Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Building 37
(Demolition)

Final
January 2004

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

SM-004/04
January 12, 2004

Ms. Margaret L Marks, Acting Director
Miamisburg Closure Project
U. S. Department of Energy
500 Capstone Circle
Miamisburg, OH 45342

ATTENTION: Paul Lucas

SUBJECT: Contract No. DE-AC24-03OH20152
BUILDING 37, BUILDING DATA PACKAGE, FINAL
Bldg 37-GFS/I: Planning Document Approved - Activity ID: EBDEE050BL

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Ms. Marks:

Paul Lucas from your office has approved the following final document to be released:

- Building 37, Building Data Package, Final

If you or members of your staff have any questions regarding the documents, or if additional support is needed, please contact Bob Ransbottom at 865-4220.

Sincerely,

K. L. Kehler
SMPP/TFV Project Manager

KLK/VKD

Enclosures

cc: David Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Frank Schmaltz, DOE/MCP, (1) w/attachments
Lisa Rawls, DOE/MCP, w/o attachments
Randy Tormey, DOE/OH, (1) w/attachments
Terry Tracy, DOE/HQ, (1) w/attachments
Dann Bird, MMCIC, (3) w/attachments
Jim Bonfiglio, MESH, (1) w/attachments
Public Reading Room, (4) w/attachments
Kurt Kehler, CH2M Hill, (1) w/attachments
CERCLA Records, CH2M Hill, (1) w/attchs
Admin. Record (2) w/attachments
DCC (1) w/attachments
John Fulton, CH2M Hill, w/o attachments
Bob Ransbottom, CH2M Hill, w/o attachments
Dave Rakel, CH2M Hill, w/o attachments

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

November 2003

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

Dear Mr. Bird:

The Core Team, consisting of the U.S. Department of Energy Miamisburg Closure Project (DOE-MCP), U.S. Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA), appreciates your comments on the Building 37 Building Data Package. Attached is our response.

Should the responses to comments require additional detail, please contact Paul Lucas at (937) 847-8350, x314 and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MCP:	Paul Lucas	11/18/03
	Paul Lucas, Remedial Project Manager	date
USEPA:	David P. Seely	11/18/03
	David P. Seely, Remedial Project Manager	date
OEPA:	Brian K. Nickel	11/20/03
	Brian K. Nickel, Project Manager	date

Response to MMCIC Comments on the Building 37 Data Package Public Review Draft October 2003

Substantive Comments

Comment 1. From our review of the Building 37 Data Package, Public Review Draft, MMCIC concurs with the planned demolition of the building. MMCIC understands that all procedures will be in place to ensure that the demolition activity will have a minimal environmental impact. In addition, as this area is part of the reuse of the site, MMCIC would appreciate the opportunity to coordinate with DOE and the clean-up contractor any anticipated work activities in this area.

Response 1. Your understanding is correct that all procedures will be in place to ensure that the demolition activity will have a minimal environmental impact. MMCIC is encouraged to coordinate with DOE and the clean-up contractor regarding demolition activities. Thank you for your review and input to the document.

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

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

Errata

Comment 1. No Comments.

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 FINAL (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	Public review was from 6 October 2003 to 5 November 2003.	**October 2003**
FINAL	Comments from MMCIC are included herein.	**January 2004**

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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 (<0.1 mg/cm^2). 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. 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: 1) machine tools (particulate), and 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. 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. The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category I material in accordance with NESHAP, it will remain in place during demolition and be disposed of as construction waste. 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 radiological survey for Building 37 is complete; the Final Status Report is provided in Appendix G.	Survey results for Building 37 indicate that the building meets surface release criteria. No further action required.
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. Two underground tanks were installed as part of the Building 37 construction. 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. 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. 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. PRS 271 (Tank 100) and PRS 336 (Tank 267) are unbinned.	Both tanks were removed in 2000/2001 during the Building 126 construction project. 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. During excavation of the concrete vault, if stained soil, soil with an odor, or any other indication of contamination is found, additional samples will be taken for further analyses. 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. 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. 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.

Surveys were performed throughout the building in accordance with the Multi-Agency

Radiation Survey and Site Investigation Manual (MARSSIM). The fixed point, scanning, and smear surveys found no residual activity above the $DCGL_w$. Smear samples taken in floor drains and ventilation units found no activity above background levels.

The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5 (See Table 4), and no further radiological surveys are required. Subsurface material (under-slab, footers, etc) and associated soil is not evaluated in this survey, but will be assessed separately when surfaces are accessible.

Supporting documentation for the information summarized in the following table is contained in Appendix G.

Table 4: Radiological Summary

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm²) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm²) (Note 2)
Highest Alpha Smearable Activity	03-TF-0276	Floor	5.3	20
Highest Alpha Fixed Activity	03-TF-0274	Exterior Wall	91	100
Highest Beta Smearable Activity	03-TF-0265	Roof	6.8	1,000
Highest Beta Fixed Activity	03-TF-0274	Exterior Wall	2,107	5,000
Highest Tritium Smearable Activity	03-TF-0276	Floor	11.91	10,000

Note 1: Residual radiological activity may be present and not be a concern (within applicable limits). This may result from or be a function of counting statistics, instrument variances, the randomness of decay, radon presence, and/or natural fluctuations in background levels.

Note 2: Guideline values per DOE Order 5400.5, Radiation Protection of the Public and the Environment.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 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 5. The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N.

Table 5 - 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.

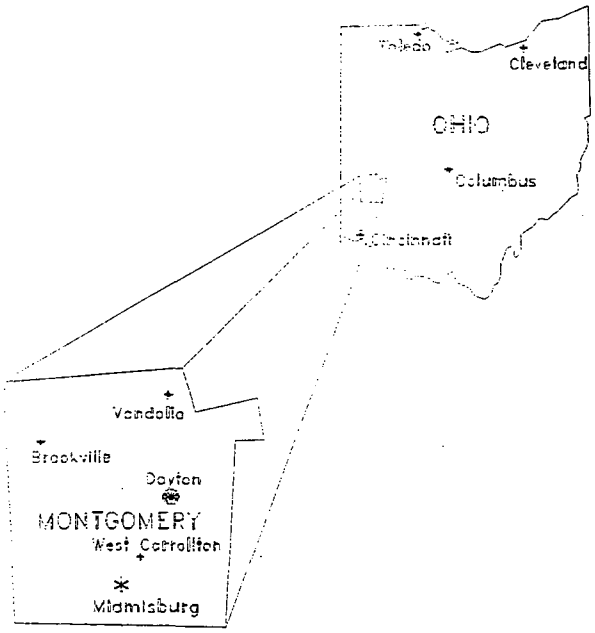
Appendix A

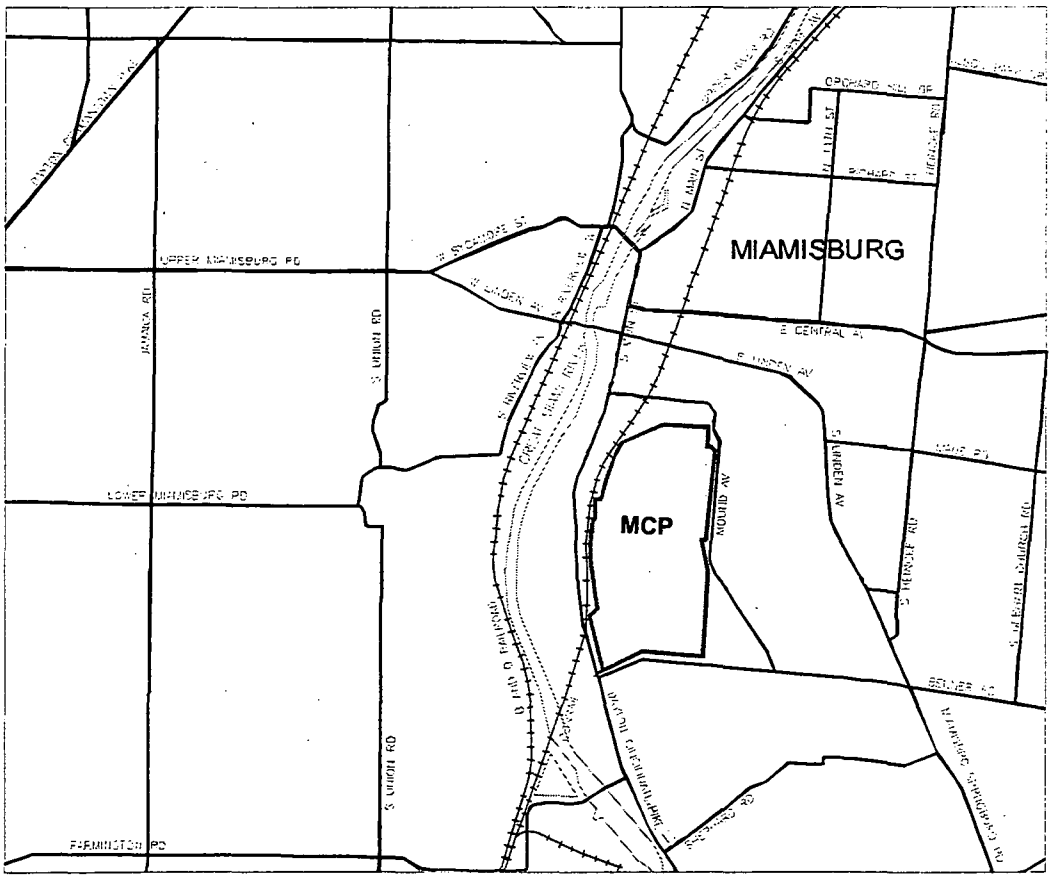
General Listing of Acronyms

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


Toledo
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
S HOOVER RD
BELMER RD

B1of1

Appendix C

Figures

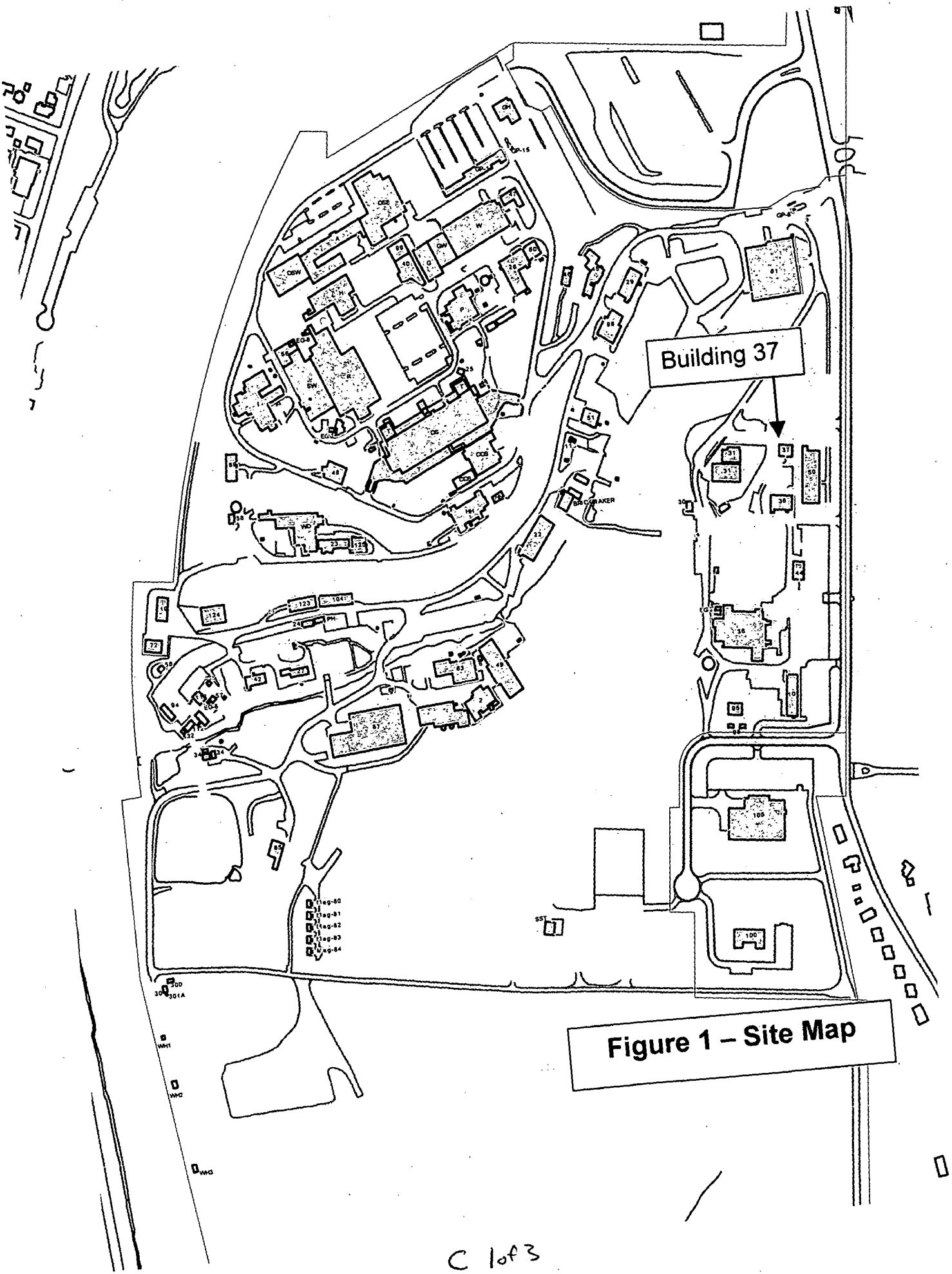


Figure 1 – Site Map

PRS Point

PRS Area

PRS Line

20 10 0 20 40FT

GRAPHIC SCALE

MOUND

Environmental Restoration Geographic Information System

04/29/03		SSF							
ISS	DATE	REVISION	BY	CHKR	ENG	LPAEC	APVD	B	

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

Figure 2
Building 37
and Vicinity

GRAPHIC CLASSIFICATION: UNCLASSIFIED
SIZE
DRAWING NUMBER: vicinity.dgn
JOB NUMBER
DGN TYPE STE
PROJ ER-GIS
CAGEC
SCALE
SHEET 1 OF
STATUS MD-REL-##/##/##
ORIGIN MSTATION / J

C2 of 3

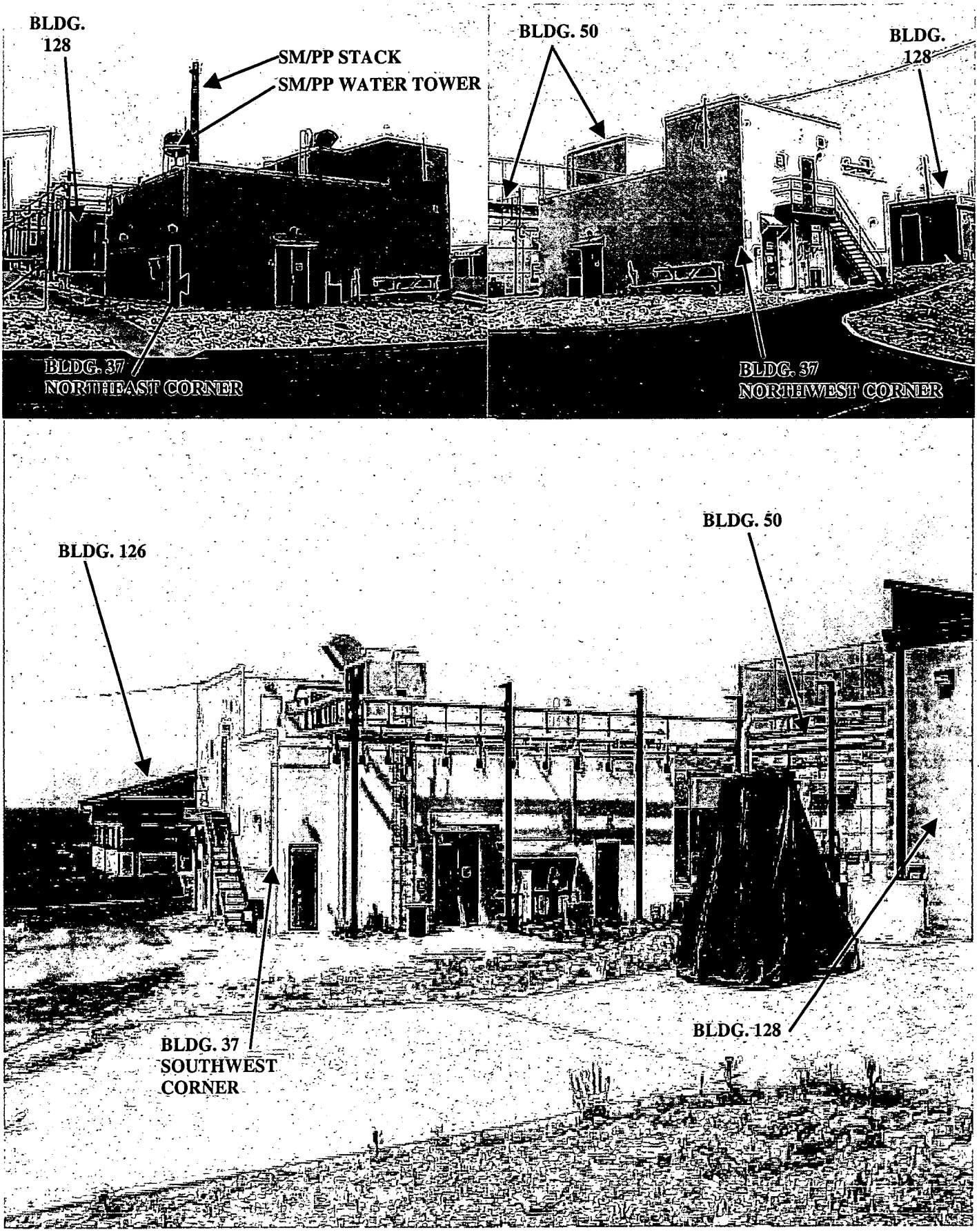


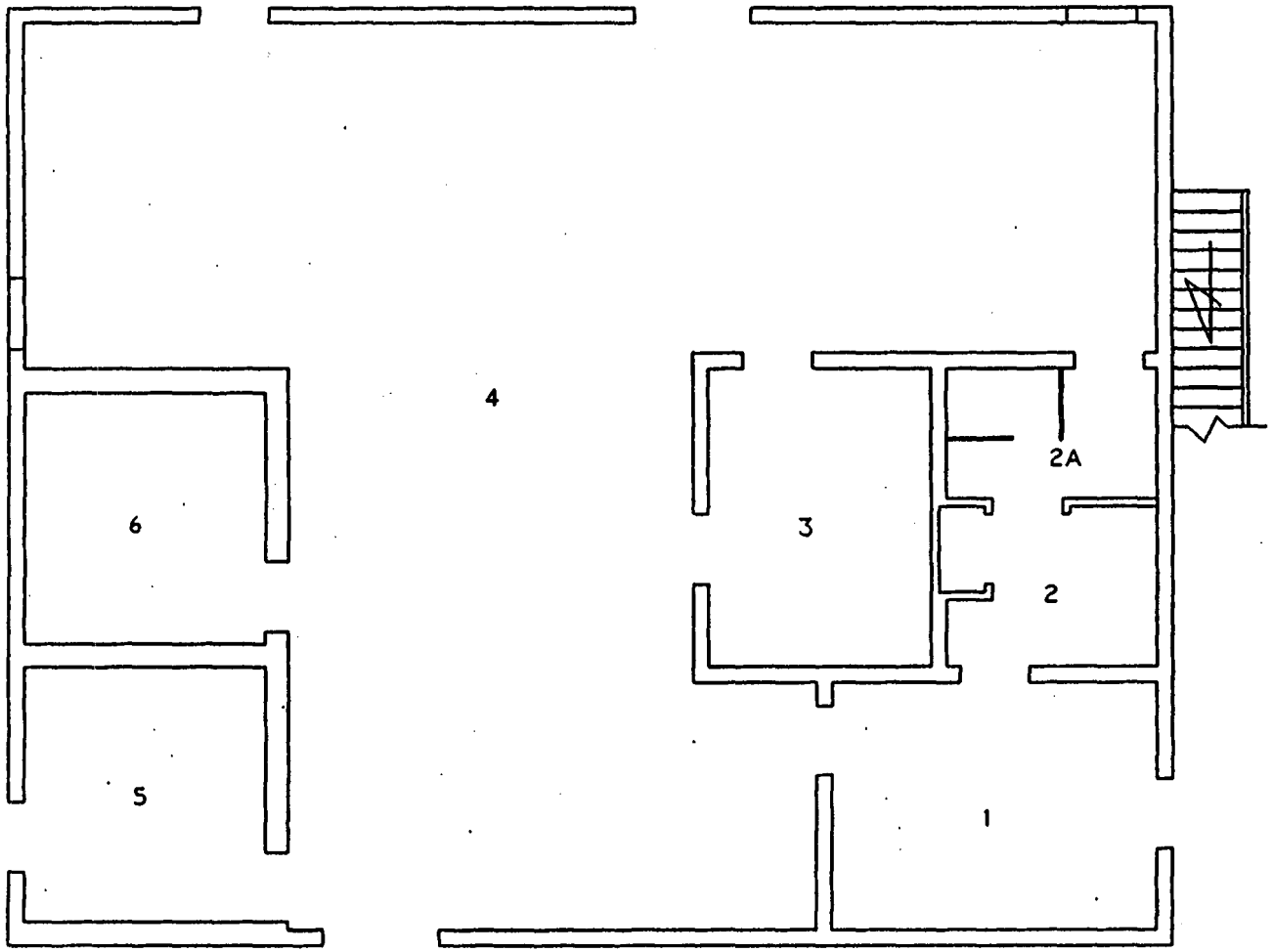
FIGURE 3 – BLDG. 37

C3of3

Appendix D

Floor Plans

ISS	DATE	REVISION	BY	CHKD	CHD	APVD	APVD	R
B	12/12/91	ASBUILT ISSUE	DCW				DVD	



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

UNCLASSIFIED

0 1' 3' 6' 18'

N

BLDG #37
FIRST FLOOR
BLDG CODE:3037

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED:
___ NONE ___ WAUCOC ___ YEOOC ___ EHOOC
TECH. REP. ___
GR. MGR. ___
WAUCOC ___
YEOOC ___
EHOOC ___

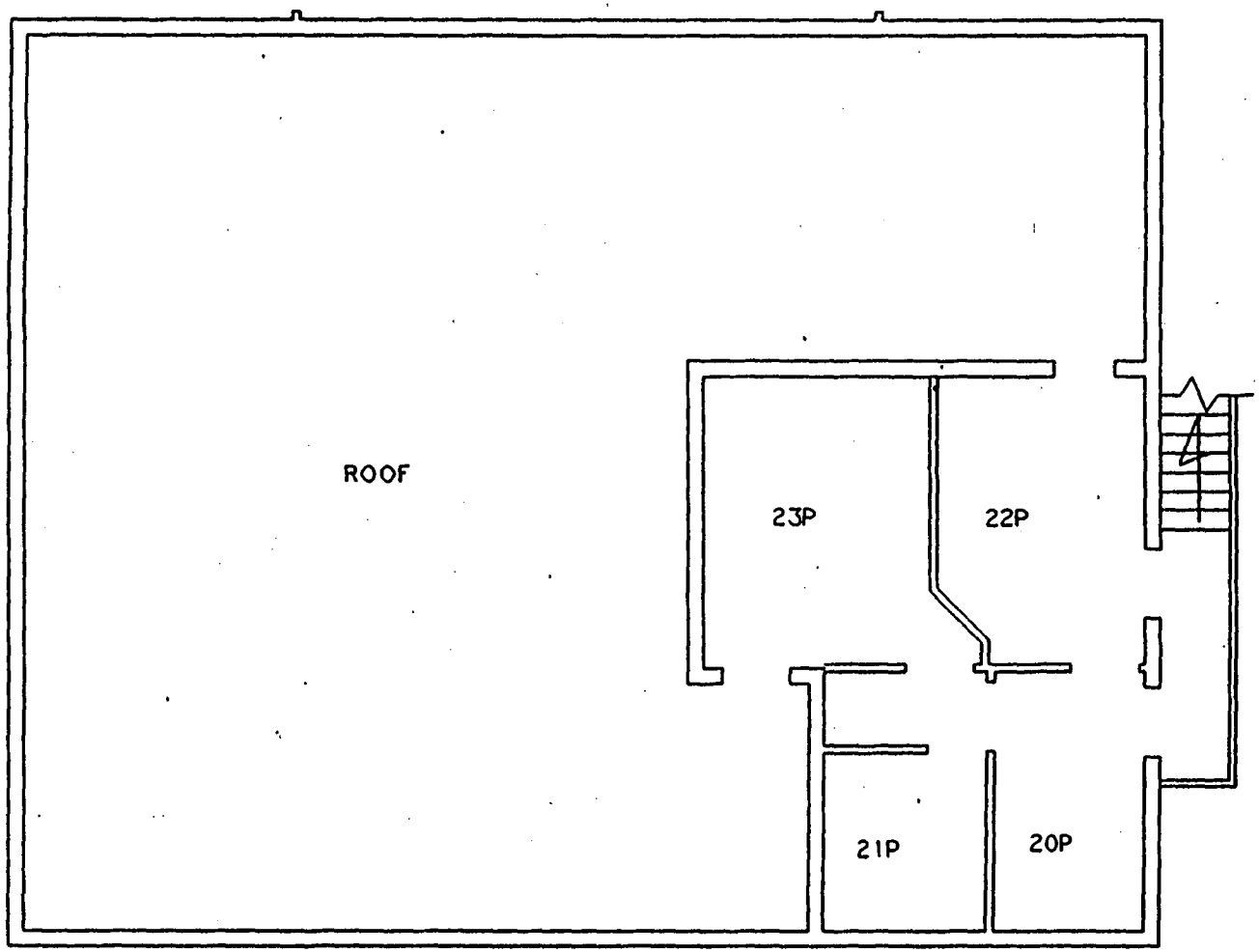
NOT FOR PUBLIC DISSEMINATION

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.

DESIGN ORG | PROJ ENG
SPONS | CAD SUPV
CP & EC | PROJ REV
CAD TECH
APVD | DATE

SHEET	1	2	3	4	5	6	TITLE	(U) TITLE CLASSIFICATION
ISSUE	B	B					BLDG #37 FLOOR PLANS	
PROJ CLASSIFICATION								
DRAWING CLASSIFICATION ~~UCNI~~							SIZE C	DRAWING NUMBER FSC911248	JOB NUMBER 12335
DWG TYPE SFP	PROJ BLDG #37	CODE 14865	SCALE AS NOTED	SHEET 1 OF 2
STATUS MD-REL.-12/12/91	ORIGIN MD-BR3-V3.0	

1 of 2



UNCLASSIFIED

BLDG #37
PENTHOUSE
BLDG CODE:3037

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

NOT FOR PUBLIC DISSEMINATION

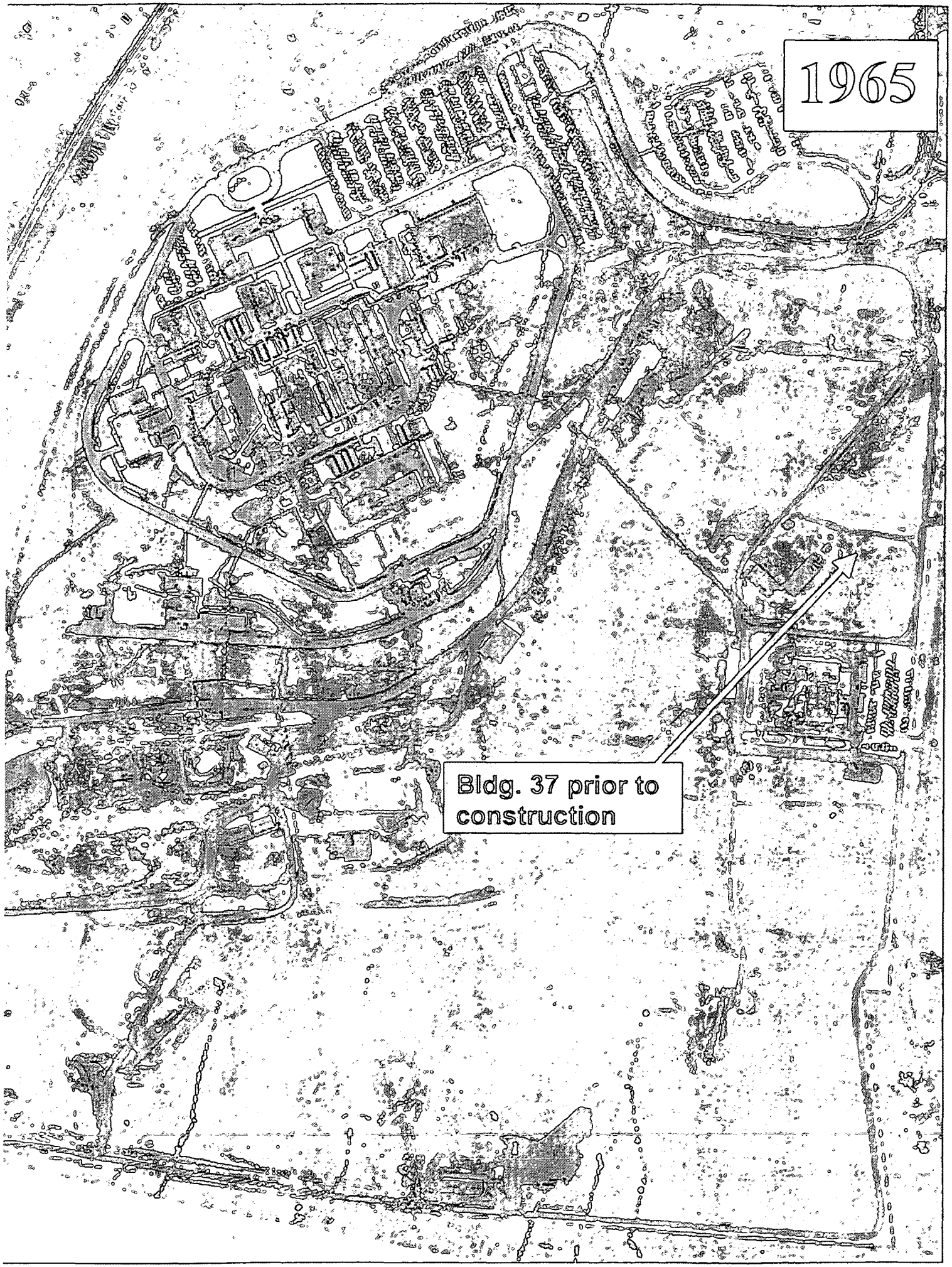
MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

DRAWING NUMBER	FSC911248
JOB NUMBER	12335
DRAWING CLASSIFICATION	~~UCNI~~
SIZE	C
CODE	14665
SCALE	AS NOTED
ISSUE	0
SHEET	2
STATUS	MD-REL-12/12/91

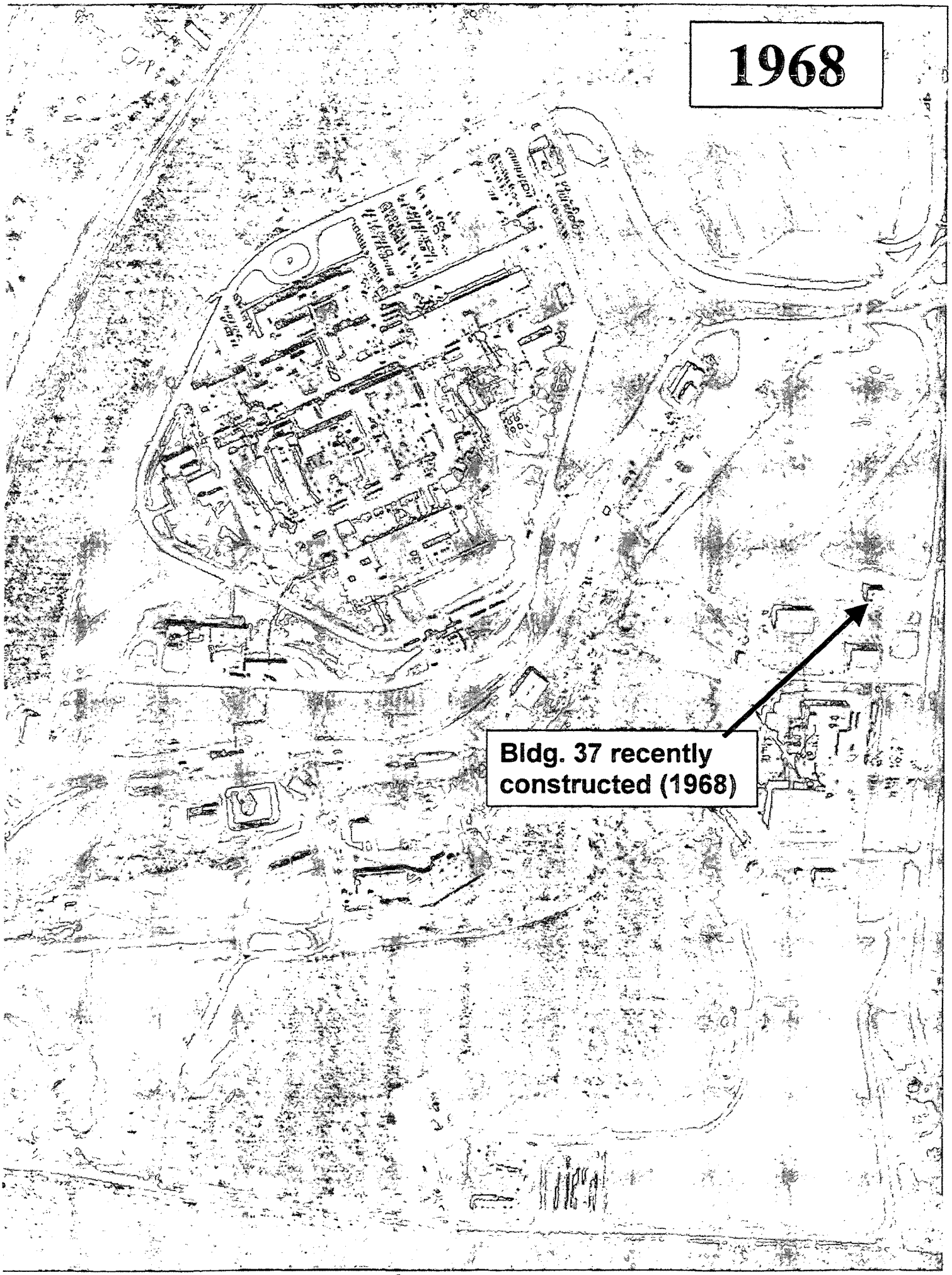
2 of 2

Appendix E

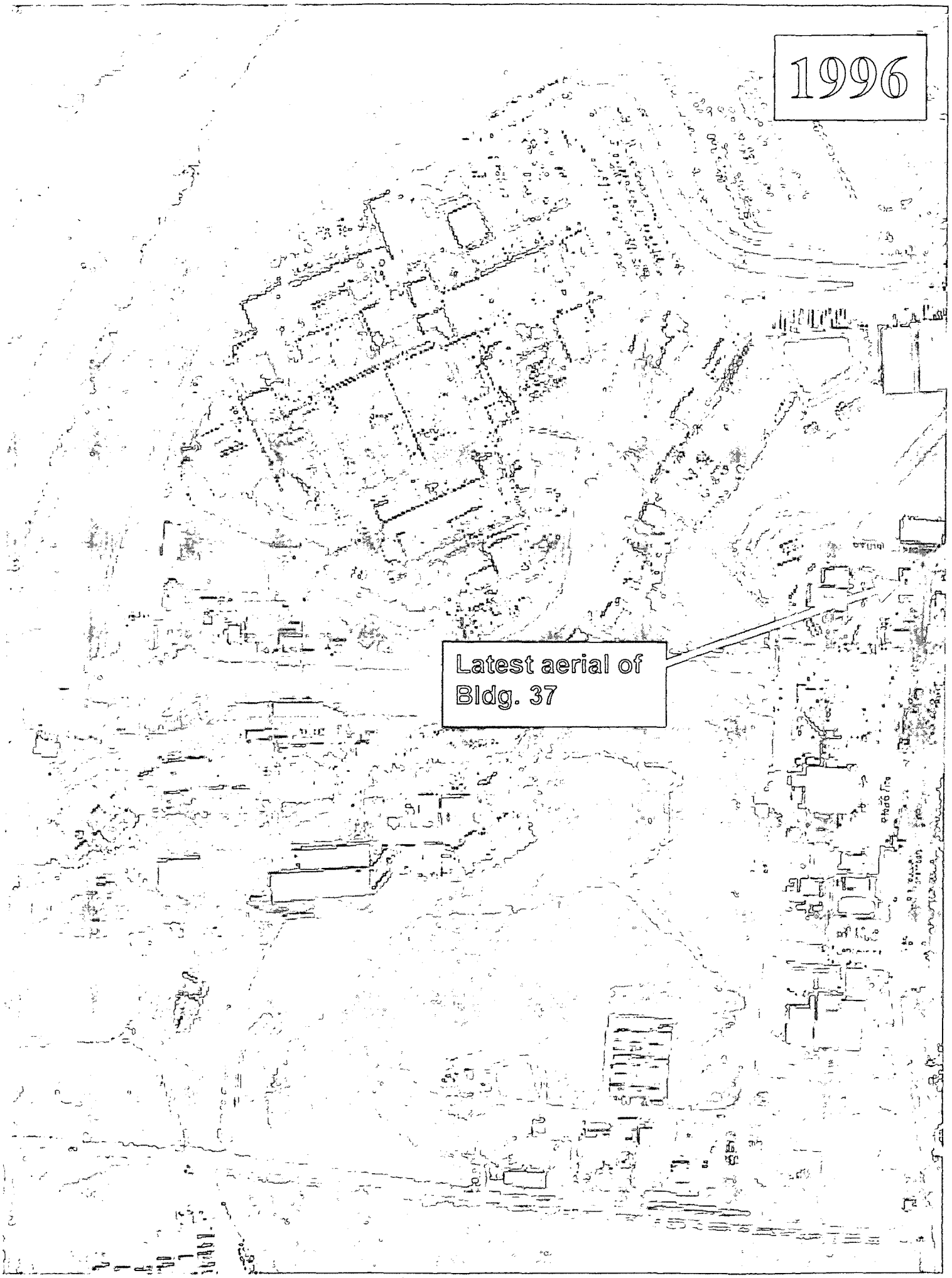
Aerial Photographs



E 1 of 3



E2 of 3



E 3 of 3

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

Phillip J. Parker
Name Discipline

Name Discipline

Building Manager: Gary Miller for Paul Molloy

Process Manager:

Date: 2-27-96

ENVIRONMENTAL APPRAISAL CHECKLIST

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

Environmental Appraisal Checklist

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

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? Are they properly contained?	(Y) / N (Y) / N	Amyl Acetate, Furfural past operations
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____	~~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? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	(Y) / N _____ _____ (Y) / N Y / (N)	Two sanitary sumps outside sewage
	Are there any manholes, catch basins, drains, or fill pipes in or around the building? If so, are there any unusual appearances, colors, and/or odors? Describe in comment section. Can chemicals flow into the drain?	Y / (N) Y / (N) Y / (N)	

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

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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 s 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)	

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				
Fume hood	004	?	Y/N	Y/N	2 of 3	hoods	removed.		
			Y/N	Y/N					
			Y/N	Y/N					
			Y/N	Y/N					

Source:

9.60-14

Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulick/Adkins/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 858

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 missi. 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) RP 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	

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

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Source: _____

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~~	~~SH4C-3~~	~~Halsey Taylor~~ RP 3/8/96
37	Room 5	BISRHS-102	EBCO bottled water ok.

Source: _____

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

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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
I. HAZARDOUS WASTE STORED IN CONTAINERS			
	Is there an area in the building that could qualify as a Satellite Accumulation Area? Is it treated as such?	(Y) / N (Y) / N	There will be a potential SAA for solvents when ~~ope~~ operations begin. Cleaning operations in R-Building will be moved to BD-37.
OAC 3475-52-34 (C)	Has any of the RCRA hazardous waste in this building been managed in Satellite Accumulation Areas? If no, proceed to the next section. If yes, answer the following.	(Y) / N	
	Are the containers marked with the words hazardous waste, or other words denoting the hazard?	(Y) / N	
	Are the containers in good condition?	(Y) / N	
	Are the waste compatible with the containers?	(Y) / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the plant site boundary?	(Y) / N	
	Are containers kept closed and locked except during filling?	(Y) / N	Access to 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. 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? Where is the log? Is it properly completed, dated, and signed?	Y / N _____ Y / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the facility boundary?	Y / N	
	Are incompatible wastes managed in such a way that they will not react with another incompatible waste?	Y / N	
OAC 3745-52-34(B)	Has any of the waste (except in Building 23, Building 72 and the Burn Area) been managed in excess of 90-days?	Y / (N)	
	If no go to next section.		
	If yes, note.		
	For Building 23, Building 72 & Burn Area use special checklist.		

Environmental Appraisal Checklist

Building Name: 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/Adkins/Parker Date: 2-27-96

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? If no for this building or area note this conclusion in the comment section.	(Y) / N	Contains Asbestos
	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 ? If the answer is no, note . 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? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed.	Y / N	
40 CFR 761.65 (c) (5)	Are PCB articles or containers stored in this building checked for leaks at least once every 30 days?	Y / N	
	If yes, are auditable records maintained.	Y / N	
40 CFR.30 (a) (1) (ix)	Are any PCB transformers in use, or stored for possible reuse, that contain PCB's at concentrations of 500 ppm or greater?	Y / N	
	Are they visually inspected quarterly? If yes, are auditable records maintained?	Y / N	

Environmental Appraisal Checklist

Building Name: 37 Appraisers: Faulick/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	

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	

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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 ? If the answer is no, note. 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? If no, The audit would stop here, because there are no LLW. If yes, note the location of the management unit, and the method of management, and proceed with the section below.	Y / N	
DOE Order 5820.2A Chapter III, 3.a.	Have the storage configurations in use in this area been taken into account for keeping external exposures to the general public below 25 mrem/yr?	Y / N	
	Is the waste stored in a configuration that protects ground-water resources?	Y / N	
DOE Order 5820.2A Chapter III, 3.b.	Has monitoring been conducted in this area in accordance with DOE Order 5820.2A in order to evaluate the area against the performance standard?	Y / N	
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N	

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Environmental Appraisal Checklist

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

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	✓

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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.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	✓

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Environmental Appraisal Checklist

Building Name: 37 Appraisers: Paulek/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.). 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) 3/8/96	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 kilns?	Y / N	
	Are baghouse filters used to collect pesticides and pesticide intermediates?	Y / N	N/A
	Are solid wastes generated from the collection of baghouse dust?	Y / N	
	Wet instead of dry grinding used?	Y / N	
	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

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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
	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 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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9.60-37

Building Manager's Questionnaire

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 ft² 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 heat treating operations are performed in direct support of HS/A Sector Assign

~~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

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Building Name: 37 Building Manager: P.T. Mollov 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).

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

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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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Building Manager's Questionnaire

Building Name: 37 Building Manager: P.T. Mollov 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: _____

Building Manager's Questionnaire

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

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

NONE

26. Is there a sump or pit or underground tank in or around the building?
(Yes) No ~~Unknown~~ OUTSIDE 2 Sanitary tank
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

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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

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

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

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9.60-57

Building Manager's Questionnaire

Building Name: 37 Building Manager: P.C. 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 Manager's Questionnaire

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. Others 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

MSDS INDEX

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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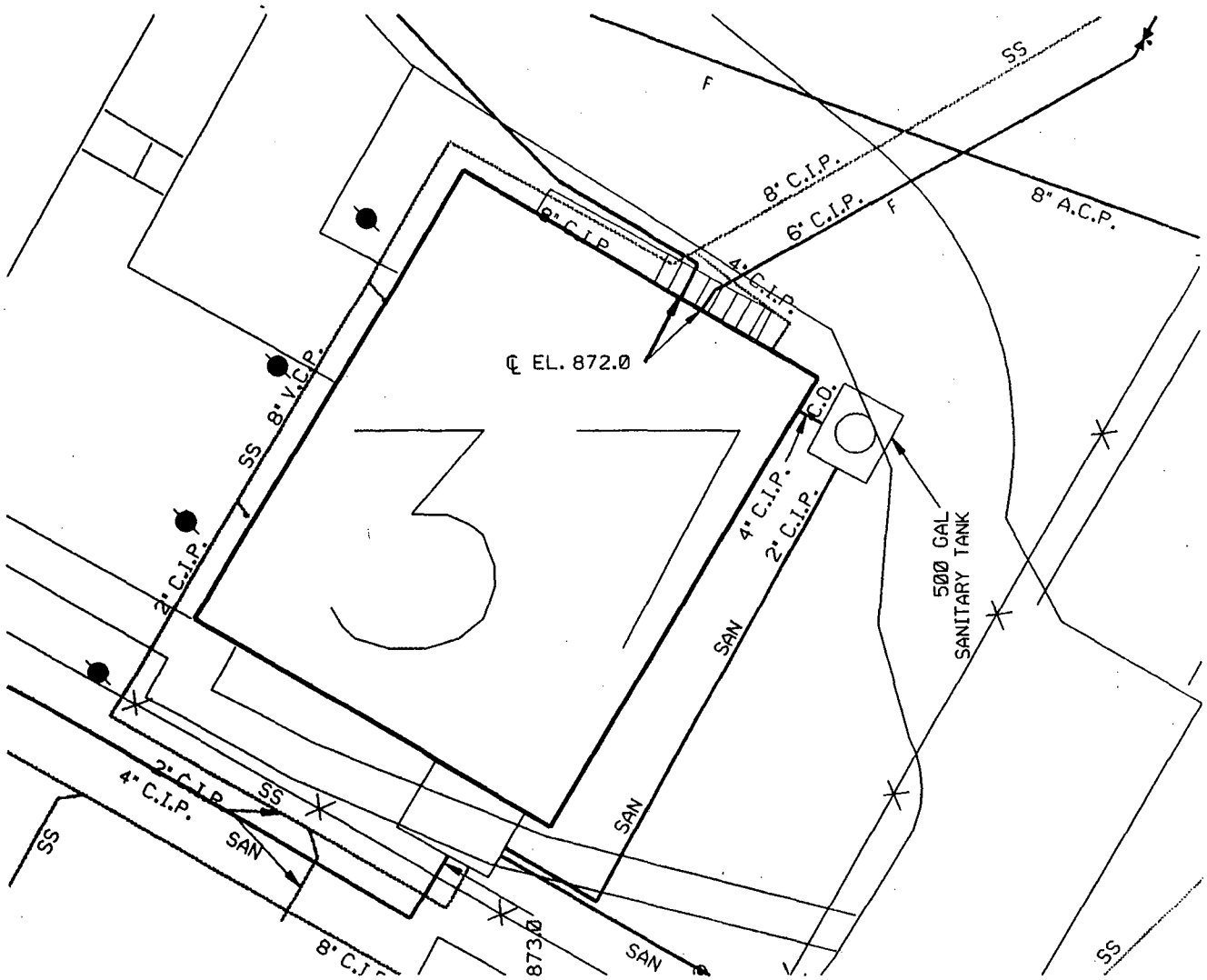
MOUND NO.	PRODUCT NAME	MANUFACTURER	LOCATION
S0332	Solder seal liquid wrench #1	Radiaator Spect.	Bd 37
S0095	Spray Tap	Chem-Tech	Bd 37
.J100	stainless steel	vaarious	Bd 37
S0108	steel	various	Bd 37
	sulfuric acid	various	R166
	Super 77	3M	Bd 37
T0004	Tantalum	Cabot	Bd 37
T0005	Tap Magic	Steco Corp.	Bd 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

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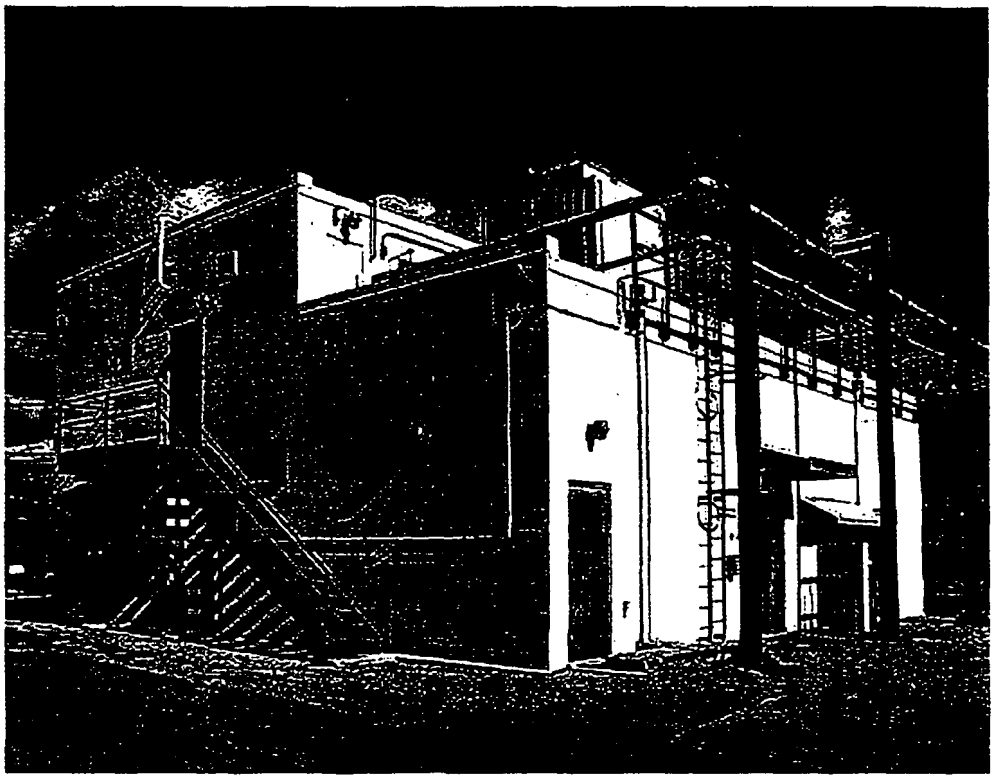
Appendix G

Radiological Information

Final Status Report
For
Building 37



Prepared by: Roderick C. Case / Date: November 6, 2003

Reviewed by: Kevin Doody / Date: 11/11/03

Approved by: A. Stephen Collas / Date: 11/12/03

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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 has been used for a variety of processes and functions as noted in various site documents. Some of these documents indicate that the facility may have been contaminated at one time. Since there is a potential for residual contamination to be present, Building 37 is designated as impacted and is scheduled for demolition in accordance with Miamisburg Closure Project goals.

A complete history of Building 37 can be found in Reference 1.

2.0 Survey Objectives

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 37 satisfy the site release criteria. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains or ventilation systems. The survey data is compared to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined on the Survey Plan Form (see Enclosures).

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

Table 1

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

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

The average activity levels shown in Table 1 assumes that the residual contamination is uniformly distributed across the survey unit and is the $DCGL_w$ for this survey. The maximum activity shown in Table 1 represents the Elevated Measurement Comparison ($DCGL_{emc}$) for small (<100cm^2) areas of activity that may be observed in the survey unit while scanning. It is assumed that Pu-238 is the potential contaminant of concern and the Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta measurements.

2.1 Survey Design

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

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%

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

In the Class 1 survey units, the starting point was randomly selected and data points were placed within the survey unit using the triangular grid method. The spacing of data points in each survey unit was determined by:

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

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

Survey data points were randomly placed in the Class 3 survey units. A reference coordinate grid system was used to locate the data points. The location of each data point is determined by multiplying the north-south (X) and the east-west (Y) dimensions of the survey unit by a randomly generated number for each dimension. A computer spreadsheet program was used to determine random coordinates. The data points were then located on a scaled drawing and transferred to the survey unit.

Professional judgment (biased) surveys were performed in overhead and crawl spaces to supplement the statistical survey data, but are not combined with the statistical data. Judgmental survey data is compared directly to the release criteria.

Floor paint was removed at randomly selected data points and acid etch samples were obtained on the original concrete floor to ensure residual activity was not masking fixed contamination.

Sediment smear samples were collected from floor drains and ventilation units since no sediment was found in these areas. Direct alpha and beta readings were taken at each sediment sample location.

Loose surface contamination was measured by smearing an area of 100cm^2 at each data point. Smears were counted for gross alpha/beta activity. Removable tritium contamination was measured on interior surfaces by liquid scintillation counting of coin smears.

Replicate surveys were performed in accordance with Reference 3.

The instruments selected for this survey were the Ludlum 2350-1 data logger with a 43-68 hand-held gas flow proportional (GFP) detector for alpha/beta fixed point measurements and a 43-37 GFP large area floor probe for alpha scan measurements. For safety reasons, a Ludlum 2360 with an L 43-93 scintillation probe was used for alpha/beta roof measurements in accordance with Reference 4. Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The gross alpha and beta fixed point measurements from each survey unit were collected and compared directly to the $DCGL_w$. Four data points in Survey Unit 6 (Exterior Walls) were found to be above the $DCGL_w$ (RSDS# 03-TF-0274). It was believed that these elevated readings were the result of short-lived activity from Radon daughters. These data points and two additional elevated points were resurveyed. The highest observed measurement in the resurvey was 91 dpm/100cm^2 (RSDS# 03-TF-0280). All of the remaining data points were found to be below the $DCGL_w$. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1. A retrospective power curve (Attachment 2) demonstrates that the survey design had sufficient power (probability) to meet the DQO's for this survey plan. The average alpha measurement is 40.0 dpm/100 cm^2 ±3.3 dpm/100 cm^2 and the standard deviation (σ) is 19.8. The relative shift (Δ/σ) = 3.03 and Sign p (probability that a random measurement is < $DCGL_w$ when the median = LBGR) = 0.99379. The retrospective number of data points (n) per Equation 5-2, Reference 2 is 20.

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

Total Activity Results

Survey Unit	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	53	30.1	4.75	1700	1555.6	37.9
Survey Unit 2	65	37.1	5.97	1850	1554.9	61.7
Survey Unit 3	61	37.6	5.77	2638	1802.8	97.6
Survey Unit 4	61	27.4	6.00	1470	1205.4	64.6
Survey Unit 5	61	30.4	6.37	1709	1242.8	74.2
Survey Unit 6	91	70.6	6.45	2107	1436.8	107.8
Survey Unit 7*	86	47.3	8.53	313	219.3	22.9

* Survey Unit 7 was surveyed using L2360 with 43-93 alpha/beta scintillation probe.

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

Removable Alpha & Beta Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	5.3	0.51	.056	4.1	0.95	0.58
Survey Unit 2	1.9	0.31	0.28	4.3	0.93	0.59
Survey Unit 3	1.0	0.09	0.12	2.5	0.85	0.45
Survey Unit 4	1.8	0.17	0.22	5.3	1.10	0.74
Survey Unit 5	1.6	0.24	0.26	4.2	0.99	0.54
Survey Unit 6	3.6	0.53	0.51	2.8	0.81	0.40
Survey Unit 7	1.9	0.10	0.19	6.8	0.98	0.77

The highest removable tritium activity was 11.91 dpm/100cm2 (RSDS# 03-TF-0276). The average removable tritium was 0.83 dpm/100cm2 (± 0.35).

The floors in Survey Units 1, 2, and 3 were scanned for alpha activity. No alpha activity was observed above the alarm setpoint of 75 dpm/100cm2 (RSDS# 03-TF-0276).

Judgmental surveys were performed on ceilings and crawl spaces. The highest observed activity was 57 dpm/100cm^2 alpha and 1691 dpm/100cm^2 beta (RSDS# 03-TF-0276).

2.3 Sediment Sample Data

Sediment smear samples were obtained from floor drains and ventilation systems. Smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan. No smearable activity was detected above background levels on any sample. Direct alpha and beta measurements were taken at each sample location. The highest fixed activity observed was 64 dpm/100cm^2 alpha and 2256 dpm/100cm^2 beta (See RSDS # 03-TF-0273).

Eighteen (18) floor data-point locations were selected at random for acid etch sampling to determine if residual contamination was present beneath paint. Surface paint was removed and alpha and beta fixed point measurements were obtained at the sample location before and after the sampling. Survey and sample results indicate that no residual contamination is present above background levels under the floor paint (See RSDS# 03-TF-0264). Laboratory sample results are given as disintegrations per minute per sample. These results are converted to pCi/g for comparison to the screening levels and background values in Enclosure 1, Sample Data Analysis Worksheets.

2.4 Quality Control

Quality control measurements were taken to assess the precision of the measurement system. Sixteen data points were selected at random from the sample group of 140 data points. Replicate measurements were taken at these locations using the same instruments and performed in the same manner as the original survey. The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is within a factor of two of the variance in the replicate samples (at 95% confidence level). The results of the replicate surveys are shown in the following table:

Replicate Analysis Results

Location #	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Initial	2σ	Replicate	Initial	2σ	Replicate
SU5-17	42	12.96	65	1239	70.4	1045
SU7-18	36	12.0	56	273	33.1	141
SU7-9	71	16.85	48	115	21.5	126
SU1-6	19	8.72	38	1523	78.1	1452
SU6-20	87	18.65	76	1443	75.9	1425
SU2-16	42	12.96	15	1408	75.1	1629
SU4-5	15	7.75	27	1107	66.5	1231
SU5-6	19	8.72	15	1036	64.4	1319
SU1-9	30	10.95	15	1611	80.3	1655
SU3-4	42	12.96	38	1735	83.3	1363
SU4-20	30	10.95	19	921	60.7	947
SU2-9	53	14.56	53	1664	81.6	1779
SU6-10	38	12.33	38	1266	71.2	1372
SU4-11	15	7.75	30	1133	67.3	1169
SU2-2	38	12.33	49	1709	82.7	1771
SU5-18	23	9.59	42	1257	70.9	1514
Variance (S^2)	618.7		461.9	401023		455766
Ratio			1.34			0.88
Agreement			YES			YES

Replicate analyses were not performed on smears or sediment samples. Quality control procedures, blanks, and spikes are a part of the laboratory quality control program at Mound. Participation in the DOE/EML inter-laboratory quality assurance program provides acceptable assurance of nuclide identification reliability and ensures a high quality of sample results. Since a relatively small number of samples were taken for this survey, additional replicate analysis was not required for this survey.

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

2.5 Conclusion

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 37 satisfy the site release criteria established by DOE Order 5400.5. This is accomplished by comparing the survey data to the release criteria in accordance with the MARSSIM (Reference 2). The scanning survey found no elevated measurement areas above the $DCGL_w$. No activity was found above screening levels in sediment samples.

All of the DQO's for this survey plan have been met and no further surveys are required. Building 37 meets the surface release criteria established by DOE Order 5400.5. The average and maximum residual contamination in each survey unit is less than the $DCGL_w$ and the survey is accepted as the Final Status Survey in accordance with the Survey Plan. The following tables show the maximum fixed and removable activity on the inside and outside building surfaces.

Building 37 Survey Results

TYPE	RSDS#	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)
Highest Alpha Smearable Activity	03-TF-0276	Floor	5.3	20
Highest Alpha Fixed Activity	03-TF-0274	Exterior Wall	91	100
Highest Beta Smearable Activity	03-TF-0265	Roof	6.8	1000
Highest Beta Fixed Activity	03-TF-0274	Exterior Wall	2107	5000
Highest Tritium Smearable Activity	03-TF-0276	Floor	11.91	10,000
Note 1: DOE Order 5400.5 (DCGLw)				

3.0 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

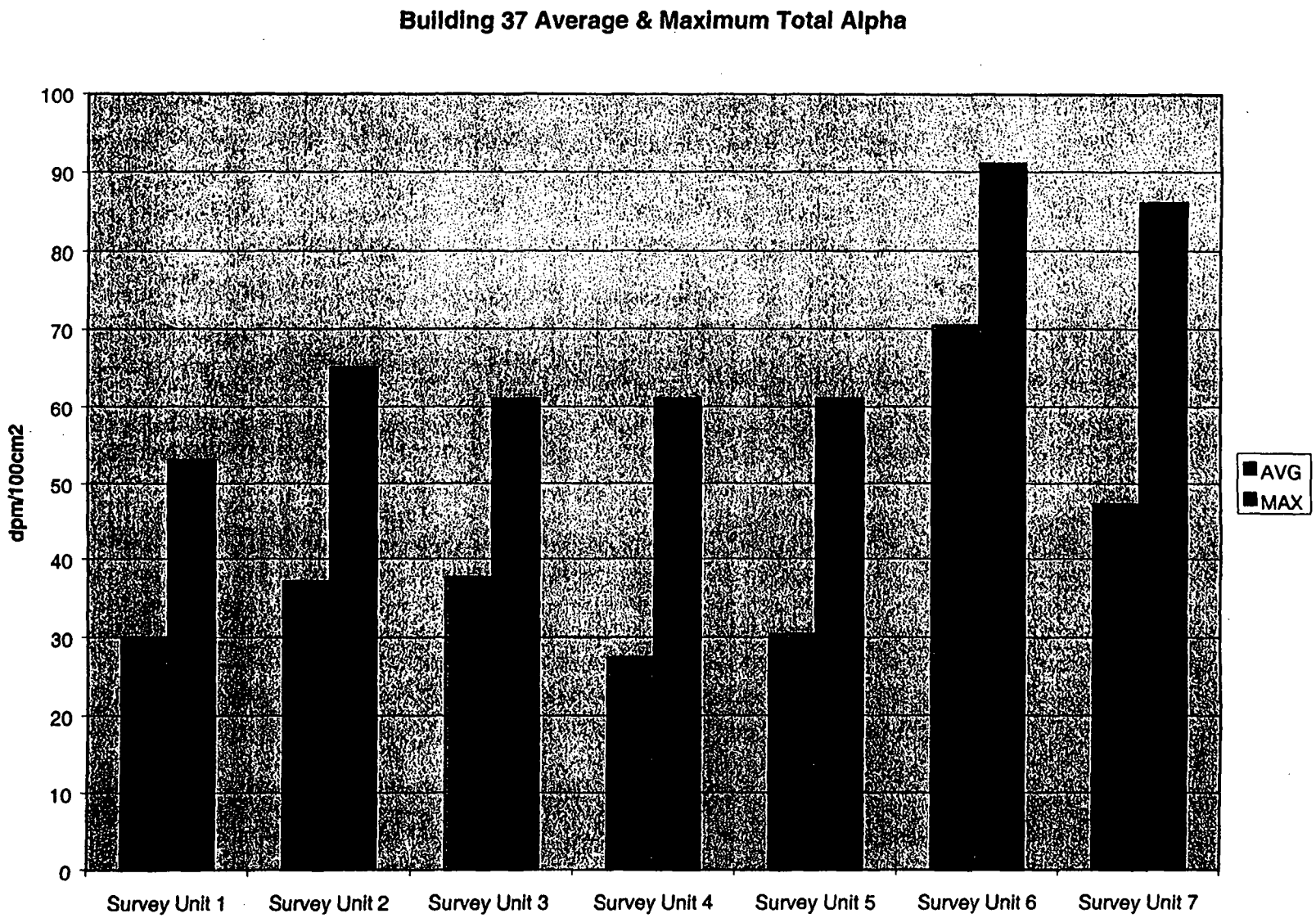
Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 37-01

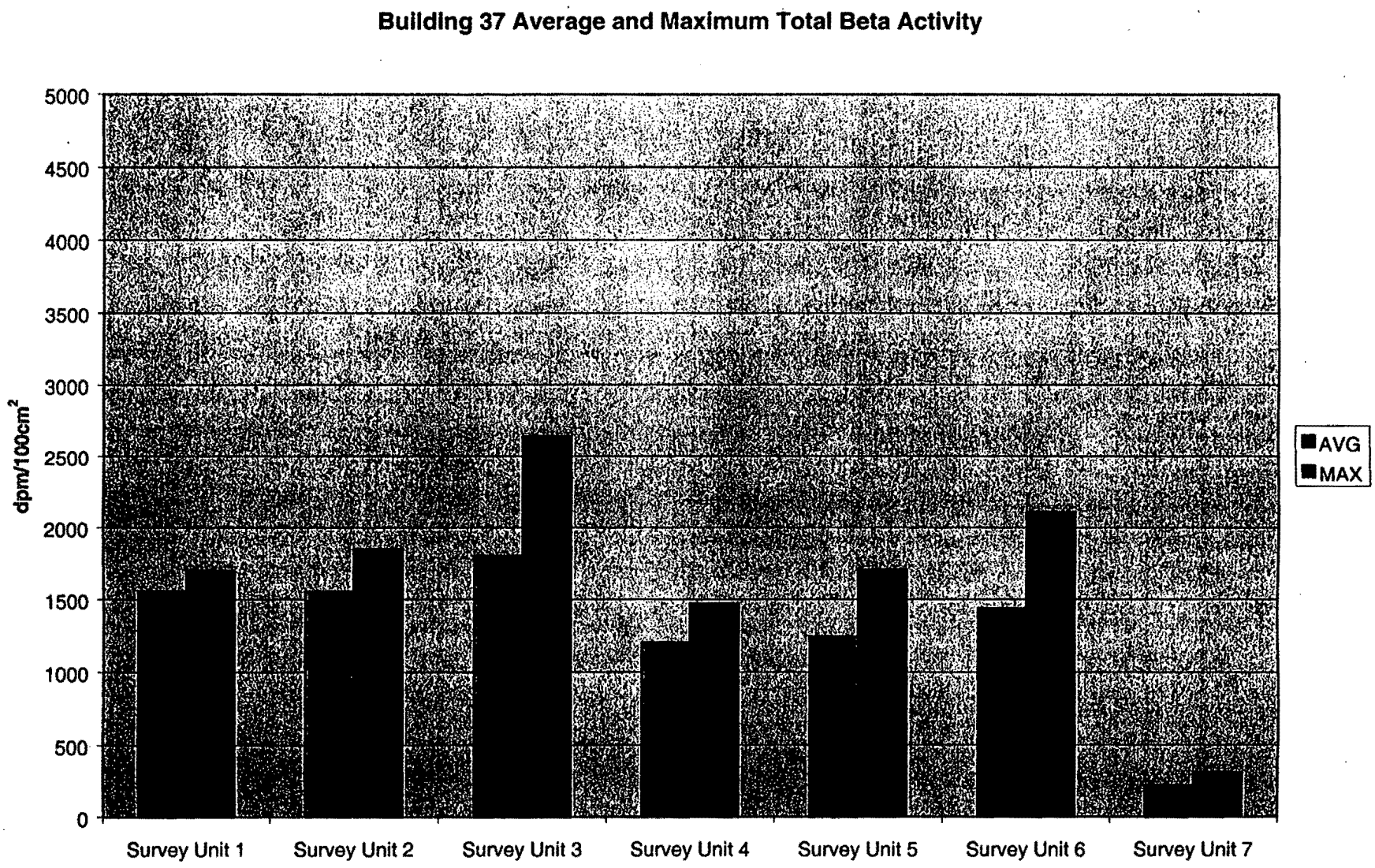
4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 37 Structural History and Process History Summary Background Document, January 2003
2. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op. 402
4. MD80036, Op. No. 30031,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator,* Section 6.3

Building 37 Final Status Report
Attachment 1

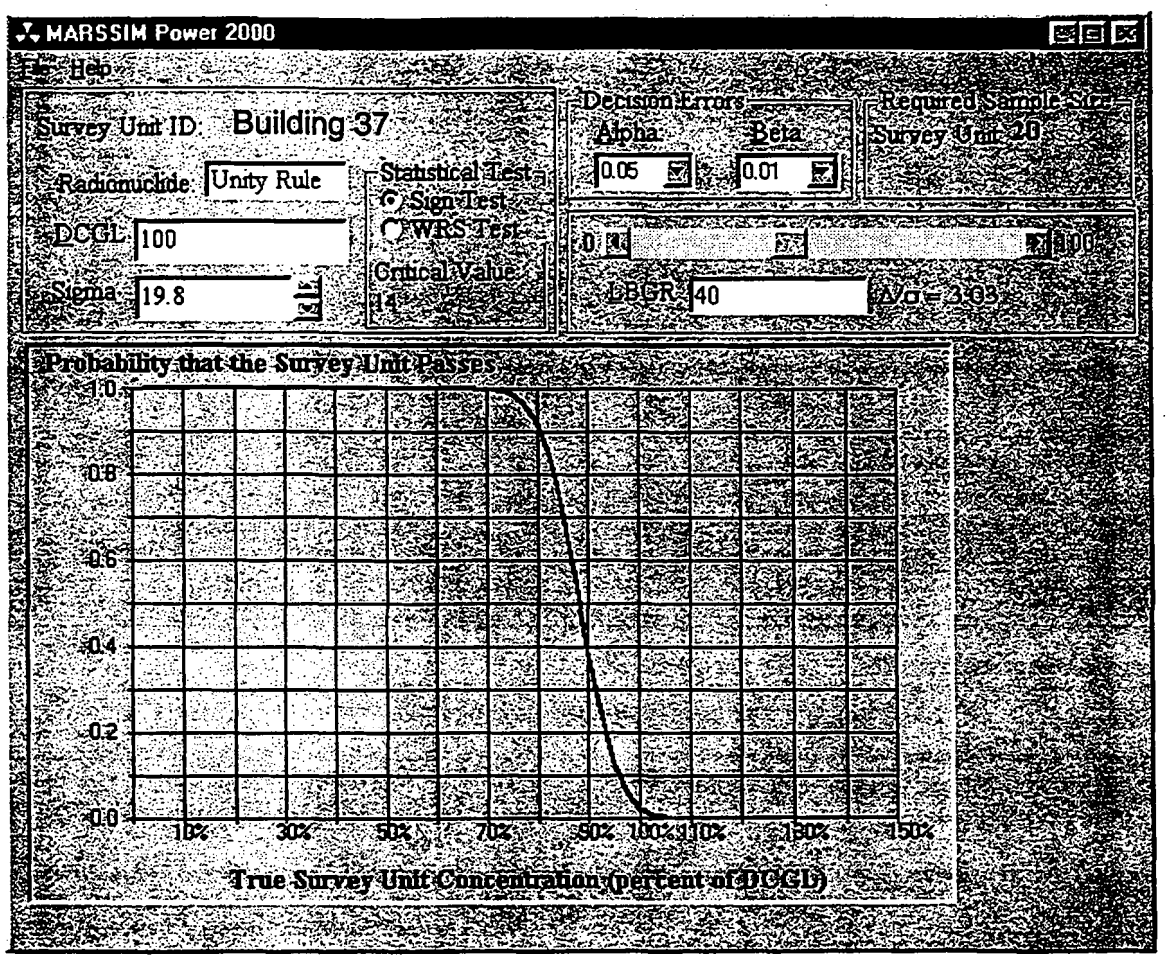


5 of 11


Building 37 Average and Maximum Total Beta Activity
dpm/100cm²
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Survey Unit 1
Survey Unit 2
Survey Unit 3
Survey Unit 4
Survey Unit 5
Survey Unit 6
Survey Unit 7
AVG
MAX

G11 of 111

Retrospective 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).

Building 37 Survey and Sample Data
Enclosure 1

Building 37 Survey Data Collection Sheet

		Smearable dpm/100cm^2			Fixed dpm/100cm^2	
Location	RSDS#	α	β	H^3	α	β
SU1-01	03-TF-0276	0	0	0	27	1638
SU1-02	03-TF-0276	0	0.7	0	38	1381
SU1-03	03-TF-0276	0	0.4	3.44	46	1549
SU1-04	03-TF-0276	0	4.1	5.09	30	1523
SU1-05	03-TF-0276	1	1.4	0	53	1638
SU1-06	03-TF-0276	0	0.2	0	19	1523
SU1-07	03-TF-0276	0	0.8	5.66	8	1558
SU1-08	03-TF-0276	0	2	6.81	19	1470
SU1-09	03-TF-0276	0	0.8	0	30	1611
SU1-10	03-TF-0276	2	0	0.02	27	1399
SU1-11	03-TF-0276	0	0	0	30	1514
SU1-12	03-TF-0276	5.3	0	3.48	27	1647
SU1-13	03-TF-0276	1.9	0	0	15	1567
SU1-14	03-TF-0276	0	0.1	2.26	23	1567
SU1-15	03-TF-0276	0	2.5	2.76	38	1567
SU1-16	03-TF-0276	0	0	0	34	1514
SU1-17	03-TF-0276	0	0	0	38	1576
SU1-18	03-TF-0276	0	2	0	42	1700
SU1-19	03-TF-0276	0	4.1	0	23	1470
SU1-20	03-TF-0276	0	0	0	34	1700
SU2-01	03-TF-0276	0	1.6	6.33	15	1505
SU2-02	03-TF-0276	0	0	0	38	1709
SU2-03	03-TF-0276	0	3.2	0.02	15	1487
SU2-04	03-TF-0276	0	0	0	42	1602
SU2-05	03-TF-0276	0	4.3	0	34	1620
SU2-06	03-TF-0276	0	0	0	42	1487
SU2-07	03-TF-0276	0	0	7	23	1461
SU2-08	03-TF-0276	0	0	0	46	1540
SU2-09	03-TF-0276	1.9	0	0	53	1664
SU2-10	03-TF-0276	1.5	1.3	4.99	61	1700
SU2-11	03-TF-0276	0	0.2	2.78	27	1390
SU2-12	03-TF-0276	0	1.2	0	38	1691
SU2-13	03-TF-0276	0	3.5	0	65	1576
SU2-14	03-TF-0276	0	0.7	5.71	34	1549
SU2-15	03-TF-0276	1.7	0	0	46	1478
SU2-16	03-TF-0276	0	0.6	1.19	42	1585
SU2-17	03-TF-0276	1	0	0	34	1408
SU2-18	03-TF-0276	0	0	0	30	1195
SU2-19	03-TF-0276	0	2	0	19	1850
SU2-20	03-TF-0276	0	0	0	38	1602
SU3-01	03-TF-0276	0	0	0	19	1726
SU3-02	03-TF-0276	0	2.2	0	49	1788
SU3-03	03-TF-0276	0	0	0	42	1549
SU3-04	03-TF-0276	0	2	2.41	42	1735
SU3-05	03-TF-0276	0	0	0.02	27	1611
SU3-06	03-TF-0276	0	1.4	1.51	23	1779

Building 37 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β
SU3-07	03-TF-0276	0	2.5	2.11	30	1779
SU3-08	03-TF-0276	0	2.4	1.11	34	1788
SU3-09	03-TF-0276	0	0.9	1.22	53	1939
SU3-10	03-TF-0276	0	2	1.03	38	1815
SU3-11	03-TF-0276	0	0	0	19	1664
SU3-12	03-TF-0276	0	0	0	30	1709
SU3-13	03-TF-0276	1	0	2.19	61	1691
SU3-14	03-TF-0276	0.8	0	0	61	1912
SU3-15	03-TF-0276	0	0	0.02	27	1797
SU3-16	03-TF-0276	0	0	11.91	53	2638
SU3-17	03-TF-0276	0	1.9	5.93	30	1585
SU3-18	03-TF-0276	0	0	0	49	1877
SU3-19	03-TF-0276	0	1.7	0	27	1788
SU3-20	03-TF-0276	0	0	0	38	1886
SU4-01	03-TF-0270	0	3.3	0	23	1346
SU4-02	03-TF-0270	0	0	0	19	1461
SU4-03	03-TF-0270	0	0	0	27	1177
SU4-04	03-TF-0270	0	0	0	23	974
SU4-05	03-TF-0270	0	4.2	0	15	1107
SU4-06	03-TF-0270	0	3.1	1.28	34	1098
SU4-07	03-TF-0270	0	1.3	4.09	19	1151
SU4-08	03-TF-0270	0	0	0	42	1133
SU4-09	03-TF-0270	0	2.8	0	46	1319
SU4-10	03-TF-0270	0	0	0	15	1195
SU4-11	03-TF-0270	0	5.3	0	15	1133
SU4-12	03-TF-0270	0	0	0	27	1319
SU4-13	03-TF-0270	0	0.8	0	11	1160
SU4-14	03-TF-0270	1.8	0	0	61	1053
SU4-15	03-TF-0270	0	0	0	49	1470
SU4-16	03-TF-0270	1.5	0	0	34	1160
SU4-17	03-TF-0270	0	0	0.37	30	1284
SU4-18	03-TF-0270	0	0.9	0.4	16	1301
SU4-19	03-TF-0270	0	0	0	11	1346
SU4-20	03-TF-0270	0	0	0	30	921
SU5 -01	03-TF-0270	0	4.2	0	34	1160
SU5 -02	03-TF-0270	0	1.8	0	42	1009
SU5 -03	03-TF-0270	0	1.3	1.27	27	1434
SU5 -04	03-TF-0270	1.6	2.5	0	15	974
SU5 -05	03-TF-0270	0	2.8	0	19	1160
SU5 -06	03-TF-0270	0	0.5	0.36	19	1036
SU5 -07	03-TF-0270	0	0	0	15	1709
SU5 -08	03-TF-0270	0	0	0	53	1342
SU5 -09	03-TF-0270	0	0	0	23	1354
SU5 -10	03-TF-0270	0	1.1	0	46	1239
SU5 -11	03-TF-0270	0	0	1.26	53	1231
SU5 -12	03-TF-0270	0	2	0	15	1239
SU5 -13	03-TF-0270	0	2	0	61	1372

Building 37 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β
SU5 -14	03-TF-0270	0	0	0	23	1053
SU5 -15	03-TF-0270	1.6	0	0	34	1169
SU5 -16	03-TF-0270	0	0	0	19	1293
SU5 -17	03-TF-0270	0	1.6	0	42	1239
SU5 -18	03-TF-0270	0	0	0	23	1257
SU5 -19	03-TF-0270	0	0	3.04	15	1195
SU5 -20	03-TF-0270	1.6	0.1	0	30	1390
SU6 -01	03-TF-0274	0	0	0	72	1452
SU6 -02	03-TF-0274	1.7	2	0	84	1328
SU6 -03	03-TF-0274	0	2	0	72	1434
SU6 -04	03-TF-0274	0	0	0	91	938
SU6 -05	03-TF-0274	0	0	0	53	1593
SU6 -06	03-TF-0274	0	0.5	0	80	1461
SU6 -07	03-TF-0274	0	2.5	0	72	1425
SU6 -08	03-TF-0274	3.5	1.1	0	91	2107
SU6 -09	03-TF-0274	0	2.8	0	68	1239
SU6 -10	03-TF-0274	0	1.7	0	38	1266
SU6 -11	03-TF-0274	0	0.6	0	80	1487
SU6 -12	03-TF-0274	0	0	0	87	1532
SU6 -13	03-TF-0274	0	0.8	0	49	1310
SU6 -14	03-TF-0274	0	0	0	72	1496
SU6 -15	03-TF-0274	0	0	0	53	1222
SU6 -16	03-TF-0274	0	0	0	68	1886
SU6 -17	03-TF-0274	0	0.8	0	57	1186
SU6 -18	03-TF-0274	3.6	0.6	0	65	1434
SU6 -19	03-TF-0274	0	0	0	72	1496
SU6 -20	03-TF-0274	1.7	0.7	0	87	1443
SU7 -01	03-TF-0265	0	3.3		46	185
SU7 -02	03-TF-0265	0	0		16	230
SU7 -03	03-TF-0265	0	0.9		76	168
SU7 -04	03-TF-0265	0	0		31	235
SU7 -05	03-TF-0265	0	6.8		56	223
SU7 -06	03-TF-0265	1.9	2.9		36	180
SU7 -07	03-TF-0265	0	0		51	200
SU7 -08	03-TF-0265	0	2.7		41	180
SU7 -09	03-TF-0265	0	0		71	115
SU7 -10	03-TF-0265	0	0		71	313
SU7 -11	03-TF-0265	0	0.6		36	275
SU7 -12	03-TF-0265	0	1.6		51	178
SU7 -13	03-TF-0265	0	0		41	243
SU7 -14	03-TF-0265	0	0		86	290
SU7 -15	03-TF-0265	0	0		11	205
SU7 -16	03-TF-0265	0	0.8		46	230
SU7 -17	03-TF-0265	0	0		31	145
SU7 -18	03-TF-0265	0	0		36	273
SU7 -19	03-TF-0265	0	0		46	293
SU7 -20	03-TF-0265	0	0		66	225

Building 37 Survey and Sample Data
Enclosure 1

		α	β	H^3	α	β
	Avg	0.275714	0.942857	0.825583	40.04286	1288.221
	SD	0.782991	1.327796	1.93222	19.88343	503.5212
SU's	Max	5.3	6.8	11.91	91	2107
	#	140	140	120	140	140
	+/-	0.129703	0.21995	0.345718	3.293694	83.4084

Judgmental						
JSU-01	03-TF-0276	0	0	0	42	1567
JSU-02	03-TF-0276	1.5	1.3	1.11	49	1549
JSU-03	03-TF-0276	0	1.4	0	27	1611
JSU-04	03-TF-0276	0	0	0	30	1425
JSU-05	03-TF-0276	0	0.9	0	34	1549
JSU-06	03-TF-0276	0	0.7	0	42	1461
JSU-07	03-TF-0276	0	0.4	0	34	1505
JSU-08	03-TF-0276	0	0.6	0	27	1620
JSU-09	03-TF-0276	1	5.3	5.08	49	1461
JSU-10	03-TF-0276	0.8	0	1.01	30	1505
JSU-11	03-TF-0276	1.7	0.7	0	30	1342
JSU-12	03-TF-0276	0	4.3	3.07	46	1620
JSU-13	03-TF-0276	0	0.8	4.47	27	1239
JSU-14	03-TF-0276	0	0	0	53	1549
JSU-15	03-TF-0276	1	0	2.15	42	1593
JSU-16	03-TF-0276	0	0.9	2.06	57	1691
JSU-17	03-TF-0276	1.9	0	0	49	1487
JSU-18	03-TF-0276	0	0.1	0	34	1673
JSU-19	03-TF-0276	0.5	0	0	38	1576
JSU-20	03-TF-0276	0	1.2	0	53	1408

	α	β	H^3	α	β
Avg	0.42	0.93	0.9475	39.65	1521.55
SD	0.653412	1.416853	1.595642	9.826254	111.1649
Max	1.9	5.3	5.08	57	1691
#	20	20	20	20	20
+/-	0.28637	0.620963	0.699321	4.306546	48.72015

Building 37 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
		Survey Unit 1			
	α	β	H^3	α	β
Number	20	20	20	20	20
Avg	0.51	0.955	1.476	30.05	1555.6
SD	1.287552	1.329216	2.264345	10.83112	86.69693
Max	5.3	4.1	6.81	53	1700
+/-	0.564294	0.582555	0.992393	4.746948	37.99661
		Survey Unit 2			
Number	20	20	20	20	20
Avg	0.305	0.93	1.401	37.1	1554.95
SD	0.644389	1.342856	2.475798	13.61075	140.9246
Max	1.9	4.3	7	65	1850
+/-	0.282416	0.588533	1.085067	5.965176	61.76292
		Survey Unit 3			
Number	20	20	20	20	20
Avg	0.09	0.85	1.473	37.6	1802.8
SD	0.278908	1.017479	2.853779	13.17254	222.6788
Max	1	2.5	11.91	61	2638
+/-	0.122237	0.44593	1.250724	5.77312	97.59329
		Survey Unit 4			
Number	20	20	20	20	20
Avg	0.165	1.085	0.307	27.35	1205.4
SD	0.510186	1.680625	0.939721	13.697	147.4986
Max	1.8	5.3	4.09	61	1470
+/-	0.223599	0.736566	0.411851	6.002976	64.6441
		Survey Unit 5			
Number	20	20	20	20	20
Avg	0.24	0.995	0.2965	30.4	1242.75
SD	0.586156	1.233086	0.754407	14.5291	169.2895
Max	1.6	4.2	3.04	61	1709
+/-	0.256894	0.540424	0.330633	6.367659	74.19439
		Survey Unit 6			
Number	20	20	20	20	20
Avg	0.525	0.805	0	70.55	1436.75
SD	1.157981	0.916788	0	14.71653	245.9144
Max	3.6	2.8	0	91	2107
+/-	0.507508	0.4018	0	6.449805	107.7767
		Survey Unit 7			
Number	20	20	0	20	20
Avg	0.095	0.98	N/A	47.25	219.3
SD	0.424853	1.747058	N/A	19.45812	52.24346
Max	1.9	6.8	N/A	86	313
+/-	0.1862	0.765682	N/A	8.527897	22.89671

Graph Data Alpha

	Survey Unit 1	Survey Unit 2	Survey Unit 3	Survey Unit 4	Survey Unit 5	Survey Unit 6	Survey Unit 7
AVG	30.05	37.1	37.60	27.35	30.40	70.55	47.25
MAX	53	65	61	61	61	91	86

Graph Data Beta

	Survey Unit 1	Survey Unit 2	Survey Unit 3	Survey Unit 4	Survey Unit 5	Survey Unit 6	Survey Unit 7
AVG	1555.60	1554.95	1802.80	1205.40	1242.75	1436.75	219.30
MAX	1700	1850	2638	1470	1709	2107	313

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg (cpm)	β Bkg (cpm)	
1	L2360	5833	3/13/04	0265	1	116	✓
2	L2350	5855	6/18/04	0270	1.8	136	✓
3	L2360	5833	3/13/04	0273	1	112	✓
4	L2350	5855	6/18/04	0274	3	157	✓
5	L2350	5855	6/18/04	0276	3.4	124	✓
6	L2350	5855	6/18/04	0280	3.4	121	✓
7	L2360	5833	3/13/04	0280	1	110	✓

NUREG 1507 Table 5.1 (GFP) Background Count Rates for Various Materials (NCPM)	Alpha	Beta
Brick	6	567.2
Ceramic Block	15	792
Ceramic Tile	12.6	647
Concrete Block	2.6	344
Drywall	2.6	325
Floor Tile	4	308
Linoleum	2.6	346
Carbon Steel	2.4	322.6

Replicate Fixed Point QC

		alpha (dpm/100cm2)			beta (dpm/100cm2)		
	Location #	initial	2σ	replicate	initial	2σ	replicate
1	SU5-17	42	12.96	65	1239	70.40	1045
2	SU7-18	36	12.00	56	273	33.05	141
3	SU7-9	71	16.85	48	115	21.45	126
4	SU1-6	19	8.72	38	1523	78.05	1452
5	SU6-20	87	18.65	76	1443	75.97	1425
6	SU2-16	42	12.96	15	1408	75.05	1629
7	SU4-5	15	7.75	27	1107	66.54	1231
8	SU5-6	19	8.72	15	1036	64.37	1319
9	SU1-9	30	10.95	15	1611	80.27	1655
10	SU3-4	42	12.96	38	1735	83.31	1363
11	SU4-20	30	10.95	19	921	60.70	947
12	SU2-9	53	14.56	53	1664	81.58	1779
13	SU6-10	38	12.33	38	1266	71.16	1372
14	SU4-11	15	7.75	30	1133	67.32	1169
15	SU2-2	38	12.33	49	1709	82.68	1771
16	SU5-18	23	9.59	42	1257	70.91	1514
	Variance (S2) =	618.7		461.8667	401023.4		455766.3
	Ratio			1.339564			0.879888
	Agreement			YES			YES

QC Measurements

	Location	RSDS#	α	β		
1	SU5-17	0280	65	1045	5	17
2	SU7-18	0280	56	141	7	18
3	SU7-9	0280	48	126	7	9
4	SU1-6	0280	38	1452	1	6
5	SU6-20	0280	76	1425	6	20
6	SU2-16	0280	15	1629	2	16
7	SU4-5	0280	27	1231	4	5
8	SU5-6	0280	15	1319	5	6
9	SU1-9	0280	15	1655	1	9
10	SU3-4	0280	38	1363	3	4
11	SU4-20	0280	19	947	4	20
12	SU2-9	0280	53	1779	2	9
13	SU6-10	0280	38	1372	6	10
14	SU4-11	0280	30	1169	4	11
15	SU2-2	0280	49	1771	2	2
16	SU5-18	0280	42	1514	5	18

Drains & Vents

Location	RSDS	α	β	H	α	β
D-1	0273	0	2	0	8	48
D-2	0273	0	0	0	0	60
D-3	0273	0	0	0	-8	52
D-4	0273	0	0.9	0	8	88
D-5	0273	0	1.6	0	0	40
D-6	0273	0	0.5	0	0	32
D-7	0273	0	3.8	0	0	72
D-8	0273	0	0	0	0	0
D-9	0273	0	0.4	0	0	80
V-10	0273	1.8	0	0	24	8
V-11	0273	0	0.6	0	0	4
V-12	0273	0	0	0	8	0
V-13	0273	0	0	0	24	-20
V-14	0273	0	0	0	0	-28
V-15	0273	0	2.3	0	8	8
V-16	0273	0	0	0	0	16
V-17	0273	0	0.8	0	16	24
V-18	0273	0	0	0	24	12
V-19	0273	0	0	0	16	48
V-20	0273	0	2	0	64	2256
V-21	0273	0	0.3	0	0	-80

	α	β	H^3	α	β
Avg	0.085714	0.72381	0	9.142857	129.5238
SD	0.392792	1.039185	0	15.65339	488.8149
Max	1.8	3.8	0	64	2256
#	21	21	21	21	21
+/-	0.168	0.444467	0	6.695065	209.0696

Building 37 Survey and Sample Data
Enclosure 1

Acid Etch data

Location	RSDS#	Smearable dpm/100cm^2 α	Smearable dpm/100cm^2 β	Smearable dpm/100cm^2 H^3	Pre Sample Fixed dpm/100cm^2 α	Pre Sample Fixed dpm/100cm^2 β	Post Sample Fixed dpm/100cm^2 α	Post Sample Fixed dpm/100cm^2 β
SU1-06	03-TF-0264	1.7	5.5	0	15	265	0	212
SU1-11	03-TF-0264	0	0	0	5	283	0	324
SU1-13	03-TF-0264	1.6	0	0	0	290	32	152
SU1-03	03-TF-0264	0	2	7.23	30	323	-8	192
SU1-19	03-TF-0264	0	1.6	0	10	295	-8	252
SU1-05	03-TF-0264	0	0	0	-5	303	8	160
SU2-02	03-TF-0264	0	8.7	0	10	340	-8	232
SU2-12	03-TF-0264	0	0	0	25	270	16	160
SU2-05	03-TF-0264	0	0	0	0	263	0	252
SU2-15	03-TF-0264	0	0.5	0	25	235	16	256
SU2-09	03-TF-0264	0	0.6	0	15	348	0	380
SU2-13	03-TF-0264	1.6	0.3	0	-10	153	32	228
SU3-16	03-TF-0264	0	0	0	30	778	8	472
SU3-12	03-TF-0264	0	1.1	0	-10	153	16	236
SU3-05	03-TF-0264	0	0	0	15	165	0	192
SU3-07	03-TF-0264	0	0.8	0	20	213	24	176
SU3-13	03-TF-0264	0	0	0	-5	186	8	128
SU3-10	03-TF-0264	0	2.1	0	-5	170	-8	132
Variance					183.0882	19557.9	172.3399	7859.242
F-Test	(Probability that pre and post are not significantly different)						0.90	0.07

Acid Etch Sample Analysis

Building 37 Survey and Sample Data
Enclosure 1

dpm/sample	PU238	PU239/24C	Th232	Th230	Th228	Th227	U238	U235	U233/234
SU1-06	<LDL	<LDL	1.95	5.85	1.6	1.72	6.3	0.61	5.92
SU1-11	0.2	<LDL	1.52	6.22	2.28	1.02	5.02	0.57	5.19
SU1-13	<LDL	<LDL	1.62	7.19	2.53	1.82	7.25	1.19	7.09
SU1-03	0.9	<LDL	4.18	12.1	3.12	2.46	10.27	1.91	10.97
SU1-19	0.63	<LDL	2.36	8.65	2.85	1.45	9.89	1.59	7.16
SU1-05	0.55	<LDL	1.64	5.22	1.59	1.28	5.49	0.9	3.87
SU2-02	<LDL	<LDL	1.73	5.02	2.81	1	5.91	0.51	4.8
SU2-12	0.41	<LDL	1.38	4.53	1.85	1.51	4.51	0.31	4.35
SU2-05	<LDL	<LDL	1.6	6.46	1.85	1.51	5.48	0.86	5.61
SU2-15	0.16	<LDL	2.27	8.44	2.83	1.42	7.42	0.68	8.29
SU2-09	<LDL	<LDL	0.71	3.49	1.14	0.57	2.64	0.4	3.23
SU2-13	<LDL	<LDL	1.98	3.96	1.1		3.52	0.4	3.13
SU3-16	0.61	<LDL	1.14	11.16	1	1.6	3.93	0.27	3.29
SU3-12	0.3	<LDL	1.24	3.55	1.41	0.45	3.74	1.42	2.61
SU3-05	1.63	<LDL	1.18	3.01	1.34		2	2	2.4
SU3-07	0.51	0.29	0.85	7.19	2.38	0.91	<LDL	<LDL	<LDL
SU3-13	1.45	<LDL	1.83	4.08	1.93	0.78	2.7	2.56	4.05
SU3-10	0.43	<LDL	2.52	6.3	3.18	1.26	6.24	2.29	5.47

Sample results as pCI/g. (Assume activity is contained in 2.35 grams per cm^2 and sample is $100cm^2$.)

	PU238	PU239/24C	Th232	Th230	Th228	Th227	U238	U235	U233/234
SU1-06	<LDL	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU1-11	0.00	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU1-13	<LDL	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU1-03	0.00	<LDL	0.01	0.02	0.01	0.00	0.02	0.00	0.02
SU1-19	0.00	<LDL	0.00	0.02	0.01	0.00	0.02	0.00	0.01
SU1-05	0.00	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU2-02	<LDL	<LDL	0.00	0.01	0.01	0.00	0.01	0.00	0.01
SU2-12	0.00	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU2-05	<LDL	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU2-15	0.00	<LDL	0.00	0.02	0.01	0.00	0.01	0.00	0.02
SU2-09	<LDL	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU2-13	<LDL	<LDL	0.00	0.01	0.00	<LDL	0.01	0.00	0.01
SU3-16	0.00	<LDL	0.00	0.02	0.00	0.00	0.01	0.00	0.01
SU3-12	0.00	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU3-05	0.00	<LDL	0.00	0.01	0.00	<LDL	0.00	0.00	0.00
SU3-07	0.00	0.00	0.00	0.01	0.00	0.00	<LDL	<LDL	<LDL
SU3-13	0.00	<LDL	0.00	0.01	0.00	0.00	0.01	0.00	0.01
SU3-10	0.00	<LDL	0.00	0.01	0.01	0.00	0.01	0.00	0.01
Screening Levels	55	6.2	1.47	1.99	1.61	2.09	1.3	1.7	0.48
Bkg	0.13	0.18	1.4	1.9	1.5	NC	1.2	0.11	1.1

SURVEY PLAN FORM

SPF NUMBER	37-01	**DATE OF REQUEST**	September 4, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 37		
PURPOSE	The purpose of this SPF is to characterize Building 37 to support decisions on final disposition.		
SURVEY UNIT # 1	Main Floor	**SURVEY UNIT # 5**	Penthouse Walls and Ceiling
SURVEY UNIT # 2	Main Floor	**SURVEY UNIT # 6**	Exterior Walls
SURVEY UNIT # 3	Penthouse Floor	**SURVEY UNIT # 7**	Roof
SURVEY UNIT # 4	Main Floor Walls to 6'		

SAMPLE TYPE

☐ **SURFACE SOIL SAMPLE:**

☐ **SUB-SURFACE SOIL SAMPLE:**

☒ **SEDIMENT SAMPLE:** See specific sediment sampling instructions on page 2.

☐ **Rubbelized Material:**

☒ **OTHER:** Acid Etch Surface Sample at selected locations (see Page 3).

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Scan surface at a rate of 1" per second at a distance of not more than ¼" from surface
		PROBE TYPE	43-37 Floor Probe or 43-68 Hand Probe		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Perform 2 minute counts at specified locations not more than ¼" from surface
		PROBE TYPE	43-68 Hand Probe		
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE**		**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	
		PROBE TYPE			
DOSE RATE MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE**		**DETECTOR DISTANCE FROM SURFACE**	
		PROBE TYPE			

OTHER SURVEY TYPES OR COMMENTS

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

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

Perform sediment sampling and surface scan surveys prior to performing static measurements.

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

Safety Considerations

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

Sediment Samples

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

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

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

Surface Scan Measurements using a Ludlum 2350 with 43-68 alpha Hand probe

1. Scan at least 25% of the surface in Class 3 Survey Units using the professional judgment of the surveyor.
2. Using the audible output of instrument, stop and pause for approximately ten (10) seconds if one pop (click) is heard. If one pop (click) is heard during pause, perform an integrated count for two (2) minutes. Otherwise, if no pop heard during pause, continue scan.
3. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

Data Point Location

1. Locate the data points in each survey unit using the coordinates shown in Attachment 2.
2. Mark each data point with tape or other non-permanent marking.
3. Document locations on the appropriate RSDS Map.

Continued Next Page

Specific Survey and Sampling Instructions (continued)

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

1. Perform an integrated alpha and beta measurement at each data point in each Survey Unit.
2. Perform at least 20 integrated alpha and beta measurements on ceilings, crawl spaces, and horizontal structural surfaces where, in the judgement of the surveyor, a potential exists for residual contamination.
3. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
4. Document gross activity for each location (No "<" values). Record instrument background at survey location.

Loose Surface Contamination

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

Surface Samples

1. Remove any existing floor covering that may be obstructing the original building surface.
2. Obtain six (6) acid etch samples (126cm^2) from Survey Units 1, 2, and 3 at locations shown in Attachment 2.
3. Submit samples for gross activity and isotopic analysis.
4. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

Quality Control

1. QC measurements will be performed by re-surveying 16 data points. Data points selected for resurvey should include the highest and lowest readings in the data set.
2. Sediment samples or smears with measured activity above the MDA may be resubmitted for replicate analysis. Ensure alpha and beta smear results are obtained before performing H^3 analysis.
3. Record location, material, and results on RSDS in accordance with Mound Rad Con procedures.

APPROVAL SIGNATURES			
MARISSM Engineer	R. Case	DATE	September 4, 2003
Technical Reviewer	K. DOODY CHP	DATE	9/4/03
Rad Con Manager	S. Collas	DATE	9/4/03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	DATE	10-29-03
Technical Reviewer	K. DOODY CHP	DATE	11/11/03
Rad Con Manager	ASCollas	DATE	11/17/03

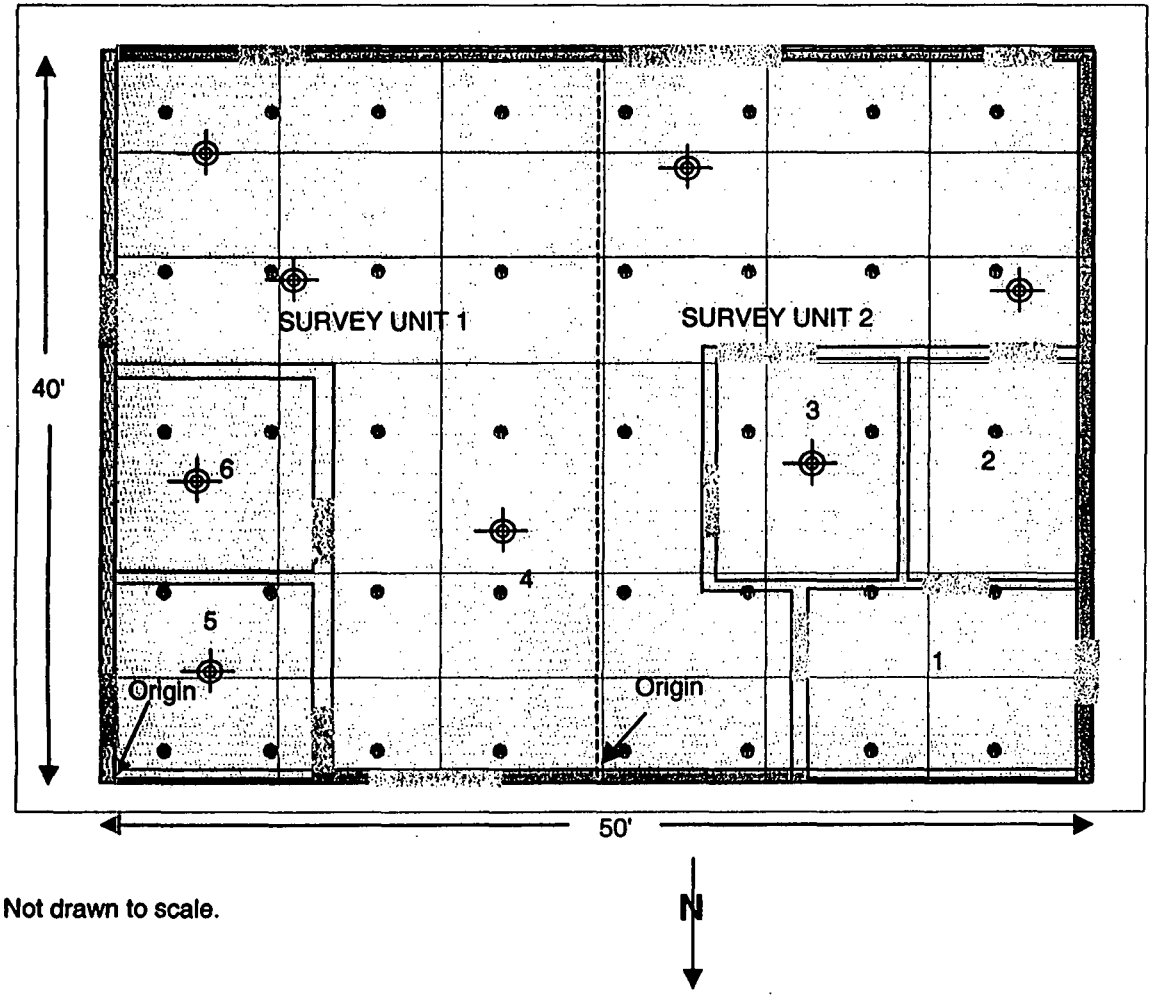
COMMENTS

L-2360 USED FOR SURVEY UNIT 7 (ROOF) FOR SAFETY REASONS IN ACCORDANCE WITH MD 8V036 CP 30031. R. CASE 10/22/03

Attachment 1

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									
37-01-									

Survey Units 1 ands 2

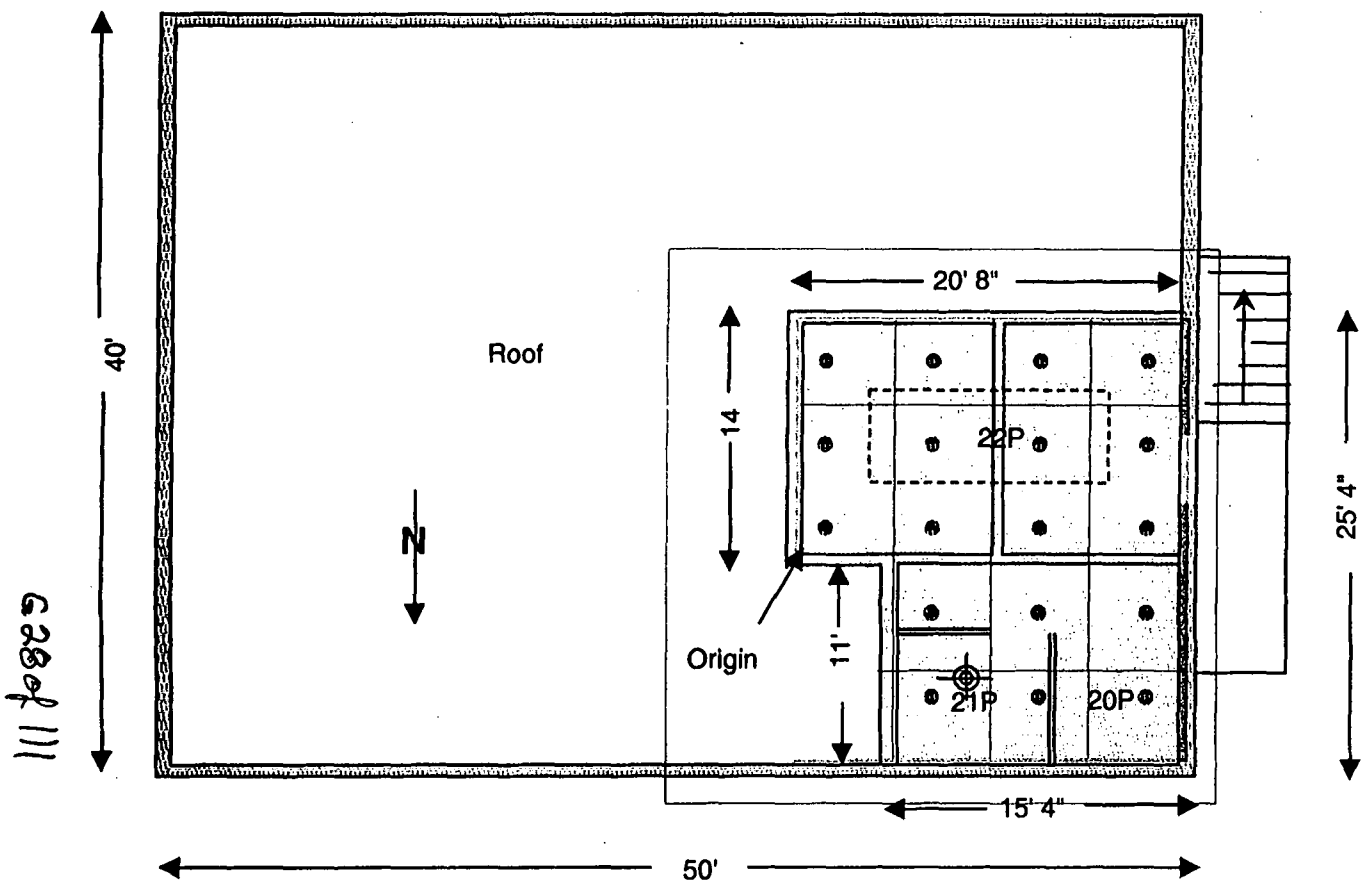


Not drawn to scale.

	SU 1 Coordinates		SU 2 Coordinates	
	X	Y	X	Y
1	3	2	3	2
2	3	9	3	9
3	3	17	3	17
4	3	24	3	24
5	3	32	3	32
6	10	2	10	2
7	10	9	10	9
8	10	17	10	17
9	10	24	10	24
10	10	32	10	32
11	16	2	16	2
12	16	9	16	9
13	16	17	16	17
14	16	24	16	24
15	16	32	16	32
16	24	2	24	2
17	24	9	24	9
18	24	17	24	17
19	24	24	24	24
20	24	32	24	32

= Surface Sample Location

Survey Unit 3 Floor

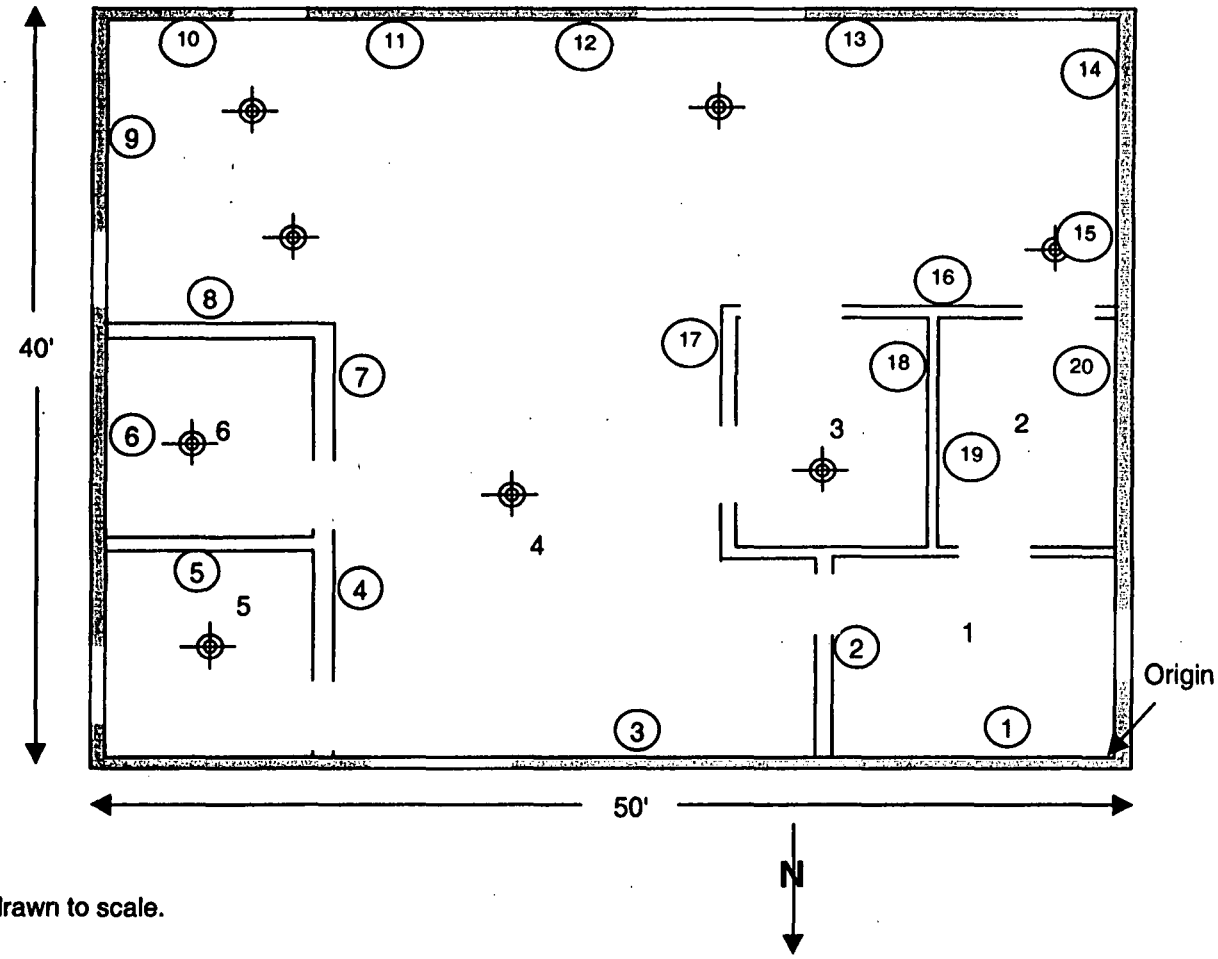


	SU 3 Coordinates	
	X	Y
1	2	-9
2	2	-4
3	2	1
4	2	6
5	2	11
6	7	-9
7	7	-4
8	7	1
9	7	6
10	7	11
11	12	-9
12	12	-4
13	12	1
14	12	6
15	12	11
16	18	-9
17	18	-4
18	18	1
19	18	6
20	18	11

Not drawn to scale.

= Surface Sample Location

Survey Unit 4 Walls to 6'

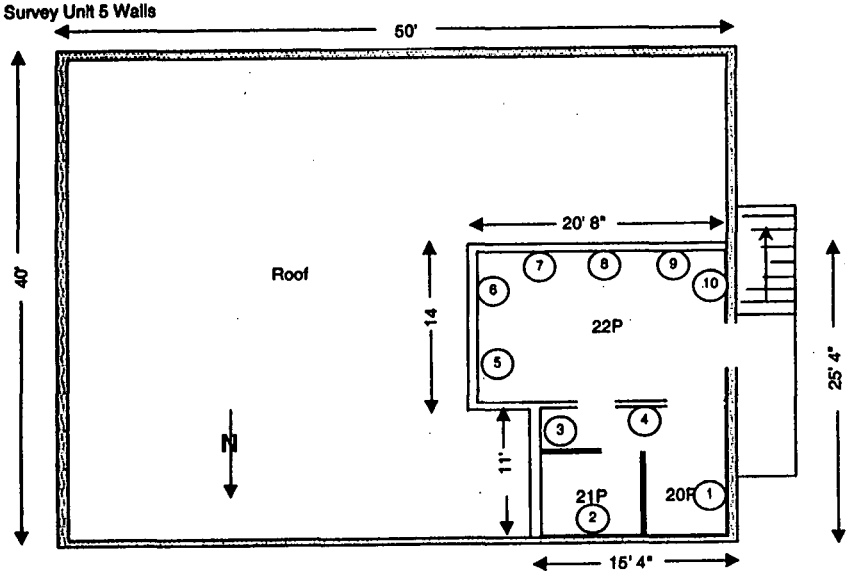


SU 4 Coordinates

	X	Y
1	7	5
2	18	3
3	8	2
4	9	2
5	4	2
6	8	6
7	21	1
8	5	3
9	9	5
10	4	5
11	12	6
12	18	4
13	35	4
14	3	6
15	10	0
16	10	1
17	2	2
18	1	2
19	3	1
20	4	1

Not drawn to scale.

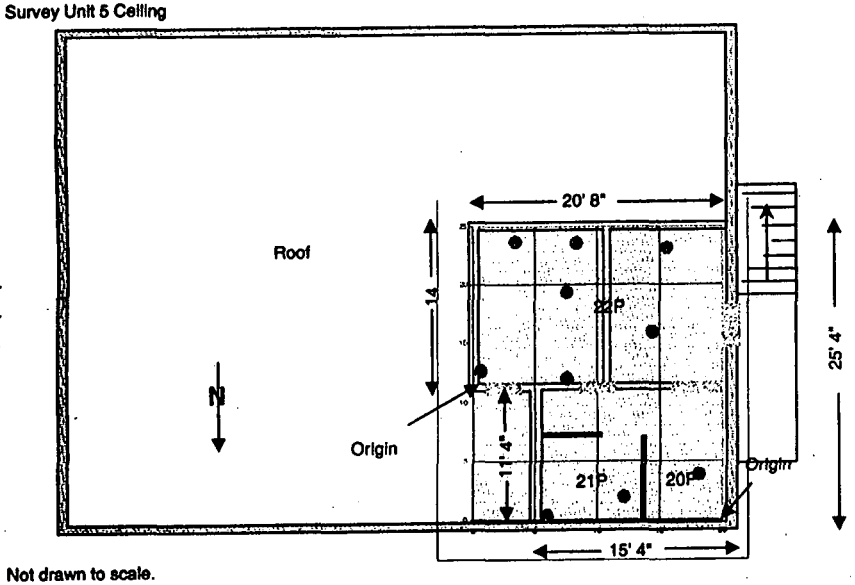
Survey Unit 5 Walls



SU 5 Coordinates

	X	Y	
1	8	6	Walls
2	3	2	Walls
3	2	5	Walls
4	8	5	Walls
5	4	3	Walls
6	9	4	Walls
7	5	4	Walls
8	10	4	Walls
9	16	1	Walls
10	4	2	Walls

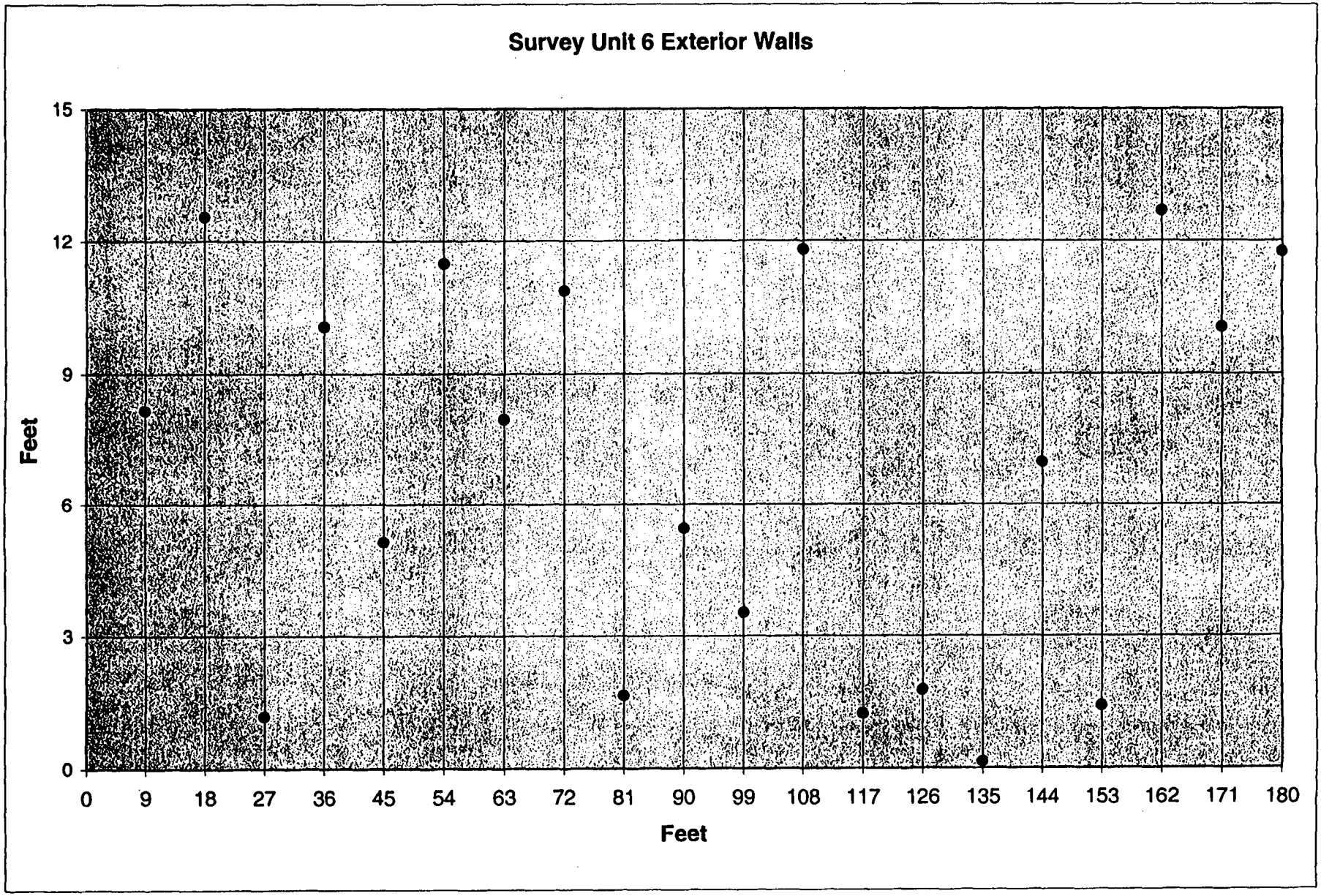
Survey Unit 5 Ceiling



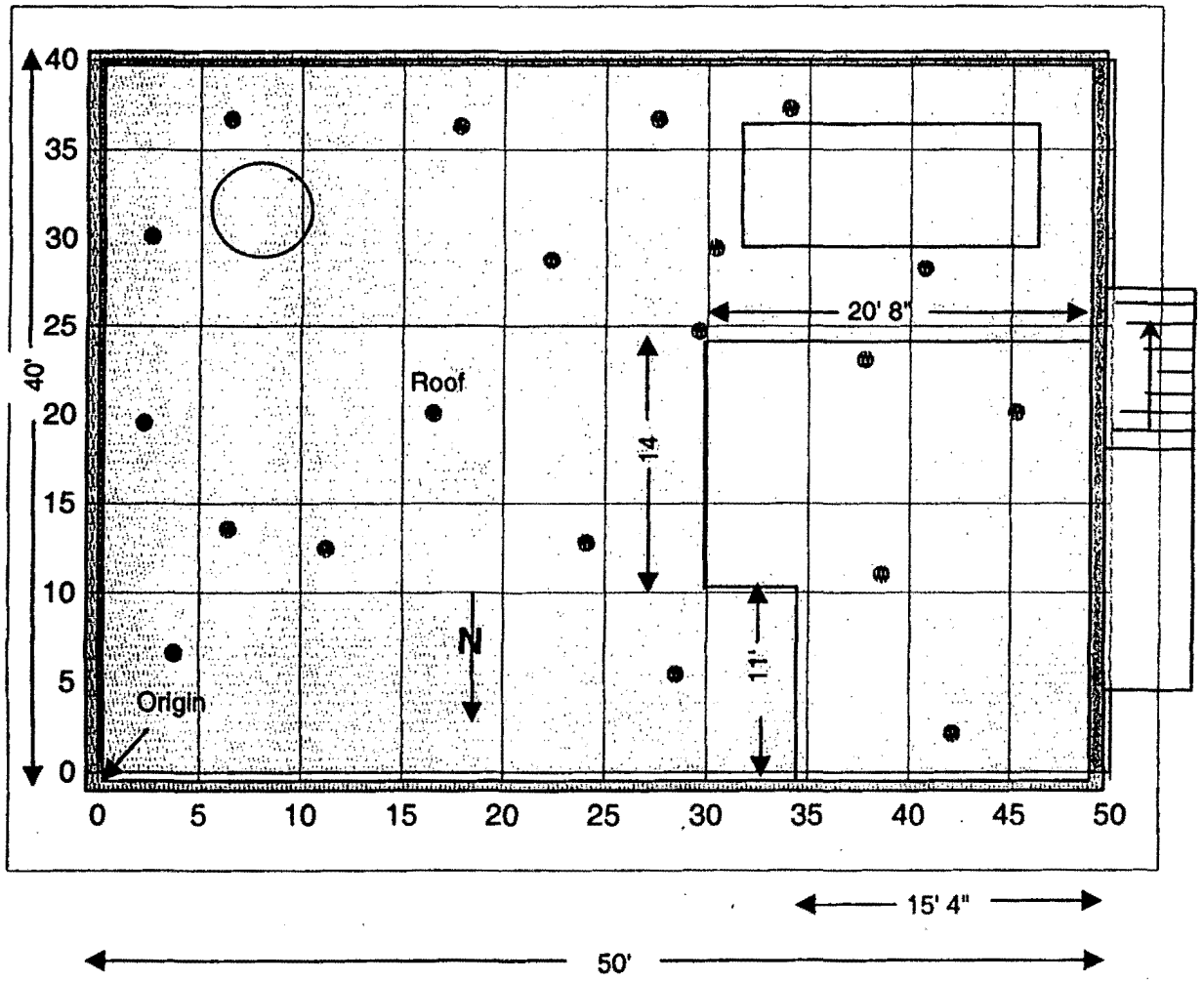
	X	Y	
11	6	-12	Ceiling
12	16	11	Ceiling
13	1	1	Ceiling
14	8	7	Ceiling
15	14	4	Ceiling
16	4	12	Ceiling
17	12	-10	Ceiling
18	18	-8	Ceiling
19	8	12	Ceiling
20	8	0	Ceiling

Not drawn to scale.

5 of 10


Survey Unit 6 Exterior Walls
Feet
15
12
9
6
3
0
0
9
18
27
36
45
54
63
72
81
90
99
108
117
126
135
144
153
162
171
180
Feet

Survey Unit 7 Roof



Not drawn to scale.

	SU 6 Coordinates	
	X	Y
1	30	29
2	41	28
3	4	7
4	2	20
5	18	36
6	17	20
7	28	5
8	34	37
9	22	29
10	3	30
11	24	13
12	11	12
13	38	23
14	42	2
15	45	20
16	6	14
17	28	37
18	7	37
19	30	25
20	39	11

G 32 of 111

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 37	SURVEY NO. 03-TF-0264
PURPOSE: CHARACTERIZATION SURVEY OF FLOOR PER MARSSIM SURVEY PLAN 37-01 UNITS 1,2 & 3	RWP NO. N/A
	DATE: 11-05-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/4343	5833/5847	03-13-04
	N/A	

Comple[redacted]	HP # 3214	Date: 11-05-03
Comple[redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted]TTACHED		
[redacted]	HP # 6178	Date: 11-5-03
[redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0264

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-6				UNIT 1
7-12				UNIT 2
13-18				UNIT 3
19-24				UNIT 1
25-30				UNIT 2
31-36				UNIT 3
		N/A		

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

COMMENTS: 1-18 PRIOR TO ACID ETCH

19-36 AFTER ACID ETCH

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

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB 4100/W
Counting Unit ID: Green
Data file name: SMEAR007
Batch Ended: 10/16/2003 14:57
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0264 [36] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	1.7	2.0		5.5	3.0	
A2	2	0.0	1.9		0.0	1.7	
A3	3	1.6	1.8		0.0	1.2	
A4	4	0.0	1.9		2.0	2.0	
B1	5	0.0	2.0		1.6	2.9	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.0	2.1		8.7	3.9	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.0	1.2	
C2	10	0.0	2.0		0.5	1.7	
C3	11	0.0	1.9		0.6	1.7	
C4	12	1.6	1.8		0.3	1.6	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		1.1	1.7	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		0.8	1.7	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	1.9		2.1	2.4	
A3	19	0.0	1.9		0.9	2.1	
A4	20	0.0	1.9		2.0	2.0	
B1	21	0.0	2.0		1.6	2.9	
B2	22	0.0	2.1		0.0	1.3	
B3	23	0.0	2.0		0.0	2.2	
B4	24	0.0	2.0		0.2	1.8	
C1	25	0.0	2.0		0.4	1.7	
C2	26	0.0	2.0		0.5	1.7	
C3	27	0.0	1.9		0.6	1.7	
C4	28	0.0	1.8		0.0	1.2	
D1	29	0.0	2.0		0.8	1.8	
D2	30	1.8	2.1		0.0	1.2	
D3	31	0.0	2.0		0.0	1.2	

SLR SLR

~~Page 1 of 2~~ SLR 10-20-03

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RDS 03-TF-0264

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR007
Batch Ended: 10/16/2003 14:57
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0264 [36] IC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
D4	32	0.0	2.0		0.0	1.2	
A1	33	0.0	1.9		0.8	1.7	
A2	34	0.0	1.9		0.0	1.2	
A3	35	0.0	1.9		0.0	1.7	
A4	36	0.0	1.9		0.0	1.2	

SR SR

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RSAS 03-TF-02

R 4 of 62

Protocol #: 4 PW H3 #410462 User : 2138

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	4.87
Region B:	2.0 -	18.6	0	0.0	4.52
Region C:	40.0 -	2000	0	0.0	5.40

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
RILEY 03-TF-0264 (U1-U36) AG
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT4.DAT
Count Data Filename: C:\DATA\SDATA4.DAT
Spectrum Data Drive & Path: C:\DATA

S#	SMPL_ID	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1		10.00	4.87	2	B	643.67		0.00	5.40
0	SOURCE	2.00	645.22	0		503.51	1336.32	103.89	0.00
1		2.00	0.00	0		590.05	0.00	0.00	0.00
2		2.00	0.00	0		608.26	0.00	0.00	0.00
3		2.00	0.26	0		586.93	0.50	6.68	0.00
4		2.00	3.63	0		544.14	7.23	8.67	0.00
5		2.00	0.00	0		483.03	0.00	0.00	0.10
6		2.00	0.00	0		555.34	0.00	0.00	0.00
7		2.00	0.00	0		571.16	0.00	0.00	0.00
8		2.00	0.00	0		549.84	0.00	0.00	0.00
9		2.00	0.00	0		558.82	0.00	0.00	1.10
10		2.00	0.00	0		567.44	0.00	0.00	0.00
11		2.00	0.00	0		534.67	0.00	0.00	0.10
12		2.00	0.00	0		589.09	0.00	0.00	0.00
13		2.00	0.00	0		650.05	0.00	0.00	0.00
14		2.00	0.00	0		567.59	0.00	0.00	0.00
15		2.00	0.00	0		573.60	0.00	0.00	0.57
16		2.00	0.00	0		506.91	0.00	0.00	1.60
17		2.00	0.00	0		565.31	0.00	0.00	0.00
18		2.00	0.00	0		593.67	0.00	0.00	0.00
19		2.00	0.00	0		628.83	0.00	0.00	0.00
20		2.00	1.13	0		660.98	2.03	6.69	0.00
21		2.00	0.00	0		620.86	0.00	0.00	0.00
22		2.00	0.00	0		661.90	0.00	0.00	0.00
23		2.00	0.00	0		631.34	0.00	0.00	0.00
24		2.00	0.00	0		639.98	0.00	0.00	0.00
25		2.00	0.13	0		614.55	0.25	6.45	0.00
26		2.00	0.00	0		674.60	0.00	0.00	0.10
27		2.00	0.00	0		645.56	0.00	0.00	0.60
28		2.00	0.00	0		660.64	0.00	0.00	1.60
29		2.00	0.00	0		654.98	0.00	0.00	0.00
30		2.00	0.82	0		679.23	1.45	6.46	0.00
31		2.00	0.00	0		642.61	0.00	0.00	0.00
32		2.00	0.00	0		634.69	0.00	0.00	0.00
33		2.00	1.13	0		651.65	2.05	6.74	0.00
34		2.00	0.00	0		657.15	0.00	0.00	0.00

QR

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Pg 50 of 21

S#	SMPL_ID	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
35		2.00	0.00	0		626.41	0.00	0.00	0.00
36		2.00	0.00	0		652.47	0.00	0.00	0.00

37-BLDG CHARACTERIZATION ALPHA and BETA SURVEY UNIT 1,2,3 Pre Etch

RSDS#03-TF-0264 RCT: SK RCT:

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U-1 06	5833	5214	5847	1	10/13/03	338	120	265	7	120	15
U-1 11	5833	5214	5847	2	10/13/03	345	120	283	5	120	5
U-1 13	5833	5214	5847	3	10/13/03	348	120	290	4	120	0
U-1 03	5833	5214	5847	4	10/13/03	361	120	323	10	120	30
U-1 19	5833	5214	5847	5	10/13/03	350	120	295	6	120	10
U-1 05	5833	5214	5847	6	10/13/03	353	120	303	3	120	-5
U-2 02	5833	5214	5847	7	10/13/03	368	120	340	6	120	10
U-2 12	5833	5214	5847	8	10/13/03	340	120	270	9	120	25
U-2 05	5833	5214	5847	9	10/13/03	337	120	263	4	120	0
U-2 15	5833	5214	5847	10	10/13/03	326	120	235	9	120	25
U-2 09	5833	5214	5847	11	10/13/03	371	120	348	7	120	15
U-2 13	5833	5214	5847	12	10/13/03	293	120	153	2	120	-10
U-3 16	5833	5214	5847	13	10/13/03	543	120	778	10	120	30
U-3 12	5833	5214	5847	14	10/13/03	293	120	153	2	120	-10
U-3 05	5833	5214	5847	15	10/13/03	298	120	165	7	120	15
U-3 07	5833	5214	5847	16	10/13/03	317	120	213	8	120	20
U-3 13	5833	5214	5847	17	10/13/03	305	120	183	3	120	-5
U-3 10	5833	5214	5847	18	10/13/03	300	120	170	3	120	-5
BETA BACKGROUND (CPM) FOR 10-13-2003 WAS---------->								116			
ALPHA BACKGROUND (CPM) FOR 10-13-2003 WAS---------->								2			

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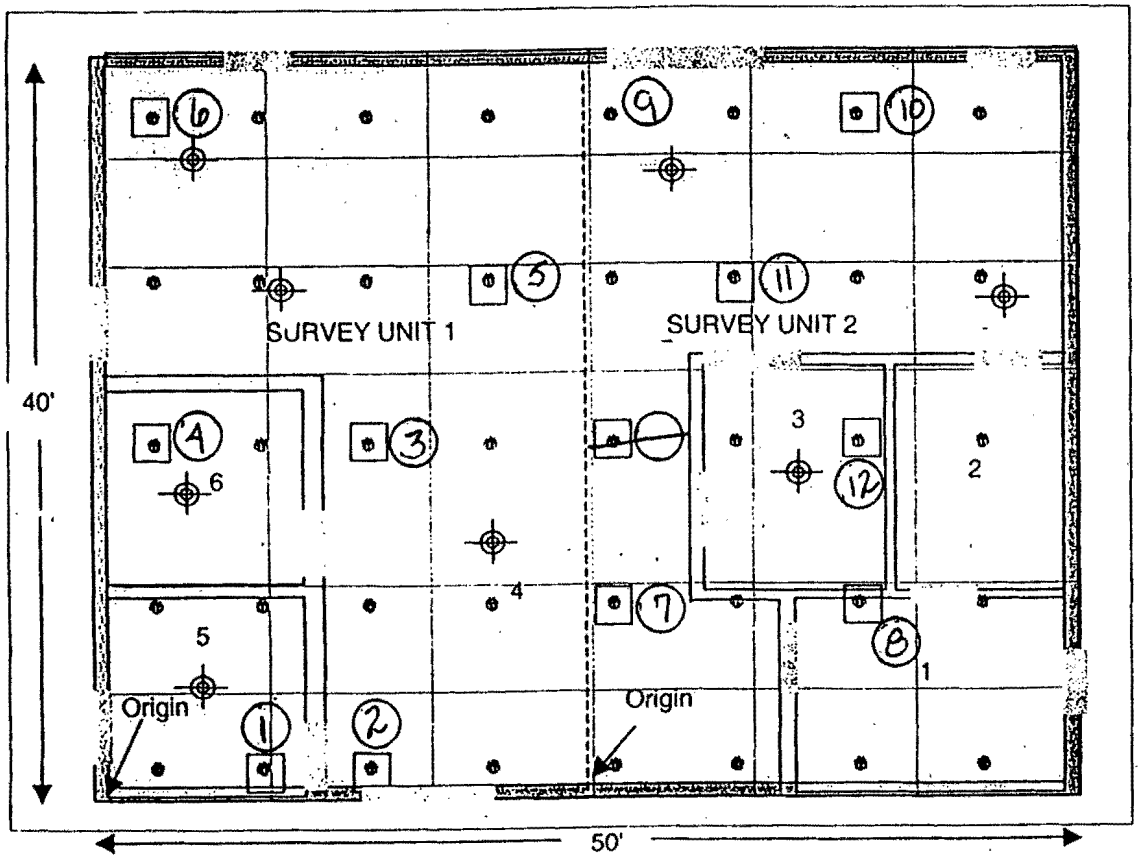
Survey Units 1 ands 2



	SU 1 Coordinates		SU 2 Coordinates	
	X	Y	X	Y
1	3	2	3	2
2	3	9	[redacted]	[redacted]
3	[redacted]	[redacted]	3	17
4	3	24	3	24
5	[redacted]	[redacted]	[redacted]	[redacted]
6	[redacted]	[redacted]	10	2
7	10	9	10	9
8	10	17	10	17
9	10	24	[redacted]	[redacted]
10	10	32	10	32
11	[redacted]	[redacted]	16	2
12	16	9	[redacted]	[redacted]
13	[redacted]	[redacted]	[redacted]	[redacted]
14	16	24	16	24
15	16	32	[redacted]	[redacted]
16	24	2	24	2
17	24	9	24	9
18	24	17	24	17
19	[redacted]	[redacted]	24	24
20	24	32	24	32

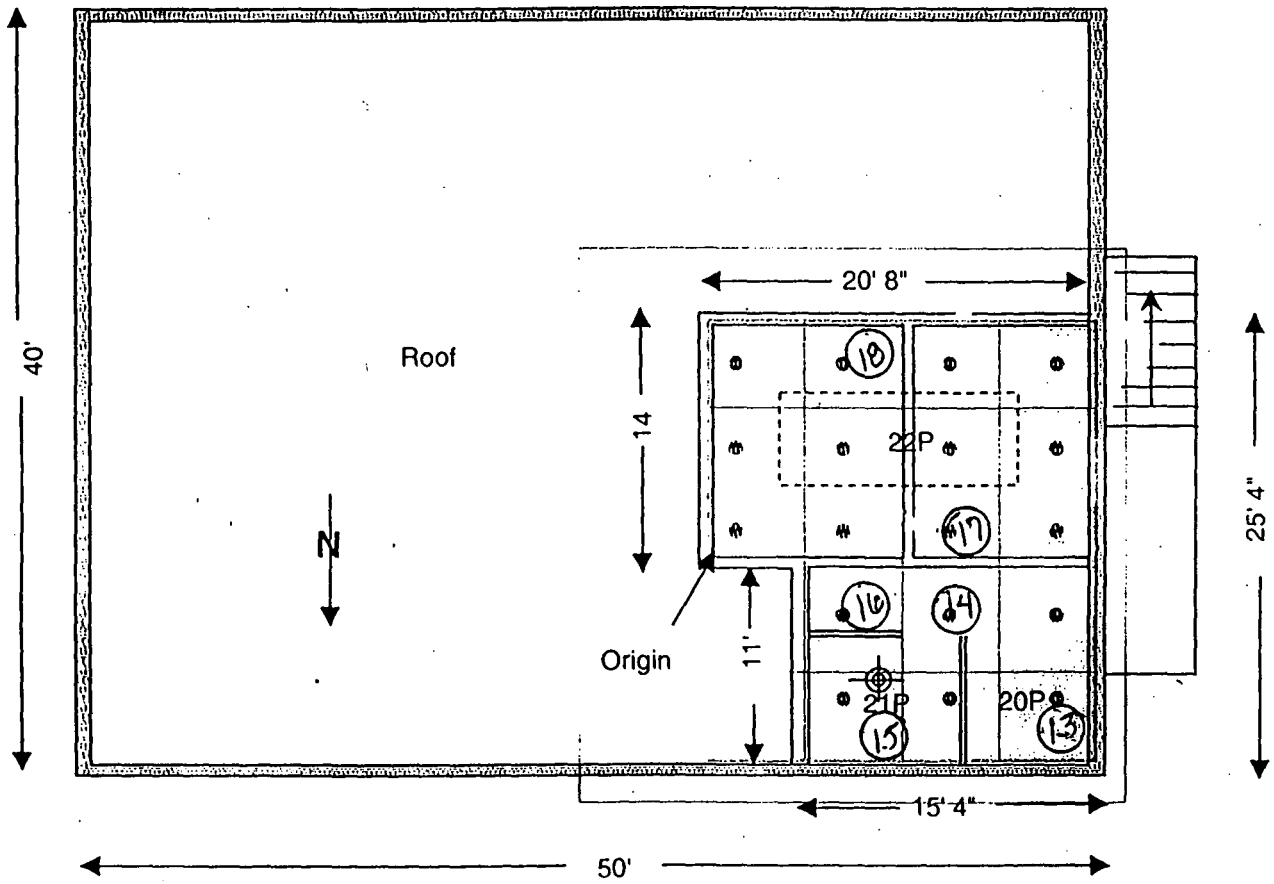
[redacted] = Surface Sample Location

Not drawn to scale.

N

SMEAR LOCATIONS PER ETCH
RSAS 03-TF-0264

Survey Unit 3 Floor



	SU 3 Coordinates	
	X	Y
1	2	8
2	2	4
3	2	1
4	2	6
5	2	1
6	7	-9
7	7	1
8	7	1
9	7	6
10	7	11
11	12	-9
12	12	1
13	12	1
14	12	6
15	12	11
16	18	-9
17	18	-4
18	18	1
19	18	6
20	18	11

Not drawn to scale.

SMEAR LOCATIONS PRE ~~ECTCH~~ ETCH 2.10.2003
RSDS 03-TF-0264

= Surface Sample Location

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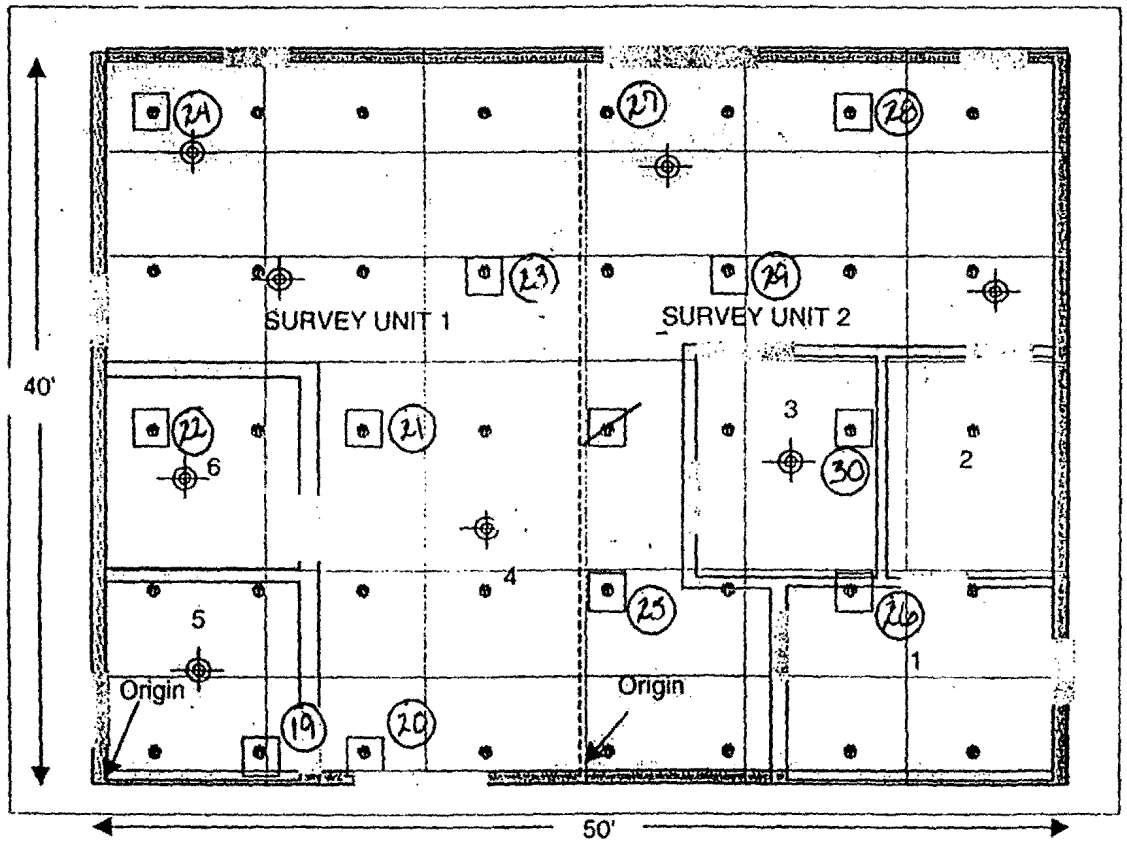
37-BLDG CHARACTERIZATION ALPHA and BETA SURVEY UNIT 1,2,3, Post Acid Ectch

RSDS#03-TF-0264 RCT: SVK RCT:_____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U-1 06	5833	5214	5847	19	10/16/03	165	60	212	1	60	0
U-1 11	5833	5214	5847	20	10/16/03	193	60	324	1	60	0
U-1 13	5833	5214	5847	21	10/16/03	150	60	152	5	60	32
U-1 03	5833	5214	5847	22	10/16/03	160	60	192	0	60	-8
U-1 19	5833	5214	5847	23	10/16/03	175	60	252	0	60	-8
U-1 05	5833	5214	5847	24	10/16/03	152	60	160	2	60	8
U-2 02	5833	5214	5847	25	10/16/03	170	60	232	0	60	-8
U-2 12	5833	5214	5847	26	10/16/03	152	60	160	3	60	16
U-2 05	5833	5214	5847	27	10/16/03	175	60	252	1	60	0
U-2 15	5833	5214	5847	28	10/16/03	176	60	256	3	60	16
U-2 09	5833	5214	5847	29	10/16/03	207	60	380	1	60	0
U-2 13	5833	5214	5847	30	10/16/03	169	60	228	5	60	32
U-3 16	5833	5214	5847	31	10/16/03	230	60	472	2	60	8
U-3 12	5833	5214	5847	32	10/16/03	171	60	236	3	60	16
U-3 05	5833	5214	5847	33	10/16/03	160	60	192	1	60	0
U-3 07	5833	5214	5847	34	10/16/03	156	60	176	4	60	24
U-3 02	5833	5214	5847	35	10/16/03	144	60	128	2	60	8
U-3 10	5833	5214	5847	36	10/16/03	145	60	132	0	60	-8
BETA BACKGROUND FOR 10-16-2003 WAS---------->								112			
ALPHA BACKGROUND FOR 10-16-2003 WAS---------->								1			

Survey Units 1 ands 2



	SU 1 Coordinates		SU 2 Coordinates	
	X	Y	X	Y
1	3	2	3	2
2	3	9	[redacted]	[redacted]
3	[redacted]	[redacted]	3	17
4	3	24	3	24
5	[redacted]	[redacted]	[redacted]	[redacted]
6	[redacted]	[redacted]	10	2
7	10	9	10	9
8	10	17	10	17
9	10	24	[redacted]	[redacted]
10	10	32	10	32
11	[redacted]	[redacted]	16	2
12	16	9	[redacted]	[redacted]
13	[redacted]	[redacted]	[redacted]	[redacted]
14	16	24	16	24
15	16	32	[redacted]	[redacted]
16	24	2	24	2
17	24	9	24	9
18	24	17	24	17
19	[redacted]	[redacted]	24	24
20	24	32	24	32

[redacted] = Surface Sample Location

Not drawn to scale.

SMEAR LOCATIONS POST ETCH
RDS 03-TE-0264

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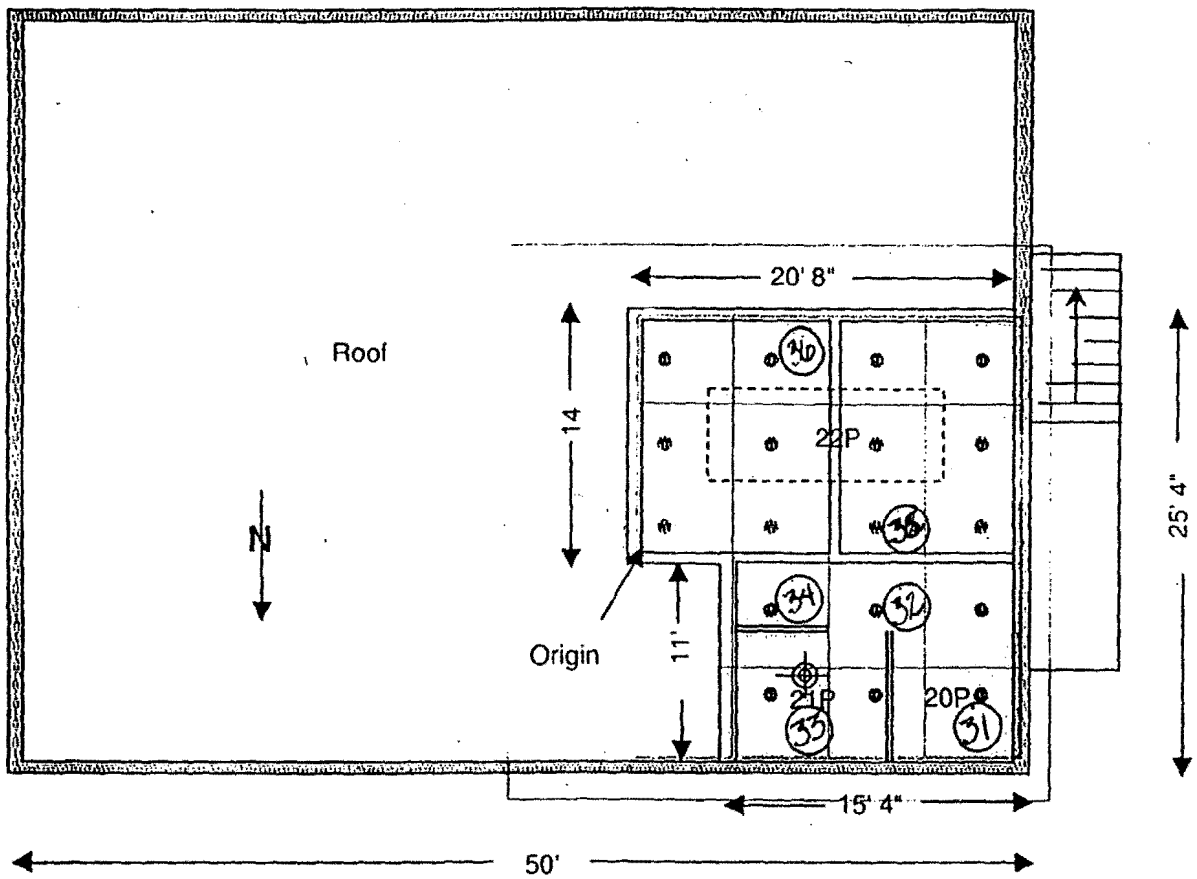
Survey Unit 3 Floor



	SU 3 Coordinates	
	X	Y
1	2	-9
2	2	-4
3	2	1
4	2	6
5	2	11
6	7	-9
7	7	-4
8	7	1
9	7	6
10	7	11
11	12	-9
12	12	-4
13	12	1
14	12	6
15	12	11
16	18	-9
17	18	-4
18	18	1
19	18	6
20	18	11

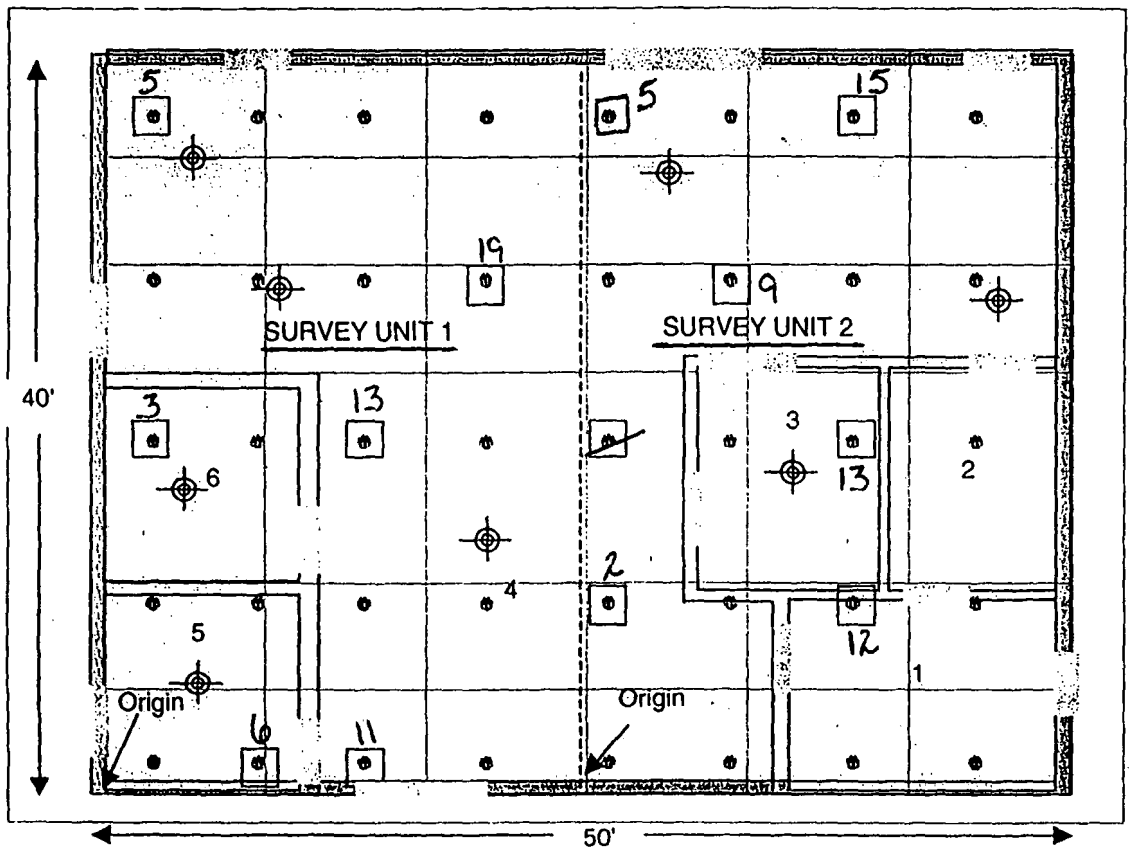
SMEAR LOCATIONS POST ETCH
RSDS 03-TF-0264

Not drawn to scale.

= Surface Sample Location

Attachment 2

Survey Units 1 ands 2



	SU 1 Coordinates		SU 2 Coordinates	
	X	Y	X	Y
1	3	2	3	2
2	3	9	3	9
3	3	17	3	17
4	3	24	3	24
5	3	32	3	32
6	10	2	10	2
7	10	9	10	9
8	10	17	10	17
9	10	24	10	24
10	10	32	10	32
11	16	2	16	2
12	16	9	16	9
13	16	17	16	17
14	16	24	16	24
15	16	32	16	32
16	24	2	24	2
17	24	9	24	9
18	24	17	24	17
19	24	24	24	24
20	24	32	24	32

= Surface Sample Location

Not drawn to scale.

N

UNITS 1 & 2 DIRECT READING LOCATIONS
RSDS 03-TF-0264

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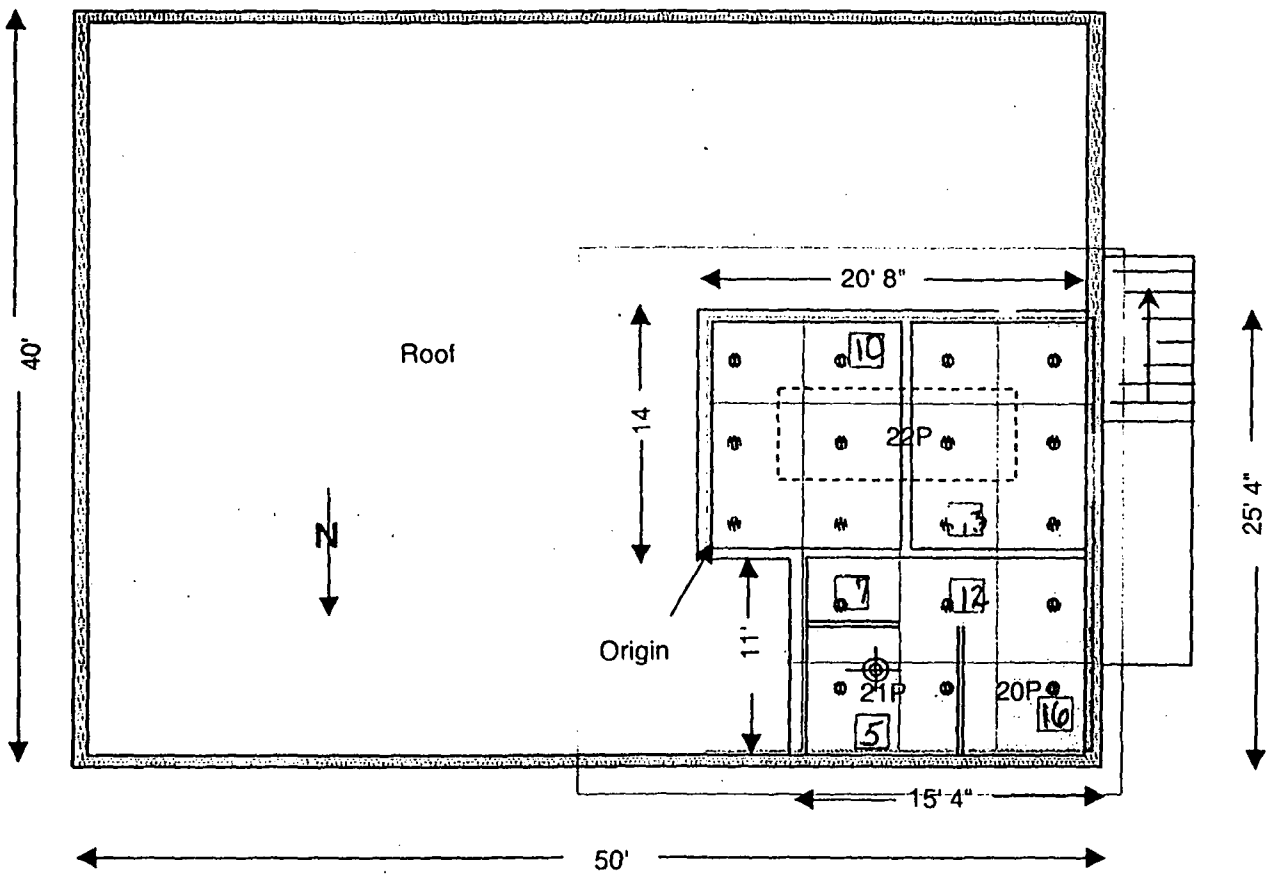
Survey Unit 3 Floor



SU 3 Coordinates		
	X	Y
1	2	9
2	2	-4
3	2	1
4	2	6
5	2	11
6	7	-9
7	7	-4
8	7	1
9	7	6
10	7	11
11	12	-9
12	12	-4
13	12	1
14	12	6
15	12	11
16	18	-9
17	18	-4
18	18	1
19	18	6
20	18	11

Not drawn to scale.

UNIT 3 DIRECT READING LOCATIONS
RSDS 03-TF-0264

= Surface Sample Location

R146

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:		MAIL STOP:
CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable): 03-TF-0264	ATTACHMENTS (list):

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0309623	Bldg. 37 Unit 1	3	
0309624		5	
0309625		6	
0309626		11	
0309627		13	
0309628		15	
0309629	Bldg. 37 Unit 2	2	
0309630		5	
0309631		9	
0309632		12	
0309633		13	
0309634		15	

COMMENTS:

RSDS 03-TF-0264

ANALYZED BY:	DATE:
R. C. Hopkins	11-5-03

ML-5222 (1-01)

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BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:		MAIL STOP:
CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable): 03-TF-0264.	ATTACHMENTS (list):

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0309635	Bldg 37 Unit 3	5	
0309636		8	
0309637		10	
0309638		12	
0309639		13	
0309640	↓	14	

COMMENTS:

RSDS 03-TF-0264

ANALYZED BY: [signature]

DATE: 11-5-03

ML-5222 (1-01)

Laboratory ID#: 0309623 - 0309640
Project/function: BOSS
Submitted by: D. Riley
Point of Contact: D. Riley x3320
RSDS#: N/A
Date: November 05, 2003

Lab ID 0309623
Sample Location Unit 1-3

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.45
Pu-239/240	<LDL	<LDL	0.35
Th-232	1.95	0.31	0.11
Th-230	5.85	0.64	0.11
Th-228	1.60	0.28	0.11
Th-227	1.72	0.29	0.11
U-238	6.30	0.71	0.13
U-235	0.61	0.20	0.44
U-233/234	5.92	0.68	0.13

Lab ID 0309624
Sample Location Unit 1-5

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.20	0.20	0.13
Pu-239/240	<LDL	<LDL	0.13
Th-232	1.52	0.26	0.10
Th-230	6.22	0.66	0.10
Th-228	2.28	0.34	0.10
Th-227	1.02	0.21	0.10
U-238	5.02	0.65	0.15
U-235	0.57	0.19	0.15
U-233/234	5.19	0.67	0.15

Lab ID 0309625
Sample Location Unit 1-6

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.90
Pu-239/240	<LDL	<LDL	0.20
Th-232	1.62	0.28	0.11
Th-230	7.19	0.74	0.11
Th-228	2.53	0.36	0.11
Th-227	1.82	0.30	0.29
U-238	7.25	0.83	0.15
U-235	1.19	0.27	0.15
U-233/234	7.09	0.82	0.40

RSDS 03-TF-0264

11-05-

Lab ID 0309626
Sample Location Unit 1-11

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.90	0.59	0.24
Pu-239/240	<LDL	<LDL	0.25
Th-232	4.18	0.53	0.32
Th-230	12.10	1.15	0.12
Th-228	3.12	0.44	0.12
Th-227	2.46	0.38	0.12
U-238	10.27	1.70	1.28
U-235	1.91	0.66	1.28
U-233/234	10.97	1.76	0.47

Lab ID 0309627
Sample Location Unit 1-13

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.63	0.34	0.11
Pu-239/240	<LDL	<LDL	0.12
Th-232	2.36	0.37	0.12
Th-230	8.65	0.89	0.33
Th-228	2.85	0.42	0.33
Th-227	1.45	0.29	0.42
U-238	9.89	1.37	0.31
U-235	1.59	0.45	0.31
U-233/234	7.16	1.10	0.31

Lab ID 0309628
Sample Location Unit 1-19

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.55	0.33	0.12
Pu-239/240	<LDL	<LDL	0.12
Th-232	1.64	0.29	0.12
Th-230	5.22	0.62	0.33
Th-228	1.59	0.29	0.12
Th-227	1.28	0.26	0.12
U-238	5.49	0.69	0.15
U-235	0.90	0.23	0.15
U-233/234	3.87	0.55	0.15

Lab ID 0309629
Sample Location Unit 2-2

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.55
Pu-239/240	<LDL	<LDL	0.43
Th-232	1.73	0.29	0.11
Th-230	5.02	0.58	0.11
Th-228	2.81	0.40	0.30
Th-227	1.00	0.23	0.37
U-238	5.91	0.70	0.14
U-235	0.51	0.16	0.14
U-233/234	4.80	0.61	0.37

2525 03-TF-026

Lab ID 0309630
Sample Location Unit 2-5

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.41	0.23	0.08
Pu-239/240	<LDL	<LDL	0.09
Th-232	1.38	0.27	0.32
Th-230	4.53	0.55	0.12
Th-228	1.85	0.32	0.40
Th-227	1.51	0.28	0.12
U-238	4.51	0.59	0.14
U-235	0.31	0.13	0.14
U-233/234	4.35	0.58	0.14

Lab ID 0309631
Sample Location Unit 2-9

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.48
Pu-239/240	<LDL	<LDL	0.14
Th-232	1.60	0.30	0.13
Th-230	6.46	0.74	0.13
Th-228	1.85	0.33	0.13
Th-227	1.51	0.29	0.13
U-238	5.48	0.63	0.12
U-235	0.86	0.21	0.32
U-233/234	5.61	0.64	0.32

Lab ID 0309632
Sample Location Unit 2-12

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.16	0.16	0.11
Pu-239/240	<LDL	<LDL	0.11
Th-232	2.27	0.41	0.42
Th-230	8.44	0.95	0.15
Th-228	2.83	0.46	0.15
Th-227	1.42	0.31	0.42
U-238	7.42	0.88	0.17
U-235	0.68	0.21	0.17
U-233/234	8.29	0.95	0.17

Lab ID 0309633
Sample Location Unit 2-13

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.08
Pu-239/240	<LDL	<LDL	0.08
Th-232	0.71	0.27	0.66
Th-230	3.49	0.57	0.19
Th-228	1.14	0.32	0.52
Th-227	0.57	0.21	0.19
U-238	2.64	0.41	0.13
U-235	0.40	0.16	0.37
U-233/234	3.23	0.47	0.13

RSAS 03-TF-0264

Lab ID 0309634
Sample Location Unit 2-15

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.31
Pu-239/240	<LDL	<LDL	0.40
Th-232	1.98	0.50	0.30
Th-230	3.96	0.75	0.30
Th-228	1.10	0.39	0.81
Th-227	<LDL	<LDL	1.18
U-238	3.52	0.52	0.15
U-235	0.40	0.15	0.15
U-233/234	3.13	0.48	0.15

Lab ID 0309635
Sample Location Unit 3-5

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.61	0.31	0.10
Pu-239/240	<LDL	<LDL	0.34
Th-232	1.14	0.29	0.18
Th-230	11.16	1.23	0.18
Th-228	1.00	0.29	0.49
Th-227	1.60	0.35	0.18
U-238	3.93	0.54	0.14
U-235	0.27	0.12	0.14
U-233/234	3.29	0.50	0.49

Lab ID 0309636
Sample Location Unit 3-7

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.30	0.21	0.28
Pu-239/240	<LDL	<LDL	0.08
Th-232	1.24	0.29	0.41
Th-230	3.55	0.53	0.41
Th-228	1.41	0.32	0.52
Th-227	0.45	0.18	0.41
U-238	3.74	0.56	0.44
U-235	1.42	0.32	0.44
U-233/234	2.61	0.44	0.16

Lab ID 0309637
Sample Location Unit 3-10

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	1.63	0.46	0.07
Pu-239/240	<LDL	<LDL	0.07
Th-232	1.18	0.27	0.15
Th-230	3.01	0.46	0.15
Th-228	1.34	0.30	0.40
Th-227	<LDL	<LDL	0.58
U-238	2.00	0.67	0.54
U-235	2.00	0.72	1.47
U-233/234	2.40	0.74	0.54

2G25D3-TF-0264

Lab ID 0309638
Sample Location Unit 3-12

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.51	0.31	0.45
Pu-239/240	0.29	0.20	0.09
Th-232	0.85	0.23	0.15
Th-230	7.19	0.85	0.53
Th-228	2.38	0.41	0.15
Th-227	0.91	0.26	0.53
U-238	<LDL	<LDL	9.54
U-235	<LDL	<LDL	37.95
U-233/234	<LDL	<LDL	9.54

Lab ID 0309639
Sample Location Unit 3-13

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	1.45	0.47	0.27
Pu-239/240	<LDL	<LDL	0.41
Th-232	1.83	0.34	0.14
Th-230	4.08	0.55	0.14
Th-228	1.93	0.36	0.38
Th-227	0.78	0.21	0.14
U-238	2.70	0.68	0.99
U-235	2.56	0.66	0.99
U-233/234	4.05	0.85	0.99

Lab ID 0309640
Sample Location Unit 3-16

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	0.43	0.22	0.07
Pu-239/240	<LDL	<LDL	0.07
Th-232	2.52	0.43	0.51
Th-230	6.30	0.76	0.40
Th-228	3.18	0.49	0.51
Th-227	1.26	0.28	0.15
U-238	6.24	0.80	0.59
U-235	2.29	0.42	0.17
U-233/234	5.47	0.74	0.59

[redacted] 1585 11-5-03
HP # Date

[redacted] 5791 5Nov03
Data Verification HP # Date

RSAS 03-TF-0264

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R21R2

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RADIOLOGICAL SURVEY DATA SHEET

B165

LOCATION: (BLDG./AREA/ROOM) BUILDING 37	SURVEY NO. 03-TF-0265
PURPOSE: SURVEY ROOF PER MARSSIM SURVEY PLAN 37-01 UNIT 7	RWP NO. N/A
	DATE: 10-13-03
	TIME: 1400

MAP/DRAWING

COPY

SEE ATTACHED DATA AND DRAWING

SMEARS TAKE AT DIRECT READING LOCATIONS

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/43-93	5833/5847	03-13-04
	N/A	

Completed [redacted]	HP # 5214	Date: 10-15-03
Completed [redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) SEE ATTACHED		
[redacted]	HP # 6178	Date: 10-15-03
[redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0265

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20			N/A	ROOF
		N/A		

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

COMMENTS: NONE

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 res are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR002
Batch Ended: 10/14/2003 7:52
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0265 [20] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		3.3	2.5	
A2	2	0.0	1.9		0.0	1.7	
A3	3	0.0	1.9		0.9	2.1	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.1		6.8	3.9	
B2	6	1.9	2.2		2.9	2.6	
B3	7	0.0	2.0		0.0	1.8	
B4	8	0.0	2.0		2.7	2.5	
C1	9	0.0	2.0		0.0	1.2	
C2	10	0.0	1.9		0.0	1.2	
C3	11	0.0	1.9		0.6	1.7	
C4	12	0.0	1.8		1.6	2.0	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		0.8	1.7	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	1.9		0.0	1.2	
A3	19	0.0	1.8		0.0	1.2	
A4	20	0.0	1.9		0.0	1.2	

SK SK

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PS 3/6 5

6574 111

37-BLDG CHARACTERIZATION ALPHA and BETA SURVEY UNIT 7

RSDS#03-TF-0265 RCT: JK RCT:_____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U7 - 1	5833	5214	5847		10/13/03	306	120	185	12	120	46
U7 - 2	5833	5214	5847		10/13/03	324	120	230	6	120	16
U7 - 3	5833	5214	5847		10/13/03	299	120	168	18	120	76
U7 - 4	5833	5214	5847		10/13/03	326	120	235	9	120	31
U7 - 5	5833	5214	5847		10/13/03	321	120	223	14	120	56
U7 - 6	5833	5214	5847		10/13/03	304	120	180	10	120	36
U7 - 7	5833	5214	5847		10/13/03	312	120	200	13	120	51
U7 - 8	5833	5214	5847		10/13/03	304	120	180	11	120	41
U7 - 9	5833	5214	5847		10/13/03	278	120	115	17	120	71
U7 - 10	5833	5214	5847		10/13/03	357	120	313	17	120	71
U7 - 11	5833	5214	5847		10/13/03	342	120	275	10	120	36
U7 - 12	5833	5214	5847		10/13/03	303	120	178	13	120	51
U7 - 13	5833	5214	5847		10/13/03	329	120	243	11	120	41
U7 - 14	5833	5214	5847		10/13/03	348	120	290	20	120	86
U7 - 15	5833	5214	5847		10/13/03	314	120	205	5	120	11
U7 - 16	5833	5214	5847		10/13/03	324	120	230	12	120	46
U7 - 17	5833	5214	5847		10/13/03	290	120	145	9	120	31
U7 - 18	5833	5214	5847		10/13/03	341	120	273	10	120	36
U7 - 19	5833	5214	5847		10/13/03	349	120	293	12	120	46
U7 - 20	5833	5214	5847		10/13/03	322	120	225	16	120	66
BETA BACKGROUND (CPM) FOR 10-13-2003 WAS---------->								116			
ALPHA BACKGROUND (CPM) FOR 10-13-2003 WAS---------->								1			

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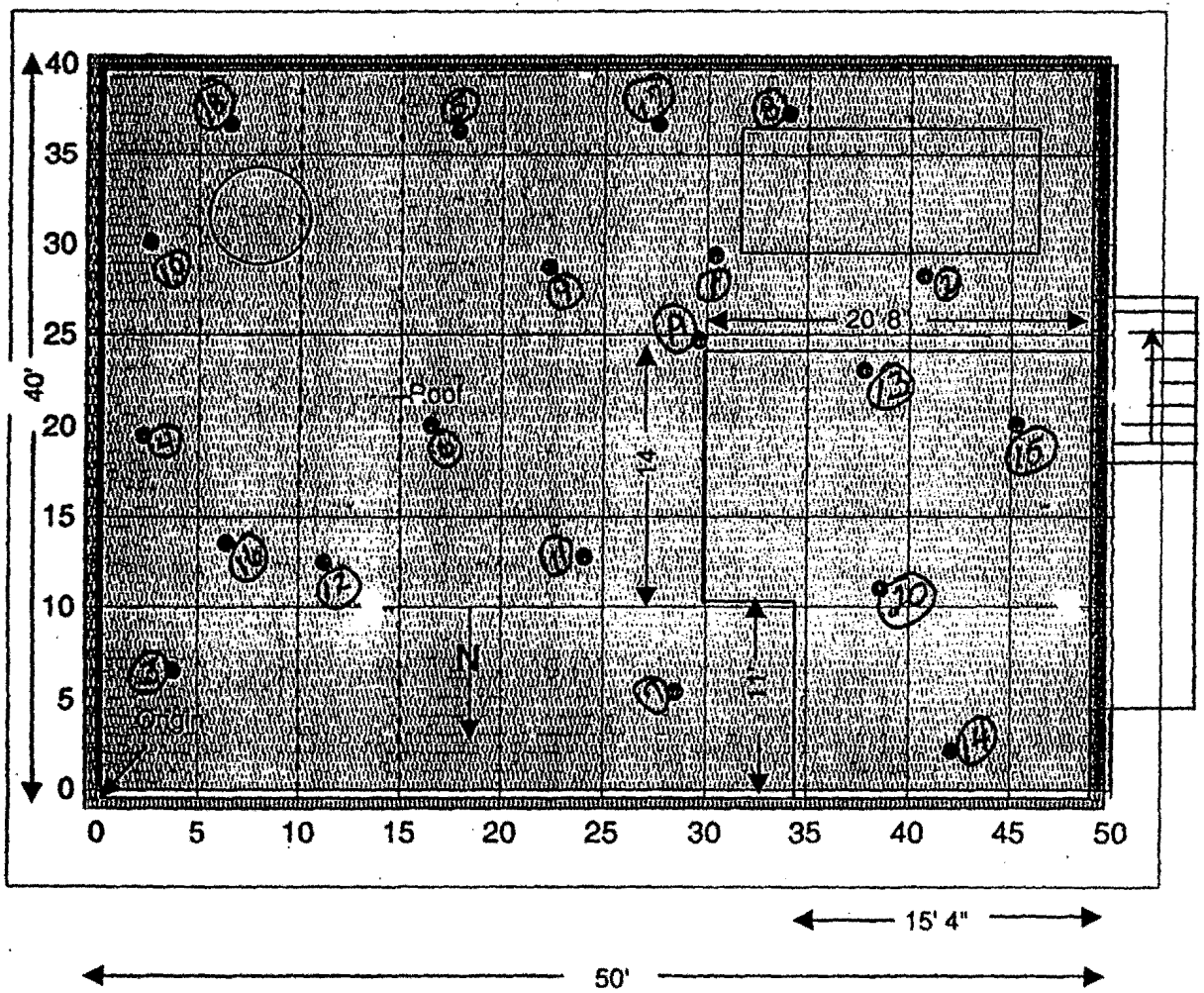
Survey Unit 7 Roof



Not drawn to scale.

	SU 7 Coordinates	
	X	Y
1	30	29
2	41	28
3	4	7
4	2	20
5	18	36
6	17	20
7	28	5
8	~~34~~ 35	37
9	22	29
10	3	30
11	24	13
12	11	12
13	38	23
14	42	2
15	45	20
16	6	14
17	28	37
18	7	37
19	30	25
20	39	11

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Building 37	SURVEY NO. 03-TF-0270
PURPOSE: MARSSIM Survey Plan 37-01 Units 4 and 5	RWP NO. N/A
	DATE: 10-20-03
	TIME: 1030

MAP/DRAWING

COPY

SEE ATTACHED DRAWINGS AND RESULTS

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

INSTRUMENTS USED

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

[redacted]	HP # 5760 5214	Date: 10-20-03
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted] ATTACHED	HP # 6178	Date: 10-21-03

ML-9620 (2-98)

Survey No. 03-TF-0270

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20				UNIT 4
21-40				UNIT 5
			N/A	

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

COMMENTS: NONE

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-9620A (4-98)

37-Building MARSSIM Survey Unit 4 and 8

RSDS# _03-TF-0270_ RCT: DR RCT: FH

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	5214	5864	1		10/15/03	7:50	21	300	32
ALPHA	SRC CHECK	5855	5214	5864	1	0	10/15/03	7:52	1990	60	15106
ALPHA	SRC CHECK	5855	5214	5864	1	0	10/15/03	7:55	1873	60	14218
ALPHA	SRC CHECK	5855	5214	5864	1	0	10/15/03	7:56	2043	60	15509
ALPHA	SRC CHECK	5855	5214	5864	1	0	10/15/03	7:58	2040	60	15486
ALPHA	U-4 01	5855	5214	5864	1	1	10/15/03	8:30	6	120	23
ALPHA	U-4 02	5855	5214	5864	1	2	10/15/03	8:34	5	120	19
ALPHA	U-4 03	5855	5214	5864	1	3	10/15/03	8:40	7	120	27
ALPHA	U-4 04	5855	5214	5864	1	4	10/15/03	8:45	6	120	23
ALPHA	U-4 05	5855	5214	5864	1	5	10/15/03	8:50	4	120	15
ALPHA	U-4 06	5855	5214	5864	1	6	10/15/03	8:54	9	120	34
ALPHA	U-4 07	5855	5214	5864	1	7	10/15/03	8:58	5	120	19
ALPHA	U-4 08	5855	5214	5864	1	8	10/15/03	9:03	11	120	42
ALPHA	U-4 09	5855	5214	5864	1	9	10/15/03	9:06	12	120	46
ALPHA	U-4 10	5855	5214	5864	1	10	10/15/03	9:10	4	120	15
ALPHA	U-4 11	5855	5214	5864	1	11	10/15/03	9:16	4	120	15
ALPHA	U-4 12	5855	5214	5864	1	12	10/15/03	9:20	7	120	27
ALPHA	U-4 13	5855	5214	5864	1	13	10/15/03	9:23	3	120	11
ALPHA	U-4 14	5855	5214	5864	1	14	10/15/03	9:28	16	120	61
ALPHA	U-4 15	5855	5214	5864	1	15	10/15/03	9:32	13	120	49
ALPHA	U-4 16	5855	5214	5864	1	16	10/15/03	9:36	9	120	34
ALPHA	U-4 17	5855	5214	5864	1	17	10/15/03	9:40	8	120	30
ALPHA	U-4 18	5855	5214	5864	1	18	10/15/03	9:44	4	120	15
ALPHA	U-4 19	5855	5214	5864	1	19	10/15/03	9:49	3	120	11
ALPHA	U-4 20	5855	5214	5864	1	20	10/15/03	9:53	8	120	30
ALPHA	U-5 01	5855	5214	5864	1	21	10/15/03	10:02	9	120	34
ALPHA	U-5 02	5855	5214	5864	1	22	10/15/03	10:06	11	120	42
ALPHA	U-5 03	5855	5214	5864	1	23	10/15/03	10:10	7	120	27
ALPHA	U-5 04	5855	5214	5864	1	24	10/15/03	10:14	4	120	15
ALPHA	U-5 05	5855	5214	5864	1	25	10/15/03	10:18	5	120	19
ALPHA	U-5 06	5855	5214	5864	1	26	10/15/03	10:22	5	120	19
ALPHA	U-5 07	5855	5214	5864	1	27	10/15/03	12:43	4	120	15
ALPHA	U-5 08	5855	5214	5864	1	28	10/15/03	12:47	14	120	53
ALPHA	U-5 09	5855	5214	5864	1	29	10/15/03	12:51	6	120	23
ALPHA	U-5 10	5855	5214	5864	1	30	10/15/03	12:55	12	120	46
ALPHA	U-5 11	5855	5214	5864	1	31	10/15/03	13:02	14	120	53
ALPHA	U-5 12	5855	5214	5864	1	32	10/15/03	13:06	4	120	15
ALPHA	U-5 13	5855	5214	5864	1	33	10/15/03	13:10	16	120	61
ALPHA	U-5 14	5855	5214	5864	1	34	10/15/03	13:14	6	120	23

37-Building MARSSIM Survey Unit 4 and 5

RSDS# _03-TF-0270_ RCT: _____ RCT: _____

Alpha	**43-68 BKG:**	**0**	**EFF:**	**0.2091**	**PROBE AREA:**	**126**	**cm²**	**Surface Eff:**		**0.5**	**Detector # :**
Beta	**43-68 BKG:**	**0**	**EFF:**	**0.1793**	**PROBE AREA:**	**126**	**cm²**	**Surface Eff:**		**0.5**	**Detector # :**
Scan	**43-37 BKG:**	**0**	**EFF:**	**0.2075**	**PROBE AREA:**	**584**	**cm²**	**Surface Eff:**		**0.5**	**Detector # :**
TYPE	**LOCATION**	**2350#**	**RCT ID**	**PROBE**	**DET #**	**ITEM #**	**DATE**	**TIME**	**CNTS**	**CT TIME**	**dpm/100cm**
ALPHA	U-5 15	5855	5214	5864	1	35	10/15/03	13:18	9	120	34
ALPHA	U-5 16	5855	5214	5864	1	36	10/15/03	13:22	5	120	19
ALPHA	U-5 17	5855	5214	5864	1	37	10/15/03	13:26	11	120	42
ALPHA	U-5 18	5855	5214	5864	1	38	10/15/03	13:29	6	120	23
ALPHA	U-5 19	5855	5214	5864	1	39	10/15/03	13:34	4	120	15
ALPHA	U-5 20	5855	5214	5864	1	40	10/15/03	13:38	8	120	30
BETA	SRC BKG	5855	5214	5864	2	0	10/15/03	8:11	683	300	1209
BETA	SRC CHECK	5855	5214	5864	2	0	10/15/03	8:16	2319	60	20530
BETA	SRC CHECK	5855	5214	5864	2	0	10/15/03	8:17	2399	60	21238
BETA	SRC CHECK	5855	5214	5864	2	0	10/15/03	8:19	2566	60	22716
BETA	SRC CHECK	5855	5214	5864	2	0	10/15/03	8:20	2512	60	22238
BETA	U-4 01	5855	5214	5864	2	1	10/15/03	8:31	152	60	1346
BETA	U-4 02	5855	5214	5864	2	2	10/15/03	8:35	165	60	1461
BETA	U-4 03	5855	5214	5864	2	3	10/15/03	8:41	133	60	1177
BETA	U-4 04	5855	5214	5864	2	4	10/15/03	8:46	110	60	974
BETA	U-4 05	5855	5214	5864	2	5	10/15/03	8:51	125	60	1107
BETA	U-4 06	5855	5214	5864	2	6	10/15/03	8:56	124	60	1098
BETA	U-4 07	5855	5214	5864	2	7	10/15/03	8:59	130	60	1151
BETA	U-4 08	5855	5214	5864	2	8	10/15/03	9:04	128	60	1133
BETA	U-4 09	5855	5214	5864	2	9	10/15/03	9:07	149	60	1319
BETA	U-4 10	5855	5214	5864	2	10	10/15/03	9:11	135	60	1195
BETA	U-4 11	5855	5214	5864	2	11	10/15/03	9:17	128	60	1133
BETA	U-4 12	5855	5214	5864	2	12	10/15/03	9:21	149	60	1319
BETA	U-4 13	5855	5214	5864	2	13	10/15/03	9:25	131	60	1160
BETA	U-4 14	5855	5214	5864	2	14	10/15/03	9:29	119	60	1053
BETA	U-4 15	5855	5214	5864	2	15	10/15/03	9:33	166	60	1470
BETA	U-4 16	5855	5214	5864	2	16	10/15/03	9:37	131	60	1160
BETA	U-4 17	5855	5214	5864	2	17	10/15/03	9:41	145	60	1284
BETA	U-4 18	5855	5214	5864	2	18	10/15/03	9:45	147	60	1301
BETA	U-4 19	5855	5214	5864	2	19	10/15/03	9:50	152	60	1346
BETA	U-4 20	5855	5214	5864	2	20	10/15/03	9:54	104	60	921
BETA	U-5 01	5855	5214	5864	2	21	10/15/03	10:03	131	60	1160
BETA	U-5 02	5855	5214	5864	2	22	10/15/03	10:07	114	60	1009
BETA	U-5 03	5855	5214	5864	2	23	10/15/03	10:11	162	60	1434
BETA	U-5 04	5855	5214	5864	2	24	10/15/03	10:15	110	60	974
BETA	U-5 05	5855	5214	5864	2	25	10/15/03	10:19	131	60	1160
BETA	U-5 06	5855	5214	5864	2	26	10/15/03	10:23	117	60	1036
BETA	U-5 07	5855	5214	5864	2	27	10/15/03	12:44	193	60	1709
BETA	U-5 08	5855	5214	5864	2	28	10/15/03	12:48	155	60	1372

37-Building MARSSIM Survey Unit 4 and 5

RSDS# _03-TF-0270_ RCT: SLR RCT: HK

Alpha	**43-68 BKG:**	**0**	**EFF:**	**0.2091**	**PROBE AREA:**	**126**	**cm^2**	**Surface Eff:**		**0.5**	**Detector # : 1**
Beta	**43-68 BKG:**	**0**	**EFF:**	**0.1793**	**PROBE AREA:**	**126**	**cm^2**	**Surface Eff:**		**0.5**	**Detector # : 2**
Scan	**43-37 BKG:**	**0**	**EFF:**	**0.2075**	**PROBE AREA:**	**584**	**cm^2**	**Surface Eff:**		**0.5**	**Detector # : 3**
TYPE	**LOCATION**	**2350#**	**RCT ID**	**PROBE**	**DET #**	**ITEM #**	**DATE**	**TIME**	**CNTS**	**CT TIME**	**dpm/100cm2**
BETA	U-5 09	5855	5214	5864	2	29	10/15/03	12:52	153	60	1354
BETA	U-5 10	5855	5214	5864	2	30	10/15/03	12:56	140	60	1239
BETA	U-5 11	5855	5214	5864	2	31	10/15/03	13:03	139	60	1231
BETA	U-5 12	5855	5214	5864	2	32	10/15/03	13:07	140	60	1239
BETA	U-5 13	5855	5214	5864	2	33	10/15/03	13:11	155	60	1372
BETA	U-5 14	5855	5214	5864	2	34	10/15/03	13:15	119	60	1053
BETA	U-5 15	5855	5214	5864	2	35	10/15/03	13:19	132	60	1169
BETA	U-5 16	5855	5214	5864	2	36	10/15/03	13:23	146	60	1293
BETA	U-5 17	5855	5214	5864	2	37	10/15/03	13:27	140	60	1239
BETA	U-5 18	5855	5214	5864	2	38	10/15/03	13:31	142	60	1257
BETA	U-5 19	5855	5214	5864	2	39	10/15/03	13:35	135	60	1195
BETA	U-5 20	5855	5214	5864	2	40	10/15/03	13:39	157	60	1390

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR002
Batch Ended: 10/16/2003 8:10
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0270 RILEY A/B (40) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		3.3	2.5	
A2	2	0.0	1.9		0.0	1.2	
A3	3	0.0	1.8		0.0	1.2	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.0		4.2	3.4	
B2	6	0.0	2.2		3.1	2.6	
B3	7	0.0	2.0		1.3	2.5	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		2.8	2.4	
C2	10	0.0	1.9		0.0	1.2	
C3	11	0.0	1.9		5.3	2.9	
C4	12	0.0	1.8		0.0	1.2	
D1	13	0.0	2.0		0.8	1.8	
D2	14	1.8	2.1		0.0	1.2	
D3	15	0.0	2.0		0.0	1.2	
D4	16	1.5	2.0		0.0	1.2	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	1.9		0.9	2.1	
A3	19	0.0	1.8		0.0	1.2	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	2.0		4.2	3.4	
B2	22	0.0	2.2		1.8	2.2	
B3	23	0.0	2.0		1.3	2.5	
B4	24	1.6	2.0		2.5	2.5	
C1	25	0.0	2.0		2.8	2.4	
C2	26	0.0	2.0		0.5	1.7	
C3	27	0.0	1.9		0.0	1.2	
C4	28	0.0	1.8		0.0	1.2	
D1	29	0.0	2.0		0.0	1.3	
D2	30	0.0	2.1		1.1	1.7	
D3	31	0.0	2.0		0.0	1.2	

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR002
Batch Ended: 10/16/2003 8:10
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0270 RILEY A/B (40) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
D4	32	0.0	2.0		2.0	2.1	
A1	33	0.0	1.9		2.0	2.1	
A2	34	0.0	1.9		0.0	1.7	
A3	35	1.6	1.8		0.0	1.2	
A4	36	0.0	1.9		0.0	1.2	
B1	37	0.0	2.0		1.6	2.9	
B2	38	0.0	2.1		0.0	1.3	
B3	39	0.0	2.0		0.0	1.3	
B4	40	1.6	2.0		0.1	1.8	

DR DR

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Protocol #: 2 Name:pW h3 101068 16-Oct-2003 08:42
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
RILEY 03-TF-0270 1-40 JC
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	8	B	6.30	6.20	6.10	557.		0.00
0	2.00	1		656.20	622.80	0.90	481.	1355.95	127.84
1	2.00	0		0.00	0.00	0.00	589.	0.00	0.00
2	2.00	17		0.00	0.00	1.90	585.	0.00	0.00
3	2.00	0		0.00	0.00	0.00	602.	0.00	0.00
4	2.00	13		0.00	0.00	0.90	598.	0.00	0.00
5	2.00	17		0.00	0.00	0.00	619.	0.00	0.00
6	2.00	0		0.70	0.00	0.00	606.	1.28	7.42
7	2.00	0		2.20	1.80	0.90	583.	4.09	8.22
8	2.00	0		0.00	0.00	0.00	506.	0.00	0.00
9	2.00	22		0.00	0.00	1.40	385.	0.00	0.00
10	2.00	0		0.00	0.00	0.00	577.	0.00	0.00
11	2.00	12		0.00	0.00	0.00	575.	0.00	0.00
12	2.00	0		0.00	0.00	0.00	538.	0.00	0.00
13	2.00	0		0.00	0.00	0.00	602.	0.00	0.00
14	2.00	0		0.00	0.00	0.00	578.	0.00	0.00
15	2.00	19		0.00	0.00	0.00	610.	0.00	0.00
16	2.00	9		0.00	0.00	0.00	503.	0.00	0.00
17	2.00	7		0.20	0.30	0.00	592.	0.37	9.32
18	2.00	0		0.20	0.00	0.00	506.	0.40	7.92
19	2.00	15		0.00	0.00	0.00	580.	0.00	0.00
20	2.00	52		0.00	0.00	0.00	605.	0.00	0.00
21	2.00	0		0.00	0.00	0.00	598.	0.00	0.00
22	2.00	0		0.00	0.00	0.00	608.	0.00	0.00
23	2.00	0		0.70	0.00	0.00	618.	1.27	7.36
24	2.00	12		0.00	0.00	0.00	629.	0.00	0.00
25	2.00	0		0.00	0.00	0.40	570.	0.00	0.00
26	2.00	14		0.20	0.30	0.00	634.	0.36	8.68
27	2.00	0		0.00	0.00	0.00	618.	0.00	0.00
28	2.00	45		0.00	0.00	0.90	644.	0.00	0.00
29	2.00	20		0.00	0.00	0.00	591.	0.00	0.00
30	2.00	22		0.00	0.00	0.00	628.	0.00	0.00
31	2.00	0		0.70	0.00	0.00	627.	1.26	7.31
32	2.00	10		0.00	0.00	0.00	633.	0.00	0.00
33	2.00	0		0.00	0.00	0.40	626.	0.00	0.00
34	2.00	0		0.00	0.00	0.00	610.	0.00	0.00
35	2.00	10		0.00	0.00	0.00	623.	0.00	0.00
36	2.00	11		0.00	0.00	0.00	623.	0.00	0.00
37	2.00	13		0.00	0.00	0.00	625.	0.00	0.00
38	2.00	12		0.00	0.00	0.00	634.	0.00	0.00
39	2.00	0		1.70	0.00	0.00	634.	3.04	7.70
40	2.00	17		0.00	0.00	0.00	630.	0.00	0.00

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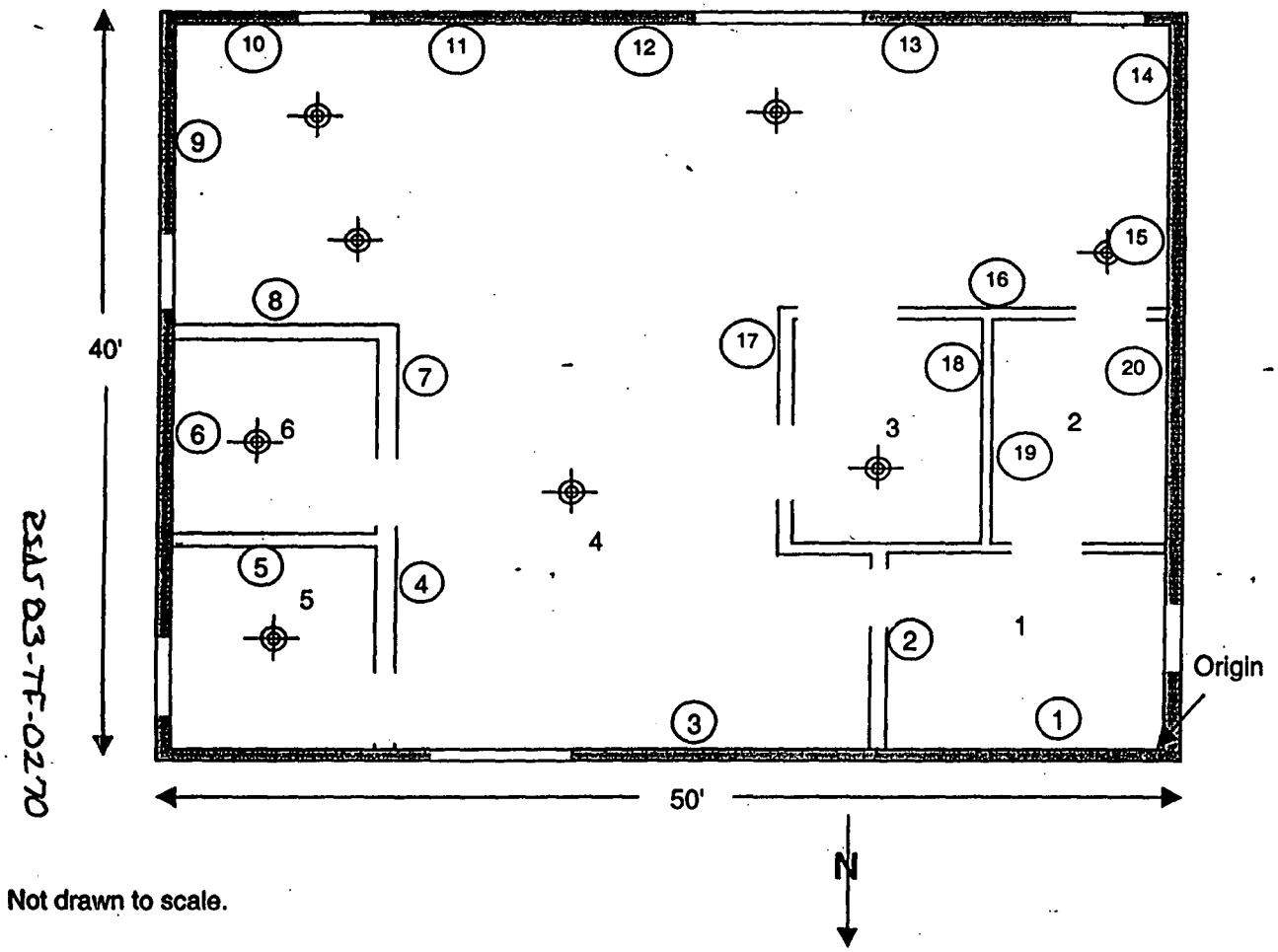
Survey ~~Unit~~ 4 Walls to 6'



SU 4 Coordinates

	X	Y
1	7	5
2	18	3
3	8	2
4	9	2
5	4	2
6	8	6
7	21	1
8	5	3
9	9	5
10	4	5
11	12	6
12	18	4
13	35	4
14	3	6
15	10	0
16	10	1
17	2	2
18	1	2
19	3	1
20	4	1

Not drawn to scale.

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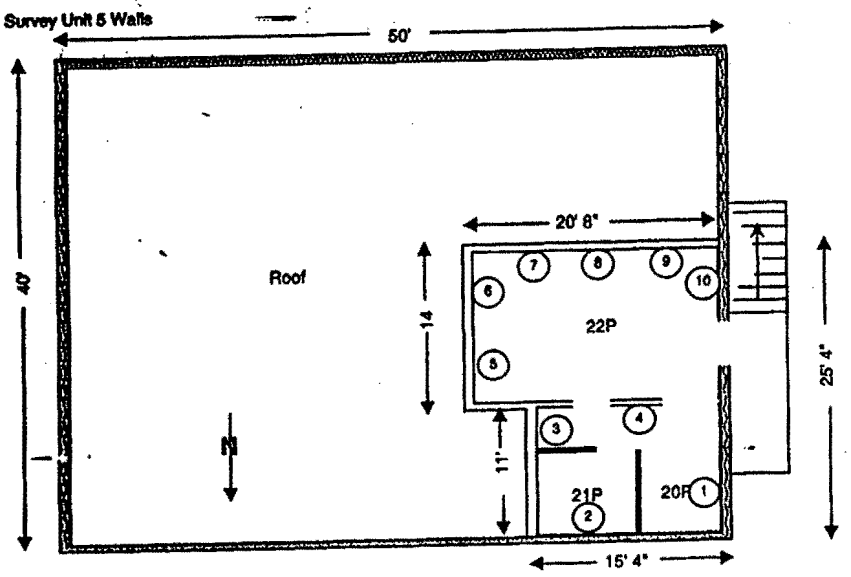
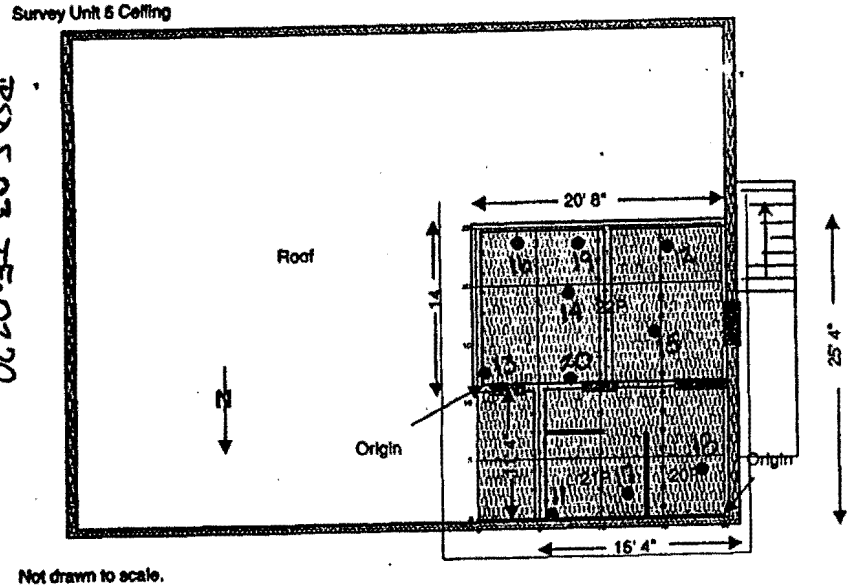
Survey Unit 5 Walls



SU 5 Coordinates

	X	Y	
1	8	6	Walls
2	3	2	Walls
3	2	5	Walls
4	8	5	Walls
5	4	3	Walls
6	9	4	Walls
7	5	4	Walls
8	10	4	Walls
9	16	1	Walls
10	4	2	Walls

Survey Unit 5 Ceiling



	X	Y	
11	6	-12	Ceiling
12	16	11	Ceiling
13	1	1	Ceiling
14	8	7	Ceiling
15	14	4	Ceiling
16	4	12	Ceiling
17	12	-10	Ceiling
18	18	-8	Ceiling
19	8	12	Ceiling
20	8	0	Ceiling

Not drawn to scale.

PSDS 03-TF-0270

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Building 37	SURVEY NO. 03-TF-0273
PURPOSE: Characterization Survey of Drains and Ventilation per MARSSIM Survey Plan 37-01	RWP NO. N/A
	DATE: 10-16-03
	TIME: 1400

MAP/DRAWING

COPY

See attached drawings and results

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/43-93	5833-5847	03-13-04
	N/A	

Compl [redacted]	HP # 5214	Date: 10-20-03
Compl [redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) See attached [redacted]	HP # 6178	Date: 10-20-03
[redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0223

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-9				DRAINS
10-21				VENTILATION
			NA	

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

COMMENTS: NONE

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

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR008
Batch Ended: 10/16/2003 15:09
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0273 [21] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	0.0	1.9		2.0	2.1	
A2	2	0.0	1.9		0.0	1.2	
A3	3	0.0	1.9		0.0	1.7	
A4	4	0.0	1.9		0.9	1.6	
B1	5	0.0	2.0		1.6	2.9	
B2	6	0.0	2.1		0.5	1.8	
B3	7	0.0	2.0		3.8	3.1	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.4	1.7	
C2	10	1.8	1.9		0.0	1.2	
C3	11	0.0	1.9		0.6	1.7	
C4	12	0.0	1.8		0.0	1.2	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		2.3	2.1	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	1.9		0.8	1.7	
A2	18	0.0	1.9		0.0	1.2	
A3	19	0.0	1.8		0.0	1.2	
A4	20	0.0	1.9		2.0	2.0	
B1	21	0.0	2.0		0.3	2.6	

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Protocol #: 1 Name:pW h3 101068 16-Oct-2003 17:46
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
RILEY 03-TF-0273 (V1-V21) AG
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	16	B	8.40	7.70	5.80	551.		0.00
0	2.00	1		194.10	184.80	0.00	476.	403.69	52.72
1	2.00	85		0.00	0.00	0.00	508.	0.00	0.00
2	2.00	0		0.00	0.00	4.20	405.	0.00	0.00
3	2.00	52		0.00	0.00	0.00	451.	0.00	0.00
4	2.00	10		0.00	0.00	0.00	571.	0.00	0.00
5	2.00	11		0.00	0.00	0.20	527.	0.00	0.00
6	2.00	11		0.00	0.00	0.00	445.	0.00	0.00
7	2.00	48		0.00	0.00	0.00	313.	0.00	0.00
8	2.00	0		0.00	0.00	0.00	500.	0.00	0.00
9	2.00	0		0.00	0.00	0.00	519.	0.00	0.00
10	2.00	9		0.00	0.00	0.00	449.	0.00	0.00
11	2.00	33		0.00	0.00	0.00	432.	0.00	0.00
12	2.00	12		0.00	0.00	0.00	460.	0.00	0.00
13	2.00	0		0.00	0.00	0.00	493.	0.00	0.00
14	2.00	0		0.00	0.00	0.00	406.	0.00	0.00
15	2.00	30		0.00	0.00	0.20	477.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	461.	0.00	0.00
17	2.00	0		0.00	0.00	0.00	527.	0.00	0.00
18	2.00	40		0.00	0.00	0.00	527.	0.00	0.00
19	2.00	0		0.00	0.00	2.70	546.	0.00	0.00
20	2.00	34		0.00	0.00	5.20	474.	0.00	0.00
21	2.00	20		0.00	0.00	0.70	594.	0.00	0.00

J. DeDeus

RSD5 03-TF-0273

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37-BLDG CHARACTERIZATION ALPH and BETA SURVEY DRAINS and VENTILATION

RSDS#03-TF-0273 RCT: SVR RCT:_____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	5214	5847		10/16/03	124	60	48	2	60	8
2	5833	5214	5847		10/16/03	127	60	60	1	60	0
3	5833	5214	5847		10/16/03	125	60	52	0	60	-8
4	5833	5214	5847		10/16/03	134	60	88	2	60	8
5	5833	5214	5847		10/16/03	122	60	40	1	60	0
6	5833	5214	5847		10/16/03	120	60	32	1	60	0
7	5833	5214	5847		10/16/03	130	60	72	1	60	0
8	5833	5214	5847		10/16/03	112	60	0	1	60	0
9	5833	5214	5847		10/16/03	132	60	80	1	60	0
10	5833	5214	5847		10/16/03	114	60	8	4	60	24
11	5833	5214	5847		10/16/03	113	60	4	1	60	0
12	5833	5214	5847		10/16/03	112	60	0	2	60	8
13	5833	5214	5847		10/16/03	107	60	-20	4	60	24
14	5833	5214	5847		10/16/03	105	60	-28	1	60	0
15	5833	5214	5847		10/16/03	114	60	8	2	60	8
16	5833	5214	5847		10/16/03	116	60	16	1	60	0
17	5833	5214	5847		10/16/03	118	60	24	3	60	16
18	5833	5214	5847		10/16/03	115	60	12	4	60	24
19	5833	5214	5847		10/16/03	124	60	48	3	60	16
20	5833	5214	5847		10/16/03	676	60	2256	9	60	64
21	5833	5214	5847		10/16/03	92	60	-80	1	60	0
BETA BACKGROUND FOR 10-16-2003 WAS---------->								112			
ALPHA BACKGROUND FOR 10-16-2003 WAS---------->								1			

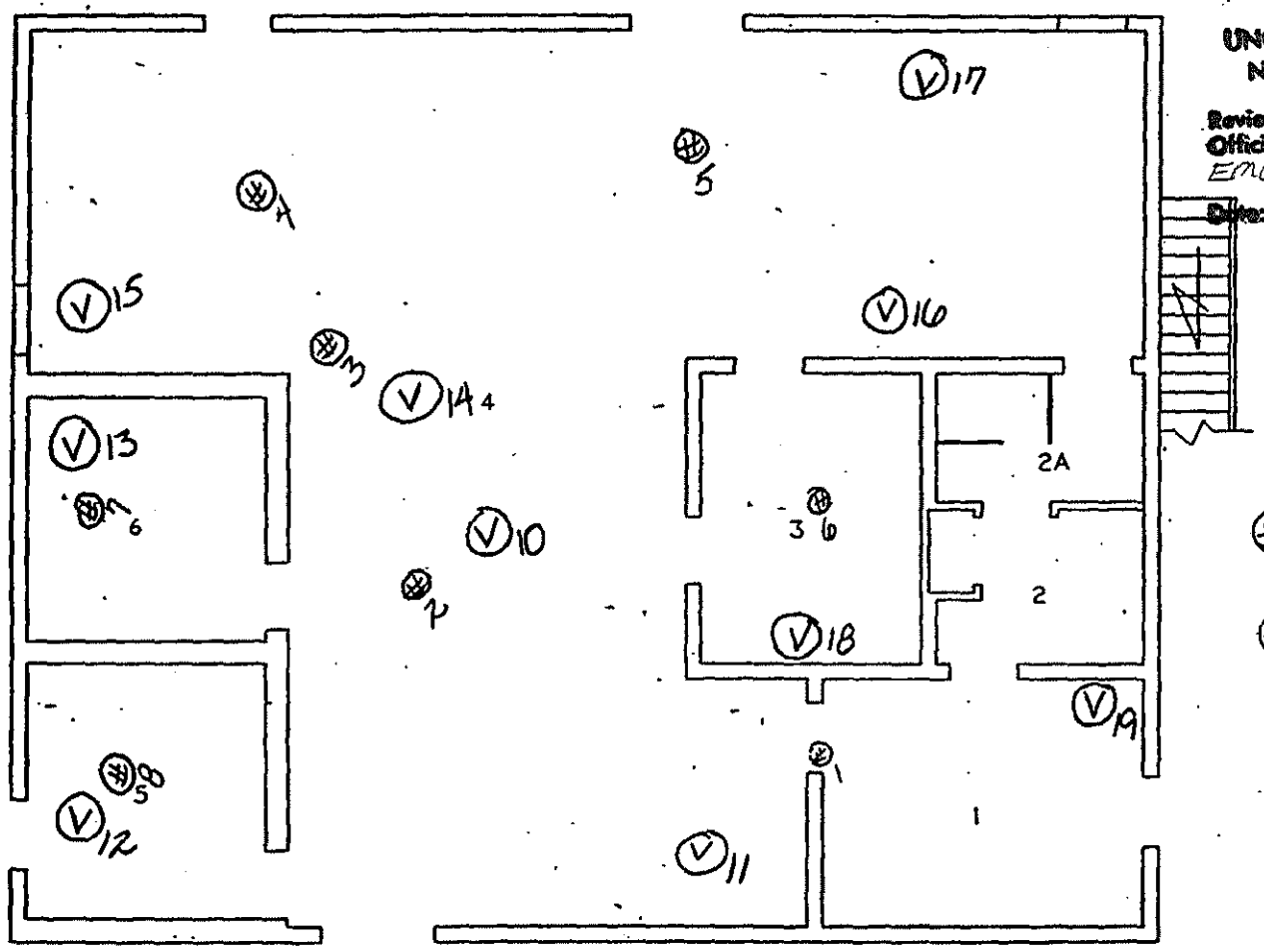
575 of 111

REV	DATE	REVISION	BY	CHKD	CHD	APVD	APVD	R
B	12/12/91	ASBUILT ISSUE	DCH				DVC	

DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

Reviewing Official: J. A. NESHEIM
EMCBC Class W Name Office
Date: 03-26-08

RSDS 03-TF-0273



(#) = FLOOR DRAINS

(V) = VENTILATION

0 1' 3' 5' 10'

N

BLDG #37
FIRST FLOOR
BLDG CODE:3037

APPROVALS: DATE:
SAFETY CRITERIA REQUIRED:
___ NRC ___ SEISMIC ___ XCNC ___ DNNC
TECH. REP. _____

NOT FOR PUBLIC DISSEMINATION

MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED

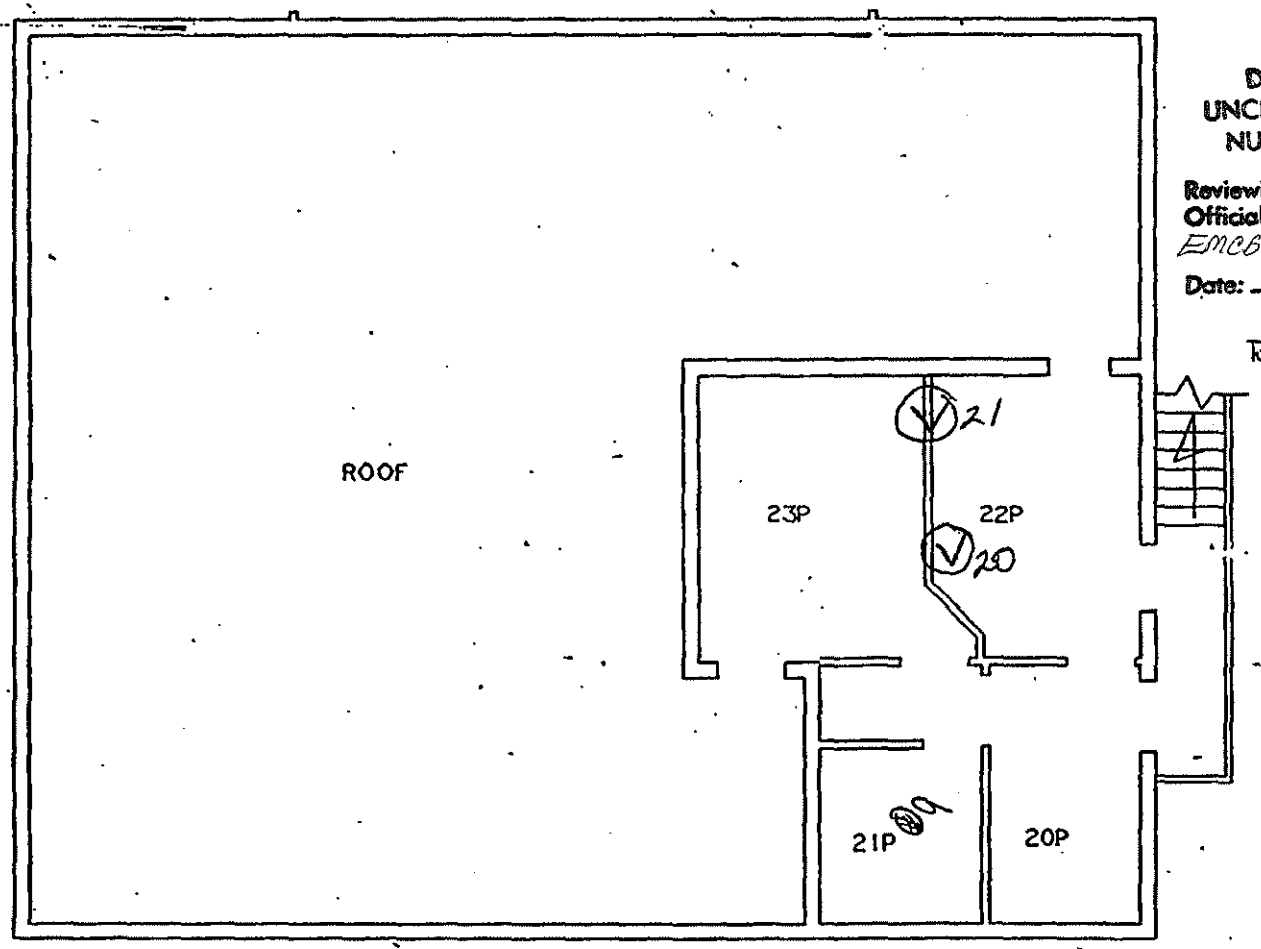
SHEET	1	2	3	4	5	6	TITLE (U) TITLE CLASSIFICATION
ISSUE	B	B	·	·	·	·	BLDG #37 FLOOR PLANS
PART CLASSIFICATION							
DRAWING CLASSIFICATION: UCNI							SIZE C · DRAWING NUMBER FSC911248 · JOB NUMBER 12335

DATE TYPE SFP · DRAWN BLDG #37 · SCALE 1:48 · SCALE AS NOTED · SHEET 1 OF 2

1114 976

RSDS 03-TF-022

R 967



DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

Reviewing Official: J. A. NESHEIM
EMCBC Classifier Name Office
Date: 08-26-08

RSDS-03-TF-023

(#) = FLOOR DRAINS

(V) = VENTILATION

0 1' 3' 5' 10'

BLDG #37
PENTHOUSE
BLDG CODE:3037

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
Code	14965
Scale	AS NOTED
Sheet	2
Status	MO-REL-12/12/91

677411

RSDS-03-TF-023

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 37	SURVEY NO. 03-TF-0274
PURPOSE: MARSSIM SURVEY PLAN 37-01 UNIT 6 (EXTERIOR WALLS)	RWP NO. N/A
	DATE: 10-20-03
	TIME: 0950

MAP/DRAWING

COPY

SEE ATTACHED DRAWING AND RESULTS

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

INSTRUMENTS USED

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

[redacted] HP # 7474 5214 Date: 10-20-03

Counted by: (Signature) HP # Date:

Counted by: (Print Name) SEE ATTACHED

[redacted] HP # 6178 Date: 10-20-03

ML-9620 (2-98)

Survey No. 03-TF-0274

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20				UNIT 6

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

COMMENTS:

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

MU-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR009
Batch Ended: 10/16/2003 15:17
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0274 [20] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		0.0	1.2	
A2	2	1.7	1.9		2.0	2.4	
A3	3	0.0	1.9		2.0	2.4	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.0		0.0	2.3	
B2	6	0.0	2.1		0.5	1.8	
B3	7	0.0	2.0		2.5	2.8	
B4	8	3.5	2.7		1.1	2.2	
C1	9	0.0	2.0		2.8	2.4	
C2	10	0.0	2.0		1.7	2.1	
C3	11	0.0	1.9		0.6	1.7	
C4	12	0.0	1.8		0.0	1.2	
D1	13	0.0	2.0		0.8	1.8	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	1.9		0.8	1.7	
A2	18	3.6	2.7		0.6	2.1	
A3	19	0.0	1.9		0.0	1.7	
A4	20	1.7	1.9		0.7	1.6	

QR QR

~~Page 1 of 1~~ QR 10-20-03

T.2.2.4

RSDS 03-TF-0274

D3768

Protocol #: 7 Name:pW h3 101068 16-Oct-2003 16:31
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
03-TF-0274 RILEY (W1-W20) AG
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	22	B	8.50	8.20	6.50	554.		0.00
0	2.00	4		561.50	528.80	0.50	385.	1328.48	141.95
1	2.00	11		0.00	0.00	0.00	575.	0.00	0.00
2	2.00	0		0.00	0.00	0.50	601.	0.00	0.00
3	2.00	24		0.00	0.00	0.00	576.	0.00	0.00
4	2.00	0		0.00	0.00	0.00	610.	0.00	0.00
5	2.00	11		0.00	0.00	1.00	574.	0.00	0.00
6	2.00	0		0.00	0.00	0.00	576.	0.00	0.00
7	2.00	0		0.00	0.00	1.50	577.	0.00	0.00
8	2.00	7		0.00	0.00	2.00	576.	0.00	0.00
9	2.00	10		0.00	0.00	0.00	565.	0.00	0.00
10	2.00	0		0.00	0.00	0.00	585.	0.00	0.00
11	2.00	0		0.00	0.00	0.00	560.	0.00	0.00
12	2.00	0		0.00	0.00	0.00	593.	0.00	0.00
13	2.00	0		0.00	0.00	0.00	584.	0.00	0.00
14	2.00	34		0.00	0.00	0.00	564.	0.00	0.00
15	2.00	0		0.00	0.00	0.00	564.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	499.	0.00	0.00
17	2.00	0		0.00	0.00	1.00	564.	0.00	0.00
18	2.00	10		0.00	0.00	0.00	503.	0.00	0.00
19	2.00	0		0.00	0.00	0.00	609.	0.00	0.00
20	2.00	0		0.00	0.00	0.00	606.	0.00	0.00

QR

RSAs 03-TF-0274

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Pg 4 of 8

37-Building Characterization Survey Unit 6

RSDS# _03-TF-0274_ *RCT:* SR *RCT:* KA

Alpha	**43-68 BKG:**	**0**	**EFF:**	**0.2091**	**PROBE AREA:**	**126**	**cm^2**	**Surface Eff:**		**0.5**	**Detector # : 1**
Beta	**43-68 BKG:**	**0**	**EFF:**	**0.1793**	**PROBE AREA:**	**126**	**cm^2**	**Surface Eff:**		**0.5**	**Detector # : 2**
Scan	**43-37 BKG:**	**0**	**EFF:**	**0.2075**	**PROBE AREA:**	**584**	**cm^2**	**Surface Eff:**		**0.5**	**Detector # : 3**
TYPE	**LOCATION**	**2350#**	**RCT ID**	**PROBE**	**DET #**	**ITEM #**	**DATE**	**TIME**	**CNTS**	**CT TIME**	**dpm/100cm2**
ALPHA	SRC BKG	5855	7474	5864	1		10/13/03	6:55	15	300	23
ALPHA	SRC CHECK	5855	7474	5864	1		10/13/03	6:57	1989	60	15099
ALPHA	SRC CHECK	5855	7474	5864	1		10/13/03	7:22	1973	60	14977
ALPHA	SRC CHECK	5855	7474	5864	1		10/13/03	7:23	2043	60	15509
ALPHA	SRC CHECK	5855	7474	5864	1		10/13/03	7:25	2050	60	15562
ALPHA	U-6 03	5855	7474	5864	1	3	10/13/03	9:31	19	120	72
ALPHA	U-6 05	5855	7474	5864	1	5	10/13/03	9:36	14	120	53
ALPHA	U-6 08	5855	7474	5864	1	8	10/13/03	9:40	38	120	144
ALPHA	U-6 09	5855	7474	5864	1	9	10/13/03	9:44	25	120	95
ALPHA	U-6 10	5855	7474	5864	1	10	10/13/03	9:49	24	120	91
ALPHA	U-6 11	5855	7474	5864	1	11	10/13/03	9:54	21	120	80
ALPHA	U-6 13	5855	7474	5864	1	13	10/13/03	10:02	13	120	49
ALPHA	U-6 14	5855	7474	5864	1	14	10/13/03	10:09	29	120	110
ALPHA	U-6 15	5855	7474	5864	1	15	10/13/03	10:17	14	120	53
ALPHA	U-6 16	5855	7474	5864	1	16	10/13/03	13:30	18	120	68
ALPHA	U-6 17	5855	7474	5864	1	17	10/13/03	13:40	15	120	57
BETA	SRC BKG	5855	7474	5864	2		10/13/03	7:31	786	300	1392
BETA	SRC CHECK	5855	7474	5864	2		10/13/03	7:33	2561	60	22672
BETA	SRC CHECK	5855	7474	5864	2		10/13/03	7:35	2497	60	22105
BETA	SRC CHECK	5855	7474	5864	2		10/13/03	7:37	2744	60	24292
BETA	SRC CHECK	5855	7474	5864	2		10/13/03	7:42	2774	60	24558
BETA	U-6 03	5855	7474	5864	2	3	10/13/03	9:32	162	60	1434
BETA	U-6 05	5855	7474	5864	2	5	10/13/03	9:37	180	60	1593
BETA	U-6 08	5855	7474	5864	2	8	10/13/03	9:41	238	60	2107
BETA	U-6 09	5855	7474	5864	2	9	10/13/03	9:46	140	60	1239
BETA	U-6 10	5855	7474	5864	2	10	10/13/03	9:50	143	60	1266
BETA	U-6 11	5855	7474	5864	2	11	10/13/03	9:55	168	60	1487
BETA	U-6 13	5855	7474	5864	2	13	10/13/03	10:03	148	60	1310
BETA	U-6 14	5855	7474	5864	2	14	10/13/03	10:11	169	60	1496
BETA	U-6 15	5855	7474	5864	2	15	10/13/03	10:18	138	60	1222
BETA	U-6 16	5855	7474	5864	2	16	10/13/03	13:31	213	60	1886
BETA	U-6 17	5855	7474	5864	2	17	10/13/03	13:41	134	60	1186

37 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 6

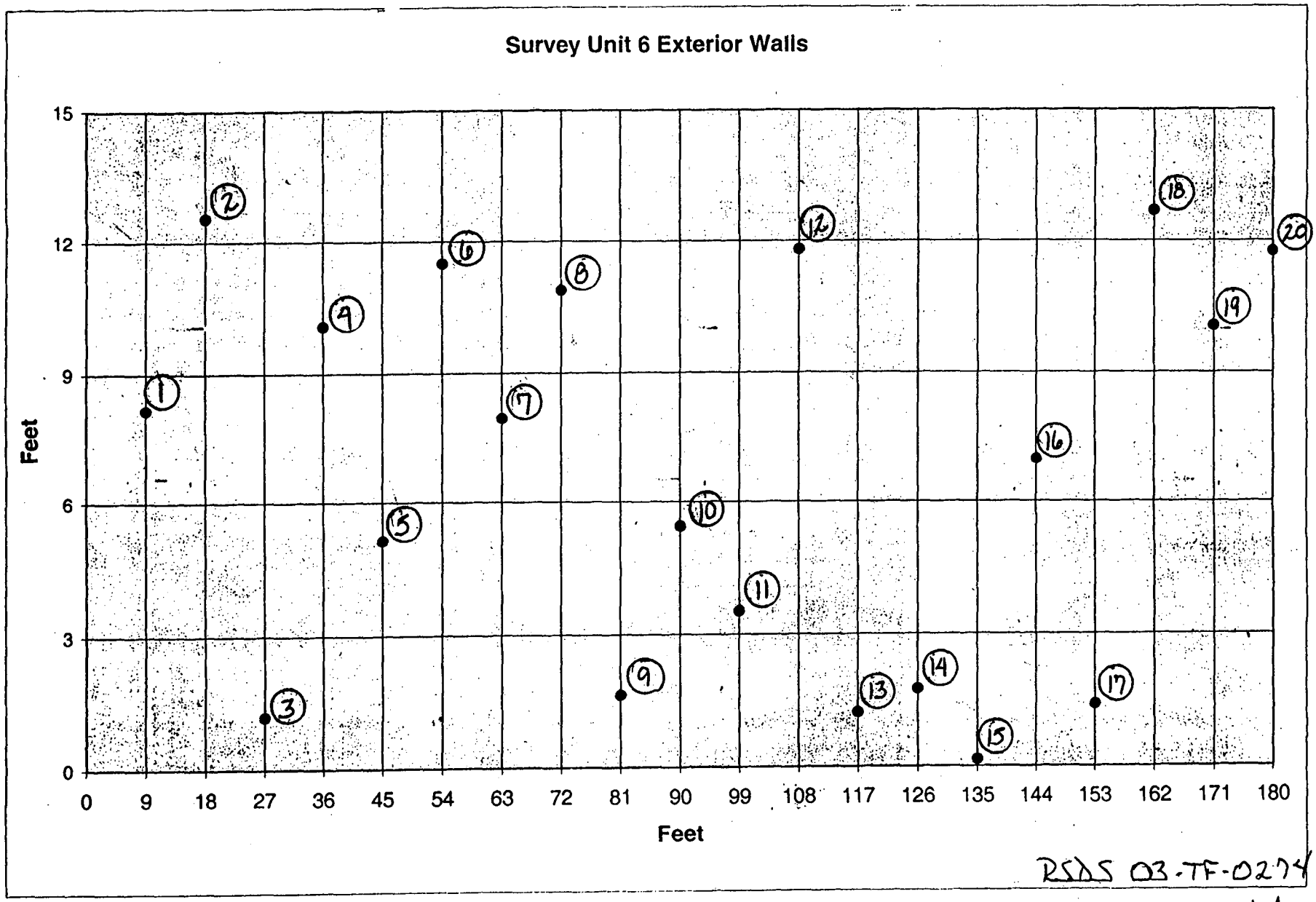
RSDS# 03-TF-0274 RCT: SK RCT: KA

43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	1
43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5855	5214	5864	1		10/16/03	8:05	18	300	27	
SRCCHECK	5855	5214	5864	1		10/16/03	8:07	1980	60	15030	
SRCCHECK	5855	5214	5864	1		10/16/03	8:08	1950	60	14803	
SRCCHECK	5855	5214	5864	1		10/16/03	8:10	2030	60	15410	
SRCCHECK	5855	5214	5864	1		10/16/03	8:12	1980	60	15030	
U-6 01	5855	5214	5864	1	1	10/16/03	9:50	19	120	72	
U-6 02	5855	5214	5864	1	2	10/16/03	10:19	36	120	137	
U-6 04	5855	5214	5864	1	4	10/16/03	10:26	30	120	114	
U-6 06	5855	5214	5864	1	6	10/16/03	10:32	21	120	80	
U-6 07	5855	5214	5864	1	7	10/16/03	10:38	19	120	72	
U-6 12	5855	5214	5864	1	12	10/16/03	10:44	23	120	87	
U-6 18	5855	5214	5864	1	18	10/16/03	10:01	28	120	106	
U-6 19	5855	5214	5864	1	19	10/16/03	10:07	19	120	72	
U-6 20	5855	5214	5864	1	20	10/16/03	10:12	23	120	87	

37 BUILDING CHARACTERIZATION BETA SURVEY UNIT 6

RSDS#03-TF-0274 RCT: SR RCT: KA

43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2008	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5855	5214	5864	2		10/16/03	8:17	683	300	1209	
SRCCHECK	5855	5214	5864	2		10/16/03	8:20	2330	60	20627	
SRCCHECK	5855	5214	5864	2		10/16/03	8:21	2420	60	21424	
SRCCHECK	5855	5214	5864	2		10/16/03	8:23	2550	60	22575	
SRCCHECK	5855	5214	5864	2		10/16/03	8:25	2670	60	23637	
U-6 01	5855	5214	5864	2	1	10/16/03	9:51	164	60	1452	
U-6 02	5855	5214	5864	2	2	10/16/03	10:20	150	60	1328	
U-6 04	5855	5214	5864	2	4	10/16/03	10:27	233	60	2063	
U-6 06	5855	5214	5864	2	6	10/16/03	10:33	165	60	1461	
U-6 07	5855	5214	5864	2	7	10/16/03	10:39	161	60	1425	
U-6 12	5855	5214	5864	2	12	10/16/03	10:45	173	60	1532	
U-6 18	5855	5214	5864	2	18	10/16/03	10:02	162	60	1434	
U-6 19	5855	5214	5864	2	19	10/16/03	10:08	169	60	1496	
U-6 20	5855	5214	5864	2	20	10/16/03	10:13	163	60	1443	



RSDS 03-TF-0274

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RADIOLOGICAL SURVEY DATA SHEET

1 of 19

LOCATION: (BLDG./AREA/ROOM) BUILDING 37	SURVEY NO: 03-TF-0276
PURPOSE: MARSSIM SURVEY PLAN 37-01 UNITS 1,2 & 3 AND UNIT 8 (JUDGEMENTALS)	RWP NO. NA
	DATE: 10-23-03
	TIME: 0640

MAP/DRAWING

COPY

SEE ATTACHED DRAWINGS AND RESULTS

UNITS 1,2 & 3 INCLUDE 100% FLOOR SCAN AND PLOTTED DATA POINTS.

UNIT 3 INCLUDES CRAWL SPACE FROM PENTHOUSE.

SMEARS TAKEN AT DIRECT READING LOCATIONS

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

INSTRUMENTS USED

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

[redacted]

	HP # 7474 5214	Date: 10-23-03
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted]	HP # 6178	Date: 10-23-03

ML-9620 (2-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR010
Batch Ended: 10/22/03 7:08

Crosstalk correction performed.

Batch ID: RILEY 03-TF-0276 (80) CYR

Recalibration Date: 4/2/05
Serial Number: 26966-2

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
D4	32	0.0	2.1		1.2	1.7	
A1	33	0.0	2.1		3.5	2.7	
A2	34	0.0	2.2		0.7	1.9	
A3	35	1.7	2.0		0.0	1.4	
A4	36	0.0	2.0		0.6	1.7	
B1	37	1.0	2.0		0.0	2.0	
B2	38	0.0	2.2		0.0	1.5	
B3	39	0.0	2.0		2.0	2.1	
B4	40	0.0	2.0		0.0	1.7	
C1	41	0.0	2.0		0.0	1.3	
C2	42	0.0	2.1		2.2	2.2	
C3	43	0.0	1.9		0.0	1.2	
C4	44	0.0	1.9		2.0	2.4	
D1	45	0.0	2.3		0.0	1.5	
D2	46	0.0	2.2		1.4	2.3	
D3	47	0.0	2.1		2.5	2.1	
D4	48	0.0	2.1		2.4	2.1	
A1	49	0.0	2.1		0.9	1.9	
A2	50	0.0	2.2		2.0	2.3	
A3	51	0.0	2.0		0.0	1.4	
A4	52	0.0	2.0		0.0	1.3	
B1	53	1.0	2.0		0.0	2.0	
B2	54	0.8	2.2		0.0	1.5	
B3	55	0.0	2.0		0.0	1.3	
B4	56	0.0	2.0		0.0	1.7	
C1	57	0.0	2.0		1.9	2.1	
C2	58	0.0	2.0		0.0	1.4	
C3	59	0.0	1.9		1.7	2.0	
C4	60	0.0	1.9		0.0	1.3	
D1	61	0.0	2.3		0.0	1.5	
D2	62	1.5	2.2		1.3	2.3	
D3	63	0.0	2.1		1.4	1.7	
D4	64	0.0	2.1		0.0	1.3	

~~Page 2 of 3~~ 10-23-03

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PSA 03-TF-0276

Ps 4 of 19

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR010
Batch Ended: 10/22/03 7:08

Crosstalk correction performed.

Recalibration Date: 4/2/05
Serial Number: 26966-2

Batch ID: RILEY 03-TF-0276 (80) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	65	0.0	2.1		0.9	1.9	
A2	66	0.0	2.2		0.7	1.9	
A3	67	0.0	2.0		0.4	1.8	
A4	68	0.0	2.0		0.6	1.7	
B1	69	1.0	2.1		5.3	3.5	
B2	70	0.8	2.2		0.0	1.5	
B3	71	1.7	2.0		0.7	1.8	
B4	72	0.0	2.0		4.3	2.9	
C1	73	0.0	2.0		0.8	1.7	
C2	74	0.0	2.0		0.0	1.4	
C3	75	1.0	1.9		0.0	1.2	
C4	76	0.0	1.9		0.9	2.1	
D1	77	1.9	2.3		0.0	1.5	
D2	78	0.0	2.2		0.1	2.0	
D3	79	0.5	2.1		0.0	1.2	
D4	80	0.0	2.1		1.2	1.7	

Carol G. Robinson

PSDS 03-TF-0276

PS5 of 19

Protocol #: 4 Name:Pw H3 #401393 22-Oct-2003 08:21
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
RILEY 03-TF-0276 (Z1-Z80) CYR
Conventional DPM
Nuclide 1 = 800
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
-1	10.00	40	B	3.46	2.44	6.90	669.		34.01
0	2.00	1		762.44	724.34	0.00	538.	1848.23	5.16
1	2.00	43		0.00	0.00	0.00	577.	0.00	0.00
2	2.00	48		0.00	0.00	0.60	551.	0.00	0.00
3	2.00	10		1.60	2.49	0.10	649.	3.44	230.5
4	2.00	17		1.98	2.88	0.00	491.	5.09	205.7
5	2.00	31		0.00	0.00	0.00	611.	0.00	0.00
6	2.00	0		0.00	0.00	0.10	591.	0.00	0.00
7	2.00	16		2.48	2.63	0.00	591.	5.66	168.8
8	2.00	14		2.98	1.88	0.00	589.	6.81	144.4
9	2.00	18		0.00	0.21	0.00	410.	0.00	0.00
10	2.00	14		0.01	1.34	0.00	585.	0.02	32352
11	2.00	22		0.00	0.00	0.00	623.	0.00	0.00
12	2.00	10		1.51	1.84	0.00	581.	3.48	242.9
13	2.00	0		0.00	0.00	0.00	587.	0.00	0.00
14	2.00	11		1.01	0.97	0.00	610.	2.26	349.2
15	2.00	11		1.17	1.99	0.00	563.	2.76	304.7
16	2.00	27		0.00	0.38	0.00	549.	0.00	0.00
17	2.00	33		0.00	1.13	0.00	555.	0.00	0.00
18	2.00	31		0.00	0.00	0.00	503.	0.00	0.00
19	2.00	54		0.00	0.00	0.00	550.	0.00	0.00
20	2.00	27		0.00	0.00	0.00	445.	0.00	0.00
21	2.00	0		2.54	2.94	0.00	517.	6.33	144.0
22	2.00	27		0.00	0.00	0.00	484.	0.00	0.00
23	2.00	14		0.01	1.31	0.10	553.	0.02	33792
24	2.00	31		0.00	0.09	0.00	567.	0.00	0.00
25	2.00	27		0.00	0.38	0.10	581.	0.00	0.00
26	2.00	47		0.00	0.00	0.00	583.	0.00	0.00
27	2.00	8		3.01	2.96	0.00	574.	7.00	134.7
28	2.00	26		0.00	0.00	0.00	593.	0.00	0.00
29	2.00	22		0.00	0.00	0.00	610.	0.00	0.00
30	2.00	0		2.04	3.06	0.00	531.	4.99	172.4
31	2.00	0		1.21	1.23	0.00	597.	2.75	269.7
32	2.00	65		0.00	0.00	0.00	608.	0.00	0.00
33	2.00	54		0.00	0.00	0.00	633.	0.00	0.00
34	2.00	20		2.61	3.17	0.00	615.	5.81	170.7
35	2.00	31		0.00	0.00	1.10	653.	0.00	0.00
36	2.00	12		0.51	1.11	0.10	571.	1.19	663.6
37	2.00	36		0.00	0.91	0.00	601.	0.00	0.00
38	2.00	0		0.00	0.00	0.00	601.	0.00	0.00
39	2.00	82		0.00	0.00	0.00	532.	0.00	0.00
40	2.00	56		0.00	0.00	0.00	513.	0.00	0.00
41	2.00	31		0.00	0.00	0.10	642.	0.00	0.00
42	2.00	27		0.00	0.74	0.00	655.	0.00	0.00
43	2.00	24		0.00	0.59	0.00	602.	0.00	0.00

RSDS 03-TF-0276

DS 66619

SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
44	2.00	20		0.97	2.00	0.00	518.	2.41	393.3
45	2.00	14		0.01	0.80	1.10	544.	0.02	34219
46	2.00	12		0.71	1.24	0.00	655.	1.51	486.0
47	2.00	11		1.01	1.51	0.00	683.	2.11	348.8
48	2.00	12		0.51	1.56	0.00	637.	1.11	662.4
49	2.00	0		0.53	1.55	0.00	585.	1.22	576.8
50	2.00	22		0.48	2.24	0.00	655.	1.03	764.6
51	2.00	18		0.00	0.31	0.00	552.	0.00	0.00
52	2.00	27		0.00	0.75	0.60	657.	0.00	0.00
53	2.00	0		1.04	1.17	0.00	670.	2.19	309.4
54	2.00	0		0.00	0.00	0.60	630.	0.00	0.00
55	2.00	14		0.01	1.32	0.00	565.	0.02	33255
56	2.00	5		5.66	5.52	0.00	671.	11.91	82.35
57	2.00	0		2.54	3.06	0.00	570.	5.93	144.0
58	2.00	27		0.00	1.09	0.00	570.	0.00	0.00
59	2.00	33		0.00	1.79	0.00	540.	0.00	0.00
60	2.00	18		0.00	0.35	0.00	598.	0.00	0.00
61	2.00	31		0.00	0.00	1.10	668.	0.00	0.00
62	2.00	12		0.51	0.89	0.10	639.	1.11	662.3
63	2.00	47		0.00	0.11	0.00	666.	0.00	0.00
64	2.00	36		0.00	1.31	0.00	677.	0.00	0.00
65	2.00	65		0.00	0.00	0.00	654.	0.00	0.00
66	2.00	0		0.00	0.16	0.00	676.	0.00	0.00
67	2.00	27		0.00	0.88	0.00	666.	0.00	0.00
68	2.00	33		0.00	1.33	0.00	682.	0.00	0.00
69	2.00	27		2.42	4.60	0.00	675.	5.08	192.1
70	2.00	22		0.48	0.88	0.00	672.	1.01	763.7
71	2.00	48		0.00	1.48	0.00	671.	0.00	0.00
72	2.00	25		1.45	3.23	0.00	665.	3.07	288.9
73	2.00	16		2.13	2.08	1.09	674.	4.47	192.4
74	2.00	24		0.00	1.78	1.60	674.	0.00	0.00
75	2.00	20		1.02	1.92	1.10	675.	2.15	372.7
76	2.00	20		0.98	2.77	0.00	671.	2.06	388.2
77	2.00	0		0.00	0.00	0.00	668.	0.00	0.00
78	2.00	18		0.00	0.42	0.00	671.	0.00	0.00
79	2.00	0		0.00	0.00	0.00	669.	0.00	0.00
80	2.00	0		0.00	0.00	0.00	670.	0.00	0.00

Carol G. Robinson

RSAS 03-TF-0276

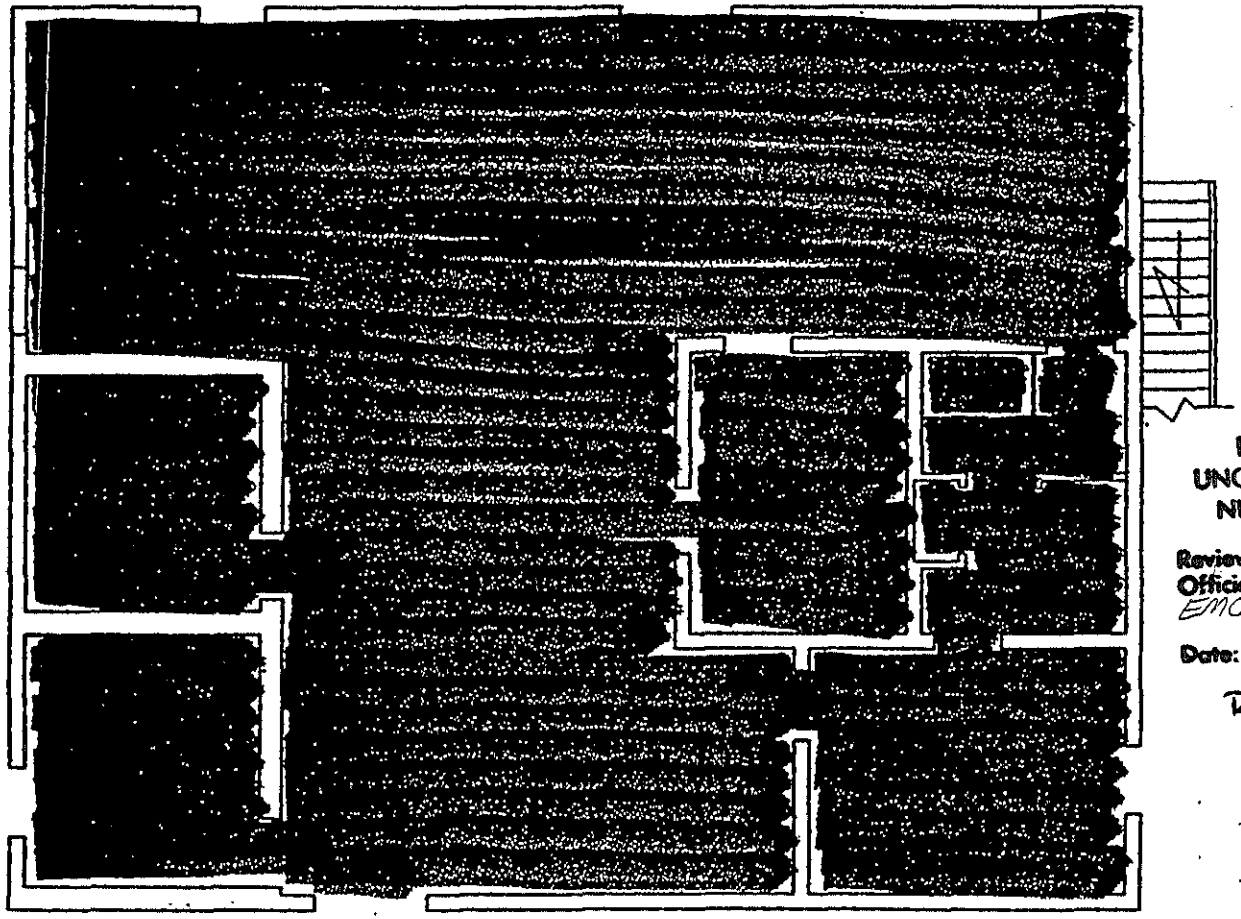
Ps 7/6 19

37-Building Characterization Survey Unit 1,2 and 3 Floor Scan

RSDS# 03-TF-0276 RCT: KA RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector #: 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCAN	SRC BKG	5857	7474	5675	3		10/15/03	8:21	30	300	11
SCAN	SRC CHECK	5857	7474	5675	3		10/15/03	8:25	1786	60	3140
SCAN	SRC CHECK	5857	7474	5675	3		10/15/03	8:27	1841	60	3237
SCAN	SRC CHECK	5857	7474	5675	3		10/15/03	8:31	1964	60	3453
SCAN	SRC CHECK	5857	7474	5675	3		10/15/03	8:33	1915	60	3367
SCAN	SRC CHECK	5857	7474	5675	3		10/15/03	8:35	1912	60	3361
SCAN	SRC CHECK	5857	7474	5675	3		10/15/03	8:37	1992	60	3502

NO	DATE	REVISION	BY	CHKR	CHD	APVD	APVD	N
B	12/12/91	ASBUILT ISSUE	DCW				DVD	



DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

Reviewing Official: J. A. NESHEIM
EMCBC Classifier Name Office
Date: 08-26-08

RSDS 03-TF-0276

0 1' 3' 5' 10'

FLOOR SCAN

BLDG #37
FIRST FLOOR
BLDG CODE:3037

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	5	6	TITLE (U) TITLE CLASSIFICATION
SHEET	B	B					BLDG #37 FLOOR PLANS

MAY CLASSIFICATION
CONTROL CLASSIFICATION UCNI

SIZE	DRAWING NUMBER	JOB NUMBER
C	FSC911248	12333

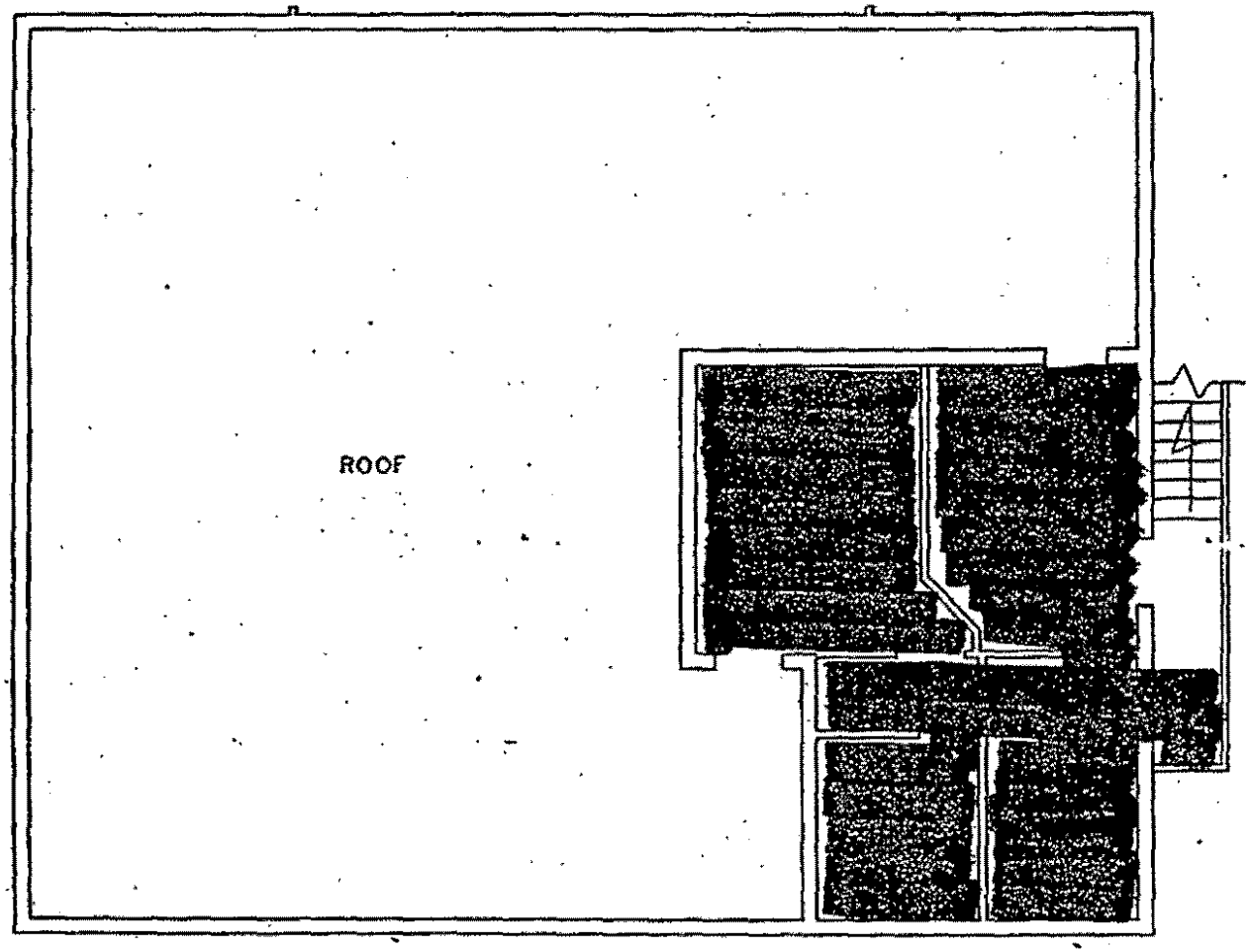
DR TYPE SFP | PART BLDG #37 | CONTROL 14863 | SHEET 1 OF 1

STATUS MO-RFL-12/12/91 | ORIGIN MO-BR3-V3.0

APPROVED: DATE:
SAFETY DIRECTOR REVIEWED:
FIRE TRACNC TOXIC CHMC
TECH. REVIEW
ENG. REVIEW
NUCLEAR
TOXIC
CHMC

DESIGN DR | PROJ MGR
DRAWN | DR EXP. MGR
CHK'D BY | PROJ. ENG
CHK'D BY
APVD | DATE

Pg 9 of 19
Pg 5 of 11



TSDS 03-TF-0276

0 1' 3' 5' 10'

DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

Floor Scan

BLDG #37
PENTHOUSE
BLDG CODE:3037

Reviewing Official: J. A. NESHEIM
EMCBC Classif Name Office
Date: 08-26-08

~~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	FSC9I1248
JOB NUMBER	12335
DRAWING CLASSIFICATION	UCNI
SIZE	C
DATE	14MAR
SCALE	AS NOTED
SHEET	2
SCANS	MO-REL-12/12/91

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B 10/8/19

37-Building Characterization Survey Unit 1 and 2

RSDS# _03-TF-0276_ *RCT:* KA *RCT:* SR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector #	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector #	2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector #	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	SRC BKG	5855	5214	5864	1		10/20/03	9:35	17	300	26	
ALPHA	SRCCHECK	5855	5214	5864	1		10/20/03	9:39	1938	60	14712	
ALPHA	SRCCHECK	5855	5214	5864	1		10/20/03	9:41	1901	60	14431	
ALPHA	SRCCHECK	5855	5214	5864	1		10/20/03	9:43	2060	60	15638	
ALPHA	SRCCHECK	5855	5214	5864	1		10/20/03	9:45	2067	60	15691	
ALPHA	U-01 01	5855	5214	5864	1	1	10/20/03	10:13	7	120	27	
ALPHA	U-01 02	5855	5214	5864	1	2	10/20/03	10:21	10	120	38	
ALPHA	U-01 03	5855	5214	5864	1	3	10/20/03	10:25	12	120	46	
ALPHA	U-01 04	5855	5214	5864	1	4	10/20/03	10:29	8	120	30	
ALPHA	U-01 05	5855	5214	5864	1	5	10/20/03	10:32	14	120	53	
ALPHA	U-01 06	5855	5214	5864	1	6	10/20/03	10:37	5	120	19	
ALPHA	U-01 07	5855	5214	5864	1	7	10/20/03	12:47	2	120	8	
ALPHA	U-01 08	5855	5214	5864	1	8	10/20/03	12:54	5	120	19	
ALPHA	U-01 09	5855	5214	5864	1	9	10/20/03	12:59	8	120	30	
ALPHA	U-01 10	5855	5214	5864	1	10	10/20/03	13:02	7	120	27	
ALPHA	U-01 11	5855	5214	5864	1	11	10/20/03	13:08	8	120	30	
ALPHA	U-01 12	5855	5214	5864	1	12	10/20/03	13:14	7	120	27	
ALPHA	U-01 13	5855	5214	5864	1	13	10/20/03	13:17	4	120	15	
ALPHA	U-01 14	5855	5214	5864	1	14	10/20/03	13:21	6	120	23	
ALPHA	U-01 15	5855	5214	5864	1	15	10/20/03	13:25	10	120	38	
ALPHA	U-01 16	5855	5214	5864	1	16	10/20/03	13:29	9	120	34	
ALPHA	U-01 17	5855	5214	5864	1	17	10/20/03	13:32	10	120	38	
ALPHA	U-01 18	5855	5214	5864	1	18	10/20/03	13:36	11	120	42	
ALPHA	U-01 19	5855	5214	5864	1	19	10/20/03	13:40	6	120	23	
ALPHA	U-01 20	5855	5214	5864	1	20	10/20/03	13:44	9	120	34	
ALPHA	U-02 01	5855	5214	5864	1	21	10/20/03	13:48	4	120	15	
ALPHA	U-02 02	5855	5214	5864	1	22	10/20/03	13:51	10	120	38	
ALPHA	U-02 03	5855	5214	5864	1	23	10/20/03	13:55	4	120	15	
ALPHA	U-02 04	5855	5214	5864	1	24	10/20/03	13:59	11	120	42	
ALPHA	U-02 05	5855	5214	5864	1	25	10/20/03	14:03	9	120	34	
ALPHA	U-02 06	5855	5214	5864	1	26	10/20/03	14:06	11	120	42	
ALPHA	U-02 07	5855	5214	5864	1	27	10/20/03	14:10	6	120	23	
ALPHA	U-02 08	5855	5214	5864	1	28	10/20/03	14:15	12	120	46	
ALPHA	U-02 09	5855	5214	5864	1	29	10/20/03	14:18	37	120	140	
ALPHA	U-02 10	5855	5214	5864	1	30	10/23/03	13:42	10	120	38	
ALPHA	U-02 11	5855	5214	5864	1	31	10/20/03	14:25	7	120	27	
ALPHA	U-02 12	5855	5214	5864	1	32	10/20/03	14:30	10	120	38	
ALPHA	U-02 13	5855	5214	5864	1	33	10/20/03	14:34	17	120	65	
ALPHA	U-02 14	5855	5214	5864	1	34	10/20/03	14:38	9	120	34	

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COPY

37-Building Characterization Survey Unit 1 and 2

RSDS# _03-TF-0276_ RCT: KA RCT: OR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector #	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector #	2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector #	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	U-02 15	5855	5214	5864	1	35	10/20/03	14:41	12	120	46	
ALPHA	U-02 16	5855	5214	5864	1	36	10/20/03	14:46	11	120	42	
ALPHA	U-02 17	5855	5214	5864	1	37	10/20/03	14:49	9	120	34	
ALPHA	U-02 18	5855	5214	5864	1	38	10/20/03	14:54	8	120	30	
ALPHA	U-02 19	5855	5214	5864	1	39	10/20/03	14:58	5	120	19	
ALPHA	U-02 20	5855	5214	5864	1	40	10/20/03	15:03	10	120	38	
BETA	SRC BKG	5855	5214	5864	2		10/20/03	9:52	622	300	1101	
BETA	SRCCHECK	5855	5214	5864	2		10/20/03	9:57	2194	60	19423	
BETA	SRCCHECK	5855	5214	5864	2		10/20/03	9:58	2251	60	19928	
BETA	SRCCHECK	5855	5214	5864	2		10/20/03	10:00	2304	60	20397	
BETA	SRCCHECK	5855	5214	5864	2		10/20/03	10:02	2493	60	22070	
BETA	U-01 01	5855	5214	5864	2	1	10/20/03	10:14	185	60	1638	
BETA	U-01 02	5855	5214	5864	2	2	10/20/03	10:22	156	60	1381	
BETA	U-01 03	5855	5214	5864	2	3	10/20/03	10:26	175	60	1549	
BETA	U-01 04	5855	5214	5864	2	4	10/20/03	10:30	172	60	1523	
BETA	U-01 05	5855	5214	5864	2	5	10/20/03	10:34	185	60	1638	
BETA	U-01 06	5855	5214	5864	2	6	10/20/03	10:38	172	60	1523	
BETA	U-01 07	5855	5214	5864	2	7	10/20/03	12:48	176	60	1558	
BETA	U-01 08	5855	5214	5864	2	8	10/20/03	12:55	166	60	1470	
BETA	U-01 09	5855	5214	5864	2	9	10/20/03	13:00	182	60	1611	
BETA	U-01 10	5855	5214	5864	2	10	10/20/03	13:03	158	60	1399	
BETA	U-01 11	5855	5214	5864	2	11	10/20/03	13:09	171	60	1514	
BETA	U-01 12	5855	5214	5864	2	12	10/20/03	13:15	186	60	1647	
BETA	U-01 13	5855	5214	5864	2	13	10/20/03	13:18	177	60	1567	
BETA	U-01 14	5855	5214	5864	2	14	10/20/03	13:22	177	60	1567	
BETA	U-01 15	5855	5214	5864	2	15	10/20/03	13:26	177	60	1567	
BETA	U-01 16	5855	5214	5864	2	16	10/20/03	13:30	171	60	1514	
BETA	U-01 17	5855	5214	5864	2	17	10/20/03	13:33	178	60	1576	
BETA	U-01 18	5855	5214	5864	2	18	10/20/03	13:37	192	60	1700	
BETA	U-01 19	5855	5214	5864	2	19	10/20/03	13:41	166	60	1470	
BETA	U-01 20	5855	5214	5864	2	20	10/20/03	13:45	192	60	1700	
BETA	U-02 01	5855	5214	5864	2	21	10/20/03	13:49	170	60	1505	
BETA	U-02 02	5855	5214	5864	2	22	10/20/03	13:52	193	60	1709	
BETA	U-02 03	5855	5214	5864	2	23	10/20/03	13:56	168	60	1487	
BETA	U-02 04	5855	5214	5864	2	24	10/20/03	14:00	181	60	1602	
BETA	U-02 05	5855	5214	5864	2	25	10/20/03	14:04	183	60	1620	
BETA	U-02 06	5855	5214	5864	2	26	10/20/03	14:08	168	60	1487	
BETA	U-02 07	5855	5214	5864	2	27	10/20/03	14:11	165	60	1461	
BETA	U-02 08	5855	5214	5864	2	28	10/20/03	14:16	174	60	1540	

COPY

37-Building Characterization Survey Unit 1 and 2

RSDS# _03-TF-0276_ *RCT:* KA *RCT:* SR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector #:	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector #:	2
Scan:	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector #:	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	U-02 09	5855	5214	5864	2	29	10/20/03	14:20	188	60	1664	
BETA	U-02 10	5855	5214	5864	2	30	10/23/03	13:43	192	60	1700	
BETA	U-02 11	5855	5214	5864	2	31	10/20/03	14:26	157	60	1390	
BETA	U-02 12	5855	5214	5864	2	32	10/20/03	14:31	191	60	1691	
BETA	U-02 13	5855	5214	5864	2	33	10/20/03	14:35	178	60	1576	
BETA	U-02 14	5855	5214	5864	2	34	10/20/03	14:39	175	60	1549	
BETA	U-02 15	5855	5214	5864	2	35	10/20/03	14:43	167	60	1478	
BETA	U-02 16	5855	5214	5864	2	36	10/20/03	14:47	179	60	1585	
BETA	U-02 17	5855	5214	5864	2	37	10/20/03	14:50	159	60	1408	
BETA	U-02 18	5855	5214	5864	2	38	10/20/03	14:55	135	60	1195	
BETA	U-02 19	5855	5214	5864	2	39	10/20/03	14:59	209	60	1850	
BETA	U-02 20	5855	5214	5864	2	40	10/20/03	15:04	181	60	1602	

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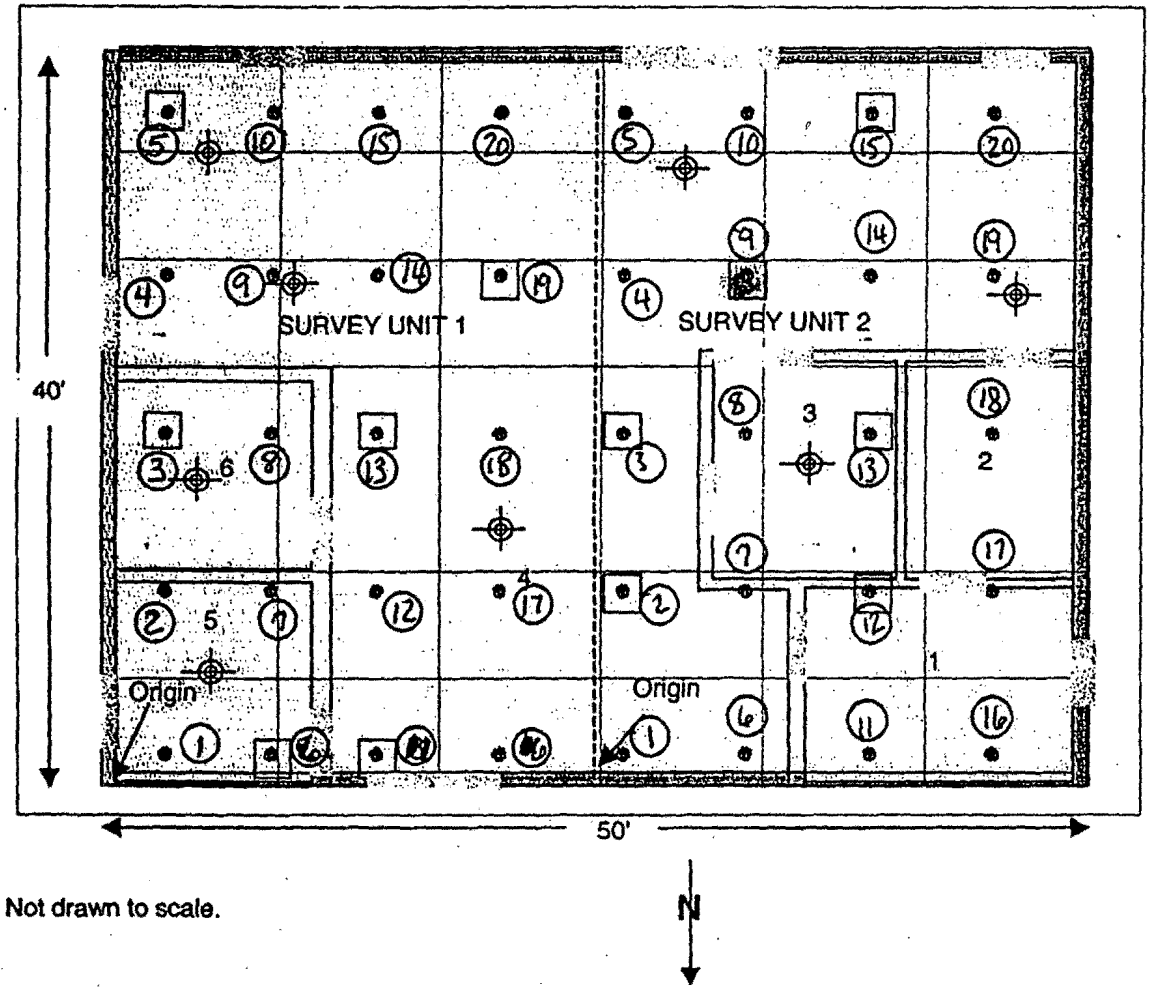
COPY

Survey Units 1 ands 2



	SU 1 Coordinates		SU 2 Coordinates	
	X	Y	X	Y
1	3	2	3	2
2	3	9	[redacted]	[redacted]
3	[redacted]	[redacted]	3	17
4	3	24	3	24
5	[redacted]	[redacted]	[redacted]	[redacted]
6	[redacted]	[redacted]	10	2
7	10	9	10	9
8	10	17	10	17
9	10	24	[redacted]	[redacted]
10	10	32	10	32
11	[redacted]	[redacted]	16	2
12	16	9	[redacted]	[redacted]
13	[redacted]	[redacted]	[redacted]	[redacted]
14	16	24	16	24
15	16	32	[redacted]	[redacted]
16	24	2	24	2
17	24	9	24	9
18	24	17	24	17
19	[redacted]	[redacted]	24	24
20	24	32	24	32

[redacted] = Surface Sample Location

Not drawn to scale.

RSDS 03-TF-0276

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Ps 14 of 19

37-Building Characterization Survey Unit 3 and 8

RSDS# _03-TF-0276__ *RCT:* KA *RCT:* DR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector #:	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector #:	2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector #:	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	5214	5864	1		10/21/03	8:26	17	300	26
ALPHA	SRCCHECK	5855	5214	5864	1		10/21/03	8:39	1899	60	14416
ALPHA	SRCCHECK	5855	5214	5864	1		10/21/03	8:44	1934	60	14681
ALPHA	SRCCHECK	5855	5214	5864	1		10/21/03	8:45	2093	60	15888
ALPHA	SRCCHECK	5855	5214	5864	1		10/21/03	8:47	2165	60	16435
ALPHA	U-03 01	5855	5214	5864	1	41	10/21/03	9:26	5	120	19
ALPHA	U-03 02	5855	5214	5864	1	42	10/21/03	9:30	13	120	49
ALPHA	U-03 03	5855	5214	5864	1	43	10/21/03	9:54	11	120	42
ALPHA	U-03 04	5855	5214	5864	1	44	10/21/03	9:58	11	120	42
ALPHA	U-03 05	5855	5214	5864	1	45	10/21/03	10:03	7	120	27
ALPHA	U-03 06	5855	5214	5864	1	46	10/21/03	10:09	6	120	23
ALPHA	U-03 07	5855	5214	5864	1	47	10/21/03	10:13	8	120	30
ALPHA	U-03 08	5855	5214	5864	1	48	10/21/03	10:17	9	120	34
ALPHA	U-03 09	5855	5214	5864	1	49	10/21/03	10:20	14	120	53
ALPHA	U-03 10	5855	5214	5864	1	50	10/21/03	10:24	10	120	38
ALPHA	U-03 11	5855	5214	5864	1	51	10/21/03	10:28	5	120	19
ALPHA	U-03 12	5855	5214	5864	1	52	10/21/03	10:32	8	120	30
ALPHA	U-03 13	5855	5214	5864	1	53	10/23/03	13:47	5	120	19
ALPHA	U-03 14	5855	5214	5864	1	54	10/21/03	12:59	16	120	61
ALPHA	U-03 15	5855	5214	5864	1	55	10/21/03	13:05	7	120	27
ALPHA	U-03 16	5855	5214	5864	1	56	10/21/03	13:09	14	120	53
ALPHA	U-03 17	5855	5214	5864	1	57	10/21/03	13:12	8	120	30
ALPHA	U-03 18	5855	5214	5864	1	58	10/21/03	13:16	13	120	49
ALPHA	U-03 19	5855	5214	5864	1	59	10/21/03	13:19	7	120	27
ALPHA	U-03 20	5855	5214	5864	1	60	10/21/03	13:22	10	120	38
ALPHA	U-08 01	5855	5214	5864	1	61	10/21/03	13:42	11	120	42
ALPHA	U-08 02	5855	5214	5864	1	62	10/21/03	13:47	13	120	49
ALPHA	U-08 03	5855	5214	5864	1	63	10/21/03	13:51	7	120	27
ALPHA	U-08 04	5855	5214	5864	1	64	10/21/03	13:58	8	120	30
ALPHA	U-08 05	5855	5214	5864	1	65	10/21/03	14:03	9	120	34
ALPHA	U-08 06	5855	5214	5864	1	66	10/21/03	14:07	11	120	42
ALPHA	U-08 07	5855	5214	5864	1	67	10/21/03	14:11	9	120	34
ALPHA	U-08 08	5855	5214	5864	1	68	10/21/03	14:15	7	120	27
ALPHA	U-08 09	5855	5214	5864	1	69	10/21/03	14:20	13	120	49
ALPHA	U-08 10	5855	5214	5864	1	70	10/21/03	14:24	8	120	30
ALPHA	U-08 11	5855	5214	5864	1	71	10/21/03	14:28	8	120	30
ALPHA	U-08 12	5855	5214	5864	1	72	10/21/03	14:33	12	120	46
ALPHA	U-08 13	5855	5214	5864	1	73	10/21/03	14:37	7	120	27
ALPHA	U-08 14	5855	5214	5864	1	74	10/21/03	14:41	14	120	53

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COPY

37-Building Characterization Survey Unit 3 and 8

RSDS# _03-TF-0276__ RCT: KA RCT: DR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:	2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector #:	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	U-08 15	5855	5214	5864	1	75	10/21/03	14:45	11	120	42	
ALPHA	U-08 16	5855	5214	5864	1	76	10/21/03	14:49	15	120	57	
ALPHA	U-08 17	5855	5214	5864	1	77	10/21/03	14:54	13	120	49	
ALPHA	U-08 18	5855	5214	5864	1	78	10/21/03	14:58	9	120	34	
ALPHA	U-08 19	5855	5214	5864	1	79	10/21/03	15:02	10	120	38	
ALPHA	U-08 20	5855	5214	5864	1	80	10/21/03	15:06	14	120	53	
BETA	SRC BKG	5855	5214	5864	2		10/21/03	8:56	706	300	1250	
BETA	SRCCHECK	5855	5214	5864	2		10/21/03	9:01	2347	60	20777	
BETA	SRCCHECK	5855	5214	5864	2		10/21/03	9:04	2474	60	21902	
BETA	SRCCHECK	5855	5214	5864	2		10/21/03	9:06	2615	60	23150	
BETA	SRCCHECK	5855	5214	5864	2		10/21/03	9:08	2812	60	24894	
BETA	U-03 01	5855	5214	5864	2	41	10/21/03	9:27	195	60	1726	
BETA	U-03 02	5855	5214	5864	2	42	10/21/03	9:32	202	60	1788	
BETA	U-03 03	5855	5214	5864	2	43	10/21/03	9:55	175	60	1549	
BETA	U-03 04	5855	5214	5864	2	44	10/21/03	10:00	196	60	1735	
BETA	U-03 05	5855	5214	5864	2	45	10/21/03	10:04	182	60	1611	
BETA	U-03 06	5855	5214	5864	2	46	10/21/03	10:10	201	60	1779	
BETA	U-03 07	5855	5214	5864	2	47	10/21/03	10:14	201	60	1779	
BETA	U-03 08	5855	5214	5864	2	48	10/21/03	10:18	202	60	1788	
BETA	U-03 09	5855	5214	5864	2	49	10/21/03	10:22	219	60	1939	
BETA	U-03 10	5855	5214	5864	2	50	10/21/03	10:25	205	60	1815	
BETA	U-03 11	5855	5214	5864	2	51	10/21/03	10:29	188	60	1664	
BETA	U-03 12	5855	5214	5864	2	52	10/21/03	10:33	193	60	1709	
BETA	U-03 13	5855	5214	5864	2	53	10/23/03	13:48	191	60	1691	
BETA	U-03 14	5855	5214	5864	2	54	10/21/03	13:01	216	60	1912	
BETA	U-03 15	5855	5214	5864	2	55	10/21/03	13:06	203	60	1797	
BETA	U-03 16	5855	5214	5864	2	56	10/21/03	13:10	298	60	2638	
BETA	U-03 17	5855	5214	5864	2	57	10/21/03	13:13	179	60	1585	
BETA	U-03 18	5855	5214	5864	2	58	10/21/03	13:17	212	60	1877	
BETA	U-03 19	5855	5214	5864	2	59	10/21/03	13:20	202	60	1788	
BETA	U-03 20	5855	5214	5864	2	60	10/21/03	13:24	213	60	1886	
BETA	U-08 01	5855	5214	5864	2	61	10/21/03	13:43	177	60	1567	
BETA	U-08 02	5855	5214	5864	2	62	10/21/03	13:48	175	60	1549	
BETA	U-08 03	5855	5214	5864	2	63	10/21/03	13:52	182	60	1611	
BETA	U-08 04	5855	5214	5864	2	64	10/21/03	13:59	161	60	1425	
BETA	U-08 05	5855	5214	5864	2	65	10/21/03	14:04	175	60	1549	
BETA	U-08 06	5855	5214	5864	2	66	10/21/03	14:08	165	60	1461	
BETA	U-08 07	5855	5214	5864	2	67	10/21/03	14:12	170	60	1505	
BETA	U-08 08	5855	5214	5864	2	68	10/21/03	14:17	183	60	1620	

CODY

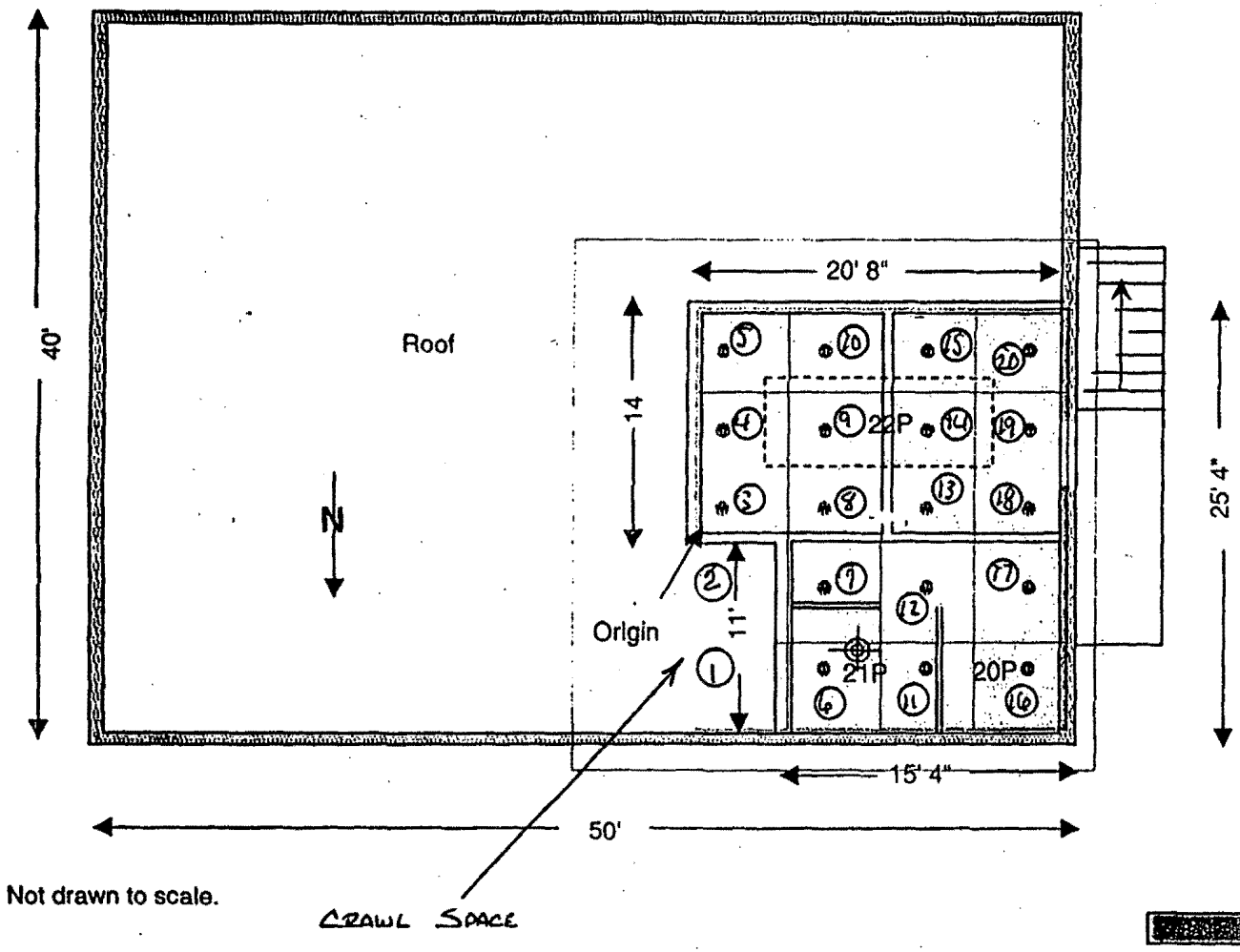
37-Building Characterization Survey Unit 3 and 8

RSDS# _03-TF-0276__ RCT: KA RCT: SR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	U-08 09	5855	5214	5864	2	69	10/21/03	14:21	165	60	1461	
BETA	U-08 10	5855	5214	5864	2	70	10/21/03	14:25	170	60	1505	
BETA	U-08 11	5855	5214	5864	2	71	10/21/03	14:29	155	60	1372	
BETA	U-08 12	5855	5214	5864	2	72	10/21/03	14:34	183	60	1620	
BETA	U-08 13	5855	5214	5864	2	73	10/21/03	14:38	140	60	1239	
BETA	U-08 14	5855	5214	5864	2	74	10/21/03	14:42	175	60	1549	
BETA	U-08 15	5855	5214	5864	2	75	10/21/03	14:46	180	60	1593	
BETA	U-08 16	5855	5214	5864	2	76	10/21/03	14:51	191	60	1691	
BETA	U-08 17	5855	5214	5864	2	77	10/21/03	14:55	168	60	1487	
BETA	U-08 18	5855	5214	5864	2	78	10/21/03	14:59	189	60	1673	
BETA	U-08 19	5855	5214	5864	2	79	10/21/03	15:03	178	60	1576	
BETA	U-08 20	5855	5214	5864	2	80	10/21/03	15:07	159	60	1408	

COPY

Survey Unit 3 Floor



	SU 3 Coordinates	
	X	Y
1	2	9
2	2	4
3	2	1
4	2	6
5	2	11
6	7	-9
7	7	-4
8	7	1
9	7	6
10	7	11
11	12	-9
12	12	-4
13	12	1
14	12	6
15	12	11
16	18	-9
17	18	-4
18	18	1
19	18	6
20	18	11

Not drawn to scale.

= Surface Sample Location

RSDS 03-TF-0276

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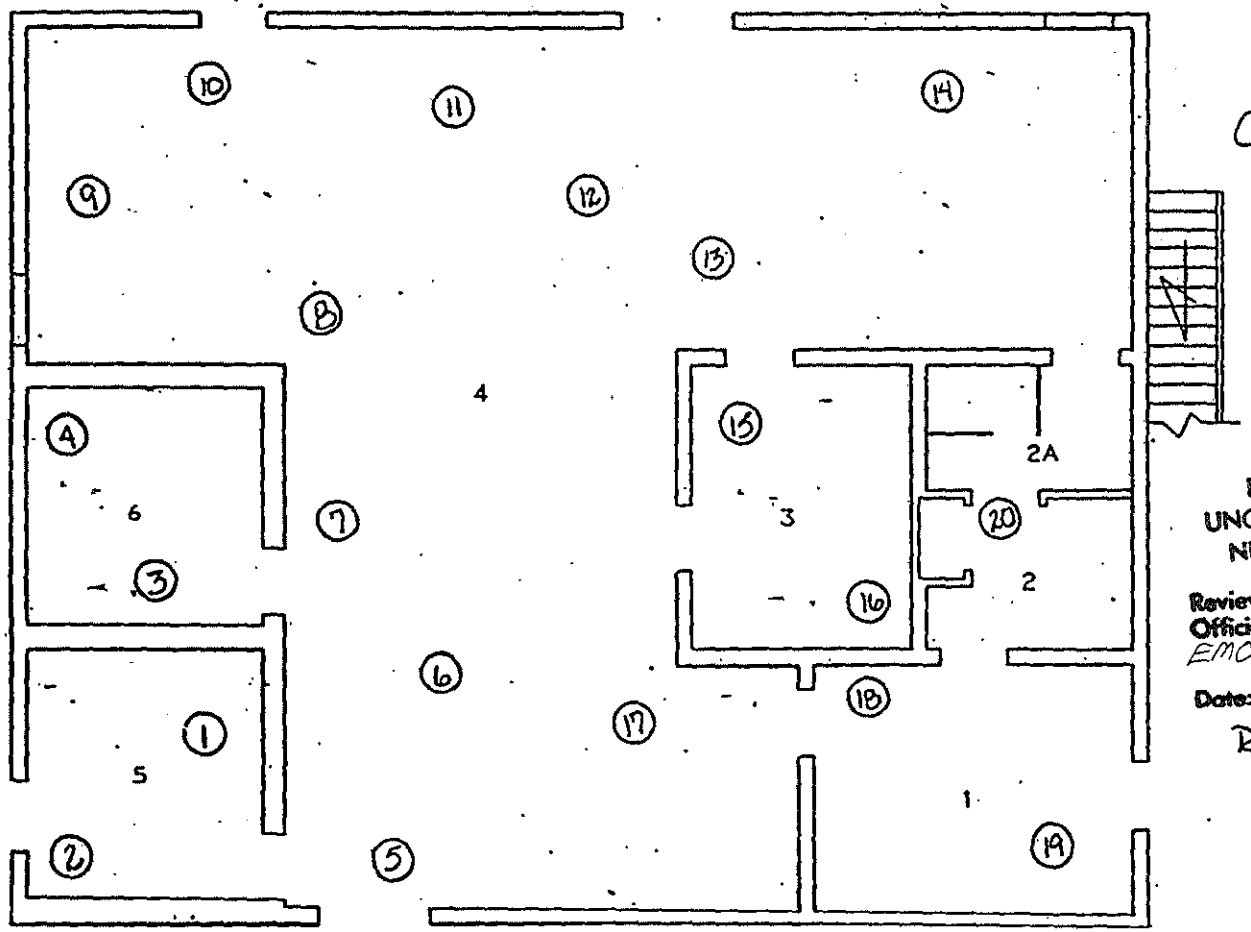
REV	DATE	REVISION	BY	CHKD	DR	APVD	APVD	R
B	12/12/91	ASBUILT ISSUE.	DCW			DVO		

SURVEY UNIT 8



CEILING

DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

Reviewing Official: J. A. NESHEIM
EMCBC Classifier Name Office
Date: 08-26-08

BSDS 03-TF-0276

9 1' 3' 5' 10'

BLDG #37
FIRST FLOOR
BLDG CODE:3037

G 105 of 111

Rs 19 of 19

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	5	6	TITLE	(U) TITLE CLASSIFICATION
TOTAL	9	0					BLDG #37 FLOOR PLANS	
MAX CLASSIFICATION								
CONTROL CLASSIFICATION	UCNI						SIZE C	DRAWING NUMBER FSC911248	JOB NUMBER 12335
DWG TYPE SFP							BLDG #37		
STATUS NO-REL-12/12/91							DRAWN NO-BR3-V3.3		

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RADIOLOGICAL SURVEY DATA SHEET

1 of 5

LOCATION: (BLDG./AREA/ROOM) Building 37	SURVEY NO. 03-TF-0280
PURPOSE: MARSSIM Survey Plan 37-01 QC checks and resurvey of specific data points	RWP NO. N/A
	DATE: 10-23-03
	TIME:

MAP/DRAWING

COPY

See attached data

Direct readings only

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
~~2360~~ ~~4393~~	~~5833~~ ~~5847~~	03-13-04

[redacted] HP # 5760 5214 Date: 10/23/03

Counted by: (Signature) HP # Date:

Counted by: (Print Name) N/A

[redacted] HP # 6178 Date: 10-23-03

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS:

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

ML-9620A (4-98)

37-Building Characterization Survey QC's and Resurvey Points

RSDS# _03-TF-0280_ RCT: [illegible] RCT: [illegible]

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	5214	5864	1		10/22/03	8:50	17	300	26
ALPHA	SRCCHECK	5855	5214	5864	1		10/22/03	8:53	1981	60	15038
ALPHA	SRCCHECK	5855	5214	5864	1		10/22/03	8:55	2056	60	15607
ALPHA	SRCCHECK	5855	5214	5864	1		10/22/03	8:56	2034	60	15440
ALPHA	SRCCHECK	5855	5214	5864	1		10/22/03	8:58	2059	60	15630
ALPHA	QCU-1 06	5855	5214	5864	1		10/22/03	9:20	10	120	38
ALPHA	QCU-1 09	5855	5214	5864	1		10/22/03	9:25	4	120	15
ALPHA	QC-2 02	5855	5214	5864	1		10/22/03	9:32	13	120	49
ALPHA	QC-2 09	5855	5214	5864	1		10/22/03	9:36	14	120	53
ALPHA	QC-2 16	5855	5214	5864	1		10/22/03	9:41	4	120	15
ALPHA	QCU-4 05	5855	5214	5864	1		10/22/03	9:48	7	120	27
ALPHA	QCU-4 11	5855	5214	5864	1		10/22/03	9:52	8	120	30
ALPHA	QCU-4 20	5855	5214	5864	1		10/22/03	9:56	5	120	19
ALPHA	QCU-3 04	5855	5214	5864	1		10/22/03	10:04	10	120	38
ALPHA	QCU-5 06	5855	5214	5864	1		10/22/03	10:09	4	120	15
ALPHA	QCU-5 17	5855	5214	5864	1		10/22/03	10:14	17	120	65
ALPHA	QCU-5 18	5855	5214	5864	1		10/22/03	10:23	11	120	42
ALPHA	QCU-6 10	5855	5214	5864	1		10/22/03	12:53	10	120	38
ALPHA	QCU-6 20	5855	5214	5864	1		10/22/03	12:59	20	120	76
ALPHA	U-6 02	5855	5214	5864	1		10/22/03	13:09	22	120	84
ALPHA	U-6 04	5855	5214	5864	1		10/22/03	13:17	24	120	91
ALPHA	U-6 08	5855	5214	5864	1		10/22/03	13:22	24	120	91
ALPHA	U-6 09	5855	5214	5864	1		10/22/03	13:26	18	120	68
ALPHA	U-6 14	5855	5214	5864	1		10/22/03	13:36	19	120	72
ALPHA	U-6 18	5855	5214	5864	1		10/22/03	13:40	17	120	65
BETA	SRC BKG	5855	5214	5864	2		10/22/03	9:05	604	300	1069
BETA	SRCCHECK	5855	5214	5864	2		10/22/03	9:07	2195	60	19432
BETA	SRCCHECK	5855	5214	5864	2		10/22/03	9:09	2253	60	19945
BETA	SRCCHECK	5855	5214	5864	2		10/22/03	9:10	2472	60	21884
BETA	SRCCHECK	5855	5214	5864	2		10/22/03	9:12	2349	60	20795
BETA	QCU-1 06	5855	5214	5864	2		10/22/03	9:22	164	60	1452
BETA	QCU-1 09	5855	5214	5864	2		10/22/03	9:26	187	60	1655
BETA	QC-2 02	5855	5214	5864	2		10/22/03	9:33	200	60	1771
BETA	QC-2 09	5855	5214	5864	2		10/22/03	9:37	201	60	1779
BETA	QC-2 16	5855	5214	5864	2		10/22/03	9:42	184	60	1629
BETA	QCU-4 05	5855	5214	5864	2		10/22/03	9:49	139	60	1231
BETA	QCU-4 11	5855	5214	5864	2		10/22/03	9:53	132	60	1169

37-Building Characterization Survey QC's and Resurvey Points

RSDS# _03-TF-0280_ RCT: [illegible] RCT: SR

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	QCU-4 20	5855	5214	5864	2		10/22/03	9:58	107	60	947
BETA	QCU-3 04	5855	5214	5864	2		10/22/03	10:05	154	60	1363
BETA	QCU-5 06	5855	5214	5864	2		10/22/03	10:10	149	60	1319
BETA	QCU-5 17	5855	5214	5864	2		10/22/03	10:15	118	60	1045
BETA	QCU-5 18	5855	5214	5864	2		10/22/03	10:24	171	60	1514
BETA	QCU-6 10	5855	5214	5864	2		10/22/03	12:54	155	60	1372
BETA	QCU-6 20	5855	5214	5864	2		10/22/03	13:00	161	60	1425
BETA	U-6 02	5855	5214	5864	2		10/22/03	13:11	157	60	1390
BETA	U-6 04	5855	5214	5864	2		10/22/03	13:18	106	60	938
BETA	U-6 08	5855	5214	5864	2		10/22/03	13:23	241	60	2134
BETA	U-6 09	5855	5214	5864	2		10/22/03	13:27	152	60	1346
BETA	U-6 14	5855	5214	5864	2		10/22/03	13:37	158	60	1399
BETA	U-6 18	5855	5214	5864	2		10/22/03	13:41	169	60	1496

37-BLDG CHARACTERIZATION ALPHA and BETA QC SURVEY UNIT 7

RSDS# 03-TF-0280 RCT: JR RCT: _____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U-7 09	5833	5214	5847	1	10/22/03	141	60	124	8	60	56
U-7 18	5833	5214	5847	2	10/22/03	126	60	64	7	60	48
BETA BACKGROUND FOR 10-22-2003 WAS---------->								110			
ALPHA BACKGROUND FOR 10-22-2003 WAS---------->								1			

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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

H 1 of 4

...ow	Bldg	Bldg Description	Room	pCi/l	pCi/l	Rsnid	Supid	Date	Date	Comments
	21		ABOVE AIR SAMPLER	161.1	125.0	1678055	1666782	12/14/89	2/16/90	MET - OLD THORIUM STORAGE
	21		ABOVE AIR SAMPLERS	115.7		1666508		12/14/89	2/16/90	MET - OLD THORIUM STORAGE
		SM	19 MID EAST WALL	4.0		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED READINGS
	48		114 B CLOSET ON SPRINKLER PIPE	3.3		1671292		12/12/89	2/19/90	
	19		ROOM 1	2.6		1678051		12/13/89	2/19/90	
		OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661595		12/14/89	2/19/90	
	55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/12/89	2/19/90	
	57		ROOM 1	1.9		1661565		12/12/89	2/19/90	
	87		143	1.5		1661563		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		1672047		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	2/19/90	
	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		1661577		12/14/89	2/19/90	
	61		RM 221 MIDDLE OF NORTH WALL	.9		1661585		12/13/89	2/19/90	
	67		101 N	.9		1678029		12/12/89	2/19/90	
	G-13	LOG	G-514 WEST WALL	.9		1661544		12/12/89	2/16/90	
		T	CORRIDOR 20	.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	38	.9		1661586		1/15/90	2/19/90	
	105	PARTS MACHINING BUILDING	STAIRWELL NEXT TO ROOM 127	.8		1661564		12/12/89	2/19/90	
	25	ARAC	3 ON BOOK CASE MIDDLE	.8		1671314		12/15/89	2/19/90	
	60		1 ON DOOR TO ROOM 3	.8		1678049		12/12/89	2/19/90	
		A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/89	2/16/90	
		C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL RM2	.8		1672052		12/12/89	2/16/90	
		R BUILDING	68 NORTH WALL	.8		1678068		12/13/89	2/16/90	
		SM	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
		WO BLDG	WO 8	.8		1678045		12/18/89	2/16/90	
	87		124	.8		1678032		12/12/89	2/19/90	
	88		ROOM 116 ON NORHT WALL RIGHT OF CEN	.7	.5	1661524	1661535	12/12/89	2/19/90	
	89		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666703	1666532	12/15/89	2/19/90	
	22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1678070		12/13/89	2/19/90	
	56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1678066		12/12/89	2/19/90	
		E ANNEX	E 225 EAST WALL	.7		1661552		12/18/89	2/16/90	
		POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1678040		12/12/89	2/19/90	
		W BLDG	W-135	.7		1661553		12/12/89	2/16/90	
	26		ROOM 84 SOUTH WEST WALL	.6	.1	1672048	1667158	12/13/89	2/16/90	
	69		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/89	2/19/90	
	26		ROOM 84 SOUTH WEST WALL	.6		1671279		12/13/89	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 (MIDWAY)	.6		1661629		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		1672086		12/14/89	2/19/90	
		OSM	120 C	.6		1661573		12/12/89	2/16/90	
		SM	150 WEST END GAS BOX	.6		1678043		12/11/89	2/16/90	
		A	34 EAST WALL	.5	.7	1672075	1672051	12/14/89	2/16/90	
	47		102 MIDDLE OF EAST WALL	.5	.5	1658110	1666819	12/12/89	2/16/90	

Radon Monitor Results for 86 Round Facility

n	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	
	53		ROOM 134	.4		1672059		12/13/89	2/20/90	
	63W		RM 4	.4		1676078		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 18A	.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	SR/PP	95- BLD-ROOM81	.4		1661531		12/12/89	2/20/90	
		DS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/13/89	2/19/90	
		I	I HALLWAY	.4		1667194		12/12/89	2/19/90	
		N BUILDING	N 21 WEST WALL	.4		1678057		12/15/89	2/20/90	
		POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1678036		12/12/89	2/19/90	
		R BUILDING	12 SOUTH WALL	.4		1681566		12/13/89	2/19/90	
	34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
	61		RM 151			1681567		12/13/89		MISSING

Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	R BUILDING	163 NEXT TO NORTH WALL	.5	.5	1660533	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		1678060		12/12/89	2/16/90	
		ELECTRICAL PANEL RM IN ELEC/ROMICS	.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		1678050		12/12/89	2/16/90	
47		CELL 113	.5		1681582		12/13/89	2/19/90	
50		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1681605		12/18/89	2/16/90	
79		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
89		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1681593		12/15/89	2/16/90	
91		HALLWAY RIGHT OFF ROOM 8	.5		1661509		12/12/89	2/19/90	
92		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
94		215 WEST WALL	.5		1681572		12/14/89	2/16/90	
	A	1080 WEST WALL	.5		1681580		12/14/89	2/16/90	
	A	119 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	319 WALL CABINET TO RIGHT OF SINK	.5		1681590		12/12/89	2/19/90	
	COS	158 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.5		1678072		12/14/89	2/16/90	
	E BUILDING	E 212 NORTH WALL	.5		1681587		12/18/89	2/16/90	
	E ANNEX	ROOM 2	.5		1678065		12/12/89	2/16/90	
	GH BUILDING	1A MIDDLE OF WEST WALL	.5		1678054		12/12/89	2/16/90	
	GP 81	ROOM 127	.5		1681571		12/12/89	2/16/90	
	H BLDG	MH-8	.5		1671268		12/18/89	2/19/90	
	MH	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	E BUILDING	H 108	.5		1678056		12/15/89	2/19/90	
	N BUILDING	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSE	4HT FLOOR	.5		1678028		12/12/89	2/16/90	
	OSM	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSE	319	.5		1678069		12/13/89	2/16/90	
	OSM	2ND FLOOR	.5		1681611		12/12/89	2/16/90	
	OSM	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	POWER HOUSE PH-1	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	R BUILDING	128 OVER LARGE METAL FLOOR DISC	.5		1678019		12/12/89	2/16/90	
	SM/R TRITIUM COMPLEX	W135 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		MH-24	.4		1667187		12/14/89	2/19/90	
	MH	CORRIDOR 7 NEXT TO ROOM 216	.4		1661614		12/12/89	2/19/90	
	OS BUILDING	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
	GP 81	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	CELL 8 - WALL	.4		1681583		12/12/89	2/19/90	
27		101	.4		1672061		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	HALLWAY	.4		1672105		12/14/89	2/19/90	
29		3-315	.4		1672036		12/12/89	2/19/90	
	TEST FIRE BUILDING 3	PP CORR 16/BAY 2 WALL	.4		1681570		12/14/89	2/19/90	
30	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: Kramer, Donald
Date: 12/10/03 3:37PM
Subject: Bldg 37 rev.

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 I 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

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: Kramer, Donald
Date: 12/10/03 3:37PM
Subject: Bldg 37 rev.

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 I 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

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
Isopropylidene Diphenyl (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

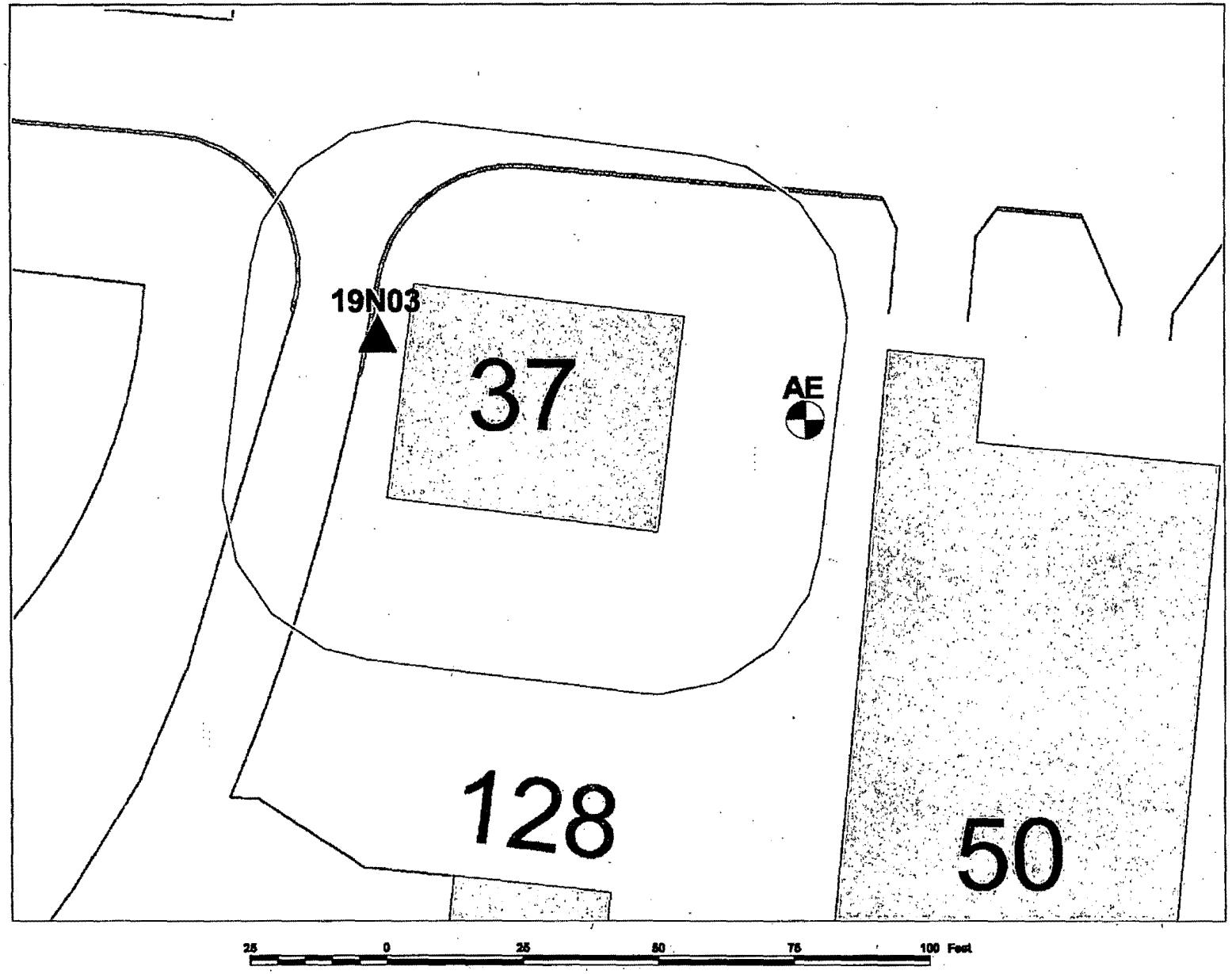
Potassium Acid Phthalate
Potassium Bromide
Potassium Carbonate
Potassium Chloride
Potassium Hydroxide
Potassium Phosphate
Potassium Phosphate, Tribasic
PPG-1025
Primax UH-1250
Propylene Carbonate
Propylene Glycol
Proton Sponge
Radio TV Cement Solvent
RC-20
RC-20 Reactomer
Reactomer RC-20
Resin Flux Remover
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

⊕ borehole

■ Sample Detect

N
W
E
S

MOUND
Environmental Restoration Geographic Information System

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e:\cad_proj\bldg_37\aerl\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

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:	Robert S. Rothman, Remedial Project Manager	3/19/03 (date)
USEPA:	David P. Seely, Remedial Project Manager	3/26/03 (date)
OEPA:	Brian K. Nickel, Project Manager	3/19/03 (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 2×10^{-6} risk range. PRSs 389 and 392 were not sampled as part of the *Soil Gas Confirmation Sampling* but the PRSs had lower ion counts than confirmation sample locations 5, 6, and 9. This implies that these PRSs will have similar or lower health risk.

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

CONCURRENCE:

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

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

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

SUMMARY OF COMMENTS AND RESPONSES:

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

☒ No comments were received during the comment period.

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

Appendix O

Work Plan

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

☐ Office Master Copy (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**

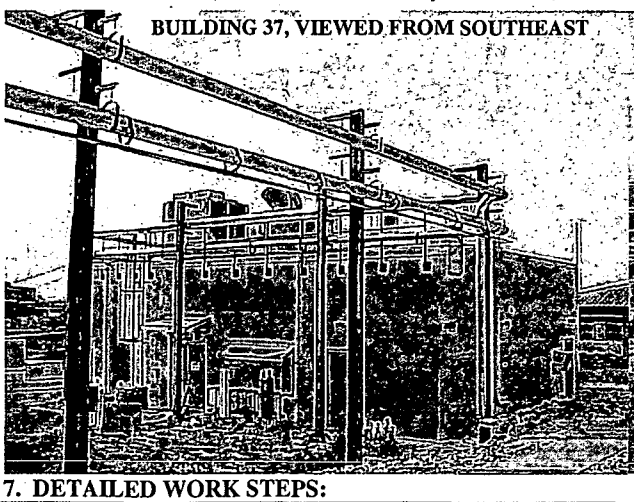
5. WORK PACKAGE PHASES:	**LIST OF APPENDICES:**
1. Site Information	A – PHA/JSHA
2. Site Preparation	B – Pre-job Briefings/Job Status Log
3. Building Demolition Sequence of Work	C – Drawings/Sketches
4. Site Remediation & Demobilization	D – Miscellaneous (RWP, USQ, etc.)
	E – Post-job Conference/Lessons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

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

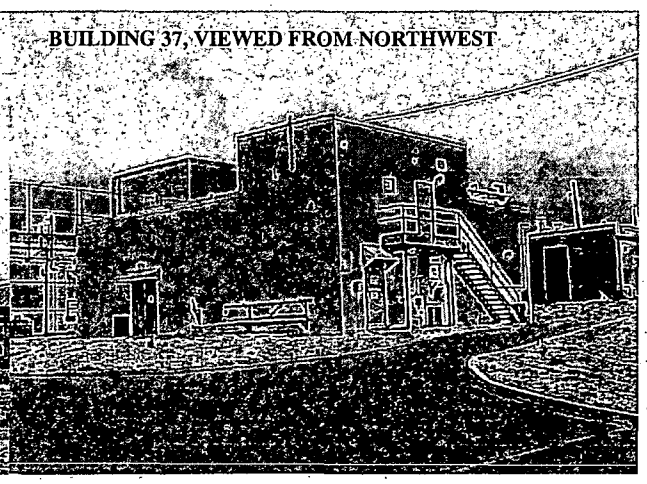
6. SPECIAL MATERIALS AND EQUIPMENT:

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 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.

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 utility that may be required is water. 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 mechanical and electrical utility isolation activities have been completed per workpackage FTS-36962 and FTS 37643, respectively.

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 Gary Morris (X4015 or 608-8242) - PoC for 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.

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 (Brady Barnhart, X4047 or 608-8284), Bldg. 126 PoC (Gary Morris, X4015 or 608-8242), 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 high visibility vest/clothing inside construction area.

CAUTION HAZARD: Struck by moving equipment.

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

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.

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.
- Gas supply line adjacent to foundation on west side of building.

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

IMPORTANT: If soil staining or unusual fumes/odors are noted during foundation/footer excavation at the location of the Low Risk Rad tank and/or the sanitary tank/lift station, contact IH (Chris Ahlquist X3737 or 608-8203) or Safety (Doug Hanson X3769 or 608-8008) and Environmental Compliance (Ron Paulick X4080).

HOLD POINT: Use caution when excavating around Domestic Water Line below slab grade. Contact IH (Chris Ahlquist X3737 or 608-8203 to check for presence of asbestos insulation on piping.

Piping checked for asbestos insulation by _____ Date _____

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

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

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

CAUTION HAZARD: 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 in vicinity of heavy-duty equipment, as required. 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.

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.

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.

7.6.2 Demobilize Construction Equipment

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

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:	Stephen Davis	Date: 9/23/03	Phone: 4436
Superintendent:	Michael M. Stewart	Date: 10/2/03	Phone: 3866
Foreman:	James Harvey	Date: 10/02/03	Phone: 3880
Project Eng. Mgr:	R.C. Hamilton	Date: 9/24/03	Phone: 4220
Safety	[illegible]	Date: 10/02/03	Phone: 3769
Industrial Hygiene:	[illegible]	Date: 10/2/03	Phone: 3737
Rad. Controls:	[illegible]	Date: 9/24/03	Phone: 4522
ES&C:	[illegible]	Date: 9/30/03	Phone: 4080
Waste Mgmt:	[illegible]	Date: 10/1/03	Phone: 1617
Bldg. Mgmt:	Gary J. Weidenbach	Date: 09/27/03	Phone: 608-8207
Classification:	See attached Classification Review Cover sheet	Date: 9/25/03	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: Gary J. Weidenbach Date: 09/27/03 Phone: 608-8207

11. AUTHORIZATION SIGNATURE:

Project Manager: [illegible] Date: 10/6/03 Phone: 4169

12. WORK PACKAGE CLOSURE:

Job Supervisor: Date: / / Phone:

Project Manager: Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

APPROVAL CONTINUATION SHEET

Reviews:

Name	Signature	Date	Department

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		

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: Fire Department, Security, Facilities Services.	YES	2	-Fire Alarm Pull Boxes x -Fire Suppression Water Flow Alarms x -Smoke Detector Alarms x -Security Systems x -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.

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]
	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
Notifications:	RAPCA Notification for Asbestos	N/A	N/A	Asbestos abatement completed prior to demolition.
	RAPCA Notification for Demolition	Yes	3	Required 10 business days before beginning demolition activity
	Emergency Spill Response Notification	Yes	3	Call 911 or 854-4040, have spill kit at job site.
	Other			

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: • Concrete • Steel & Copper Piping • Metal Roofing • PVC • Electrical Wiring • Fiberglass Insulation • 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: • RCRA Hazardous Waste • Asbestos • Other	N/A	N/A			
Mixed Waste	N/A	N/A			
Low Level Radiological Waste: • Building Debris • 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. 2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal.					
Other:					
Material sent off-site Fill out MD-22180 Attachment 1 (see Appendix D)					
Material sent to concrete crusher 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; lessons learned to be reviewed at pre-job briefings.

Table 1 Airborne Contaminant Protection Methods

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

Table 1 Airborne Contaminant Protection Methods (continued)

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

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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, or 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 ___ 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.
Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety

SIGNATURES

ORIGINATOR: Steve Davis	9/23/03
REVIEW/REV: Safety/IH	
REVIEW/REV: Foreman	10/02/03
REVIEW/REV: Bldg Mgr	9.27.03
APPROVED: Project Manager	10/6/03

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

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

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Connected by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary
Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily.	N/A	-This project engages in Enhanced Work Planning (EWP), 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. 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. -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. -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. -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 Struck by moving equipment Possible asbestos in roofing material Noise Hazard	-Establish construction boundary. -Wear hard hat, safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet; Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Demolish roof by normal remote means only (using Heavy Duty) -Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9
2b. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -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 Operating Heavy Duty equipment on debris slope/ pile/heap	-Control traffic with flagmen as necessary -Exercise caution operation equipment on slope/heap -Coordinate with Safety & check stability of debris slope/heap often. -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 Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5. -Coordinate in-process Rad Surveys with Rad Techs.
3. Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary.
3a. Rough grading	Equipment/ personnel mixture.	-Stay clear of operating heavy equipment.
3b. Seeding & Mulching	Slip – Trip – Fall Lifting /twisting strain.	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices.
3c Remove temporary protection structures/barriers from hydrants/PIVs.	Lifting /twisting strain. Cuts and abrasions. Slip trips and falls.	-2 man rule; follow standard practice lifting. -Wear appropriate PPE. -Be cognizant of your own safe work practices as well as those of your co-workers.
3d. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture. Cuts and abrasions. Lifting /twisting strains. Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary. -Coordinate in-process Rad Surveys with Rad Techs.
10. Work from elevated surfaces (manlift, bucket truck, etc.).	Fall hazard	Wear proper PPE, restraints, harness, and other fall protection, as required per MD10286. Op M8. Use workers, properly trained and instructed in the hazards of working from elevated surfaces.

023847

SIGN-OFF SHEET

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

Signature	Date	Department

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

Revision Description: (attach page revisions to form)

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

Approved by:

CH2M HILL Project Manager _____

Name Signature Date

REVISION LOG

1. WORK PACKAGE TITLE: Building 37 Demolition

2. WORK PACKAGE NUMBER: BOSS-36961-00

Revision	Reason	By	Date

Appendix B

JOB STATUS LOG

JOB STATUS LOG

1. WORK PACKAGE TITLE: Building 37 Demolition

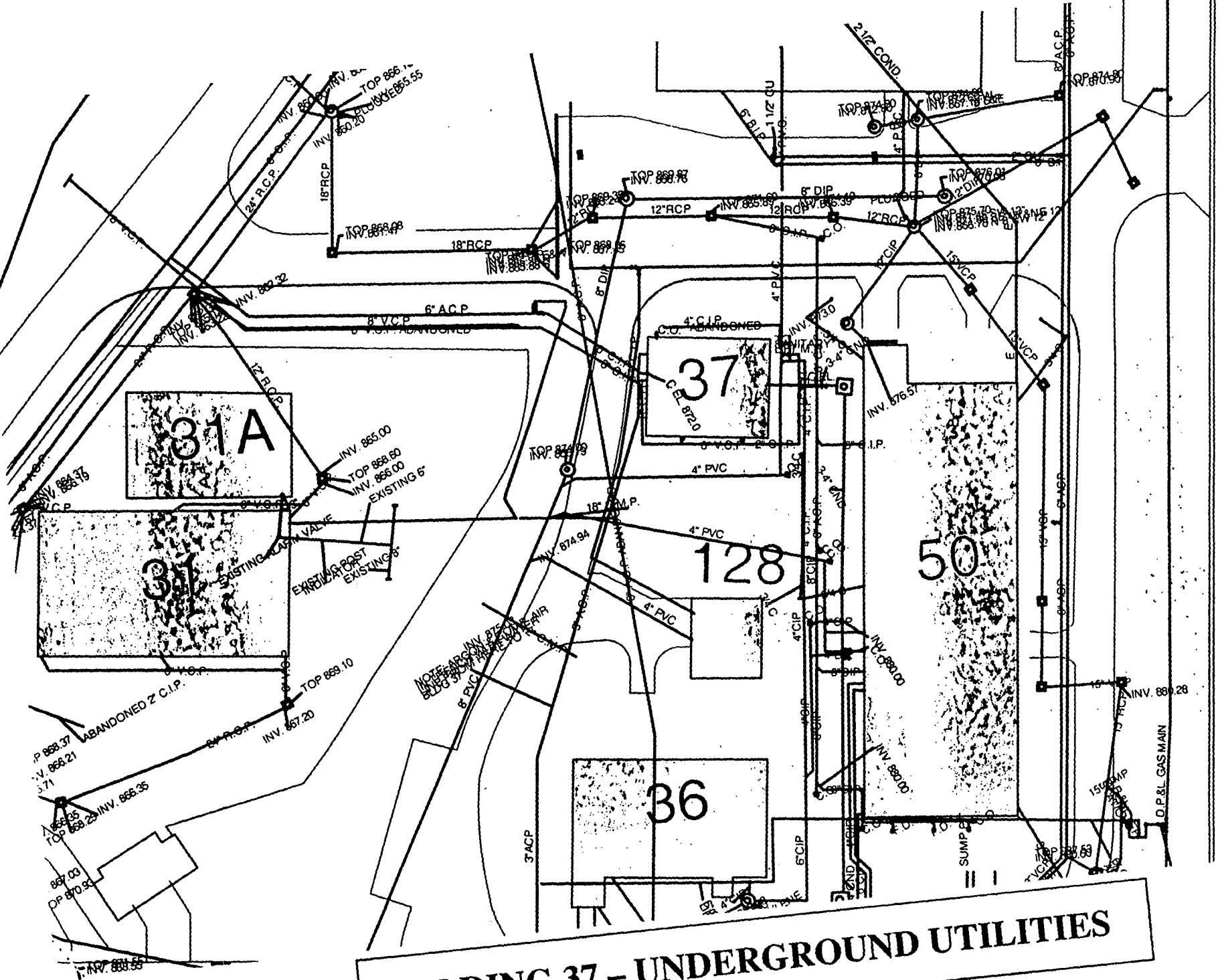
2. WORK PACKAGE NUMBER: BOSS-36961-00

DATE	TIME	WORK PKG. SECTION	% Complete	BY	STATUS

Appendix C

DRAWINGS/SKETCHES

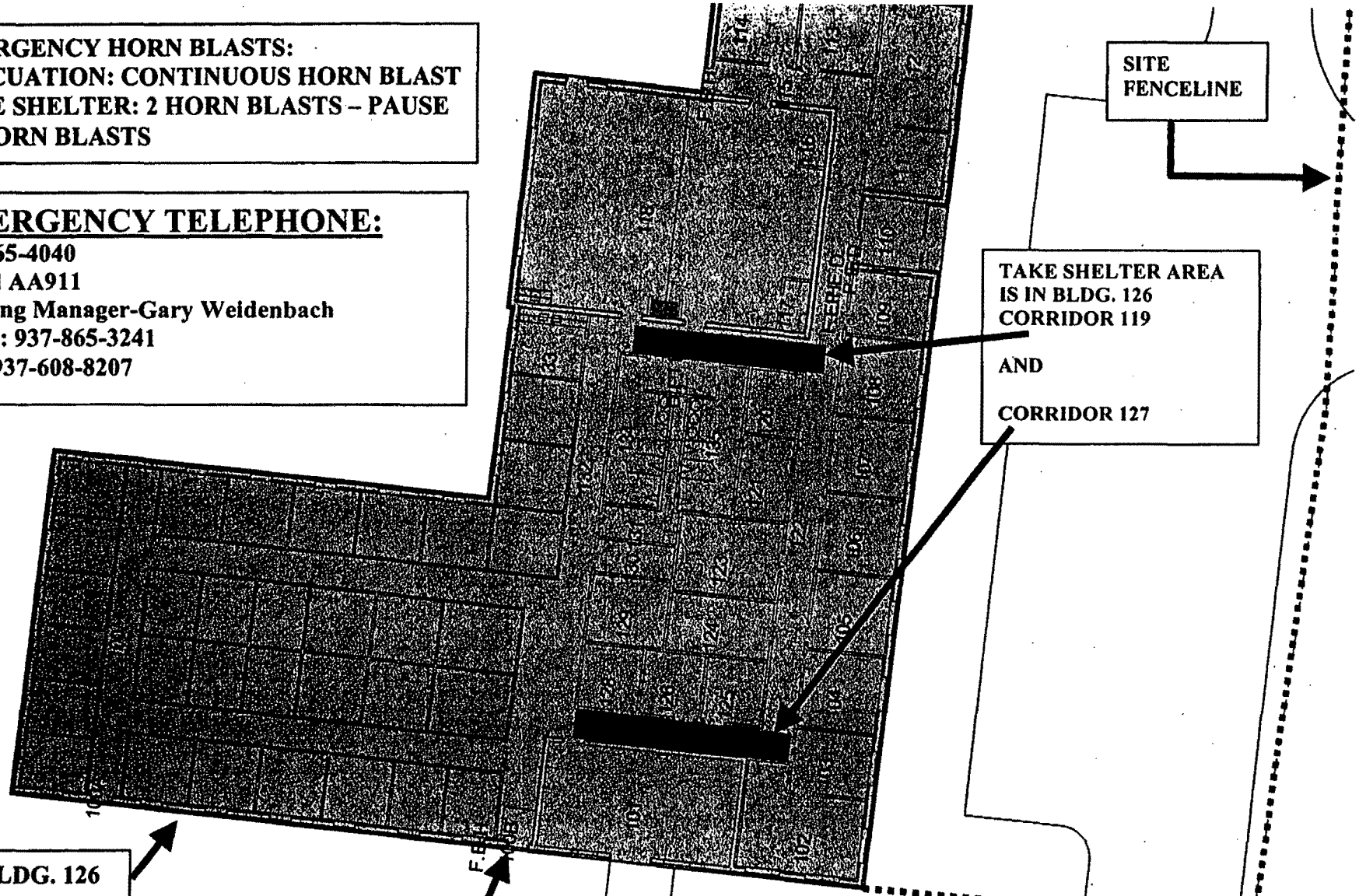
- Structural and Mechanical Drawings -Foundation Plan, Wall Sections, Floor Plans, and Mechanical Detai
    - AYC 303700 – (Bldg. 37) Radioactive Heat Source Testing Facility Construction Drawing
    - AYE 303702 – (Bldg. 37) FY88 FCAP HVAC and Process Cooling Upgrades
- Building 37 Surrounding Underground 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

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

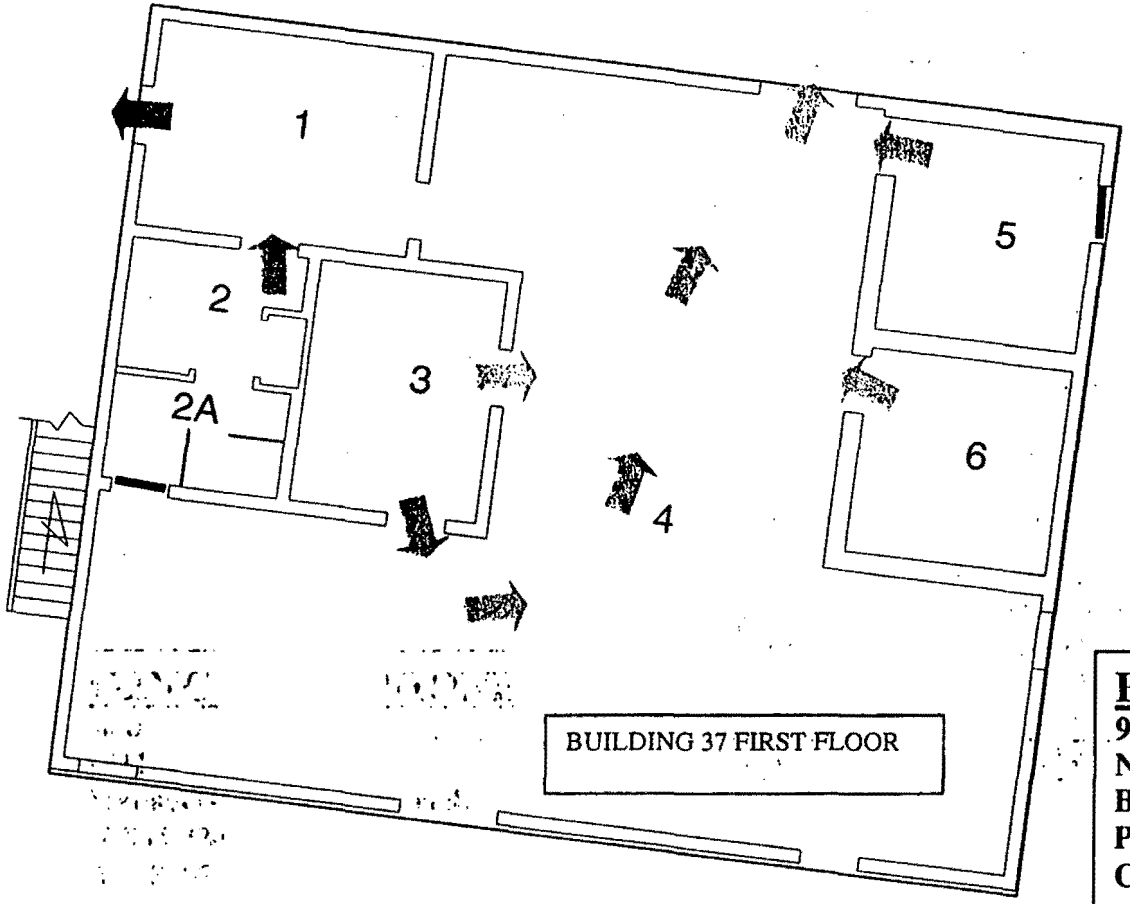
EMERGENCY TELEPHONE:
937-865-4040
Nextel AA911
Building Manager-Gary Weidenbach
Phone: 937-865-3241
Cell: 937-608-8207



ASSEMBLY AND TAKE SHELTER AREA WHILE WORKING ON BLDG. 37

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

ASSEMBLY AREA
SOUTHEAST OF
BLDG. 126

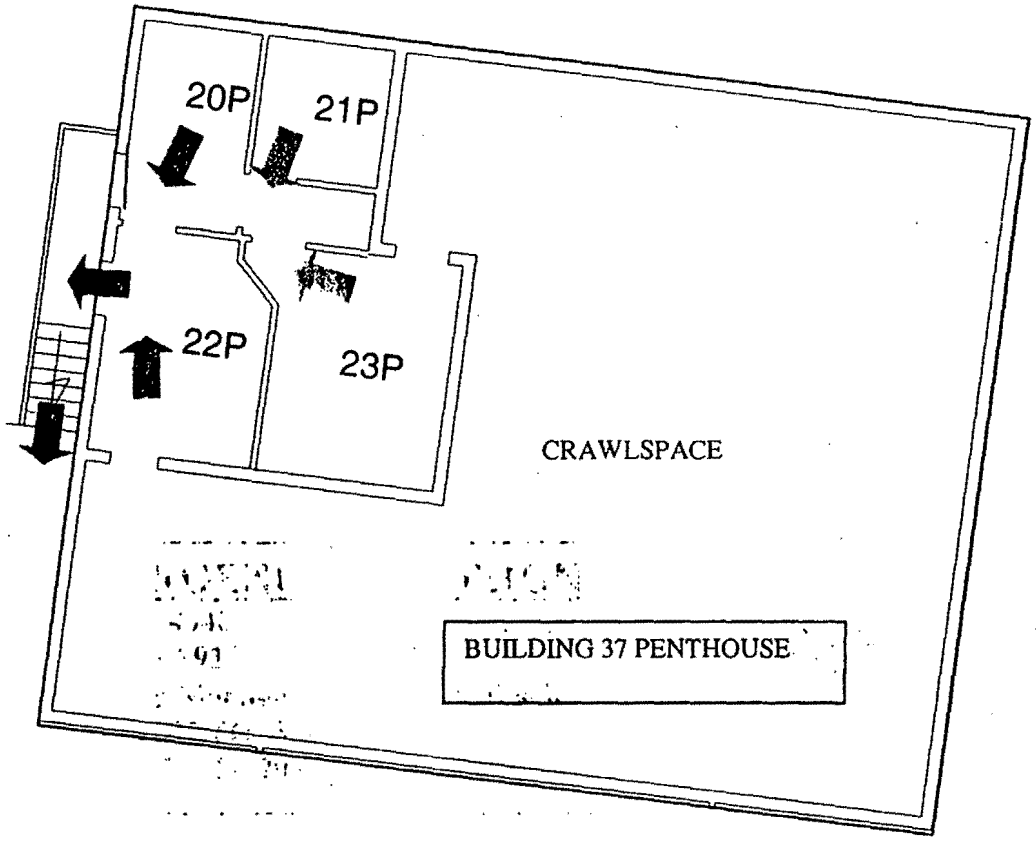


EMERGENCY TELEPHONE:
937-865-4040
Nextel AA911
Building Manager-Gary Weidenbach
Phone: 937-865-3241
Cell: 937-608-8207

BUILDING 37 FIRST FLOOR EVACUATION SKETCH

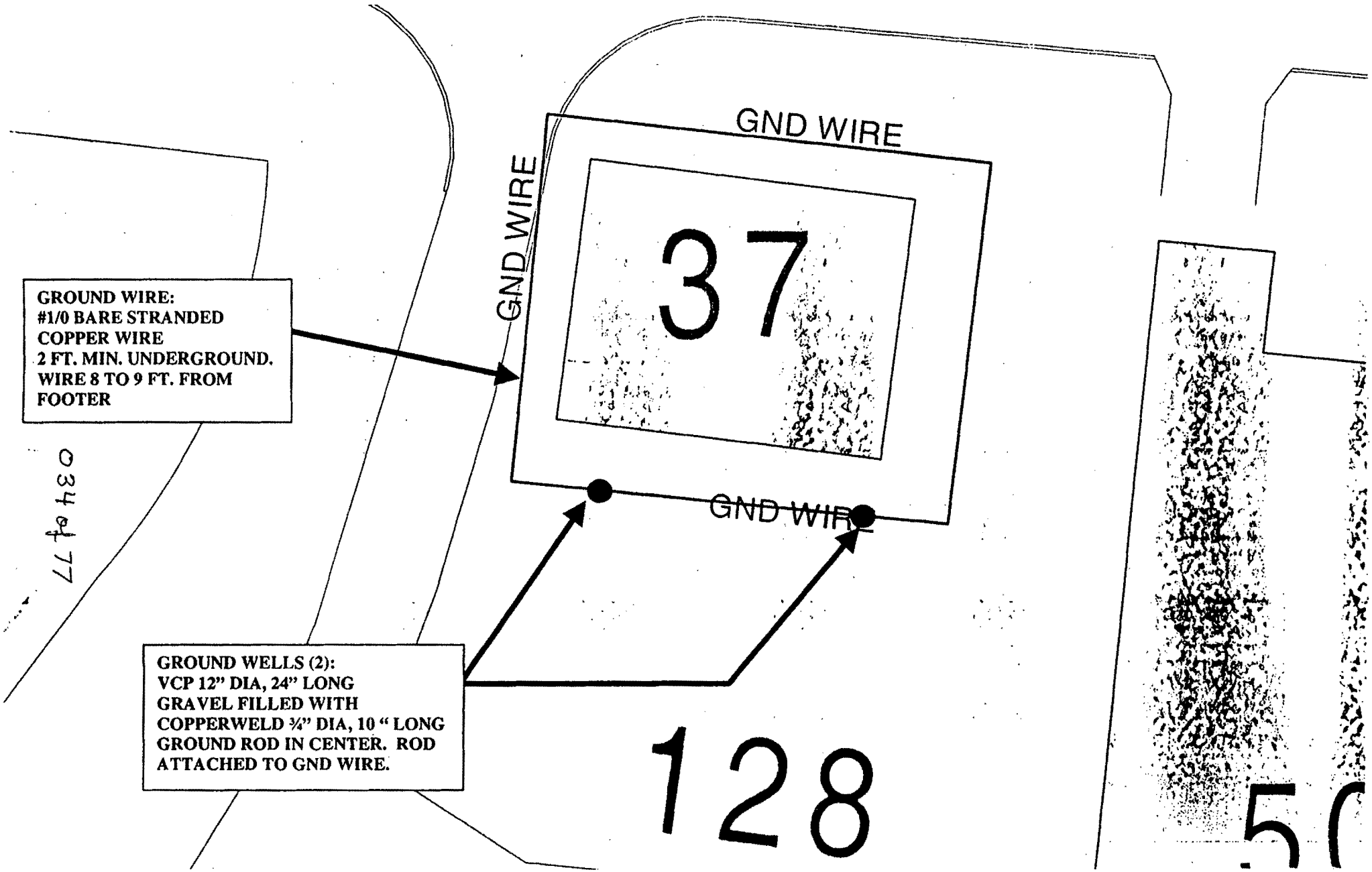
EMERGENCY HORN BLASTS:
EVACUATION: CONTINUOUS HORN BLAST
TAKE SHELTER: 2 HORN BLASTS – PAUSE – 2 HORN BLASTS

ASSEMBLY AREA
SOUTHEAST OF
BLDG. 126

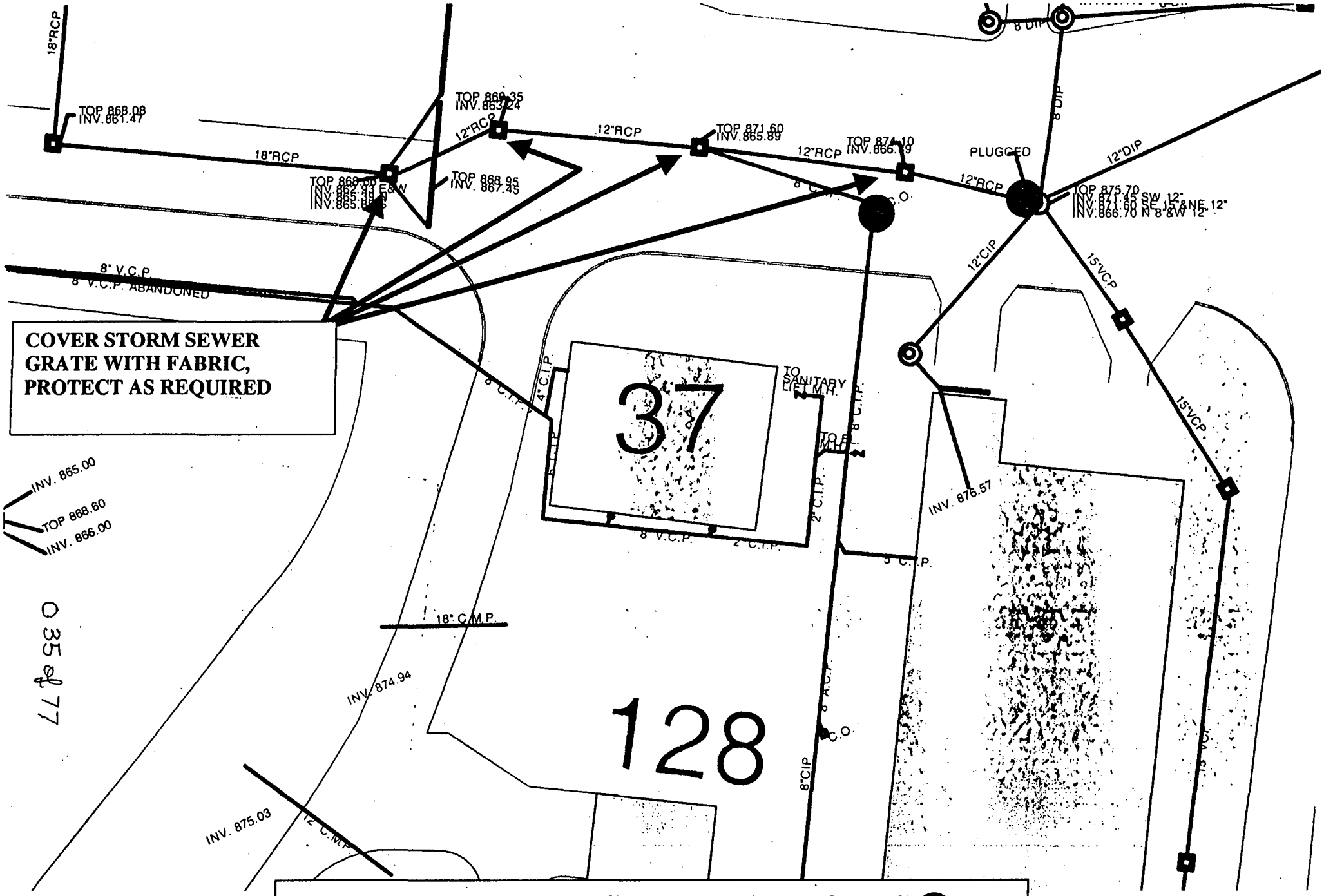


EMERGENCY TELEPHONE:
937-865-4040
Nextel AA911
Building Manager-Gary Weidenbach
Phone: 937-865-3241
Cell: 937-608-8207

BUILDING 37 PENTHOUSE EVACUATION SKETCH

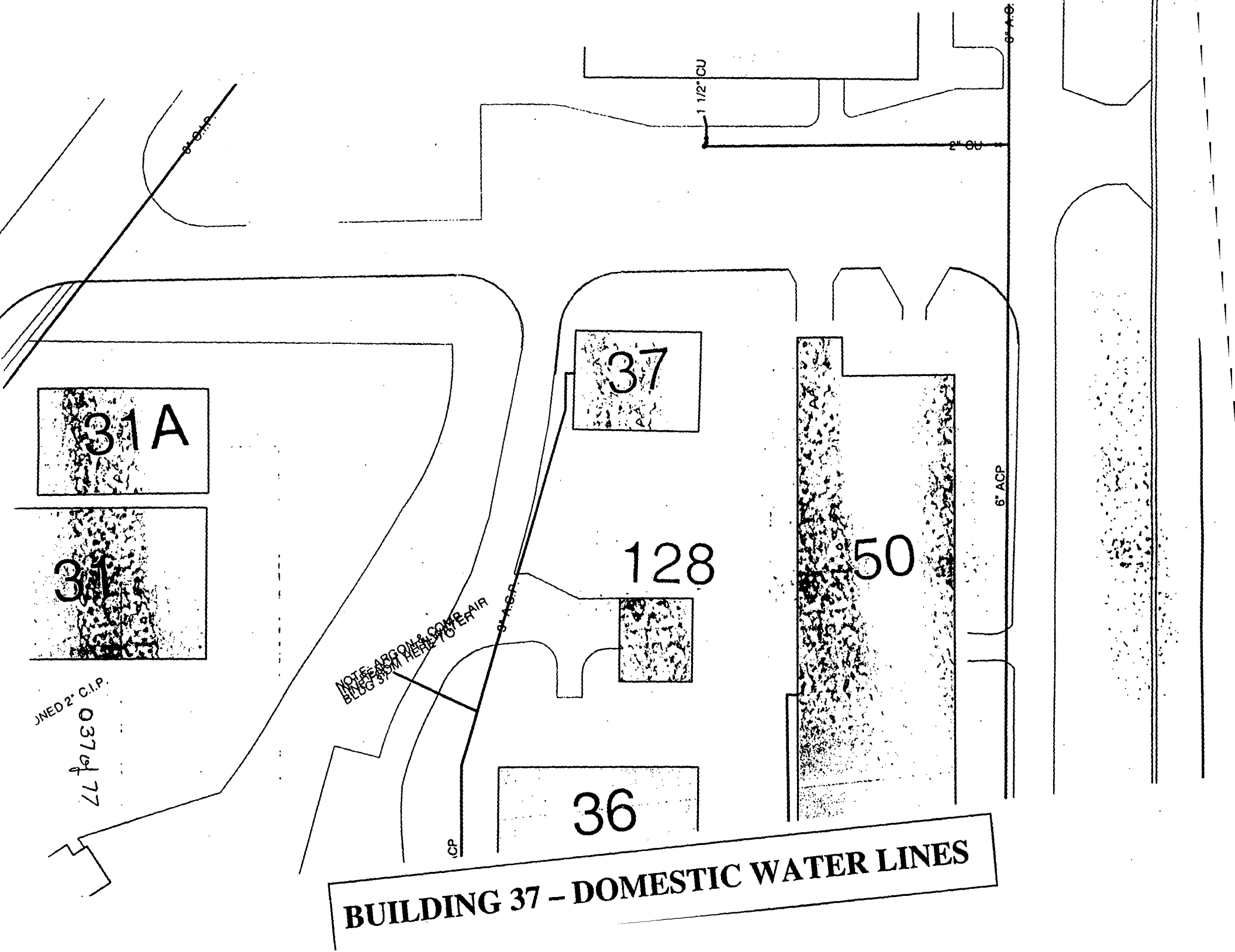


BUILDING 37 – GROUNDING WIRE SYSTEM

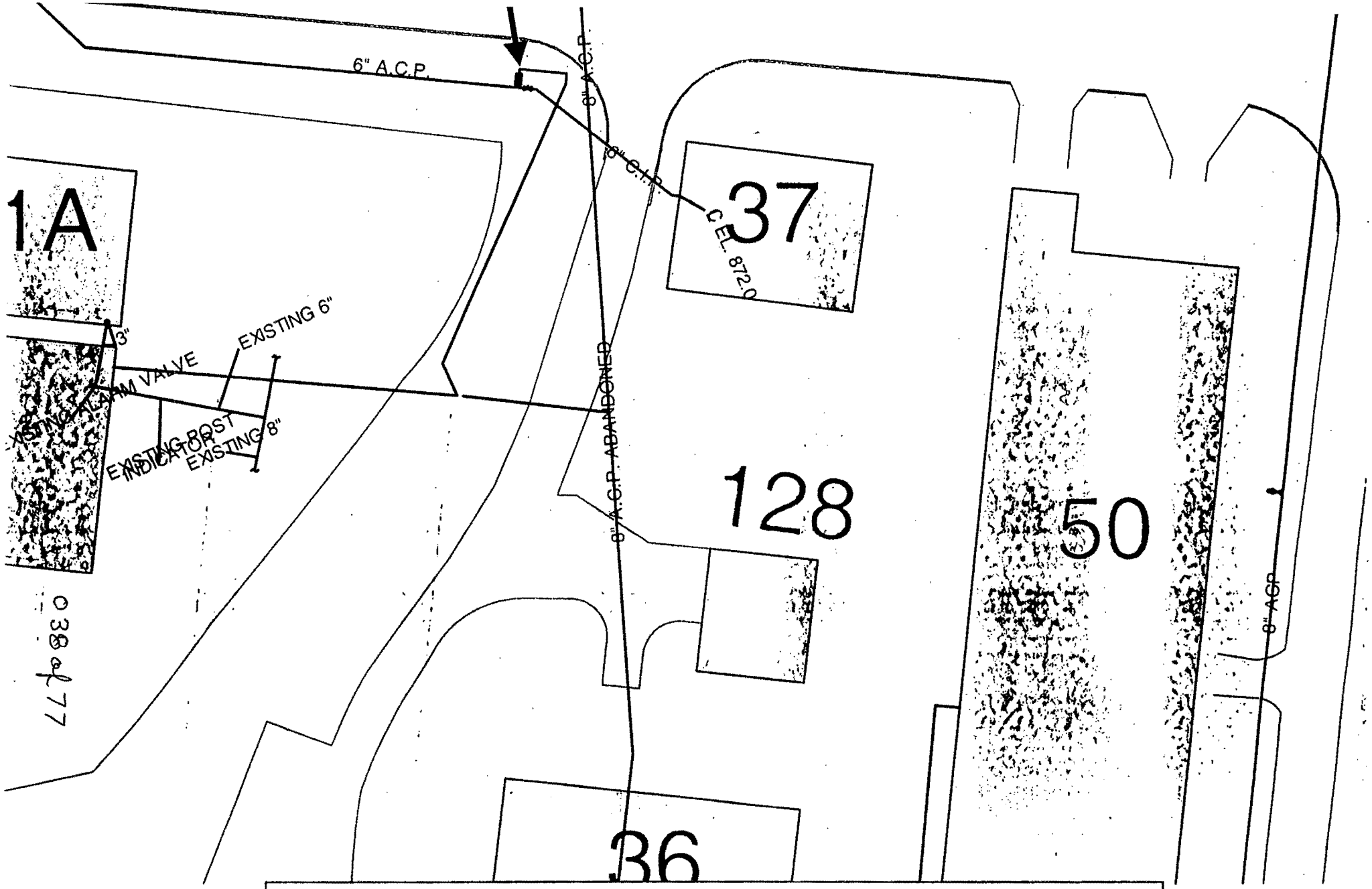


STORM SEWER SYSTEM/MANHOLES ●

BUILDING 37 – SANITARY SEWER SYSTEM LINES



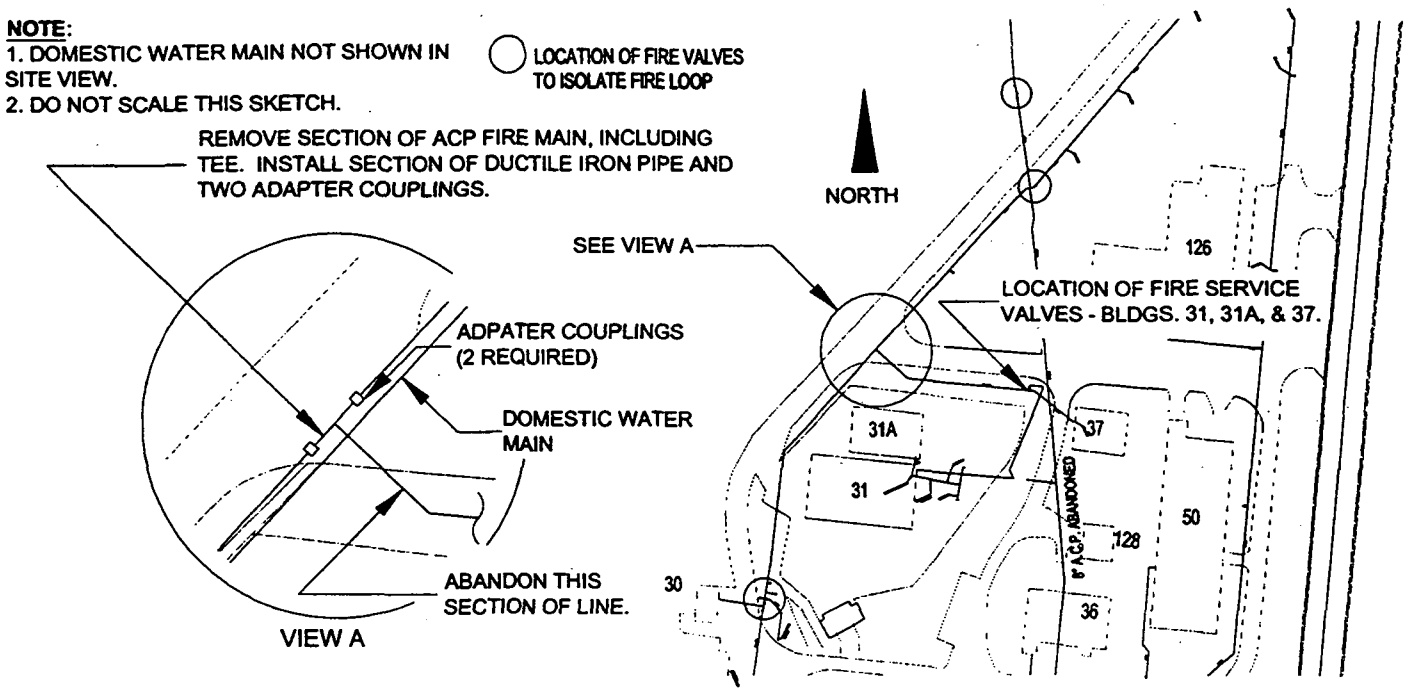
BUILDING 37 – DOMESTIC WATER LINES



BUILDING 37 – FIRE PROTECTION SYSTEM LINES

FIRE WATER ISOLATION:

This section provides information to isolate the fire water serving Buildings 31, 31A & 37.



SKETCH 1: BUILDING 31, 31A & 37 FIRE MAIN DISCONNECT

VistaMap indicates that the fire lines that must be severed are asbestos cement pipe (ACP).

1. Close the valves indicated in Sketch 3 before severing the fire main.

2. Note the proximity of the domestic water main to the fire main. Excavate and completely expose the fire main and the tee.

3. Sever the AC pipe as necessary and remove the tee. Note: Do not sever the pipe at a tapered section.

4. Install at each severed location (See View A, Sketch 3) an adapter[1] to join AC pipe to ductile iron pipe.

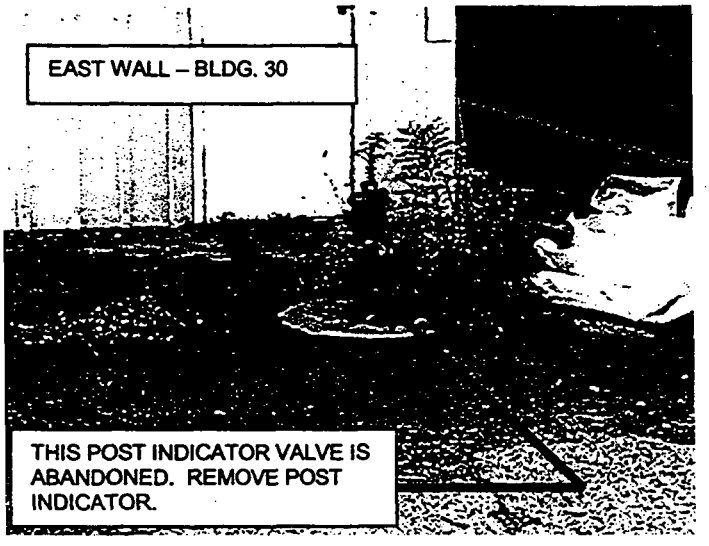
5. Pressurize the line and check for leaks. Repair as necessary. Have outside party inspect line and verify that no leaks exist. Record name of person who checked line for leaks.

[1] The AC pipe used on Site has various outside diameters. As a precautionary measure do not get the adapters until after the outside diameter of the pipe can be measured. If more information is needed, see Bill Brunner (865-3308).

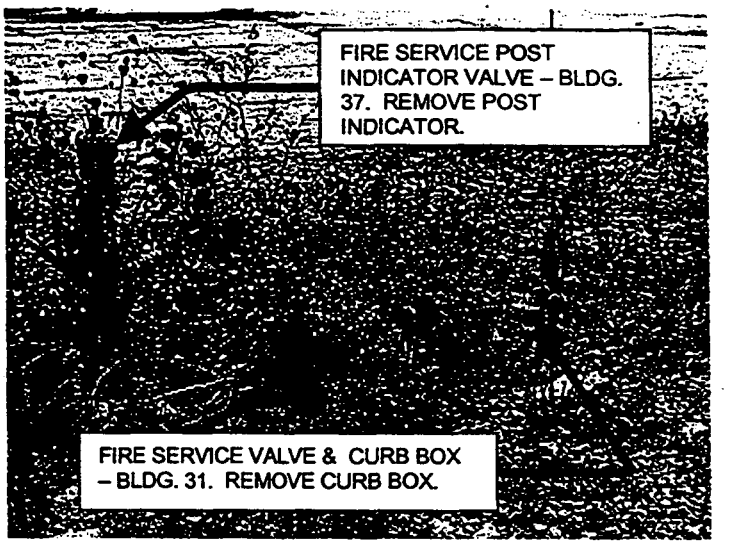
i. Backfill excavation.

'. Remove post indicators and curb box shown in Pictures 1 & 2.

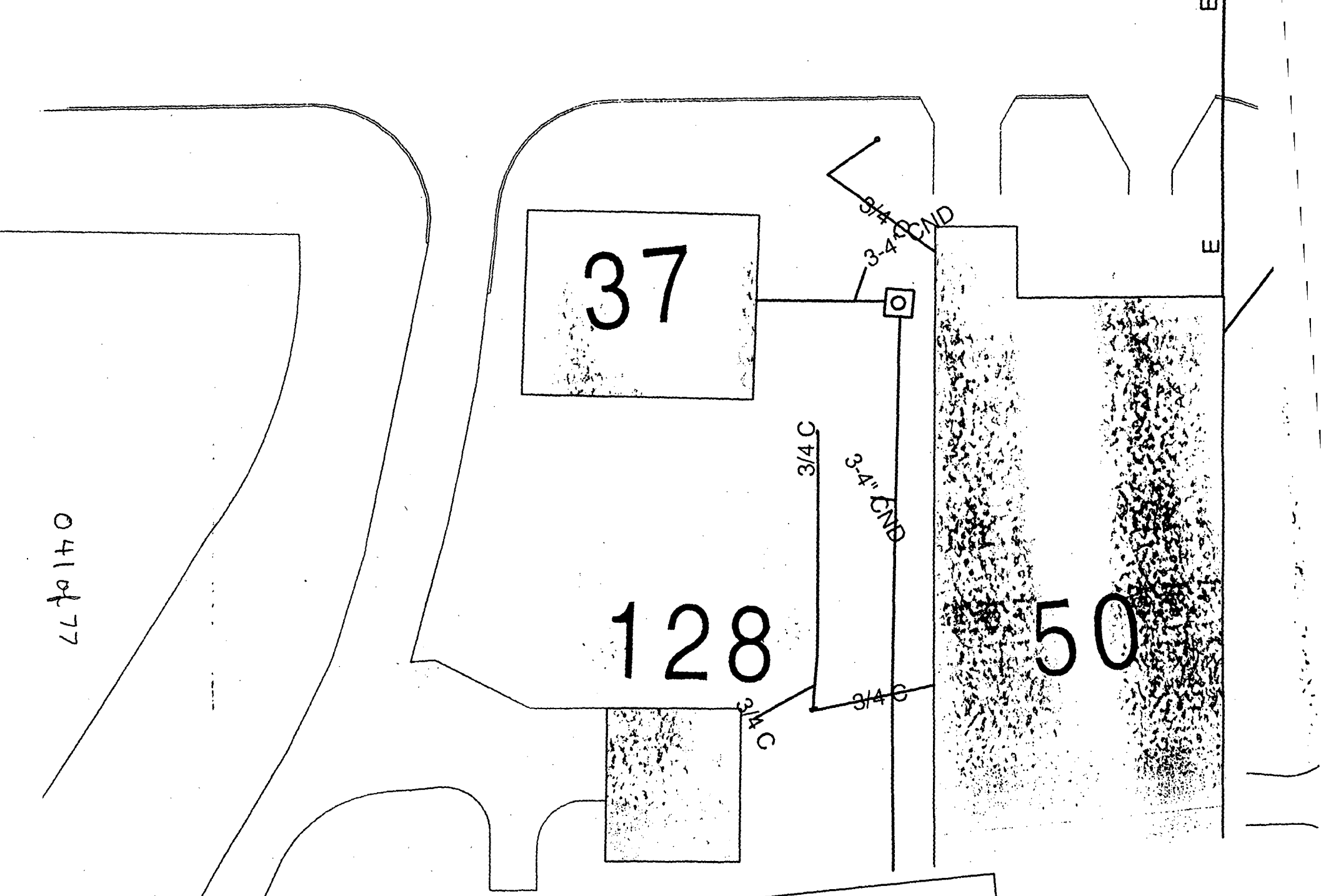
'he fire department isolates, depressurizes and pressurizes the fire main.



PICTURE 1: ABANDON PIV EAST OF BLDG. 30

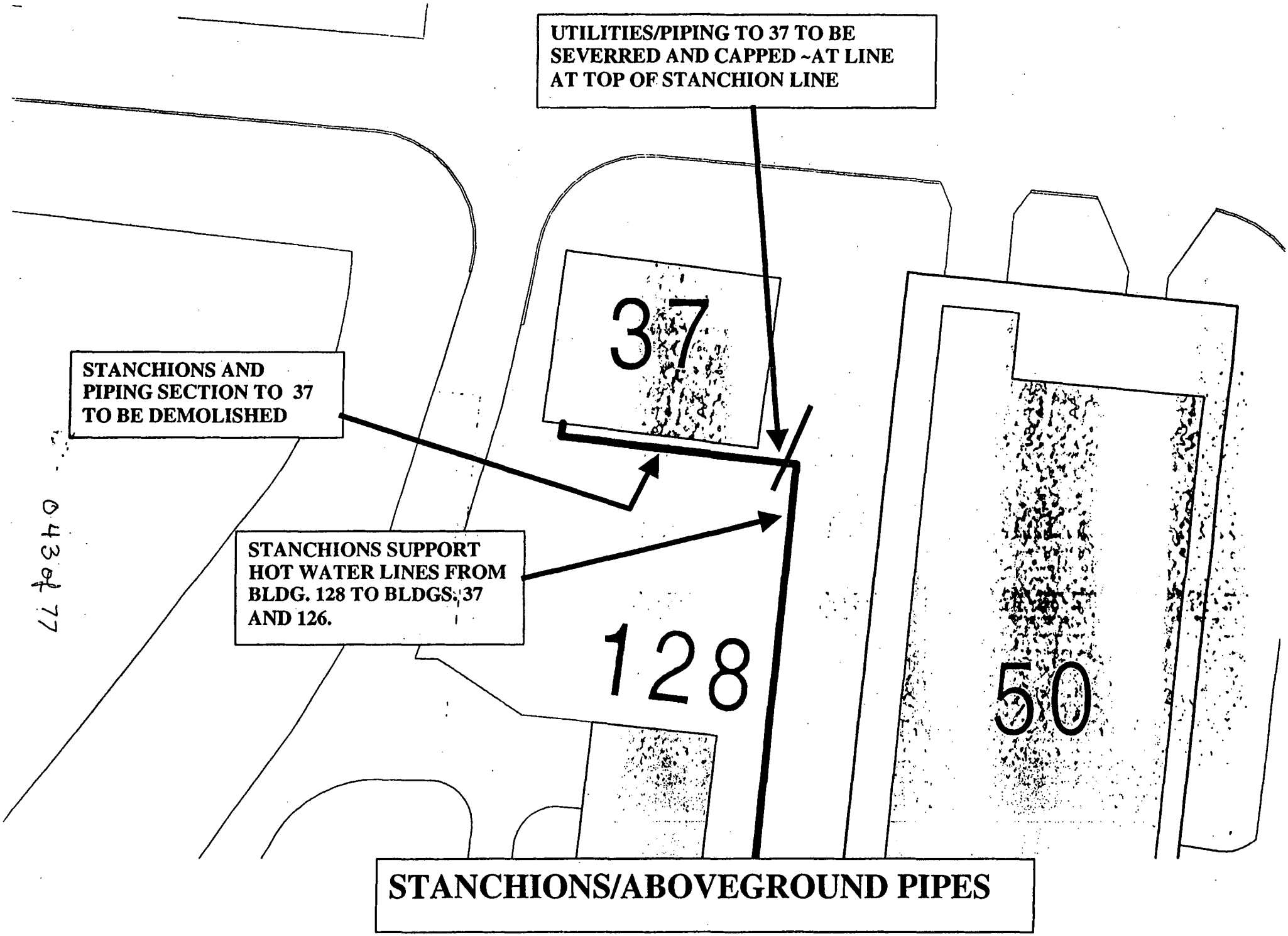


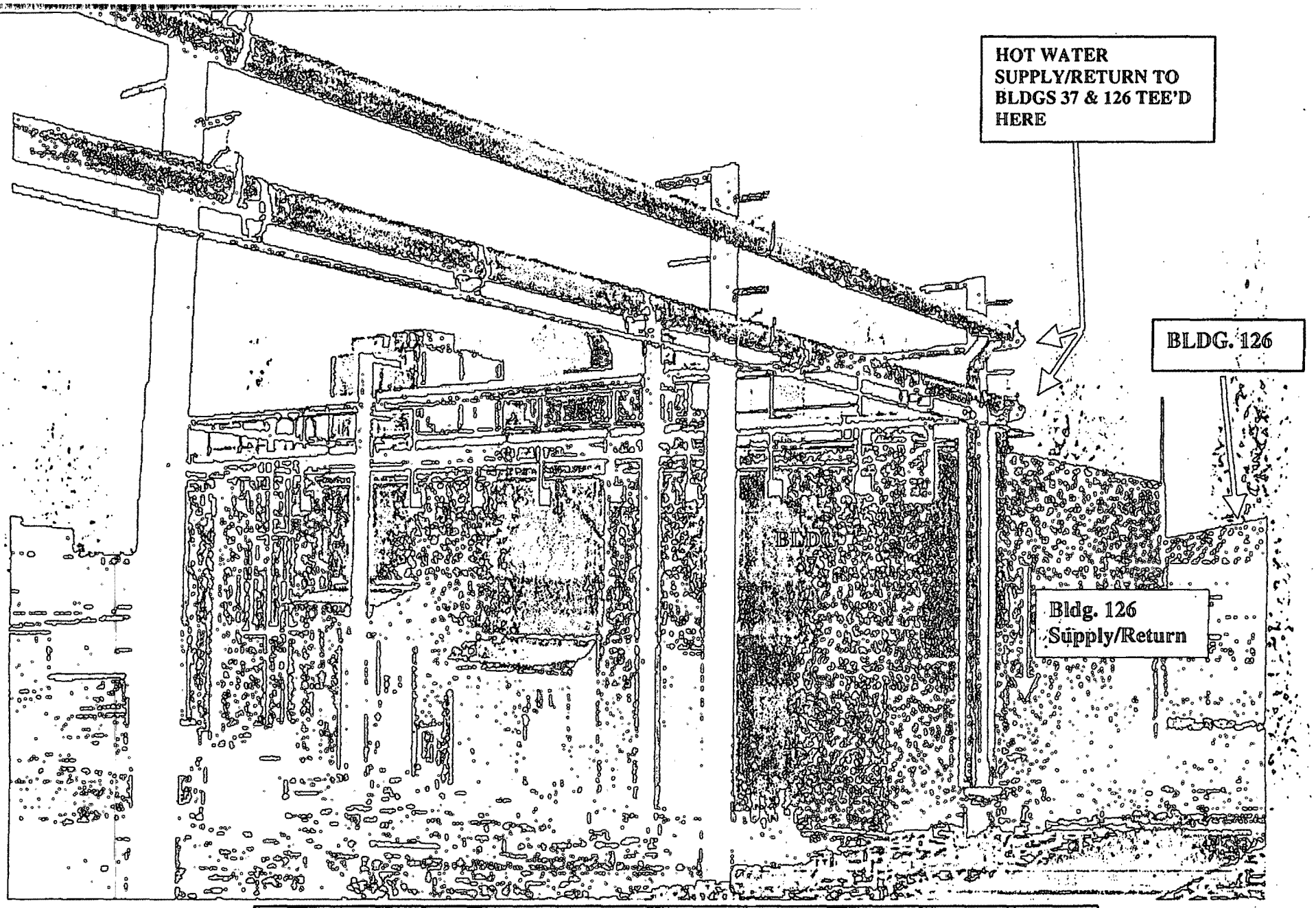
PICTURE 2: FIRE SERVICE VALVES - BLDGS. 31 & 37



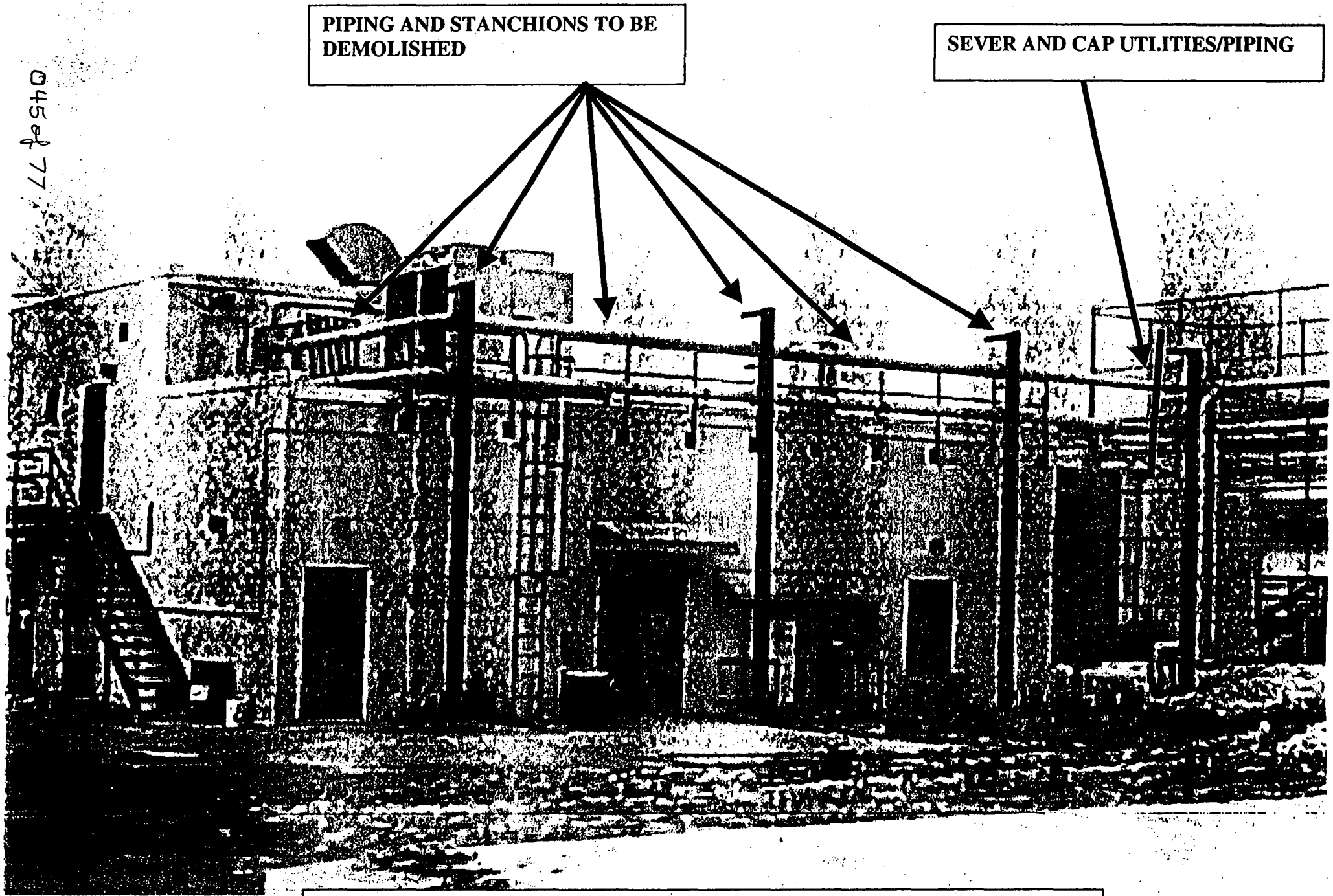
BUILDING 37 – UG POWER LINES

BUILDING 37 – UG GAS SUPPLY LINES

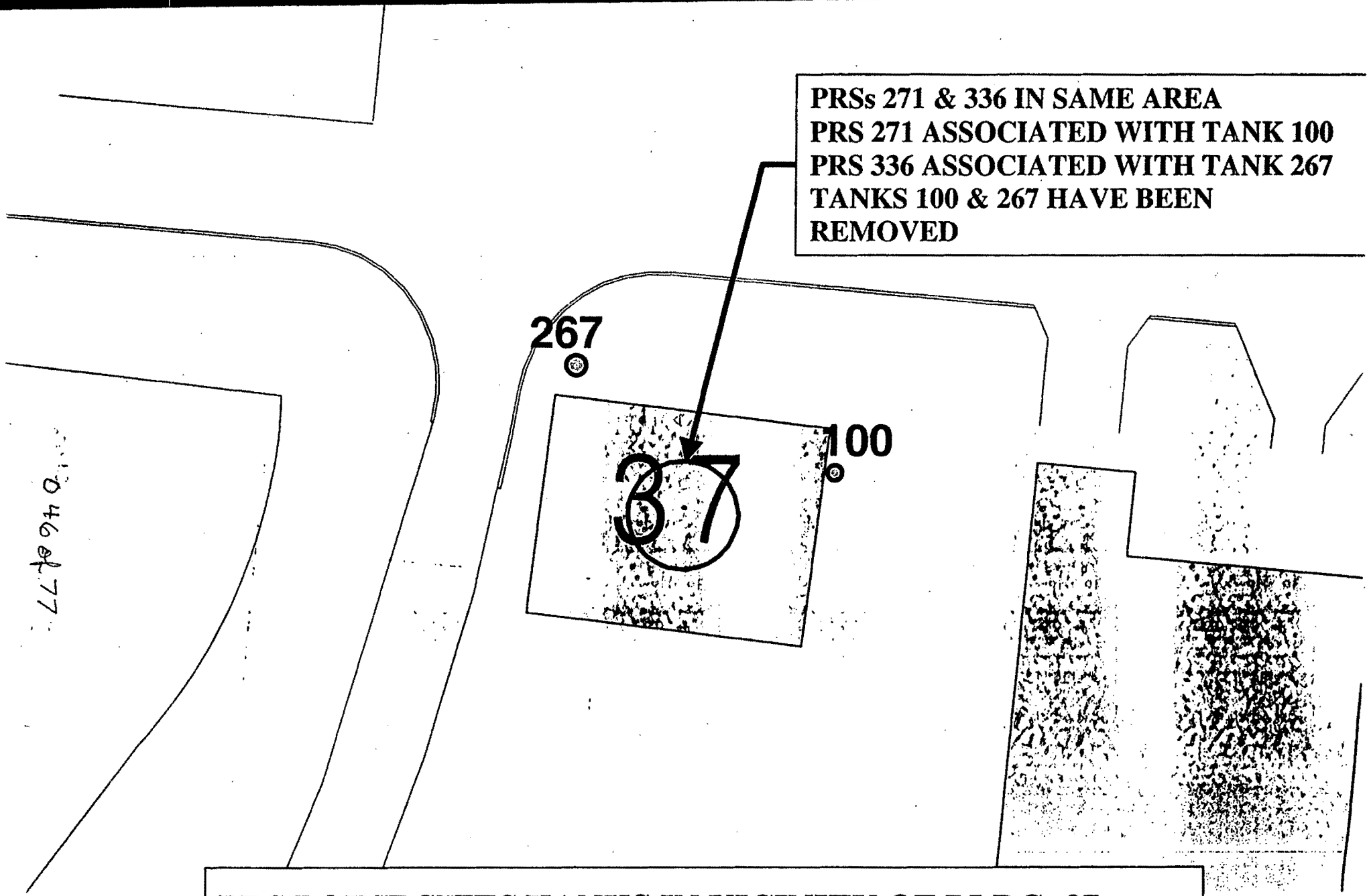

UTILITIES/PIPING TO 37 TO BE SEVERRED AND CAPPED ~AT LINE AT TOP OF STANCHION LINE
37
STANCHIONS AND PIPING SECTION TO 37 TO BE DEMOLISHED
STANCHIONS SUPPORT HOT WATER LINES FROM BLDG. 128 TO BLDGS. 37 AND 126.
128
50
STANCHIONS/ABOVEGROUND PIPES



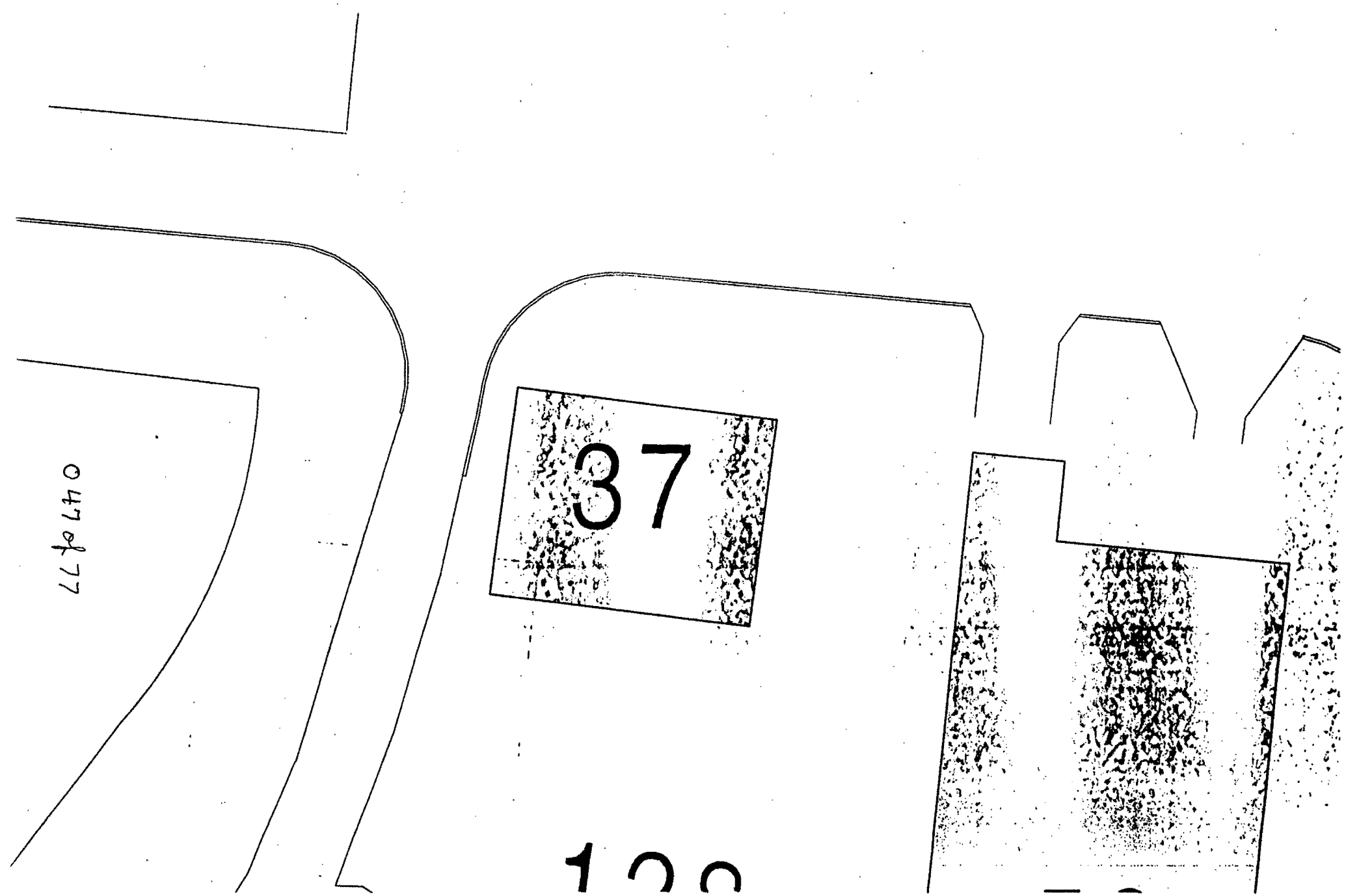
BLDG. 37 - STANCHIONS/ABOVE GROUND LINES/PIPES



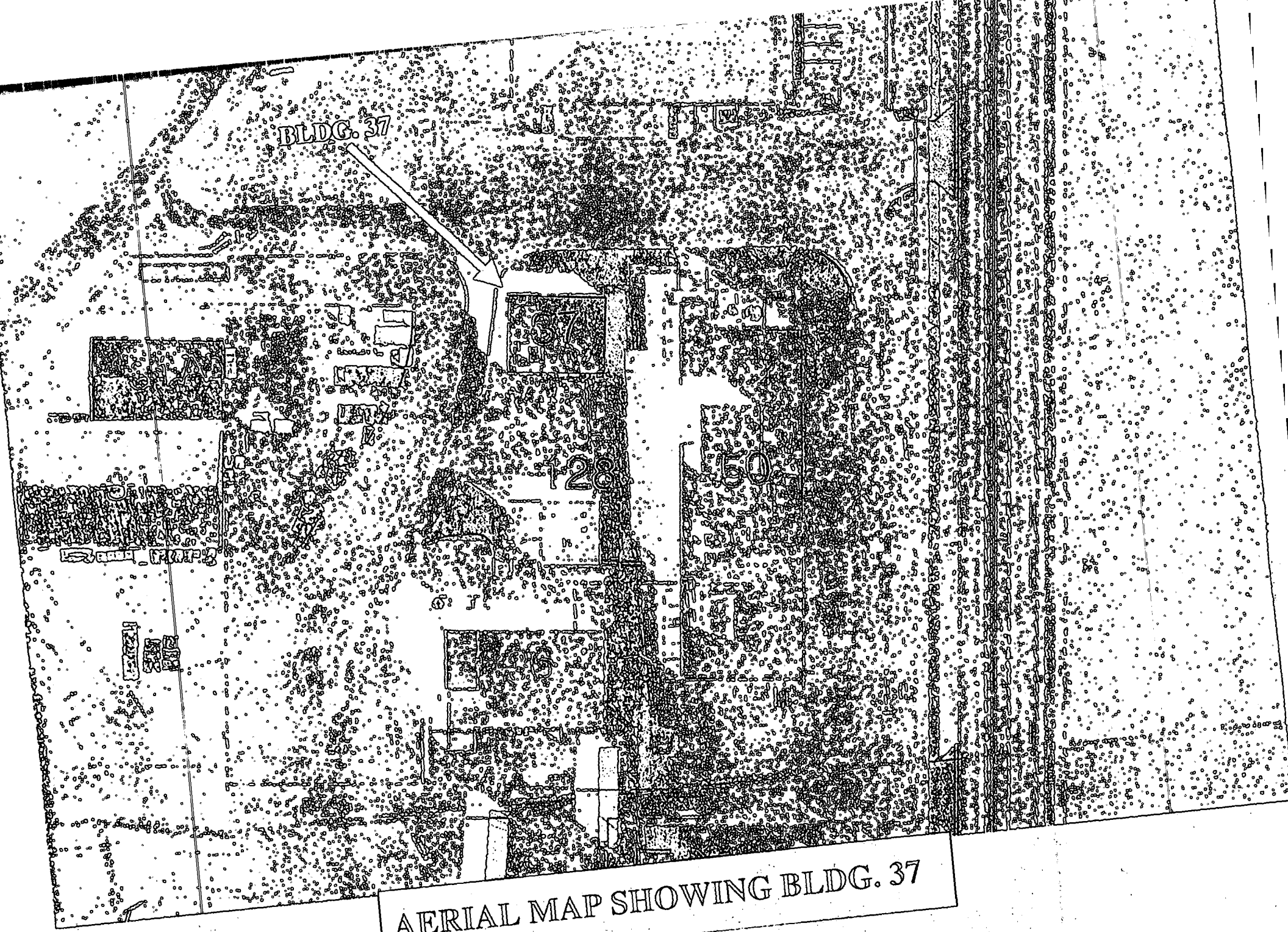
BLDG. 37 - STANCHIONS/ABOVE GROUND LINES/PIPES



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
- Work Package Material List

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

Attachment 1, (Example) Solid Waste Debris/Roll-off Release – ML9901 (10/02)

SOLID WATE ROLL-OFF RELEASE

ROLL-OFF NUMBER: _____ **WASTE GENERATED:** _____

BUILDING/AREA	Buildings with no Rad History		Buildings/Rooms with Rad History	
	ANNUAL SURVEY (DATE/NO.)	ROLL-OFF/ DEBRIS PILE SURVEY (DATE/NO.)	ITEM/AREA PRE-DEMOLITION/TRANSITION SURVEY or MARSSIM METHODOLOGY\ (DATE/NO.)	COMMENTS

The demolition/solid waste being disposed of from the Mound Location identified above meets the standards established by the Mound Guidance for Disposal of Solid Waste in agreement with the Ohio Environmental Protection Agency and the Department of Health Bureau of Radiological Protection. The Mound Guidance for Disposal of Solid Waste establishes standards for the survey of demolition debris and solid waste. The radiological surveys of the demolition debris/solid waste comprising this shipment were conducted in accordance with approved procedures and the use of best available technology as described in the Mound Guidance for Disposal of Solid Waste.

_____ Date_____

Waste Operations Manager or Designated Representative

ML-9901 (10/02).

Attachment 2 – FREE RELEASE SURVEY FOR WASTE DISPOSED OF IN ROLL-OFFS TO LOCAL LANDFILL

I. BUILDINGS WITH NO RAD HISTORY (MARSSIM NON-IMPACTED AREAS)	II BUILDINGS/ROOMS WITH RAD HISTORY (MARSSIM CAT,. 1, 2, & 3)	
ANNUAL SURVEY	PRE-DEMOLITION/TRANSITION SURVEY OR	
AND	MARRSIM methodology for unrestricted release of building structure. Equipment/furniture left in the building for D&D or that is part of a clean-out will have a representative survey of horizontal surfaces. OR	NOTES: Structural materials or specific item identified as contaminated above the limits in MD-80043, OP 400 may be decontaminated and resurveyed to determine if it meets release survey criteria
ROLL-OFF/DEBRIS PILE SURVEY	Item Specific free release requires a survey/ evaluation in accordance with MD-80043, OP 400 or OP 500, as appropriate.	

054 of 77

WORK PACKAGE MATERIAL LIST

Work Package # BOSS-36961 Page ____ of ____

Work Package Description Demolition of Building 37

Item #	Qty.	Units	Material Description	Used For	Suggested Supplier
1		Ea.	Check Spill Kits	Spills	

Appendix E

POST-JOB CONFERENCE/ LESSONS LEARNED

Releasing Tension on a Ratchet Strap Causes Injury
L03-043

Lessons Learned Statement:
Workers and their supervision need to understand the proper operation of the various tools used on the job to prevent accidents. In this event, the worker unnecessarily placed his hand into the pinch point of a ratchet strap and suffered an injury.
Discussion:
On August 20, 2003, an LSA waste box was being moved with a fork lift truck in the T Building tunnel. The involved workers had strapped the box to the mast of the fork truck to prevent load movement. A worker attempted to release the tension on the ratchet strap by placing his hand into a pinch point to release the ratchet keeper causing his finger to be pinched by the ratchet strap buckle. The investigation into the event found that the correct way to release the tension is to open the buckle to the full open position and allow the bale to free wheel. Due to the numerous makes and models of ratchet straps utilized, each should be inspected and its operability demonstrated prior to use in accordance with the manufacturer's instructions.
Recommended Actions:
Consistent with manufacturers safe operating instructions, workers should be instructed in the proper way to secure and release tension on ratchet straps.
The pictures below show the ratchet strap equipment. The worker releasing the tension with his left hand in the pinch point. The worker holding the handle and pointing to a cam on the outside of the buckle assembly that can be used to release tension on the strap without placing the hand in the pinch point. And finally, the tension being properly released.

Active Sprinkler Line Damaged During Facility Decommissioning
L03-041

Lessons Learned Statement: Care should be taken to assure that adjacent active utilities are not damaged when performing facility decommissioning activities.
Discussion: On Thursday August 7, 2003, an employee of an asbestos abatement subcontractor cut a small hole in an active sprinkler line, while using a torch to cut away an adjacent drain line. Water began to spray out of the sprinkler line so the Fire Department was called to shut down the line.
Analysis: Before work resumed, a Management Review was held to investigate the matter. The Management Review revealed that a previous worker had removed asbestos insulation from the drain line, however some fiberglass insulation remained. This fiberglass insulation limited the available cutting zone of the drain line, which was very close to the activ sprinkler line. The worker indicated that he knew that the sprinkler line was active. The worker's visibility was somewha limited because the work was overhead and he was standing on a ladder
Recommended Actions: Actions that resulted from the Management Review were:

- The asbestos abatement subcontractor was to hold a tool-box meeting with his workers to emphasize cautions to be taken when cutting lines. If there are any question about cutting a line, the worker is to stop and consult with management and Mound oversight personnel.
- Asbestos abatement workers should consider removing non-asbestos insulation, if that would improve the conditions for torch cutting the pipe.
- Although it was determined that the worker's feet were not over 6 feet from the ground while using the ladder, t subcontractor management chose to review proper ladder usage with the workers and to discuss what conditions call for using fall protection or a manlift.
- For future facility decommissioning jobs, the decision to have active fire sprinkler lines will be rigorously reviewed.

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

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

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WORK PLAN REVISION SHEET

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

2. WORK PACKAGE NUMBER: BOSS-36961-01

[Note: Mark this section in color]

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

Revision Description: (attach page revisions to form)
Modify/add Steps 7.5.2.1 through 7.5.2.4 to facilitate the complete removal of the concrete sanitary waste pit structure and to perform soil surveys/sampling. Also add hazard warning, concerning personnel entry into excavation deeper than 4' for performin soil surveys/sampling, to Section 7.5.2 and JSHA.

Reviewed by:	Name	Signature	Date
Project Engineering:	Stephen Davis	Stephen Davis	10-08-
Project Superintendent/Foreman:	M. M. Stromberg	M. M. Stromberg	10-13-0
Radiological Operations:	Steve Collas	S. Collas	10-15-0
Industrial Safety & Hygiene:	Doug Hanson		10-13-0
Waste Management:	Ronald Paulick	Ronald Paulick	10-20-0
Environmental Safeguards & Compliance:	L Anderson		10/15/02
Building Manager:	G L Weidenbach	Doug L Weidenbach	10/15/
Other:	R C Bonebottom	R C Bonebottom	10/14/

Approved by:

CH2M HILL Project Manager Kurt Kehler (Name) (Signature) 10/20/02 (Date)

REVISION LOG

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

2. WORK PACKAGE NUMBER: BOSS-36961-01

Revision	Reason	By	Date
01	Modify/add Steps 7.5.2.1 through 7.5.2.4 to facilitate the complete removal of the concrete sanitary waste pit structure and to perform soil surveys/sampling. Also add hazard warning, concerning personnel entry into excavation deeper than 4' for performing soil surveys/sampling, to Section 7.5.2 and JSHA.	Stephen Davis	10/8/03

- 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.
- Gas supply line adjacent to foundation on west side of building.

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

HOLD POINT: Use caution when excavating around Domestic Water Line below slab grade. Contact IH (Chris Ahlquist X3737 or 608-8203) to check for presence of asbestos insulation on piping.

Piping checked for asbestos insulation by _____ Date _____

7.5.2.2 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 for disposal as directed by Waste Management PoC.

7.5.2.3 Using heavy equipment, excavate and remove/demolish the concrete sanitary waste lift-station pit; capping any lines which exit the pit. Remove the pit walls/floor in sections that are as large as possible (the pit is located at the approximate midpoint of the exterior eastern wall of Building 37, where two electrical disconnects are located). The concrete pit surfaces will be surveyed/ scanned by Rad. Control technicians. Use torch to cut rebar as necessary to support downsizing/demolition (Hot Work Permit Required). Dispose of pit material per direction of Waste Management POC.

7.5.2.4 After removal of the concrete pit, Radiological Control will perform a walkover survey of the soil below the removed pit. Radiological Control will collect one (1) biased soil sample from the soil under the removed concrete pit. The sample will be sent to the onsite laboratory for gamma spec analysis.

NOTE: If soil staining or unusual fumes/odors are noted during sanitary pit excavation, contact IH (Chris Ahlquist X3737 or 608-8203) or Safety (Doug Hanson X3769 or 608-8008) and Environmental Compliance (Ron Paulick X4080).

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

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

WARNING HAZARD: Personnel entry into excavation/trench 4' or greater in depth. Obtain Excavation permit and follow its requirements per MD-10286, Operations O5, M10, and M11. Operators must be trained to OSHA requirements of 29 CFR 1926, Subpart P. Erect soil barricade and use Personnel Retrieval Equipment, as necessary.

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 in vicinity of heavy-duty equipment, as required. 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

JOB SAFETY AND HEALTH ANALYSIS FORM

JSHA MASTER DOCUMENT CONTROL NO:
BOSS – 37- 36961

SIGNATURES

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

DATE: 08/11/03	_X_ NEW __ 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.
Supported by Project Personnel e.g., Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety

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

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

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary
Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily.	N/A	-This project engages in Enhanced Work Planning (EWP), 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. 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. -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. -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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10/08/03

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. -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 Struck by moving equipment Possible asbestos in roofing material Noise Hazard	-Establish construction boundary. -Wear hard hat, safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet; Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Demolish roof by normal remote means only (using Heavy Duty) -Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9
2b. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -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 Operating Heavy Duty equipment on debris slope/ pile/heap	-Control traffic with flagmen as necessary -Exercise caution operation equipment on slope/heap -Coordinate with Safety & check stability of debris slope/heap often. -Maintain safe distance from debris slope/heap edge.

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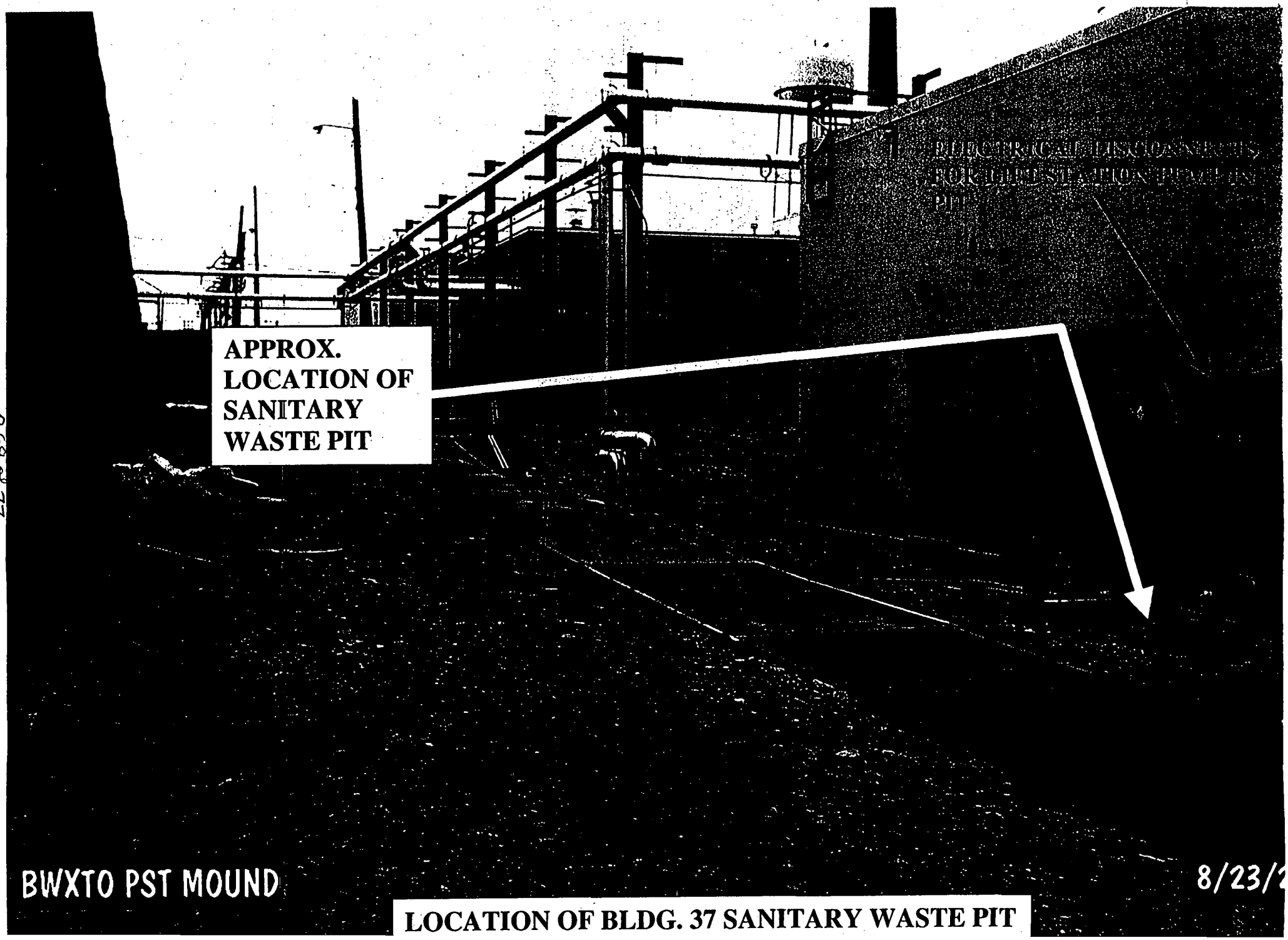
10/08/03

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 Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5. -Coordinate in-process Rad Surveys with Rad Techs.
2f. Pit soil surveys - Personnel entry into excavation/trench 4' or greater in depth	Trench collapse/entrapment of personnel (asphyxiation, cuts, abrasions)	-Obtain Excavation permit and follow its requirements per MD-10286, Operations O5, M10, and M11. Operators must be trained to OSHA requirements of 29 CFR 1926, Subpart P. Erect soil barricade and use Personnel Retrieval Equipment, as necessary
3. Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary.
3a. Rough grading	Equipment/ personnel mixture.	-Stay clear of operating heavy equipment.
3b. Seeding & Mulching	Slip – Trip – Fall Lifting /twisting strain.	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices.
3c Remove temporary protection structures/barriers from hydrants/PIVs.	Lifting /twisting strain. Cuts and abrasions. Slip trips and falls.	-2 man rule; follow standard practice lifting. -Wear appropriate PPE. -Be cognizant of your own safe work practices as well as those of your co-workers.
3d. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture. Cuts and abrasions. Lifting /twisting strains. Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary. -Coordinate in-process Rad Surveys with Rad Techs.
10. Work from elevated surfaces (manlift, bucket truck, etc.).	Fall hazard	Wear proper PPE, restraints, harness, and other fall protection, as required per MD10286, Op M8. Use workers, properly trained and instructed in the hazards of working from elevated surfaces.



LOCATION OF BLDG. 37 SANITARY WASTE PIT

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WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: **Building 37 Demolition**
2. WORK PACKAGE NUMBER: BOSS-36961-01

[Note: Mark this section in color]

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

Revision Description: (attach page revisions to form)
Modify/add Steps 7.5.2.1 through 7.5.2.4 to facilitate the complete removal of the concrete sanitary waste pit structure and to perform soil surveys/sampling. Also add hazard warning, concerning personnel entry into excavation deeper than 4' for performing soil surveys/sampling, to Section 7.5.2 and JSHA.

Reviewed by:	Name	Signature	Date
Project Engineering:	Stephen Davis	Stephen Davis	10-08-03
Project Superintendent/Foreman:	M. M. Stromberg	M. M. Stromberg	10-13-03
Radiological Operations:	Steve Collas	S. Collas	10-15-03
Industrial Safety & Hygiene:	Doug Hanson (for Ahlquist)	Doug Hanson	10-15-03 10-13-03
Waste Management:	Ronald Paulick	Ronald Paulick	10-20-03
Environmental Safeguards & Compliance:	L Anderson	[illegible]	10/15/03
Building Manager:	G L Weidenbach	Doug J. Weidenbach	10/15/03
Other:	R C Hawsbottom	R. C. Hawsbottom	10/14/03

Approved by:

	Name	Signature	Date
CH2M HILL Project Manager	Kurt Kuhlm	[illegible]	10/20/02

REVISION LOG

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

2. WORK PACKAGE NUMBER: BOSS-36961-01

Revision	Reason	By	Date
01	Modify/add Steps 7.5.2.1 through 7.5.2.4 to facilitate the complete removal of the concrete sanitary waste pit structure and to perform soil surveys/sampling. Also add hazard warning, concerning personnel entry into excavation deeper than 4' for performing soil surveys/sampling, to Section 7.5.2 and JSHA.	Stephen Davis	10/8/03

- 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.
- Gas supply line adjacent to foundation on west side of building.

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

HOLD POINT: Use caution when excavating around Domestic Water Line below slab grade. Contact IH (Chris Ahlquist X3737 or 608-8203) to check for presence of asbestos insulation on piping.

Piping checked for asbestos insulation by _____ Date _____

7.5.2.2 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 for disposal as directed by Waste Management PoC.

7.5.2.3 Using heavy equipment, excavate and remove/demolish the concrete sanitary waste lift-station pit; capping any lines which exit the pit. Remove the pit walls/floor in sections that are as large as possible (the pit is located at the approximate midpoint of the exterior eastern wall of Building 37, where two electrical disconnects are located). The concrete pit surfaces will be surveyed/ scanned by Rad. Control technicians. Use torch to cut rebar as necessary to support downsizing/demolition (Hot Work Permit Required). Dispose of pit material per direction of Waste Management POC.

7.5.2.4 After removal of the concrete pit, Radiological Control will perform a walkover survey of the soil below the removed pit. Radiological Control will collect one (1) biased soil sample from the soil under the removed concrete pit. The sample will be sent to the onsite laboratory for gamma spec analysis.

NOTE: If soil staining or unusual fumes/odors are noted during sanitary pit excavation, contact IH (Chris Ahlquist X3737 or 608-8203) or Safety (Doug Hanson X3769 or 608-8008) and Environmental Compliance (Ron Paulick X4080).

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

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

WARNING HAZARD: Personnel entry into excavation/trench 4' or greater in depth. Obtain Excavation permit and follow its requirements per MD-10286, Operations O5, M10, and M11. Operators must be trained to OSHA requirements of 29 CFR 1926, Subpart P. Erect soil barricade and use Personnel Retrieval Equipment, as necessary.

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 in vicinity of heavy-duty equipment, as required. 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

JOB SAFETY AND HEALTH ANALYSIS FORM

JSHA MASTER DOCUMENT CONTROL NO: BOSS – 37- 36961

SIGNATURES

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

DATE: 08/11/03	_X_ NEW ___ 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. Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety			

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

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary
Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily.	N/A	-This project engages in Enhanced Work Planning (EWP), 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. 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. -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. -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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10/08/03

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. -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 Struck by moving equipment Possible asbestos in roofing material Noise Hazard	-Establish construction boundary. -Wear hard hat, safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet; Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Demolish roof by normal remote means only (using Heavy Duty) -Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9
2b. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -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 Operating Heavy Duty equipment on debris slope/ pile/heap	-Control traffic with flagmen as necessary -Exercise caution operation equipment on slope/heap -Coordinate with Safety & check stability of debris slope/heap often. -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 Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5. -Coordinate in-process Rad Surveys with Rad Techs.
2f. Pit soil surveys - Personnel entry into excavation/trench 4' or greater in depth	Trench collapse/entrapment of personnel (asphyxiation, cuts, abrasions)	-Obtain Excavation permit and follow its requirements per MD-10286, Operations O5, M10, and M11. Operators must be trained to OSHA requirements of 29 CFR 1926, Subpart P. Erect soil barricade and use Personnel Retrieval Equipment, as necessary
3. Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary.
3a. Rough grading	Equipment/ personnel mixture.	-Stay clear of operating heavy equipment.
3b. Seeding & Mulching	Slip – Trip – Fall Lifting /twisting strain.	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices.
3c Remove temporary protection structures/barriers from hydrants/PIVs.	Lifting /twisting strain. Cuts and abrasions. Slip trips and falls.	-2 man rule; follow standard practice lifting. -Wear appropriate PPE. -Be cognizant of your own safe work practices as well as those of your co-workers.
3d. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture. Cuts and abrasions. Lifting /twisting strains. Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary. -Coordinate in-process Rad Surveys with Rad Techs.
10. Work from elevated surfaces (manlift, bucket truck, etc.).	Fall hazard	Wear proper PPE, restraints, harness, and other fall protection, as required per MD10286, Op M8. Use workers, properly trained and instructed in the hazards of working from elevated surfaces.

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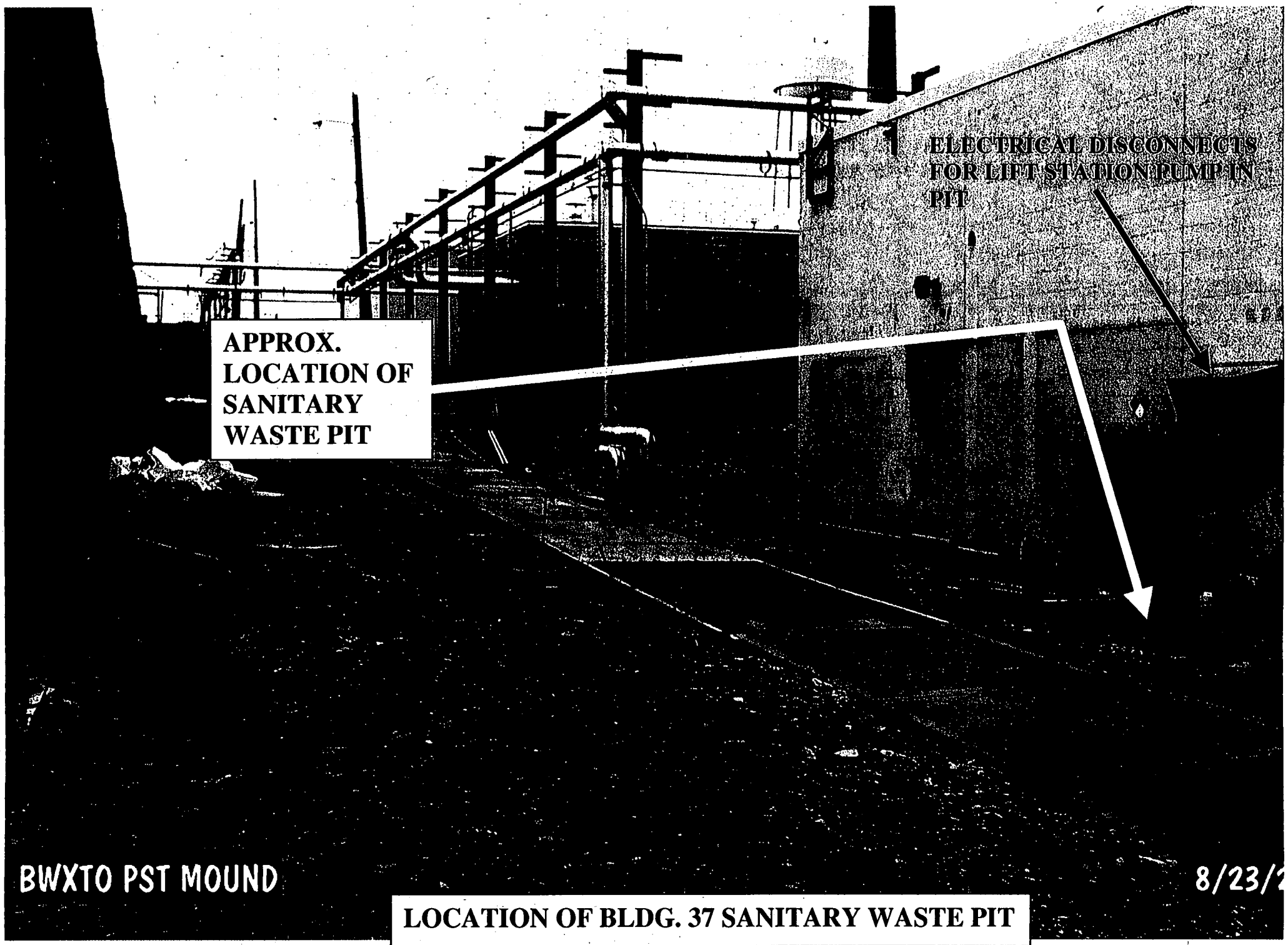
10/08/03



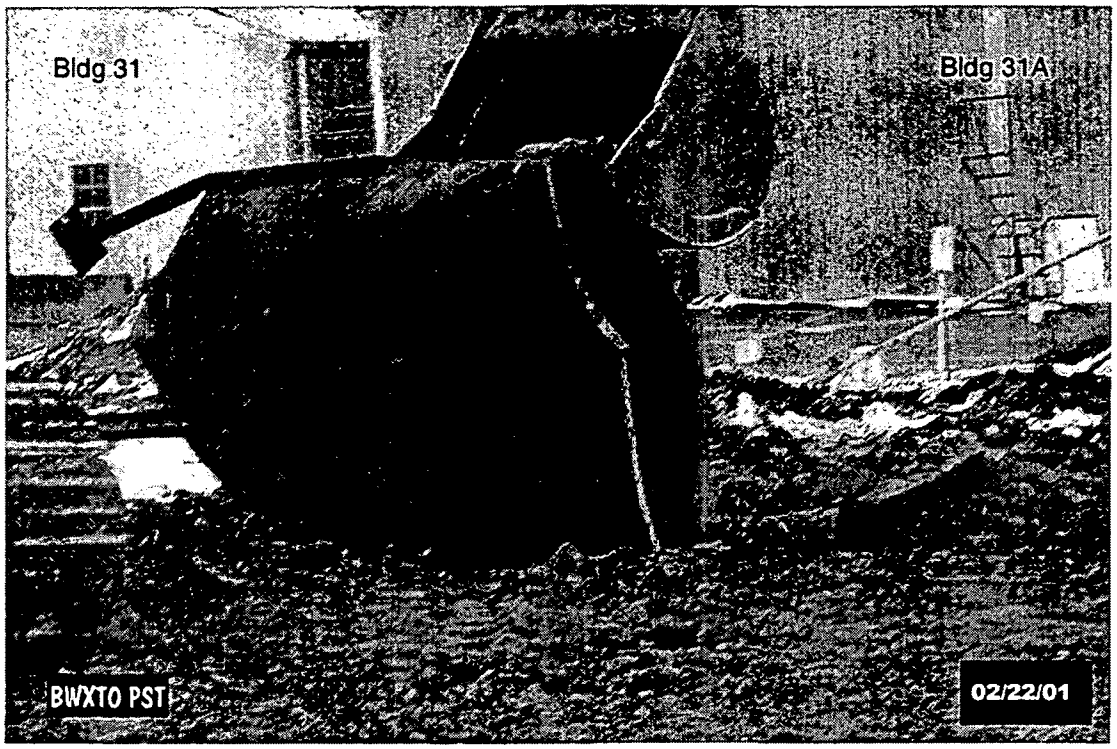
LOCATION OF BLDG. 37 SANITARY WASTE PIT

Appendix P

Tank 267 Information

Removal of Tank 267 (PRS 336)

View facing west



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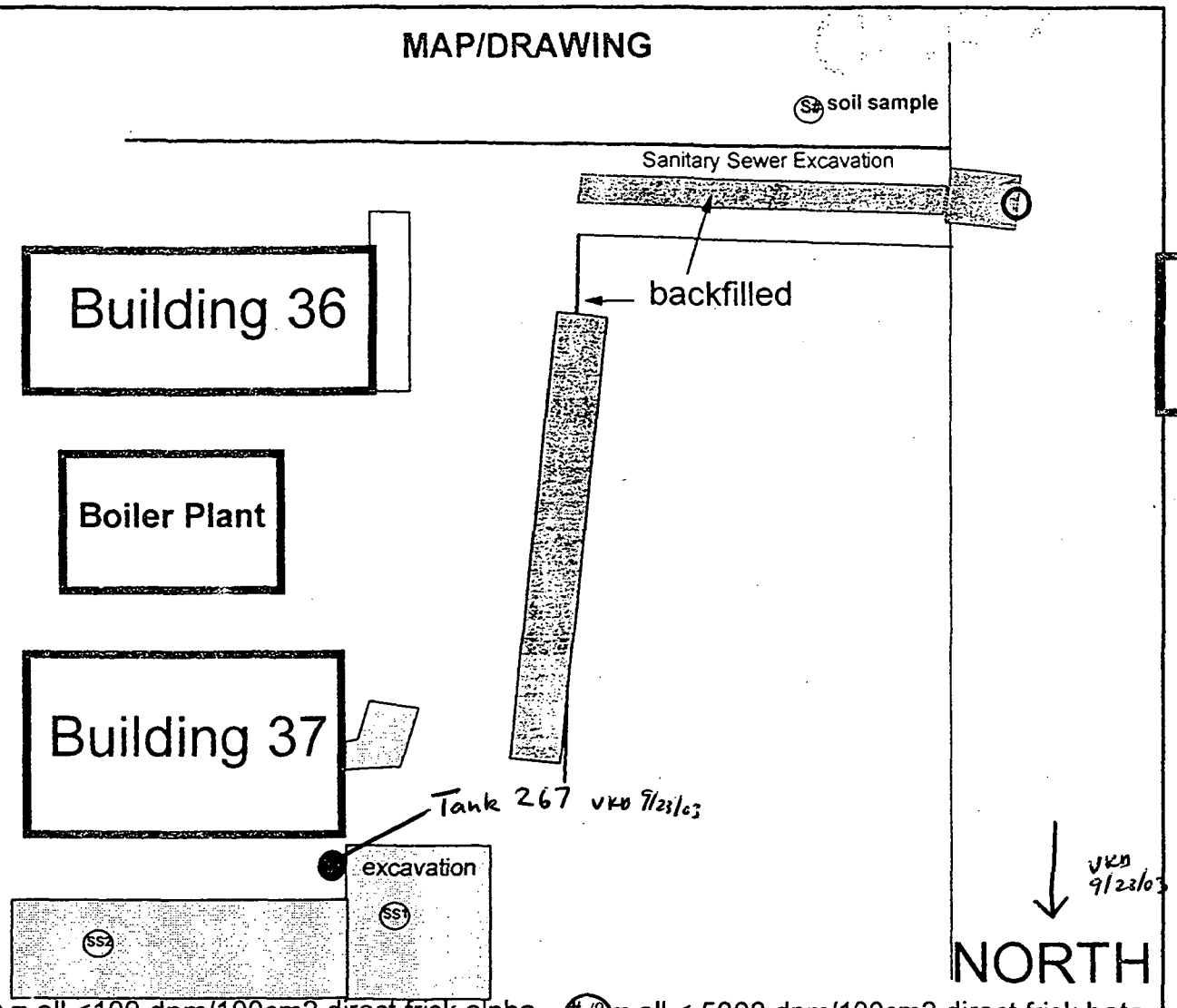
RADIOLOGICAL SURVEY DATA SHEET

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	

Co[redacted]	HP# 5214	Date: 02-21-01
Co[redacted]		
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Print)		
Revie[redacted]	HP# 5706	Date: 03/08/01
Revie[redacted]		

ML-9620 (2/98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
1	See attached data sheet	NA	NA	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

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
36	See attached data sheet	NA	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

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:

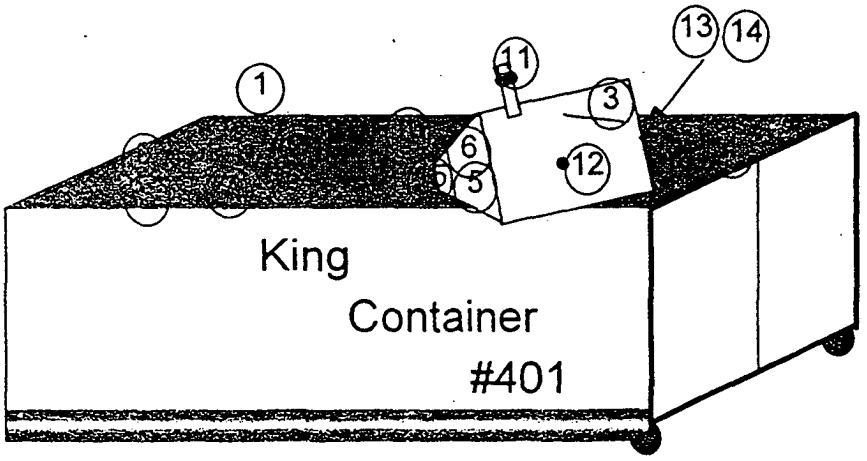
Date: 3/1/01 Counted By: 6024 Analyzed By: 5613 INITIALS [redacted]

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM)	Building ~~36~~ 37 VKO 9/23/03 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	

Com[redacted]	HP# 5214	Date: 02-26-01
Com[redacted]	HP# 5681	Date: 2-26-01
Revi[redacted]	HP# 5706	Date: 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	Comments
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 res 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

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C LOXA 3/12/01 PST 01-026

EXCAVATION/SOIL DISTURBANCE PERMIT

ALL BLANKS MUST BE FILLED PRIOR TO START OF WORK

1) Project: NEW SUPPORT BUILDINGS / PST

2) Location of Work: WEST SIDE OF BUILDING 37 ① LOCATE INVERTS OF S.S. & EF 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 VISTA MAP

	Complete
a) Determine location of underground utilities by reviewing latest revision of utility drawings.	✓
b) Determine location of contaminated areas by reviewing latest revision of contaminated area drawings.	✓
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. WITE WITE	✓
f) Environmental Safeguards & Compliance notified. RON PRULICK	✓
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 BEAZ	✓
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. Eisenbraun	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
NKP TVA	2 13 01	TBS	2-23-01

EMERGENCY 911

ML-7844 (1-01)

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