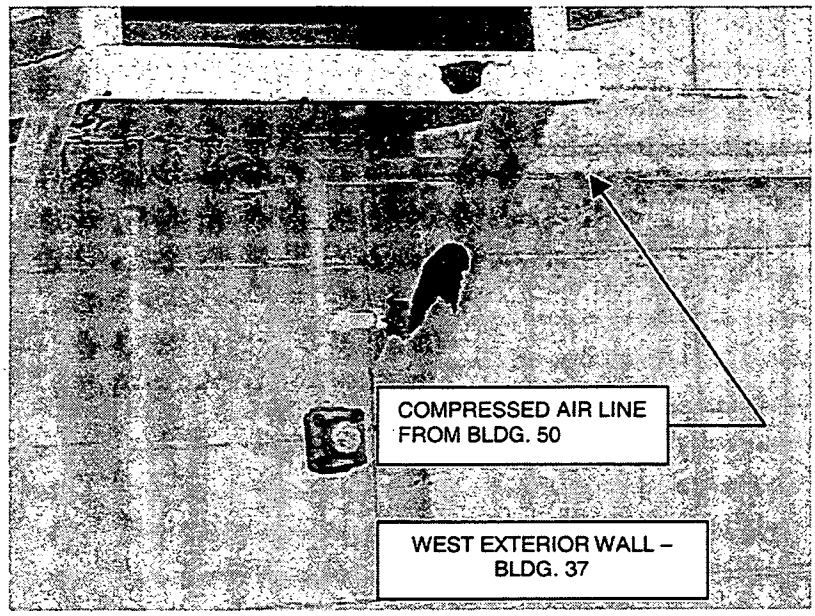


0596 69

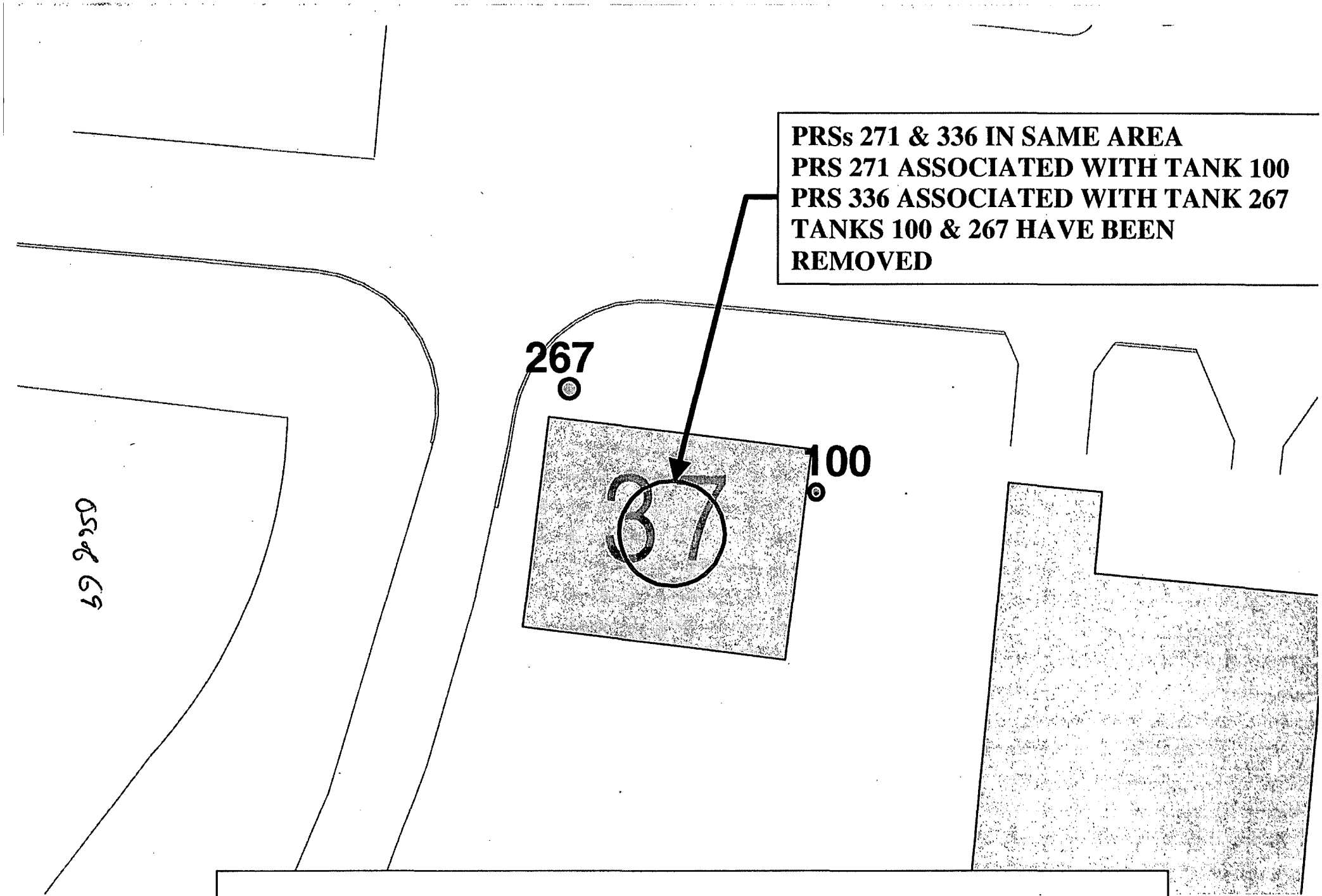
**COMPRESSED AIR:**

This section isolates the compressed air to Building 37.

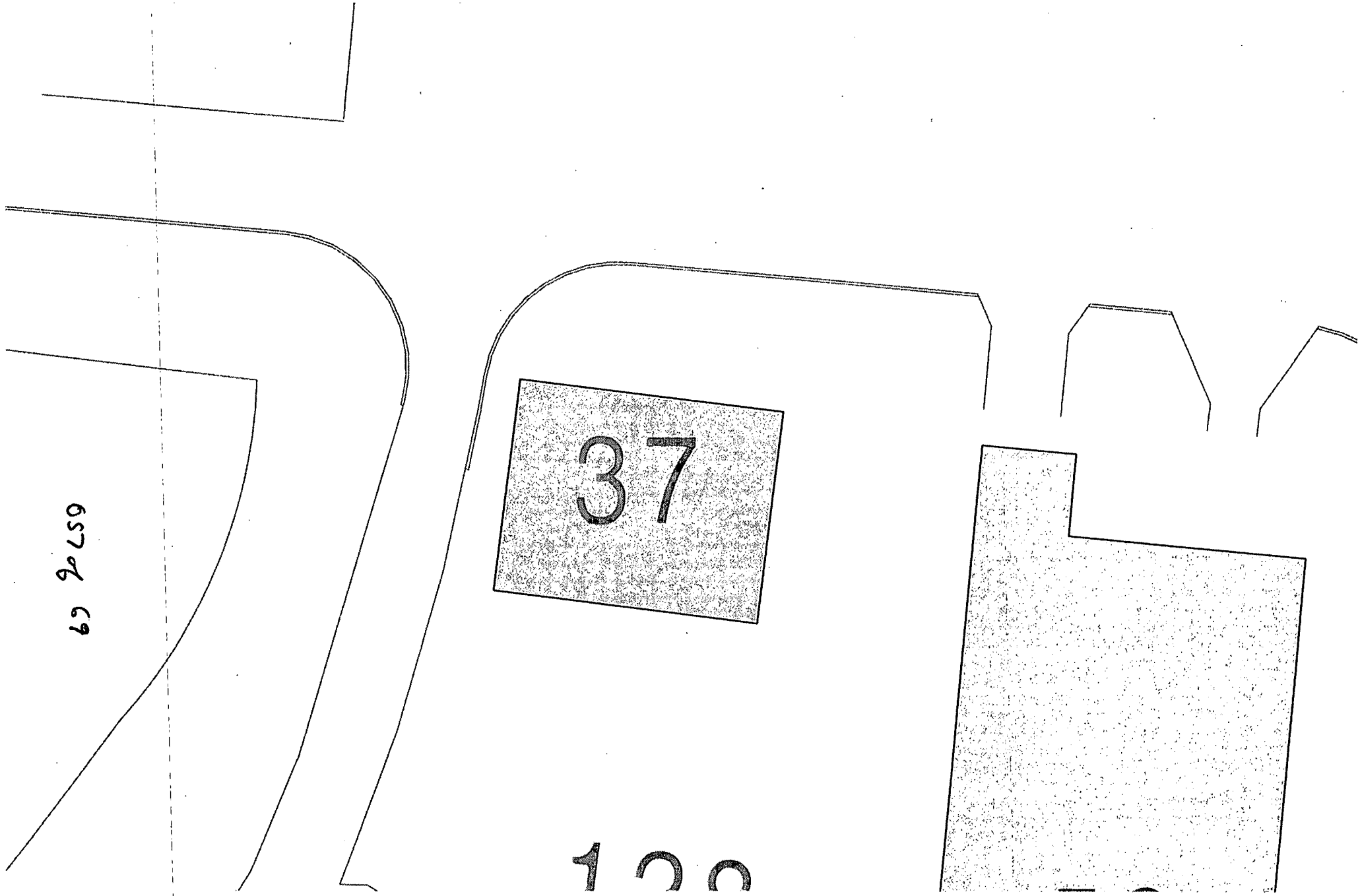
Building 37 has a compressed air line coming from an air compressor located in Building 50. The line enters Building 37 by way of the west wall. Before cutting the line, depressurize and verify that the line is safe to sever. Employ the necessary lockout/tagout to accomplish the job safely. Picture 5 shows the air line entering Bldg. 37.



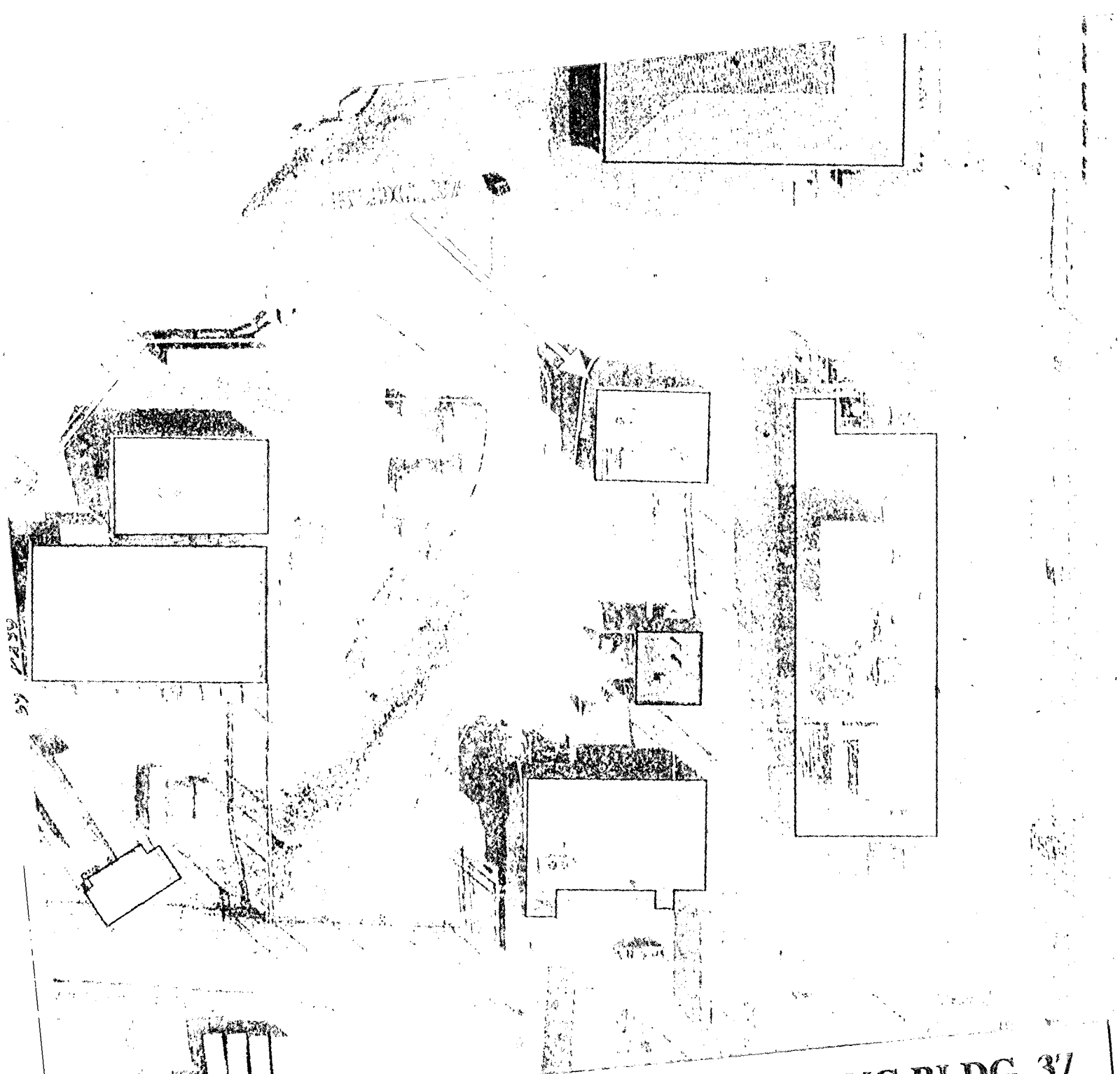

**PICTURE 5: BLDG. 37 COMPRESSED AIR**




PRS POINT SITES/TANKS IN VICINITY OF BLDG. 37




**NO URMAs OR MONITIORING WELLS IN AREA**



AERIAL MAP SHOWING BLDG. 37

# Appendix D
# MISCELLANEOUS
# (USQ, RWP, etc.)

- No USQ required for this Work Package
- No RWP required for this Work Package
- Structural Engineering Survey letter, per 29 CFR 1926.850
- Waste Disposition Plan

**INTER OFFICE MEMO CH2MHILL MOUND, INC.**

Date: July 23, 2003 cc. S. Davis

From: W. L. Johanan – 61-220B

Subject: Structural Survey of Building 37, RE: 29 CFR 1926.850 (a)

To: Kurt Kehler-Project Manager

Please be advised that we have performed a structural review and walk down of the subject building and found them to be satisfactory based on the demolition process and work plan.

Please call me if you have any further questions.

W. L. Johanan

W. L. Johanan P.E.
Site Structural Engineer

STATE OF OHIO
WILLIAM L JOHANAN
E-44883
REGISTERED
PROFESSIONAL ENGINEER

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

**Work Location/** Bldg. 37 Approximate Volume 650 cu. Yds.
**Source of material**
Requestor Project Group BOSS Project Point of Contact Steve Davis

Name/Phone Ext Steve Davis ext. 4436

MSR # BOSS-36961-00 Charge # EE050J

Process Knowledge (attach documentation, if more space needed):
BUILDING 37 WAS A TEST FACILITY FOR THE HEAT SOURCE PROGRAM BUT ACCORDING TO HISTORICAL DOCUMENTATION, BUILDING 37 WAS NEVER A RAD AREA.

PRS # 271 PRS Binning Status: NFA RA FA [UB] NFA Pending Stakeholder Review
PRS # 336 PRS Binning Status: NFA RA FA [UB] NFA Pending Stakeholder Review
Binning remarks
Clean up criteria for soils

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

Radionuclides of Concern for verification sampling: N/A

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

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

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

Activation Concerns: No Yes If yes, explain

Material is released for recycle /reuse Yes No

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

**Work Location/ Source of material**

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

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

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

The SMPP/TFV - BOSS Project has determined that all solid waste streams resulting from safe shutdown, decontamination, and/or demolition of Building(s) 37 have been free released in accordance with DOE Order 5400.5, MCP procedural manual MD-80043, and direction from the DOE Miamisburg Environmental Management Project (MEMP) office (letter from Provencher to Baker, MB 423-99, dated April 27, 1999). Data supporting this free release determination may be found by contacting STEVE DAVIS, Project Manager, at X4436. This data may include radiological surveys and data sheets and/or process knowledge utilized according to the above procedures.

_____ _____

Waste Coordinator Date

# Appendix E

# POST-JOB CONFERENCE/ LESSONS LEARNED

# Laborer's Personal Protective Equipment (PPE) Burned While Cutting Rebar With a Portable, Abrasive Wheel Saw (i.e.,cut-off machine)

L03-024 (R-2003-OR-BJCETTP-0201)

**LESSON LEARNED STATEMENT:** Hot work is any work involving burning, welding, cutting, or similar operations that is capable of initiating fires or explosions. The use of abrasive wheel cutting saws (hereafter referred to as cut-off machine) can generate hot surfaces and a large quantity of hot sparks that must be controlled. Sparks from cutting metal can burn or cause clothing to catch fire. Operators must have knowledge and training in tool manufacturer's safety manual and observe warnings.

**DISCUSSION OF ACTIVITIES:** A Subcontractor laborer was using a cut-off machine to cut rebar protruding from the K-1302 pad. The cut-off machine was approximately 12-inch diameter and driven by a gasoline engine. The work was being executed under the Subcontractor's Activity Hazard Assessment (AHA), and workers had signed in on a radiation work permit (RWP). The workers were wearing the following PPE: steel-toed shoes, safety glasses, face-shield, and hard hat, as well as, anti-contamination coveralls, gloves, clear plastic booties, and rubber shoe-covers. Before work began, the Subcontractor's ES&H representative, Bechtel Jacobs Company (BJC's) Safety Advocate, and BJC's Subcontractor Technical Representative discussed the requirement for a hot work permit. It was determined that the governing hot work procedure did not require a hot work permit for grinding and other abrasive cutting work; however, the Subcontractor's AHA did require a permit. No permit was obtained prior to starting work.

The Subcontractor had a portable water sprayer in the area for dust suppression and contamination control and another worker observing in the area as an additional safety precaution. After making 8-10 cuts, the Subcontractor laborer advanced to the next piece of rebar. While making this cut, he noticed his anti-contamination plastic bootie smoldering due to sparks.

Anti-contamination clothing was burned, scorched, or melted, including a yellow rubber shoe cover, clear plastic bootie, duct tape, and yellow cotton coveralls on the right leg below mid-shin. The worker's personal blue jeans (between cuff and mid-shin on right leg) appeared to have melted plastic on them. The worker was unsure whether the one hole near the plastic area was present before the incident. The second worker extinguished the smoldering material with the water sprayer in the area. Both workers proceeded to the boundary control station, doffed their clothing, and reported the incident. The worker was not burned, injured or contaminated during this event.

On Tuesday, February 18, 2003, the East Tennessee Technology Park (ETTP) Closure Project Manager of Projects (MOP) halted all hot and spark/heat generating activities at the Site. Later in the day, the Vice President and Deputy General Manager for BJC issued a stand down on all hot work (including any work that produces sparks or heat) across the company. This stand down applied to all BJC self-performed and subcontractor work at all BJC project locations.

**ANALYSIS:** The Subcontractor's scope of work was to decontaminate and demolish buildings at the ETTP as part of the Main Plant Decontamination and Decommissioning (D&D) Project. The Subcontractor performed characterization, removed contaminated components, decontaminated selected materials when economically practical, demolished the superstructures to the slab or grade, and disposed of the waste. At the time of the February 18, 2003, incident, work was at a point that rubble piles were being loaded on trucks for shipment to a permitted disposal facility. The Subcontractor decided to have personnel remove protruding rebar from the K-1302 concrete pad. Since the work area was considered to be a contamination area, entry required the workers to wear anti-contamination PPE. Although the Subcontractor's AHA for General Construction Hazards required this operation to be carried out using a hot work permit, the permit was not obtained. The Contractor's procedure BJC-EH-2007, "Welding/Burning/Hotwork", dated December 15, 2002, did not require a hot work permit for grinding and abrasive work. A WBH Permit was required for welding, arc and torch cutting, and open-flame operations occurring outside fixed weld shop areas. The National Fire Protection Association's Standard NFPA 51B "Standards for Fire Prevention During Welding, Cutting, and other Hot Work-1999 edition" specifically includes grinding processes.

The Subcontractor had a previous incident in May 2002 that also resulted in a laborer's PPE being burned by sparks from the same type of cut-off machine. The PPE did not ignite, but the material was charred, and it resulted in a lessons learned by the Subcontractor. However, the lessons learned was only disseminated internally and was not included in the Contractor or Department of Energy (DOE) Lessons Learned System.

Significant changes had occurred in the project staffing for both the Contractor (Safety Advocate and Subcontract Technical Representative) and the Subcontractor (Environment, Safety, and Health Representative, Project Manager, and Site Superintendent). Over the previous 11 months, there had been 25 individuals who had occupied 10 positions that were involved in the Main Plant D&D Project. Due to this large staff changeover in key critical positions over a short period, lack of project and work knowledge contributed to failures that allowed this incident to occur.

The Subcontractor selected the cut-off machine based on its availability. The hazards and its appropriateness for the task were not evaluated. The laborer did not have sufficient knowledge of the proper techniques and the hazards associated with the cut-off machine, and hot sparks were allowed to impact his leg. Neither the Contractor's nor the Subcontractor's hazard assessment process properly evaluated this hazard. Although the Subcontractor's AHA required a hot work permit, the Subcontractor did not obtain a permit and followed the existing RWP. The laborer wore 100% cotton anti-contamination coveralls instead of the fire-resistant PPE that would be

required for hot work protection. The cut-off machine's manufacturer's safety manual was not at the work site until after the incident, and the Subcontractor's personnel were not familiar with the precautions contained in the manual.
The manufacturer's safety manual provides the following warnings:
* When cutting metal, a cut-off machine generates sparks which can ignite clothing. Most fabrics used in clothing are combustible – even flame-retardant fabrics will ignite at higher temperatures. To reduce the risk of burn injury the manufacturer recommends wearing clothing made of leather, wool, flame-retardant-treated cotton or tightly woven, heavier cotton such as denim. Some flame-retardant synthetic fabrics are also suitable but others such as polyester, nylon, rayon, and acetate can melt during a fire into a tar-like matter that buns into the skin. Check the clothing manufacturer's instructions.
* Sparks from cutting metal can burn or cause clothing to catch fire. Do not use a cut-off machine on flammable ground. Always direct sparks away from the operator or any flammable surroundings.
* The wheel guard is adjustable. It is extremely important that the wheel guard is in place and set to suit the type of work and your stance. The guard should always be adjusted so that the user is not endangered by particles of the material being cut; sparks or pieces of damaged wheels either directly or by ricochet. Failure to follow this instruction could result in serious or fatal injury.
A Warning label on the saw instructed personnel to adjust the blade guard to direct sparks and material fragments away from the operator. Sparks created during cutting may cause fire. Furthermore, his body position was incorrect when using the cut-off machine and the combustible coveralls were exposed to sparks. Therefore, both the direct and root causes of this event were work planning deficiencies. The Subcontractor did not train their
workers to the requirements contained in the cut-off machine manufacturer's owners/safety manual nor to the precautions listed on the equipment label. Therefore, a contributing cause to this event was a training deficiency - No Training Provided.

**RECOMMENDED ACTIONS:**

* Obtain manufacturer's safety manuals for powered-hand tools and equipment.
* Provide training to recognize the hazards identified in powered-hand tool manufacturer's safety manuals and adhere to manufacturer's warning label.
* Ensure appropriate selection and identification of flame-resistant clothing in work control documentation for hot work activities.
* Consider the use of hydraulic cutters instead of abrasive cutting to reduce the size of rebar at demolition sites.
* Ensure lessons learned are shared with employees as related to specific activities and hazards.
* Revise hot work procedures to include current (1999 edition) NFPA 51B requirements and applicable ASTM standards.
* Obtain hot work permits for welding and allied processes, heat treating, grinding (including abrasive wheel cutting), thawing of pipe, powder-driven fasteners, hot-riveting, and similar applications producing a spark, flame, or heat.

# Lessons Learned-Miscommunications Leads to Severed Gas Line

Project Type: *Facility* Disposition
Date: August 13, *2001*
Document Type: *Lessons Learned*
Functional Area: *Decontamination* & Decommissioning
Operations Office: *Rocky* Flats

**Lesson Learned Statement**

Making sure the scope of work is clearly understood by everyone involved in a job is a key factor in successfully completing any D&D job.

**Discussion of Activities**

A *KH Construction* crew was using a backhoe to remove foundations from the PACs 3 building when the backhoe severed a one-inch gas line. The line had been removed from service and purged prior to the start of excavation.

The work crew did coordinate with excavation specialists prior to digging, as required in the work package. Excavation specialists perform drawing searches and various surveys prior to approving scheduled excavation activity. But the two groups had a different understanding of the scope of work allowed under the soil disturbance approval.

The crew thought the excavation specialists had approved demolishing all of the foundations in the building, as described in the "work to be performed" section on the first page of the excavation permit. But the excavation specialists had only surveyed and approved demolition of the center median wall, which was noted on the second page of the permit form.

**Recommended Actions**

One way to ensure everyone is on the same page is to thoroughly review permits to ensure that all conditions, requirements and limitations are understood before starting the job. In order to avoid future misunderstandings, the RISS Project has briefed KHC personnel to make sure they review the second page of the excavation inspection and entry approval log to determine any special requirements and remarks. The excavation specialists will also meet daily with the work crews and review that day's planned scope of work and make sure all applicable surveys have been completed.

**Contact Information**

Richard Schassburger
Phone: 303-966-4888
E-mail: richard.schassburger@rf.doe.gov
Authorized Derivative Classifier: Rod Hoffman
Phone: (303) 966-4398

# POST JOB CONFERENCE

| |
|---|
| 1. WORK PACKAGE TITLE: **Building 37 Demolition** |
| 2. WORK PACKAGE NUMBER: BOSS-36961-00 |

**What went well?**

**What could be improved?**

**Other Comments:**

**Items Requiring Further Action:**

## POST-JOB CONFERENCE ATTENDEES

| NAME | HP | NAME | HP |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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| | | | |
| | | | |

# LESSONS LEARNED INPUT FORM

**Title:** (This is a brief descriptive title)
**Building 37 Demolition**

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

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

**Analysis:** (Discussion of what went wrong, or right and what should be done in the future)

**Recommended Actions:** (Identify specific corrective actions)

Submitted by: _____ Date: _____

*OPTIONAL*

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

06906 69

# Appendix P

Tank 267 Information

# Removal of Tank 267 (PRS 336)

## View facing west

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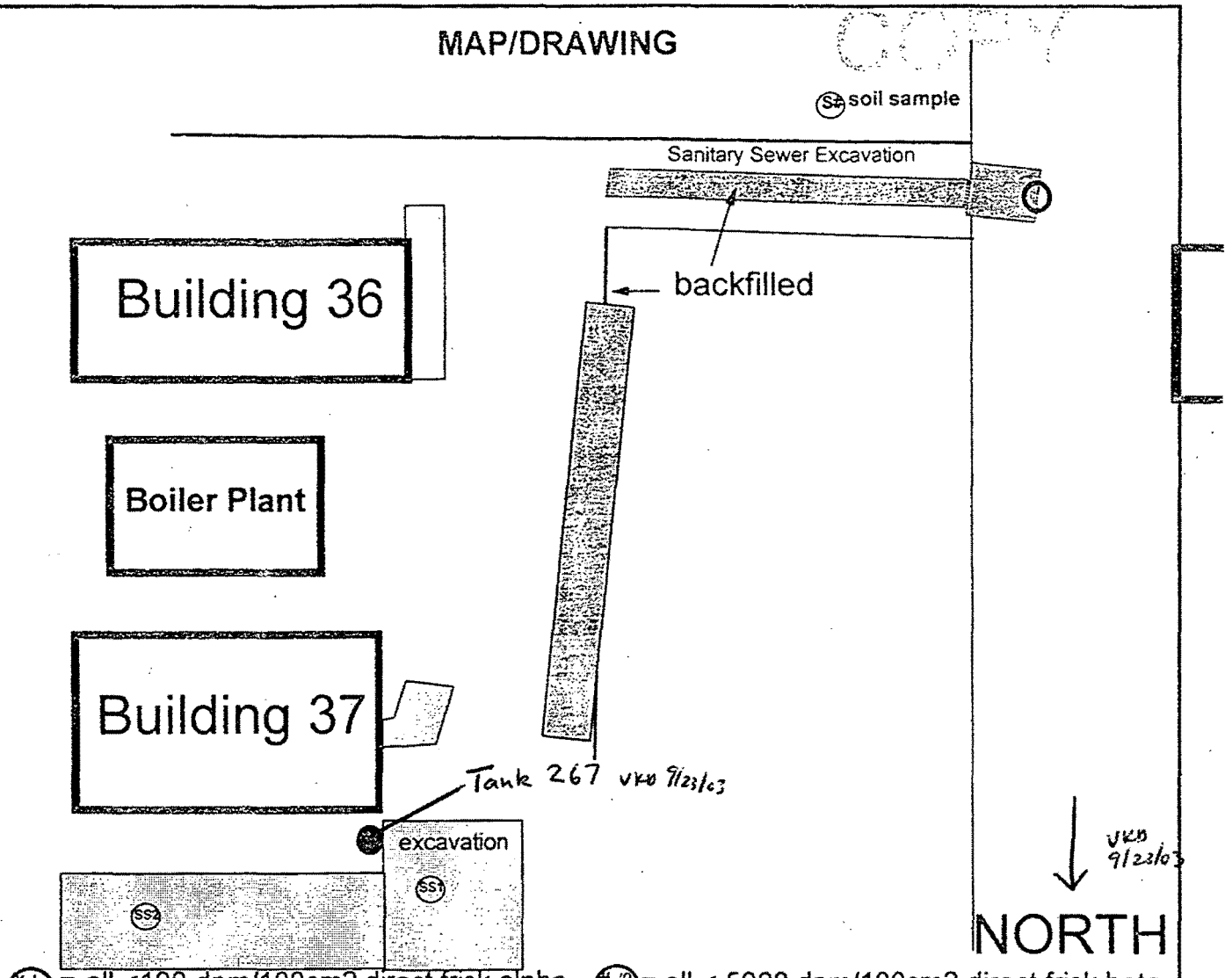
# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| LOCATION: (BLDG./AREA/ROOM) Building 37 North | SURVEY NO. 01-50-037 |
| PURPOSE: Perform fidler survey of excavation for sewer, sample soil | RWP NO. NA |
| | DATE: 02/21/01 |
| | TIME: 1550 |

## MAP/DRAWING




(# /α) = all <100 dpm/100cm2 direct frisk alpha (# /β) = all < 5000 dpm/100cm2 direct frisk beta

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

### INSTRUMENTS USED

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| NA | NA | NA |
| Fidler | 3028/3851 | 03/14/01 |
| | NA | |
| | | |
| | | |

| | | |
|---|---|---|
| Com[redacted] | HP# 5214 | Date: 02-21-01 |
| Com[redacted] | | |
| Counted by: (Signature) | HP# | Date: |
| Counted by: (Print) | N/A | |
| Reviewed/Approved by (Signature) [redacted] | HP# 5706 | Date: 03/08/01 |
| Revi[redacted] | | |

ML-9620 (2/98)

# RADIOLOGICAL SURVEY DATA SHEET (cont.)

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm2) | | | | |
| Sample# | β/γ | Alpha | Tritium | Comments |
| 1 | | | | NA |
| 2 | | | | NA |
| 3 | | | | NA |
| 4 | | | | NA |
| 5 | | | | NA |
| 6 | | | | NA |
| 7 | | | | NA |
| 8 | | | | NA |
| 9 | | | | NA |
| 10 | | | | NA |
| 11 | | | | NA |
| 12 | | | | NA |
| 13 | | | | NA |
| 14 | | | | NA |
| 15 | | | | NA |
| 16 | | | | NA |
| 17 | | | | NA |
| 18 | | | | NA |
| 19 | | | | NA |
| 20 | | | | NA |
| 21 | | | | NA |
| 22 | | | | NA |
| 23 | | | | NA |
| 24 | | | | NA |
| 25 | | | | NA |
| 26 | | | | NA |
| 27 | | | | NA |
| 28 | | | | NA |
| 29 | | | | NA |
| 30 | | | | NA |
| 31 | | | | NA |
| 32 | | | | NA |
| 33 | | | | NA |
| 34 | | | | NA |
| 35 | | | | NA |

See attached data sheet

NA

NA

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm2) | | | | |
| Sample# | β/γ | Alpha | Tritium | Comments |
| 36 | | | NA | NA |
| 37 | | | | NA |
| 38 | | | | NA |
| 39 | | | | NA |
| 40 | | | | NA |
| 41 | | | | NA |
| 42 | | | | NA |
| 43 | | | | NA |
| 44 | | | | NA |
| 45 | | | | NA |
| 46 | | | | NA |
| 47 | | | | NA |
| 48 | | | | NA |
| 49 | | | | NA |
| 50 | | | | NA |
| 51 | | | | NA |
| 52 | | | | NA |
| 53 | | | | NA |
| 54 | | | | NA |
| 55 | | | | NA |
| 56 | | | | NA |
| 57 | | | | NA |
| 58 | | | | NA |
| 59 | | | | NA |
| 60 | | | | NA |
| 61 | | | | NA |
| 62 | | | | NA |
| 63 | | | | NA |
| 64 | | | | NA |
| 65 | | | | NA |
| 66 | | | | NA |
| 67 | | | | NA |
| 68 | | | | NA |
| 69 | | | | NA |
| 70 | | | | NA |

See attached data sheet

NA

COMMENTS: No fidler readings detected on channels 1 or 2

**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 (2/98)

# SOIL ANALYSIS REPORT

FIELD SAMPLE ID:
LAB SAMPLE ID: ML10320
FILE ID: 1PT00016.S0
PRIORITY:

**Description\Location:**
PST SEWER SS21

**Collector:** 5214

**Date Received:** 2/21/01 **Date Collected:**

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | * | 0.00 | 0.06 | 45,000 |
| Cs-137 | * | 0.00 | 0.04 | 45,000 |
| Pb-210 | | 0.87 | 0.47 | 45,000 |
| Ra-226 | | 1.97 | 0.66 | 800 |
| Ac-227 (D) | * | 0.07 | 0.19 | 40 |
| Th-230 | * | 0.00 | 5.52 | 800 |
| Th-232 (D) | | 0.86 | 0.17 | 130 |
| Pu-238 | * | 5.04 | 11.44 | 500 |
| Am-241 | * | 0.00 | 0.06 | 500 |

**Other Nuclides:**

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

Σ DOT 0.02 nCi/g

Σ Respirator 0.04

Σ Respirator <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4.

Σ DOT 2 nCi/g limit, total activity.

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

* Indicates activity < MDA. MDA used in limits calculation.

Instrument type: High Purity Germanium

**Comments:**

Date: 3/1/01 Counted By: 6024 Analyzed By: 5613 INITIALS [redacted]

# SOIL ANALYSIS REPORT

FIELD SAMPLE ID:
LAB SAMPLE ID: ML10321
FILE ID: 2PT00021.S0
PRIORITY:

**Description\Location:**
PST SEWER SS22

**Collector:** 5214

**Date Received:** 2/21/01 **Date Collected:**

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | * | 0.00 | 0.01 | 45,000 |
| Cs-137 | * | 0.00 | 0.01 | 45,000 |
| Pb-210 | | 0.82 | 0.24 | 45,000 |
| Ra-226 | | 1.64 | 0.30 | 800 |
| Ac-227 (D) | | 0.11 | 0.09 | 40 |
| Th-230 | * | 1.28 | 2.70 | 800 |
| Th-232 (D) | | 0.73 | 0.04 | 130 |
| Pu-238 | * | 0.00 | 7.21 | 500 |
| Am-241 | * | 0.00 | 0.03 | 500 |

**Other Nuclides:**

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

Σ DOT **0.01** nCi/g

Σ Respirator **0.03**

Σ Respirator <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4.

Σ DOT 2 nCi/g limit, total activity.

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

* Indicates activity < MDA. MDA used in limits calculation.

Instrument type: High Purity Germanium

**Comments:**

Date: 3/1/01 Counted By: 6024 Analyzed By: 5613 INITIALS [redacted]

# RADIOLOGICAL SURVEY DATA SHEET

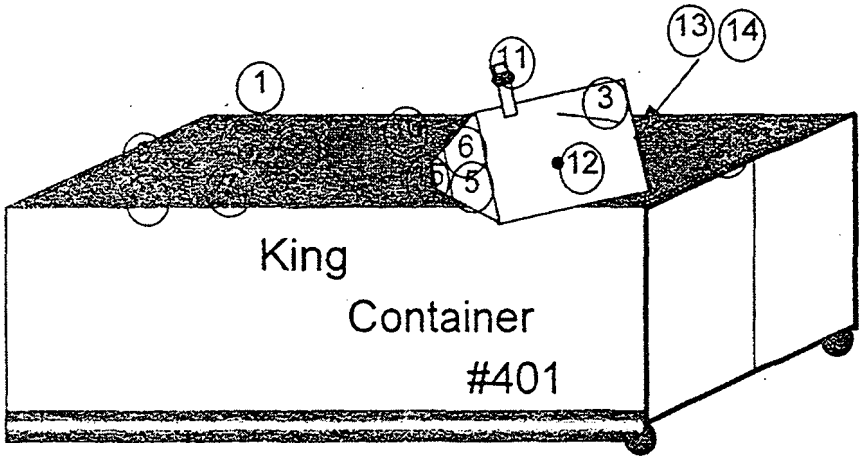


37 VKO 9/23/03

| LOCATION: (BLDG./AREA/ROOM) Building ~~36~~ North Outside | SURVEY NO. 01-50-039 |
|---|---|
| PURPOSE: Survey Roll-Off (KING #401)dumpster for Staver Construction, P/WRE 092900-PST-01 | RWP NO. NA |
| | DATE: 02/26/01 |
| | TIME: 1000 |

## MAP/DRAWING

COPY




(# /α) = all <100 dpm/100cm2 direct frisk alpha (# /β) = all < 5000 dpm/100cm2 direct frisk beta

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

**INSTRUMENTS USED**

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| NE | 5348/5353 | 08/15/01 |
| | | |
| | NA | |
| | | |
| | | |

| | HP# | Date: |
|---|---|---|
| Com[redacted] | 5214 | 02-26-01 |
| Com[redacted] | | |
| [redacted] | 5681 | 2-26-01 |
| Reviewed/Approved by (Signature) [redacted] | 5706 | 02/26/01 |
| Revi[redacted] | | |

ML-9620 (2/98)

# RADIOLOGICAL SURVEY DATA SHEET (cont.)

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm2) | | | | |
| Sample# | β/γ | Alpha | Tritium | Comments |
| 1 | | | | right side |
| 2 | | | | bags |
| 3 | | | | pipe |
| 4 | | | | door ledge |
| 5 | | | | tank ext. |
| 6 | | | | tank ext. |
| 7 | | | | box |
| 8 | | | | left rail top |
| 9 | | | | front rail top |
| 10 | | | | support plate |
| 11 | | | | pipe&flange |
| 12 | | | | tank penetration |
| 13 | | | | tank interior |
| 14 | | | | tank interior |
| 15 | | | | tank penetration |
| 16 | | | | NA |
| 17 | | | | NA |
| 18 | | | | NA |
| 19 | | | | NA |
| 20 | | | | NA |
| 21 | | | | NA |
| 22 | | | | NA |
| 23 | | | | NA |
| 24 | | | | NA |
| 25 | | | | NA |
| 26 | | | | NA |
| 27 | | | | NA |
| 28 | | | | NA |
| 29 | | | | NA |
| 30 | | | | NA |
| 31 | | | | NA |
| 32 | | | | NA |
| 33 | | | | NA |
| 34 | | | | NA |
| 35 | | | | NA |

See attached data sheet NA

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm2) | | | | |
| Sample# | β/γ | Alpha | Tritium | Comment |
| 36 | | | | NA |
| 37 | | | | NA |
| 38 | | | | NA |
| 39 | | | | NA |
| 40 | | | | NA |
| 41 | | | | NA |
| 42 | | | | NA |
| 43 | | | | NA |
| 44 | | | | NA |
| 45 | | | | NA |
| 46 | | | | NA |
| 47 | | | | NA |
| 48 | | | | NA |
| 49 | | | | NA |
| 50 | | | | NA |
| 51 | | | | NA |
| 52 | | | | NA |
| 53 | | | | NA |
| 54 | | | | NA |
| 55 | | | | NA |
| 56 | | | | NA |
| 57 | | | | NA |
| 58 | | | | NA |
| 59 | | | | NA |
| 60 | | | | NA |
| 61 | | | | NA |
| 62 | | | | NA |
| 63 | | | | NA |
| 64 | | | | NA |
| 65 | | | | NA |
| 66 | | | | NA |
| 67 | | | | NA |
| 68 | | | | NA |
| 69 | | | | NA |
| 70 | | | | NA |

See attached data sheet NA

COMMENTS: P/WRL PS-01-006

Misc. const. debris, morter bags,conduit, boxes, lift station tank

**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 resu 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 (2/98)

# Alpha/Beta Analysis

**Batch ID:** 01-50-039 RILEY BLDG.#36 NORTH OUTSIDE (15) CYR

**Batch File:** Smear Unit 1 - 200102261059
**Group:** J
**Device:** Unit 1
**Geometry:** Swipe/Smear
**Serial Number:** 64937

**Acquisition Date:** 2/26/2001
**Count Time (min):** 1.5
**Recalibration Date:** 5/17/2001

| Sample ID | Carrier | Alpha (dpm) | 2σ | Beta (dpm) | 2σ |
|---|---|---|---|---|---|
| 1 | 140 | 0.00 | 0.02 | 5.73 | 5.12 |
| 2 | 42 | 0.00 | 0.03 | 6.87 | 5.61 |
| 3 | 42 | 1.91 | 3.83 | 2.28 | 3.24 |
| 4 | 100 | 0.00 | 0.01 | 2.29 | 3.24 |
| 5 | 88 | 0.00 | 0.01 | 2.29 | 3.24 |
| 6 | 73 | 0.00 | 0.02 | 4.58 | 4.58 |
| 7 | 33 | 0.00 | 0.00 | 1.15 | 2.29 |
| 8 | 142 | 0.00 | 0.00 | 1.15 | 2.29 |
| 9 | 110 | 0.00 | 0.00 | 1.15 | 2.29 |
| 10 | 12 | 1.91 | 3.83 | 5.72 | 5.12 |
| 11 | 6 | 0.00 | 0.01 | 3.44 | 3.97 |
| 12 | 24 | 1.91 | 3.83 | 2.28 | 3.24 |
| 13 | 11 | 1.91 | 3.83 | 2.28 | 3.24 |
| 14 | 20 | 1.91 | 3.83 | 5.72 | 5.12 |
| 15 | 38 | 0.00 | 0.02 | 4.58 | 4.58 |



P 3 of 3

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# EXCAVATION/SOIL DISTURBANCE PERMIT

*ALL BLANKS MUST BE FILLED PRIOR TO START OF WORK*

1) Project: NEW SUPPORT BUILDINGS / PST ① LOCATE INVERTS OF S.S. ②

2) Location of Work: WEST SIDE OF BUILDING 37 ② EXCAVATE TO REMOVE TANK

3) Agency Performing Work (Mound Trades or Contractor): THE STAVER GROUP

4) Is excavation within 5 ft. of underground utilities? ☒ Yes (see Appendix B) ☐ No
Attach waiver, if approved.

5) Person Responsible for Field Activities: Theodore R. Vogel
(Signature)

6) **EXCAVATON/SOIL DISTURBANCE PERMIT CHECKLIST (a.-o.)**
**Must be performed before start of work (checkmark required after each item is complete)** ATTACHED

| | Complete |
|---|---|
| a) Determine location of underground utilities by reviewing latest revision of utility drawings. VISTA MAP | ✓ |
| b) Determine location of contaminated areas by reviewing latest revision of contaminated area drawings. UPDATED MAP NOT YET | ✓ |
| c) Perform field/site work inspection to identify any overhead utilities and above ground indicators for buried utilities. | ✓ |
| d) Perform scanning for underground utilities and mark utility location with paint, ribbon or stakes. PIPES EXPOSED PREVIOUSLY | ✓ |
| e) Perform pipe location with locator instrument and mark utility location with paint, ribbon or stakes. WJE WJE | ✓ |
| f) Environmental Safeguards & Compliance notified. RON PRUELOCK | ✓ |
| g) Industrial Safety & Hygiene POC notified. CHRIS AHLQUIST | ✓ |
| h) Utility Operations (ext. 4894) notified. ALLEN UPSHAW | ✓ |
| i) Security (ext. 3400) must be notified if excavation requires road closure or is within 6' of a security fence. | ✓ |
| j) Fire Department (ext. 3313) must be notified if underground fire utilities are involved. TOM BEAR | ✓ |
| k) Barricades in place. Warning lights may be required if excavation is open over night. | ✓ |
| l) Safety glasses and hard hats available for all workers within the barricaded area. | ✓ |
| m) Reflective vest required during heavy equipment use. | ✓ |

n) Is excavation/trench to be 4' or more in depth with personnel entry? ☒ Yes ☐ No
**IF NO, DO NOT COMPLETE SECTION 7 CHECKLIST**

o) If yes, enter name of Competent Person Thomas S Schroeder
(Print Name)

7) **EXCAVATIONS/TRENCHES 4' OR GREATER IN DEPTH WITH PERSONNEL ENTRY CHECKLIST (a.-h.)**

**Competent Person completing checklist:** Thomas S Schroeder
(Signature)

**(Checkmark required after each item is complete)**

| | Complete |
|---|---|
| a) Ensure spoils are 2' from edge to prevent a falling hazard for workers in excavation/trench. | ✓ |
| b) Competent person shall determine if Industrial Hygiene should evaluate excavation/trench for atmospheric hazards. | ✓ |
| c) Ensure safe means of access/egress (extend ladder 3' above edge of excavation/trench). Ensure no more than 25' lateral travel for safe access/egress. | ✓ |
| d) Address fall hazards if a 6' or greater fall hazard exists. | ✓ |
| e) Ensure sloping (1 1/2:1 ratio), benching, shoring or trench box is in place for excavation/trenches 5' or greater in depth. | ✓ |
| f) Ensure mechanical equipment is at a safe distance from excavation/trench to prevent a super imposed load hazard. | ✓ |
| g) Competent person shall inspect excavation/trench daily at a minimum or more frequently based on hazards such as possible cave-in or water accumulation. | ✓ |
| h) Competent person shall determine additional PPE. Refer to RWP for any radiological PPE. | ✓ |

| DATE | ISSUER SIGNATURE | RADIATION PROTECTION SIGNATURE |
|---|---|---|
| 02-20-01 | Mark J. Eisenbar | 02/02 02/20/01 |

*Note: Any change in scope of work or location requires a new permit.*

| Excavator's Review: | Initial | Date | Initial | Date |
|---|---|---|---|---|
| | NKA / KLA | 2-23-01 | TSS | 2-23-01 |

**EMERGENCY 911**

**865-4040 (Offsite, Construction Trailers, Mobile Telephones)**

ML-7844 (1-01)