3001 040602 0015

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

CH2MHILL

SM-077/03
October 7, 2003

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

ATTENTION: Paul Lucas

SUBJECT: Contract No. DE-AC24-03OH20152
BUILDINGS 40 and 99, BUILDING DATA PACKAGE, FINAL
Bldg 40-GFS/I: Planning Documents Approved - Activity ID: EBDEE040AL
Bldg 99-GFS/I: Planning Documents Approved - Activity ID: EBDEE099AL

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Mr. Provencher:

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

- Buildings 40 and 99, Building Data Package, Final

If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact Bob Ransbottom at extension 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
Val Darnell, CH2M Hill, (1) w/attachments
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

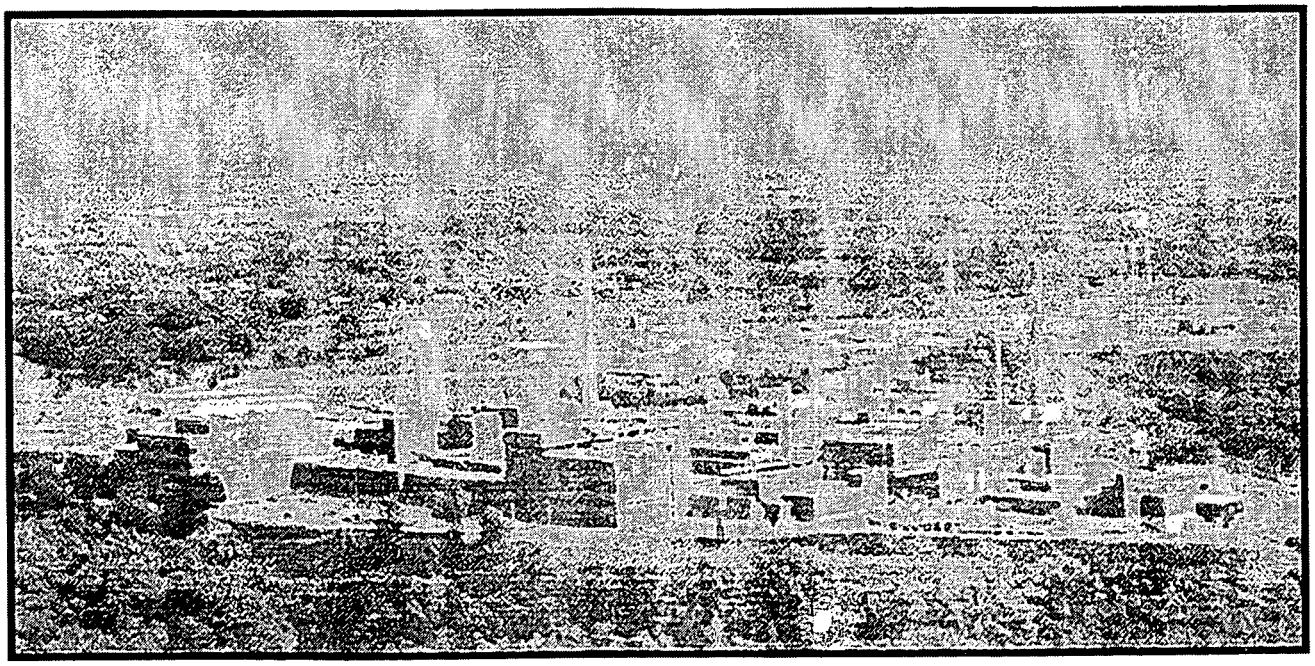
Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Buildings 40 and 99

(Demolition)

Final
October 2003
Volume 1 of 2 (text through Appendix G)



MMCIC Comments

Subject	Building 40 and 99 Data Package
Version	Public Review Draft August 2003

Substantive Comments

1. From our review of the Building 40 and 99 Data Package, Public Review Draft, MMCIC concurs with the planned demolition of the building. In addition, as this area is part of the reuse of the site, MMCIC would appreciate the opportunity to coordinate with DOE and the clean-up contractor any anticipated work activities in this area.

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

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

Errata

1. No Comments.

Daniel D. Bird, FAICP
Planning Manager
MMCIC

September 15, 2003
Date

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BDP Buildings 40 and 99

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**August 2003**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
DRAFT PROPOSED FINAL (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	The public review period was 18 August 2003 through 17 September 2003. The Building 99 FSR was submitted for Core Team review on 16 September 2003.	**August 2003**
FINAL	No comments from US EPA or Ohio EPA were received. Comments from MMCIC were received and are included in this document. No Core Team response was needed. Changes to the document since public review: the Building 99 FSR replaced the Building 99 Survey Plan in Appendix G, and the final Work Plan replaced the draft Work Plan in Appendix O. Due to document size, the final version is published in two volumes: Volume 1 of 2 includes the text through Appendix G, and Volume 2 of 2 includes Appendix H through Appendix Q.	**October 2003**

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MIAMISBURG CLOSURE PROJECT

BUILDING DATA PACKAGE

The following document is available (August 18, 2003) for public information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

BDP Buildings 40 and 99: Printing Services Facility and Security Operations Facility

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

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

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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 40 (Printing Services Facility) and Building 99 (Security Operations Facility) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and buildings.

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 40 and Building 99 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 Buildings 40 and 99, the soil beneath, a 15-foot wide perimeter border around Building 40 and a 30-foot wide perimeter border around Building 99. (A 30-foot perimeter border was evaluated around Building 99 instead of the standard 15-foot perimeter border because of the limited number of soil sampling results available.) The investigation of Buildings 40 and 99 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 BUILDINGS 40 AND 99 OVERVIEW

Building 99 is located north of and attached to Building 40. The two-building complex is situated in the north central portion of the site (Figure 1).

Building 40

Originally built in 1968, Building 40 was a single-story 2,560 square-foot structure. In the mid-1980s a three-story addition was built on its southern side bringing the total building size to 12,227 square feet.

The original building was constructed on footers that extend approximately 2'-8" below the base of the 6-inch floor slab; the addition was constructed on footers that are typically 3'-6" below the 6-inch floor slab. The first floor slabs were poured on a sub-base of 5 inches of gravel fill. The exterior walls are reinforced block with brick veneer. The roof structure is a steel bar joist type with a built-up membrane.

Building 99

Built in 1987, Building 99 is a four-story, 11,412 square-foot, reinforced concrete building with a built-up membrane roof. The first floor of the building is supported by a 5-inch thick reinforced concrete slab poured on a 4-inch thick (minimum) granular fill sub-base. The slab is thicker under load-bearing walls. The building is supported by concrete footers. The base of the exterior concrete walls includes a 6-inch perimeter slab that supports the brick veneer that covers the exterior of the building.

Utilities

Building 40 and Building 99 are serviced by sanitary service lines and stormwater drains. The buildings are also serviced by a potable water line, a fire sprinkler water system, service water, central steam for heating, and central chilled water for cooling. Electrical service to the buildings is 480 volts.

2.1 Past Uses of Buildings 40 and 99

Building 40

Building 40 was constructed and used as a printing services facility. The original building contained printing presses, bindry equipment, print wash equipment, graphics arts processing equipment, cameras, collators, drills, presses, cabinets, worktables, a dark room, and a vault for classified documents. The first floor of the Building 40 addition also contained printing and microfilming equipment, as well as office space. The second floor of the Building 40 addition housed the technical manuals and publication functions, and the third floor housed utility equipment. In the late 1990s, the rooms on the southern end of the first floor addition were used by the Training Department to train site radiological workers. While located in this area, the trainers erected mock radiological controlled and contamination areas that were used to train and to test Radiological Worker II students. These areas were for training purposes only, and were not involved in actual radiological operations. No research, development, or production activities using radioactive or energetic materials have occurred in the building.

Also by the late 1990s, the second floor offices had been vacated and had undergone Safe Shutdown. In 1999 the building was designated for transfer to the Miamisburg Mound Community Improvement Corporation (MMCIC). On 30 July 1999, the Core Team binned Building 40 No Further Assessment (NFA), however, the building was not transferred to MMCIC. The binning recommendation sheet is provided in Appendix P. In 2002, the print shop was relocated to another building and the former print shop area was subject to Safe Shutdown activities, cleaned out, and later used to stage excess properties that were offered for sale under auction. In late 2002, the new site contractor transition team moved into the first floor of Building 40, in the area formerly occupied by the print shop, and used this area as temporary office areas as they prepared to assume site operations.

Building 99

Building 99 was constructed and used as a security operations facility. The first and second floors are administrative areas for security personnel. The first floor also contains a locksmith shop. The third floor contains the site's Emergency Operations Center (EOC) and Security Communications Center. The fourth floor is a penthouse used for utility and mechanical equipment. The building has been used for the same purposes since construction. No research, development, or production activities using radioactive or energetic materials have occurred in the building.

2.2 Current Uses of Buildings 40 and 99

Buildings 40 and 99 are currently inactive. The equipment and furnishings are in the process of being removed. All required equipment will be removed from the buildings, and any remaining equipment will be left in place and demolished/disposed of with the buildings.

2.3 Summary of Environmental Concerns and Findings – Buildings 40 and 99

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data could be found for Buildings 40 and 99. Observed paint coatings were largely intact. Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the buildings. (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 Buildings 40 and 99.	All chemicals will be removed prior to demolition, and dispositioned by Waste Management.
Fluorescent Lamps and PCBs	Fluorescent lamps were used in the buildings. Ballasts may contain polychlorinated biphenyls (PCBs).	Ballasts that may contain PCBs will be removed prior to demolition, and disposed of by Waste Management.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Air Emissions	Four processes in Building 40 were considered to be air emission sources: 1) hot glue binder (Room 1), 2) film developer (Room 2), 3) microfilming (Room 6), and 4) solvent cleaning (Room 100). There were no sources of air emissions in Building 99.	All processes resulting in air emissions have been discontinued and removed. The former processes will not have a detrimental affect on the demolition of the buildings or disposal of the debris. No further action is required.
Asbestos	An asbestos inspection (copy provided in Appendix I) of Buildings 40 and 99 was conducted in late June 2003.	In Buildings 40 and 99, fire doors are assumed to contain asbestos. Also in Room 106 of Building 99, a nonfriable tabletop contains asbestos. These items will be removed, packaged, and properly labeled for disposal by asbestos worker trained personnel prior to demolition.
Drains and Sumps	Process drains in Building 40 were sampled and the analytical and quality control report is provided in Appendix Q. Appendix F (page 48) shows an abandoned sanitary line under Building 40. This line was decommissioned prior to the construction of Building 40. Therefore, no Building 40 drains were ever connected to that line. There are no sumps in or around Buildings 40 and 99.	Metals, cyanide, and semivolatile organic compounds were present in the process drains in Building 40. All analytical results are below soil screening levels (the Core Team approved, or the most restrictive of either the 10^{-6} Risk-Based Guideline Values [RBGVs] plus background or Hazard Index = 1) except one sample result for antimony (result 159 mg/kg; HI=1 85 mg/kg). This result poses no threat to worker safety during building demolition, and does not impact debris disposal. No further action required.
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	No research, development, or production activities using radiological materials occurred in Buildings 40 and 99. Radiological surveys for Buildings 40 and 99 are complete; the Final Status Reports are provided in Appendix G.	Survey results for Buildings 40 and 99 indicate that the buildings meets surface release criteria. No further action required.
Septic System	N/A	N/A
Wastewater	Handled by site wastewater facility.	N/A
Stains and Corrosion/HVAC	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Storage Tanks	Three underground gasoline storage tanks (associated with the nearby G Building) were previously located in the vicinity of Building 99 prior to its construction. All three tanks (Tank 202, PRS 107; Tank 203, PRS 108; and Tank 204, PRS 109) were near the northeast corner of the Building 99 footprint. The tanks were removed prior to the construction of Building 99.	PRSs 107, 108, and 109 (G Building Gasoline Tanks) were binned No Further Assessment (Table 4) in 1997. No further action required.
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	Within acceptable limits for Building 40 (Appendix H). Building 99 was not included in the 1990 radon study. Radon results for all onsite buildings tested were below the USEPA recommended standard of 4.0 pCi/L. Since Building 99 is connected to Building 40, it could be inferred that Building 99 would most likely have comparable radon levels.	Even if radon levels exceeded the USEPA recommended standard, it would not present a hazard to human health or the environment during demolition activities. 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 Buildings 40 and 99.	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 15 feet of the Building 40 perimeter, a graphic showing all soil sample locations within 30 feet of the Building 99 perimeter, and provides tables for all detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits) in those areas. A 30-foot perimeter was reviewed for Building 99 due to the limited number of samples within the standard 15-foot perimeter.	All results are below applicable screening levels (the Core Team approved, or the most restrictive of either the 10^{-6} Risk-Based Guideline Values [RBGVs] plus background or Hazard Index = 1).
	PRS 106 (G Building Soils) addresses possible contamination in the Garage area soils.	The Environmental Restoration (ER) group will collect soil samples of the Garage area soils (PRS 106) after the G Building slab is removed. Analytical data will be presented to the Core Team for binning.

N/A: Not applicable

2.4 Radiological Summary for Buildings 40 and 99

Building 40

A radiological assessment of Building 40 was performed by reviewing historic and operational records and performing radiological surveys. Building 40 was constructed in 1968 and named the "Printing Services Facility." The first floor contained printing and microfilming equipment, a small storage area, and a vault for classified documents. The second floor was primarily office space.

More recently the Training Department was located in Building 40 and other areas were used to stage excess properties offered for sale by auction. Office space was used briefly by the CH2MHill transition team in the latter part of 2002 and beginning of 2003.

Building 40 has been used as a support facility since construction and no research, development, or production activities using radioactive or energetic materials have occurred in the building.

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 surface release criteria. Samples taken in floor drains and ventilation units found no activity above screening levels.

The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5 and no further radiological surveys are required. 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 2: Radiological Summary of Building 40

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 2)
Highest Alpha Smearable Activity	03-TF-0086	Roof	6.56	20
Highest Alpha Fixed Activity	03-TF-0086	Exterior Wall	77	100
Highest Beta Smearable Activity	03-TF-0086	Interior Wall	9.44	1,000
Highest Beta Fixed Activity	03-TF-0086	Exterior Wall	1,855	5,000
Highest Tritium Smearable Activity	03-TF-0086	Interior Wall	24.19	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: Guidelines per DOE Order 5400.5, Radiation Protection of the Public and the Environment.

Building 99

A radiological assessment of Building 99 was performed by reviewing historic and operational records and performing radiological surveys in accordance with MARSSIM Survey Plan Form 99-01. Building 99 was constructed in 1989 and is centrally located on the "Main Hill", connected to the northern side of Building 40. Named the Security Operations Facility, Building 99 is a three-story building with a total area of 11,412 ft^2.

Building 99 through its 15-plus year history has been used to support security operations, including providing administrative areas for security staff, as well as providing a location for the Security Communications Center, a lock smiths shop, Mound's Emergency Operations Center (EOC), and other site control related activities.

Building 99 has been used for the same purpose since construction and no research, development, or production activities using radioactive or energetic materials have occurred in the building.

The review team has concluded that the building meets the radiological surface release criteria established by DOE Order 5400.5 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 3: Radiological Summary of Building 99

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 2)
Highest Alpha Smearable Activity	03-TF-0192	Floor	4.37	20
Highest Alpha Fixed Activity	03-TF-0193	Floor	88	100
Highest Beta Smearable Activity	03-TF-0182	Exterior Wall	8.22	1,000
Highest Beta Fixed Activity	03-TF-0182	Exterior Wall	3447	5,000
Highest Tritium Smearable Activity	03-TF-0193	Floor	35.3	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

Buildings 40 and 99 are located at the DOE MCP Site, formerly known as Mound Plant. The MCP Site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

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

To the west lies a railroad line and the north south trending Miami-Erie Canal. The northern boundaries of the site abut the residential area of Miamisburg, Ohio. Mound Road marks

the northern half of the eastern perimeter of the facility then veers east, away from the southern half of the eastern boundary. A public golf course (belonging to the City of Miamisburg), the Miamisburg Mound Memorial Park, old agricultural fields, residential lots, and vacant wooded lots border the facility along Mound Road. Benner Road formed the southern property line of the Mound Plant (at the 300-acre stage), with agricultural fields and farms occupying the lands beyond.

3.2 Description of Structures, Roads, Other Improvements in Proximity to Buildings 40 and 99

Building 99 is north of and adjacent to Building 40. The two-building complex is bordered to the north by a concrete sidewalk, a roadway, and OSE and A Buildings; to the east by a narrow grassy strip, a concrete sidewalk, a paved parking area, and G Building; to the south by a concrete sidewalk, stanchions, a roadway, and a paved parking lot; and to the west by a concrete sidewalk and a gravel area (known as C-lot) occupied by sea/land cargo containers and office trailers.

3.3 Current and Past Uses of Buildings in Proximity to Buildings 40 and 99

OSE Building, north of and across the street from Building 99, is a four-story, 90,072 square-foot structure used to provide engineering offices, DOE offices, photographic services, an auditorium, and computer facilities. OSE Building is currently undergoing preparations to be transitioned to MMCIC.

A Building, northwest of and across the street from Building 99, is a two-story, 55,582 square-foot structure used to provide office space for the site operating contractor and the Atomic Energy Commission (AEC), the predecessor organization to the DOE, the medical facility, records management, and the photography department. Specialized support functions occupying A Building included an area for processing pocket meters and film badges for radiation exposures, a whole body monitoring facility, and a personnel decontamination facility. A Building is currently undergoing preparations for demolition.

G Building, east of Buildings 40 and 99, is a single-story structure that encompasses 7,513 square-feet of floor space and contains facilities for servicing and repairing motor vehicles. G Building is undergoing safe shutdown activities and it is anticipated that it will have been demolished by the time Buildings 40 and 99 are to be demolished.

Previously there were two other buildings in the vicinity of Buildings 40 and 99, but they have been demolished. C Building, demolished in April 1998, was a 13,403 square-foot, one-story building with a basement located west of Buildings 40 and 99. Originally built as a cafeteria, C Building was also used for offices, record storage, engineering project storage, maintenance storage, and as an Emergency Shelter. M Building, demolished in November 1999, was a two-story, 56,000 square-foot facility located south/southwest of Buildings 40 and 99. M Building served as a machine shop and housed electroplating operations.

The current and previous buildings are believed to have had no environmental impact on Buildings 40 and 99.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), the site has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B Permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that no reportable chemicals are stored in Buildings 40 and 99 (Appendix K).

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

The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." 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 number 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 a release 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 Buildings 40 and 99 (Section 4.2.3) are listed in Table 4 along with their binning status and their locations are shown on Figure 2. The three unbinned PRSs are associated with either A Building or G Building and will be addressed in the BDPs for those buildings. The four other PRSs (none of which were associated with Building 40 or 99) have been determined by the Core Team to require No Further Assessment (NFA). For a PRS to be binned NFA, the Core Team has reviewed the PRS data and agrees that all existing environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with Buildings 40 or 99 have been identified.

4.2 Specific Record Sources for Buildings 40 and 99

4.2.1 Occurrence Reports

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

Building 40

- None

Building 99

- Smoke detector alarm, false alarm (2)

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, seven are at or near Buildings 40 and 99, as identified in Table 4 and shown on Figure 2. Additional information is included in Appendix N.

Table 4: PRSs in Proximity to Buildings 40 and 99

PRS	CERCLA or Bldg. Related	Binning Status	Comments
106*	CERCLA	unbinned	G Building Soils (AKA Garage Area)
107	CERCLA	No Further Assessment (NFA)	G Building Gasoline Tank (Tank 202)
108	CERCLA	NFA	G Building Gasoline Tank (Tank 203)
109	CERCLA	NFA	G Building Gasoline Tank (Tank 204)
211	Building	unbinned	A Building Decontamination Shower Water Tank (Tank 28). Will be addressed with A Building BDP.
212	Building	unbinned	A Building Decontamination Shower Water Tank (Tank 29). Will be addressed with A Building BDP.
332	CERCLA	NFA	G Building Waste Oil Tank (Tank 262)

** PRS 106 will be handled as part of the G-GW-W Building BDP.*

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 of Building 40), 1968 (following construction of Building 40), 1983 (prior to construction of Building 99), 1994 (following construction of Building 40 addition and Building 99), and 1996 (most recent aerial photo of Buildings 40 and 99) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

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

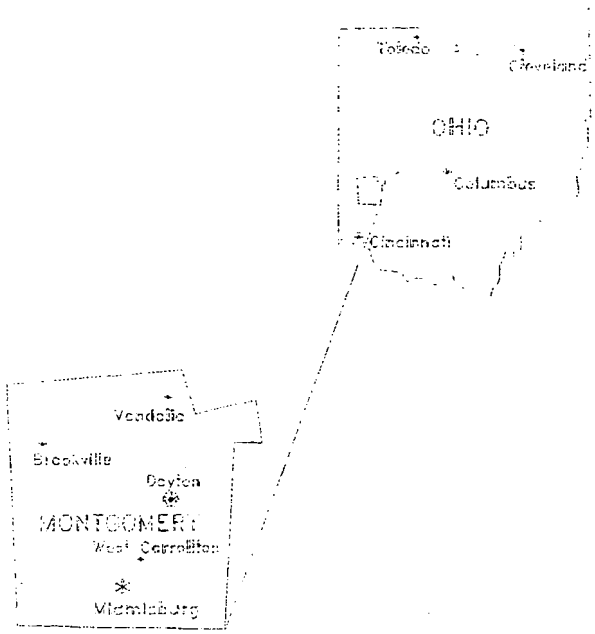
Appendix A

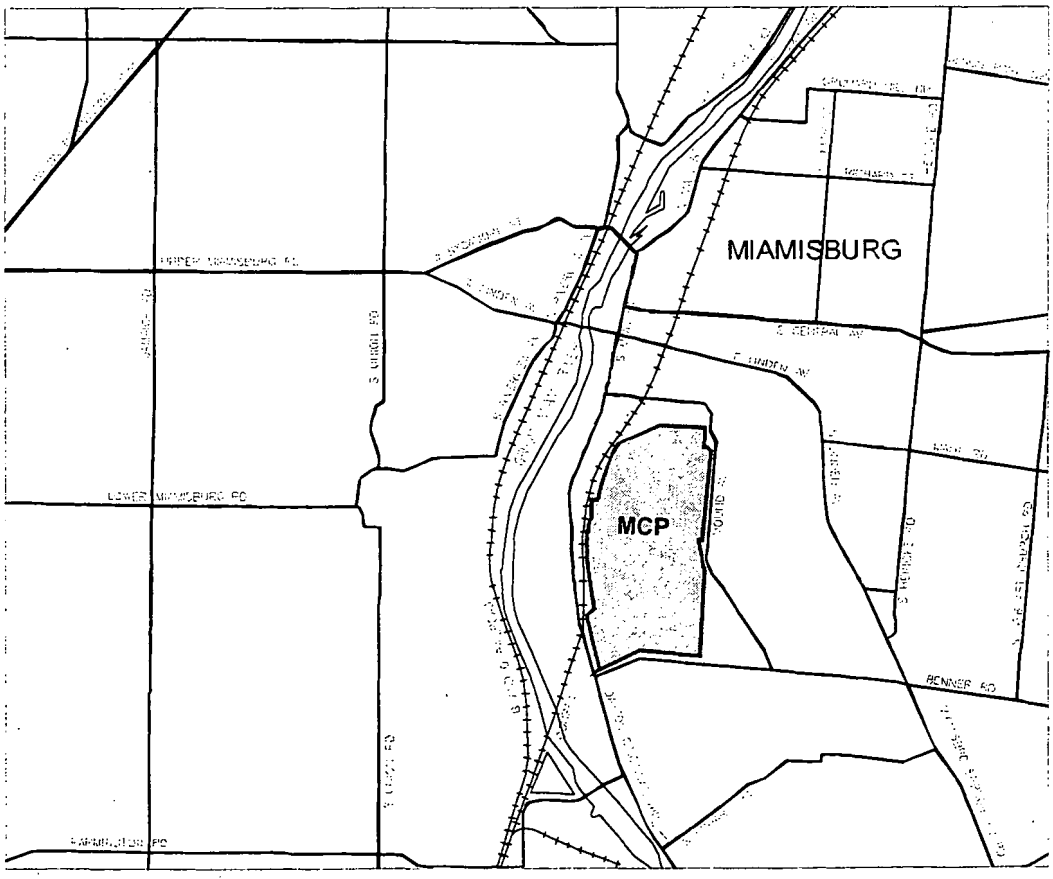
General Listing of Acronyms

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

Appendix B

Map of Montgomery County


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


MIAMISBURG
MCP
BENNER RD

Appendix C

Figures

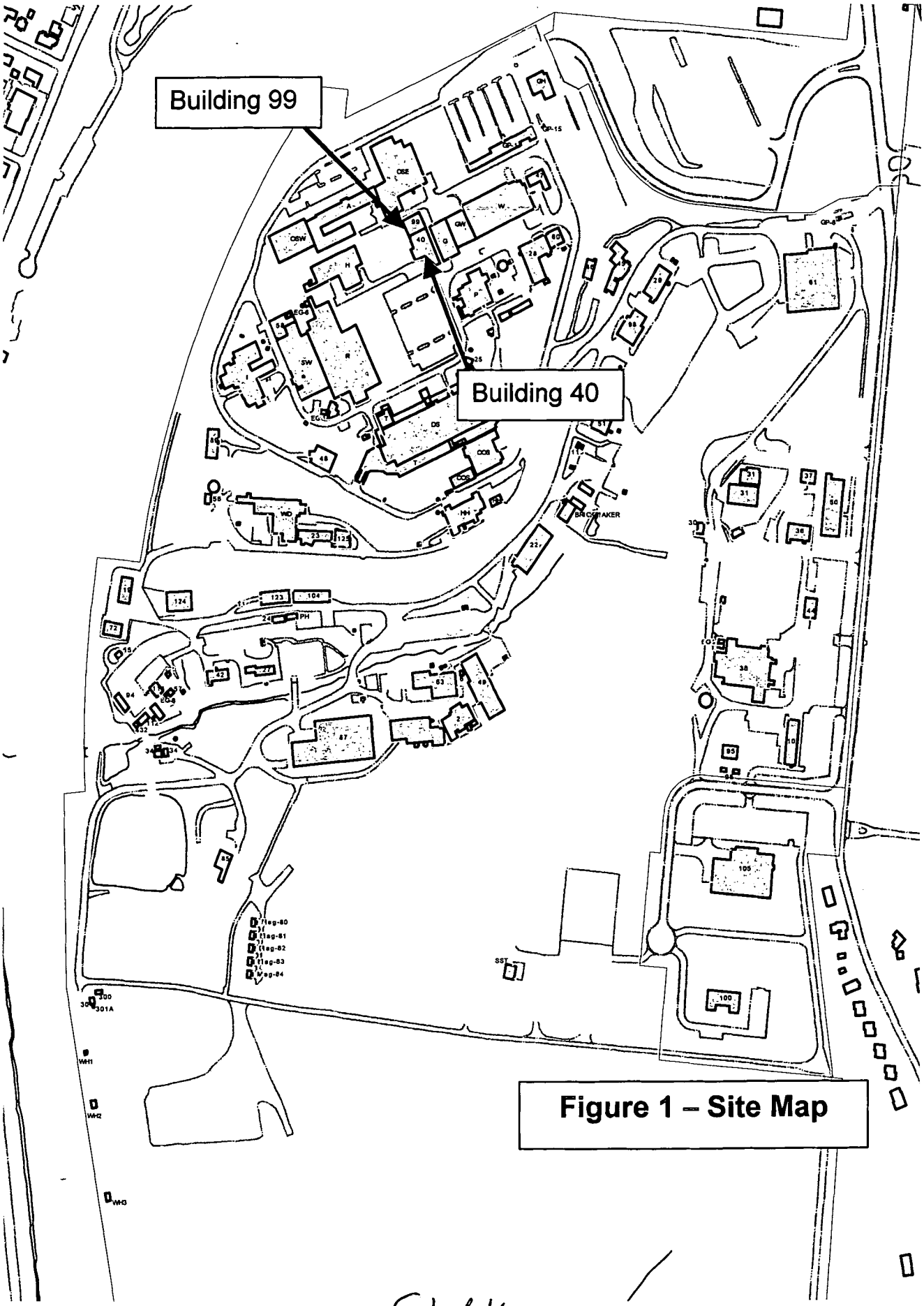


Figure 1 – Site Map

C1of4

Legend

- Structures
- PRS Point
- PRS Area
- PRS Line

C2064

DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	•					

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

Figure 2
Building 40 & 99 and Vicinity

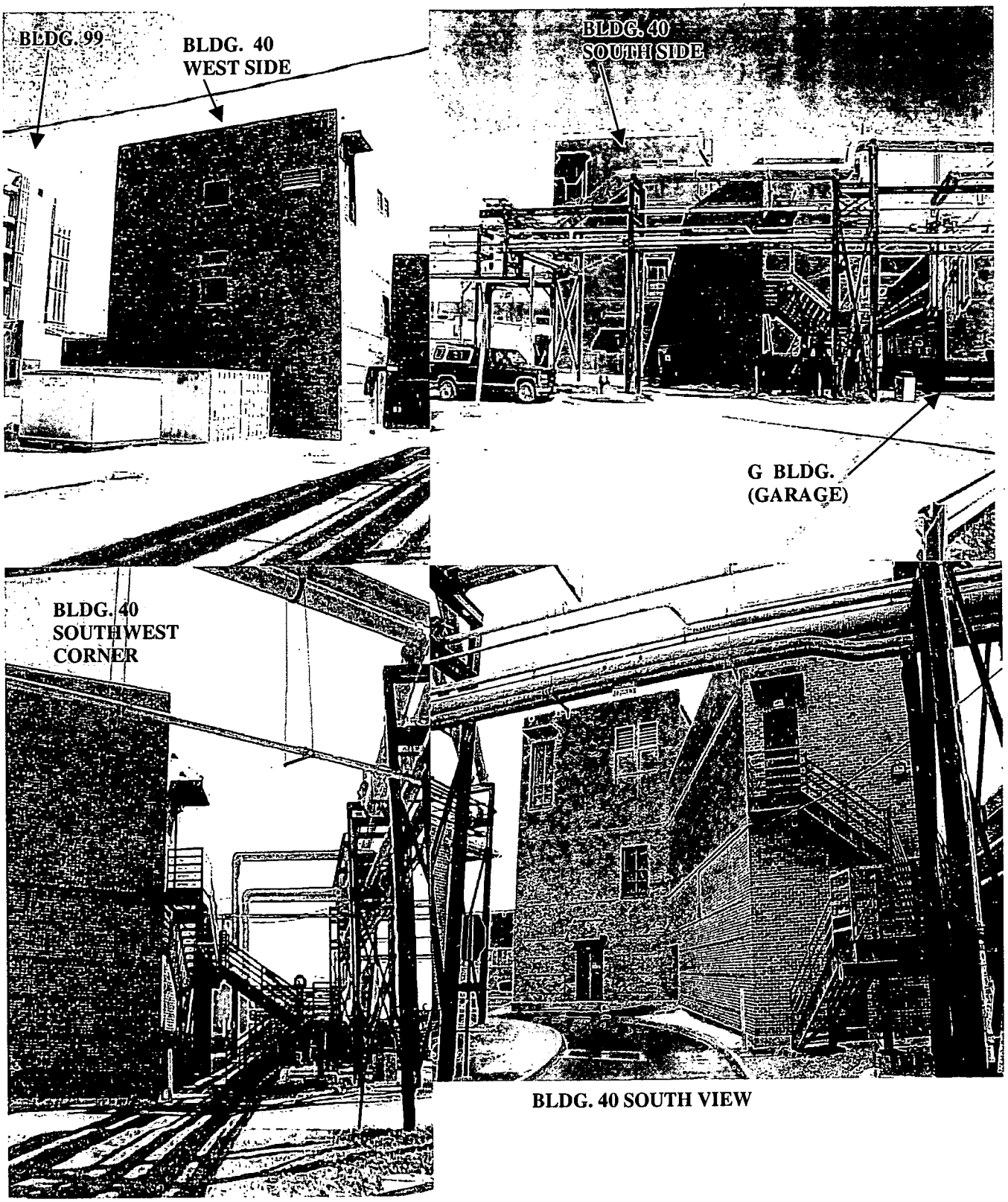
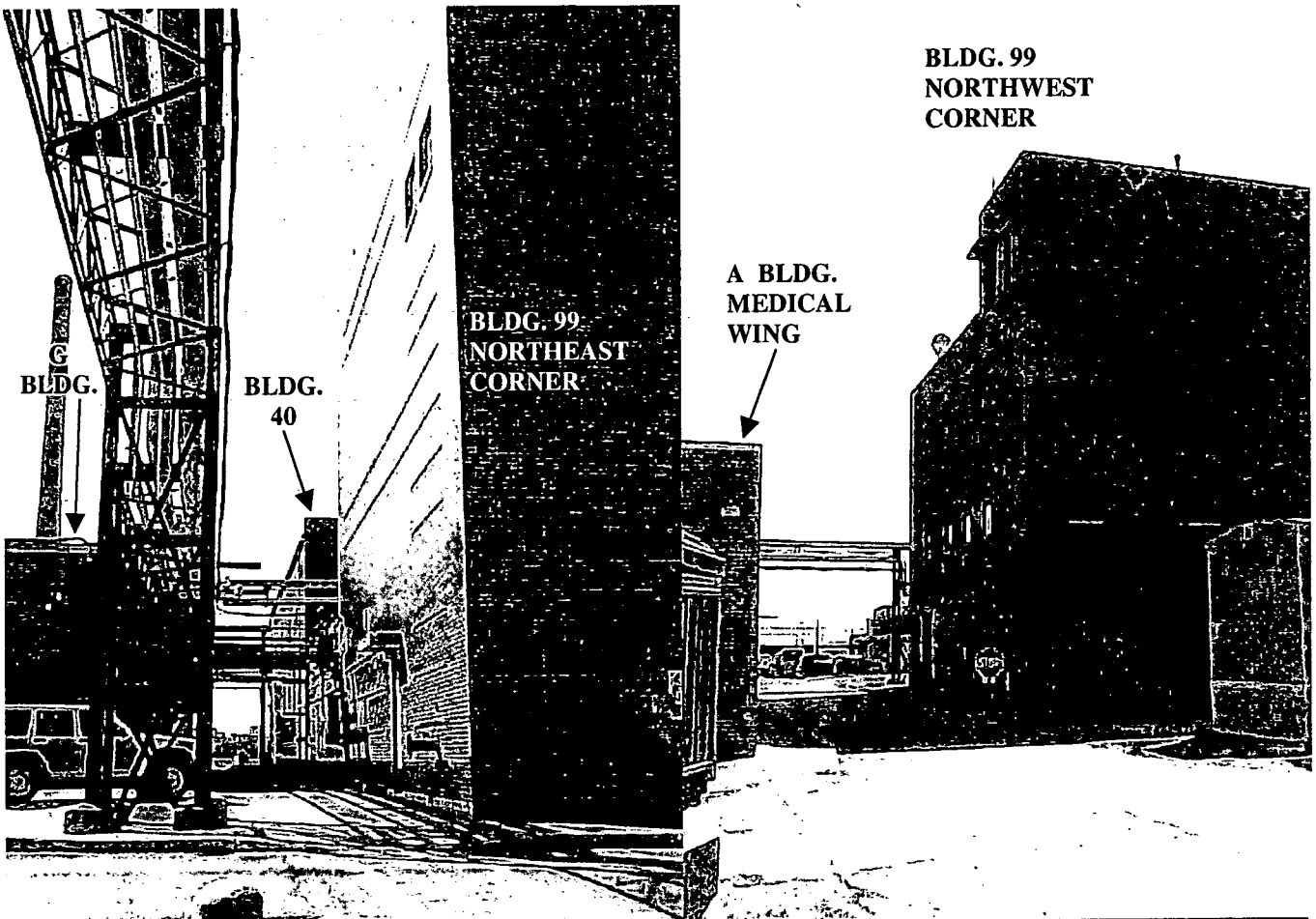


FIGURE 3 – BLDG. 40

C3064



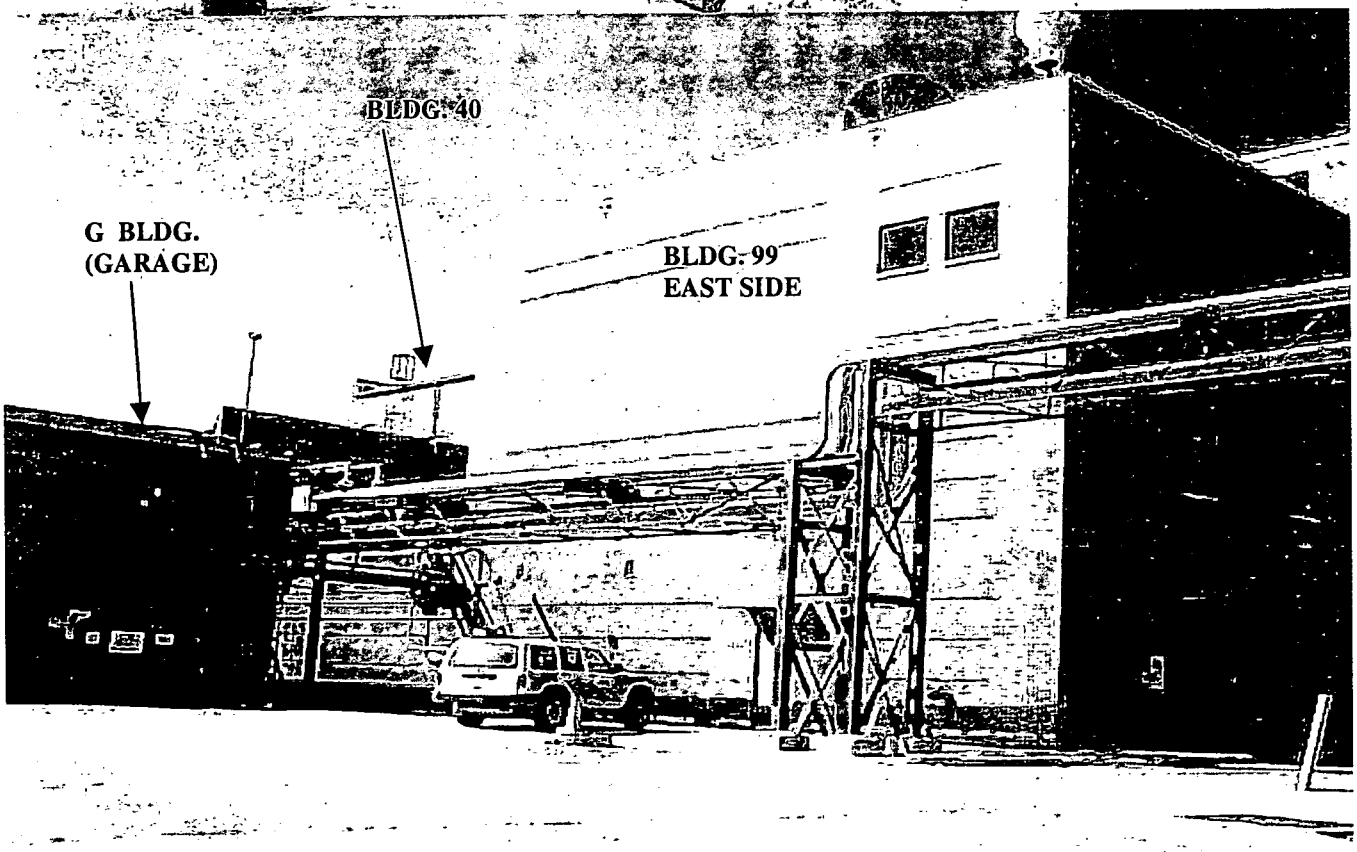


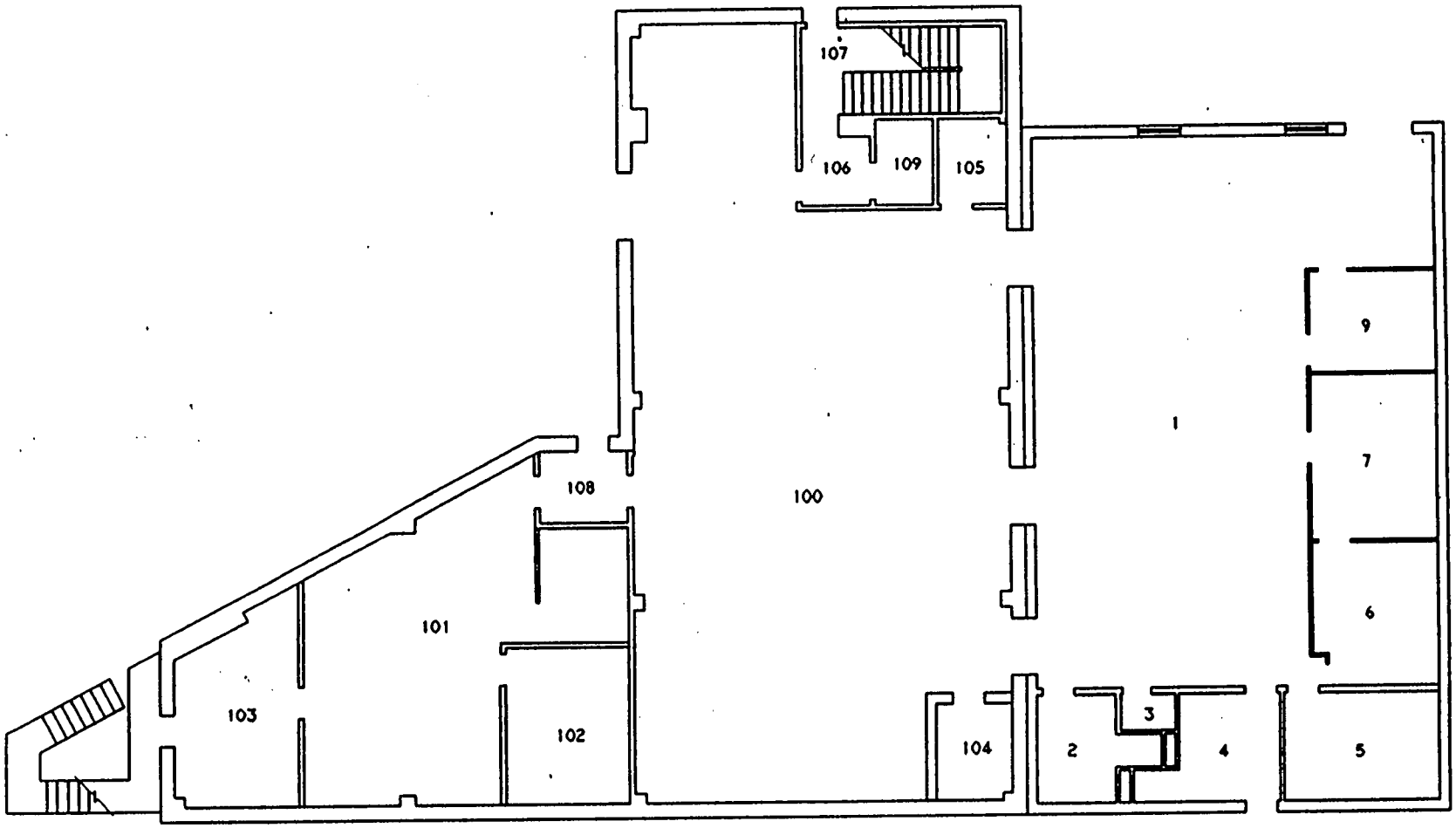
FIGURE 3 – BLDG. 99

C4084

Appendix D

Floor Plans

ISS	DATE	REVISION	BY	CHKD	DWN	UPKD	APVD	N
0	12/12/91	ASBUILT ISSUE	DCW				DVD	



0 3' 6' 10' 20'

N

BLDG #40
FIRST FLOOR
BLDG CODE:3040

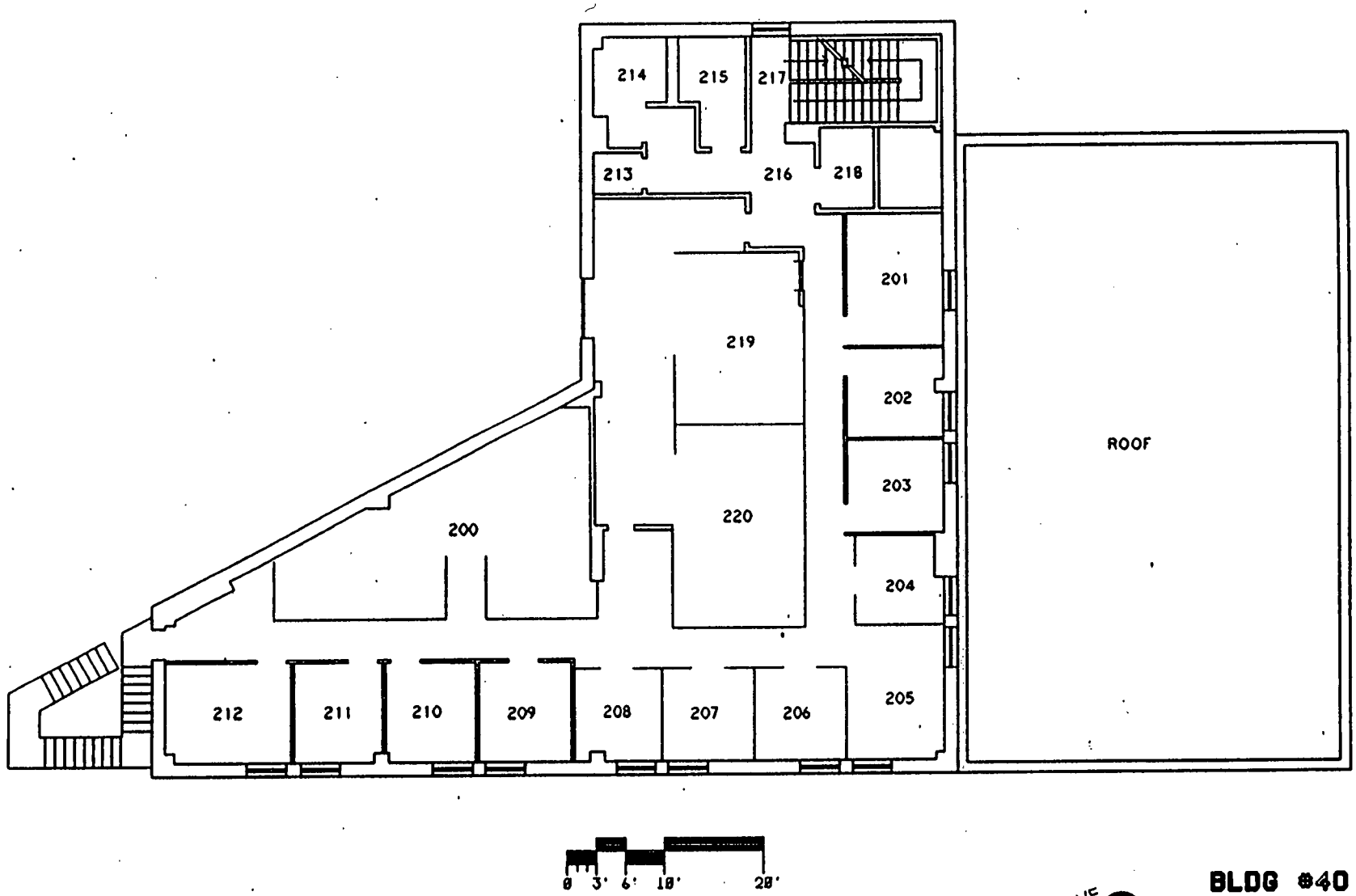
UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification
Office. Reviewer Initials CMM

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED: ___NONE ___TRUEDOC ___TEDOC ___DVDOC
TECH. REP. ___
GR. MGR. ___
TRUEDOC ___
TEDOC ___
DVDOC ___

DESIGN CHK | PROJ MGR
SPONS | CHG MGR
CP & SC | PROJ REV
CHG MGR
APVD | DATE

SHEET	1	2	3	4	5	6	TITLE (U) TITLE CLASSIFICATION
ISSUE	0	0	0				BLDG #40 FLOOR PLANS
FIELD CLASSIFICATION							
DRAWING CLASSIFICATION: UNCLASSIFIED							SIZE C · DRAWING NUMBER FSC911251 · JOB NUMBER 12335
CHG TYPE SFP · FROM BLDG #40 · CODE 14065 · SCALE AS NOTED · SHEET 1 OF 3							
STATUS MO-REL.-12/12/91 · SYSTEM MO-BRS-V3.0							

D 1 of 8

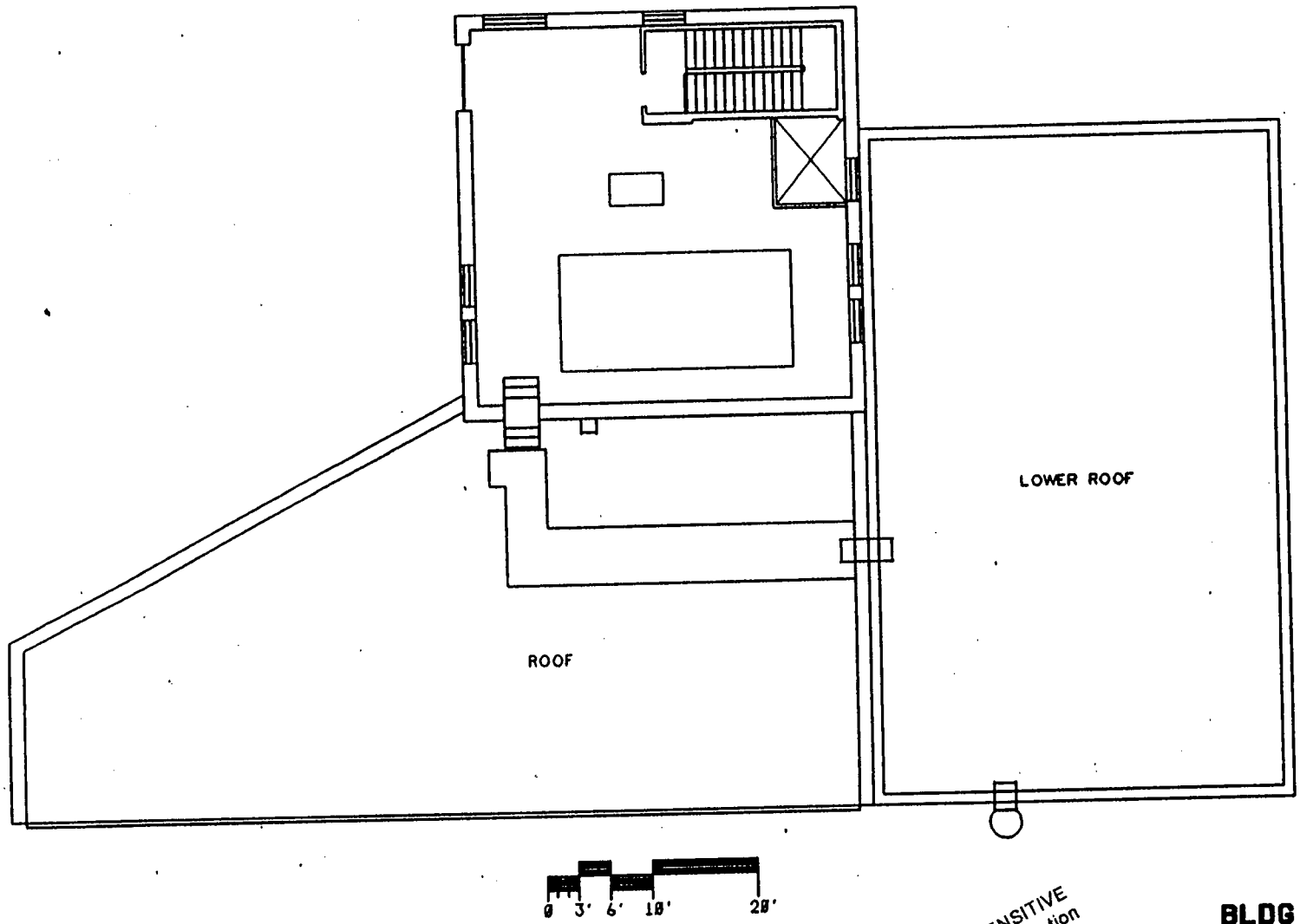


UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: JDM

BLDG #40
SECOND FLOOR
BLDG CODE:3040

DRAWING NUMBER FSC911251	JOB NUMBER 12335
DRAWING CLASSIFICATION UNCLASSIFIED	
SIZE C	CODE 14865 / SCALE AS NOTED
	SHEET 2
CLEARED MD-REL-12/12/91	

D 2 of 8



UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification
Office. Reviewer Initials: RDM

BLDG #40
PENTHOUSE
BLDG CODE:3040

DRAWING NUMBER FSC911251	JOB NUMBER 12335
DRAWING CLASSIFICATION UNCLASSIFIED	
SIZE C	CODE 14865 / SCALE AS NOTED
	ZONE 0 / SHEET 3
DRAWN MD-REL-12/12/91	

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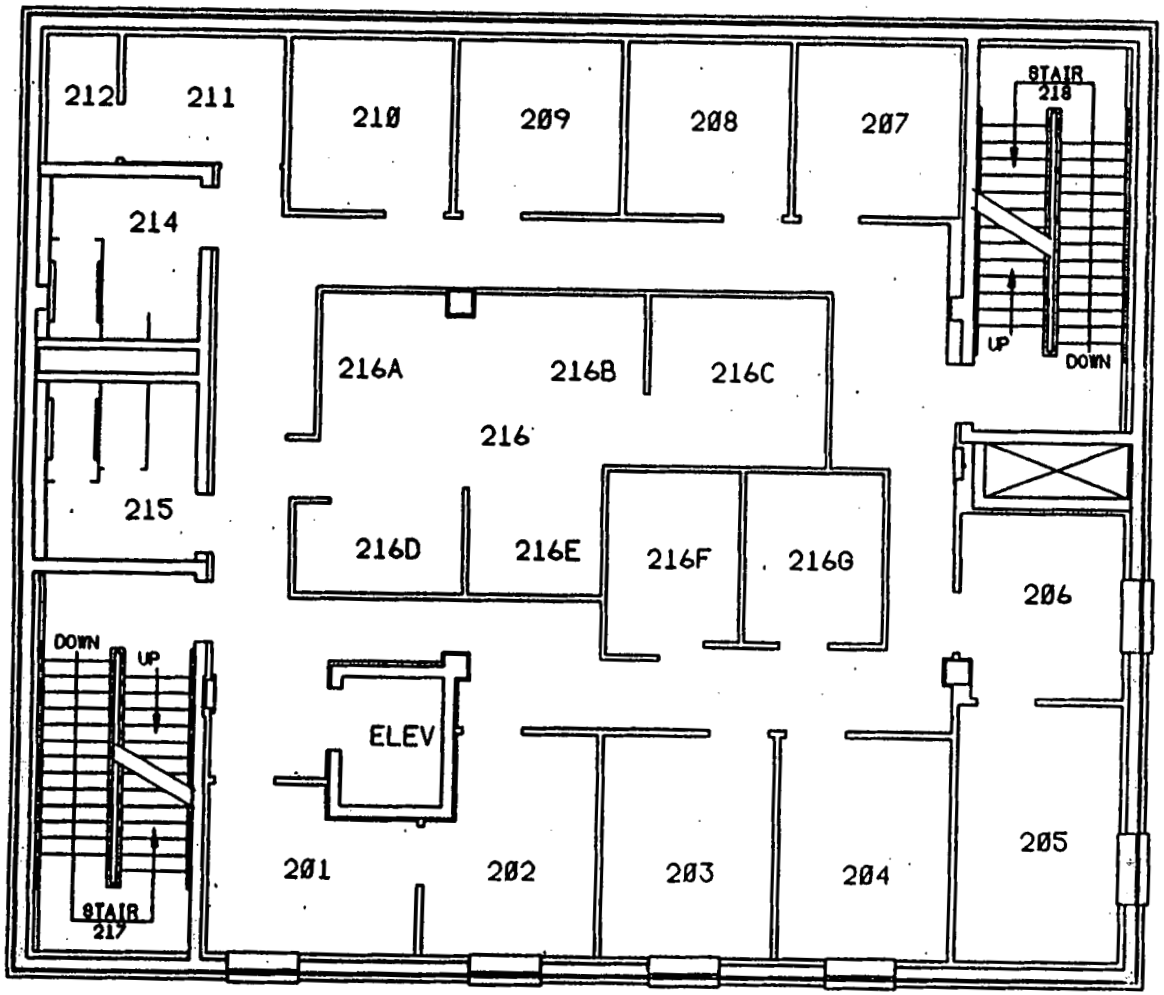
SHEET 1 OF FSC911290

(BUILDING 99 FIRST FLOOR)

IS NOT AVAILABLE FOR PUBLIC DISSEMINATION

D 568



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

0 3' 6' 10' 20'

UNCLASSIFIED

BLDG #99
SECOND FLOOR
BLDG CODE:3099

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 FSC911290	JOB NUMBER 12335
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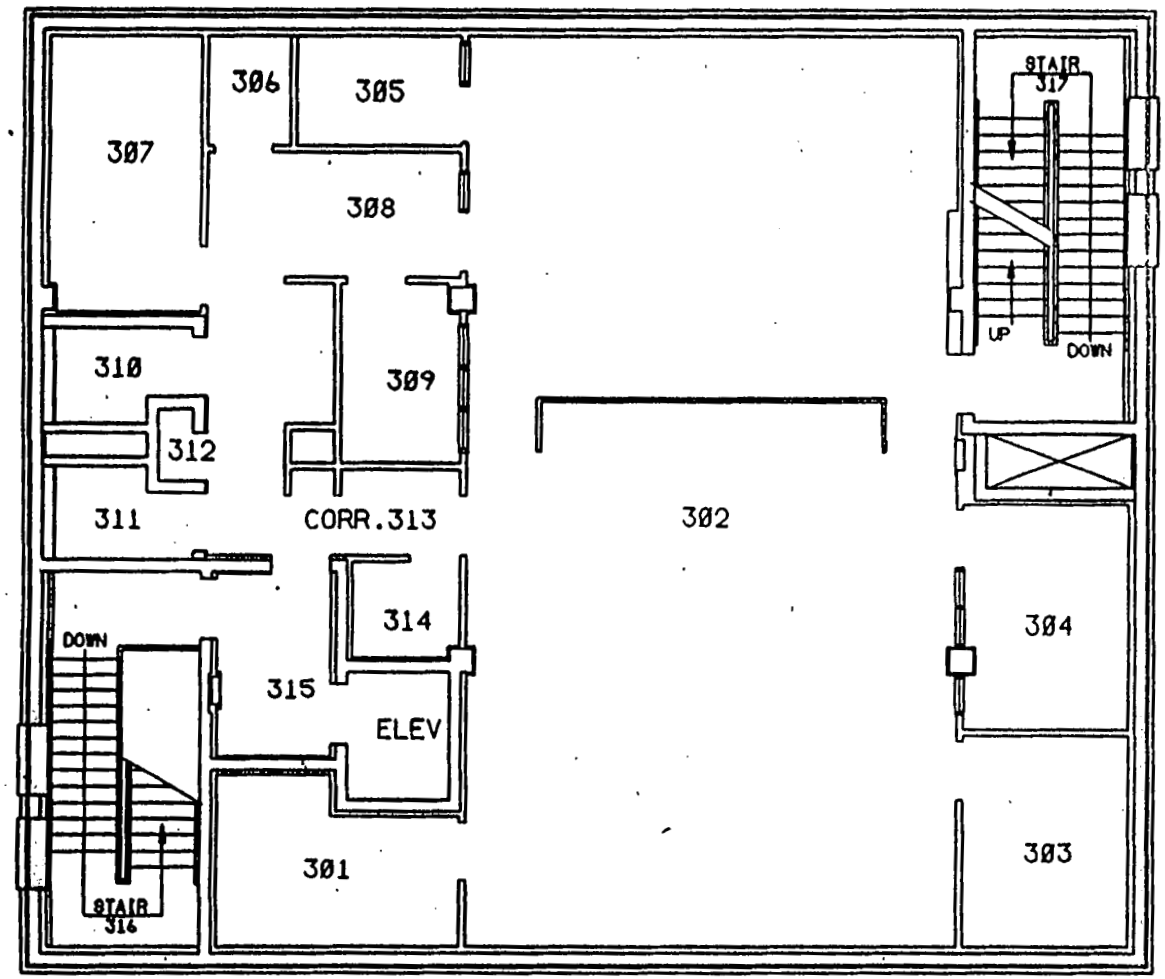
SIZE C	LARGE 14065 / SCALE AS NOTED
	ISSUE 0 / SHEET 2

D 6 of 8



UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: SJP

0 3' 6' 10' 20'

~~UNCLASSIFIED~~

~~SECT~~ ~~SECT~~

~~Still UCNI~~

BLDG #89
THIRD FLOOR
BLDG CODE:3089

~~NOT FOR PUBLIC DISSEMINATION~~
~~MAY CONTAIN UNCLASSIFIED 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.~~

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JOB NUMBER	12335
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SCALE	AS NOTED
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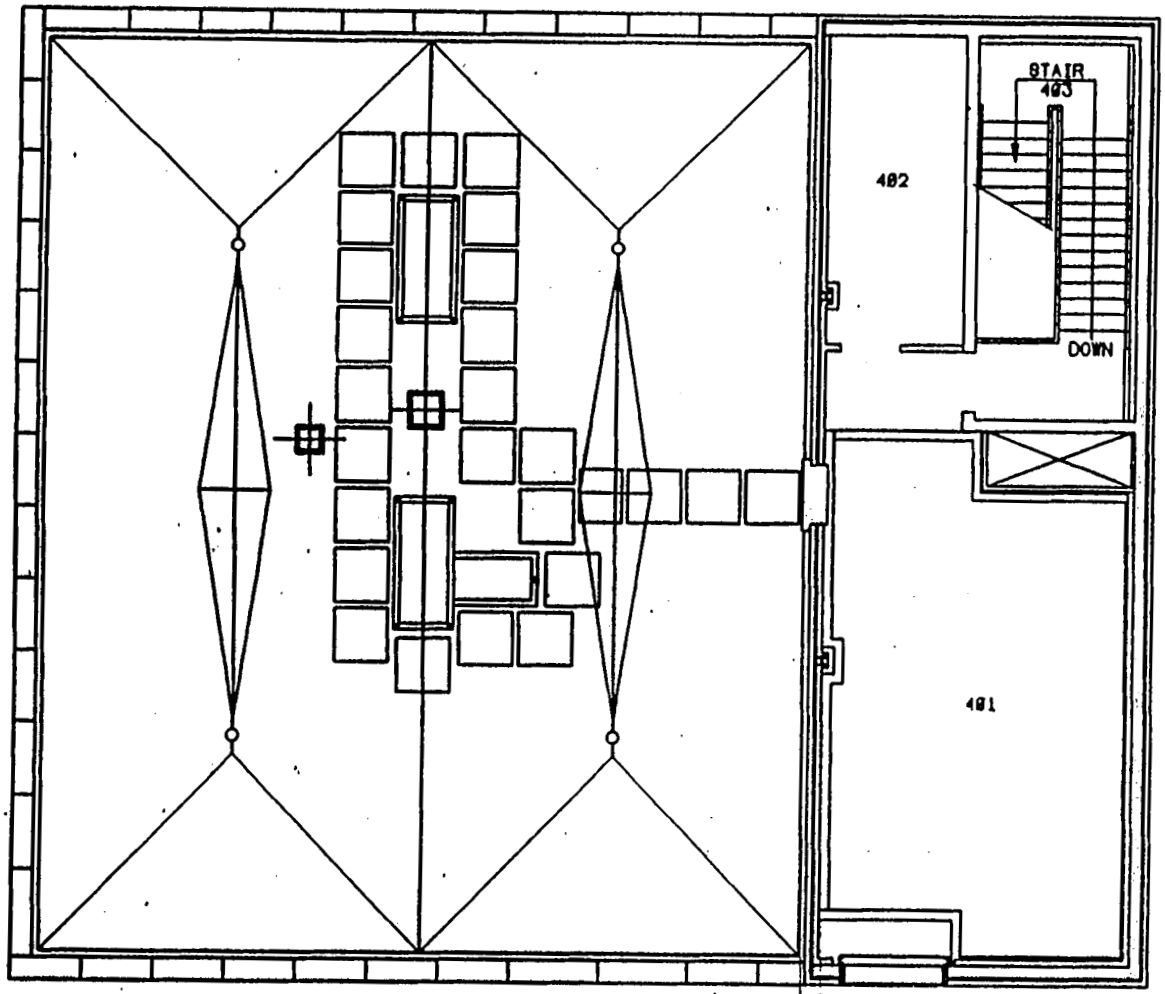
SHEET	3
DATA BY	MD-REL-12/12/91



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

UNCLASSIFIED

BLDG #99
PENTHOUSE
BLDG CODE:3099

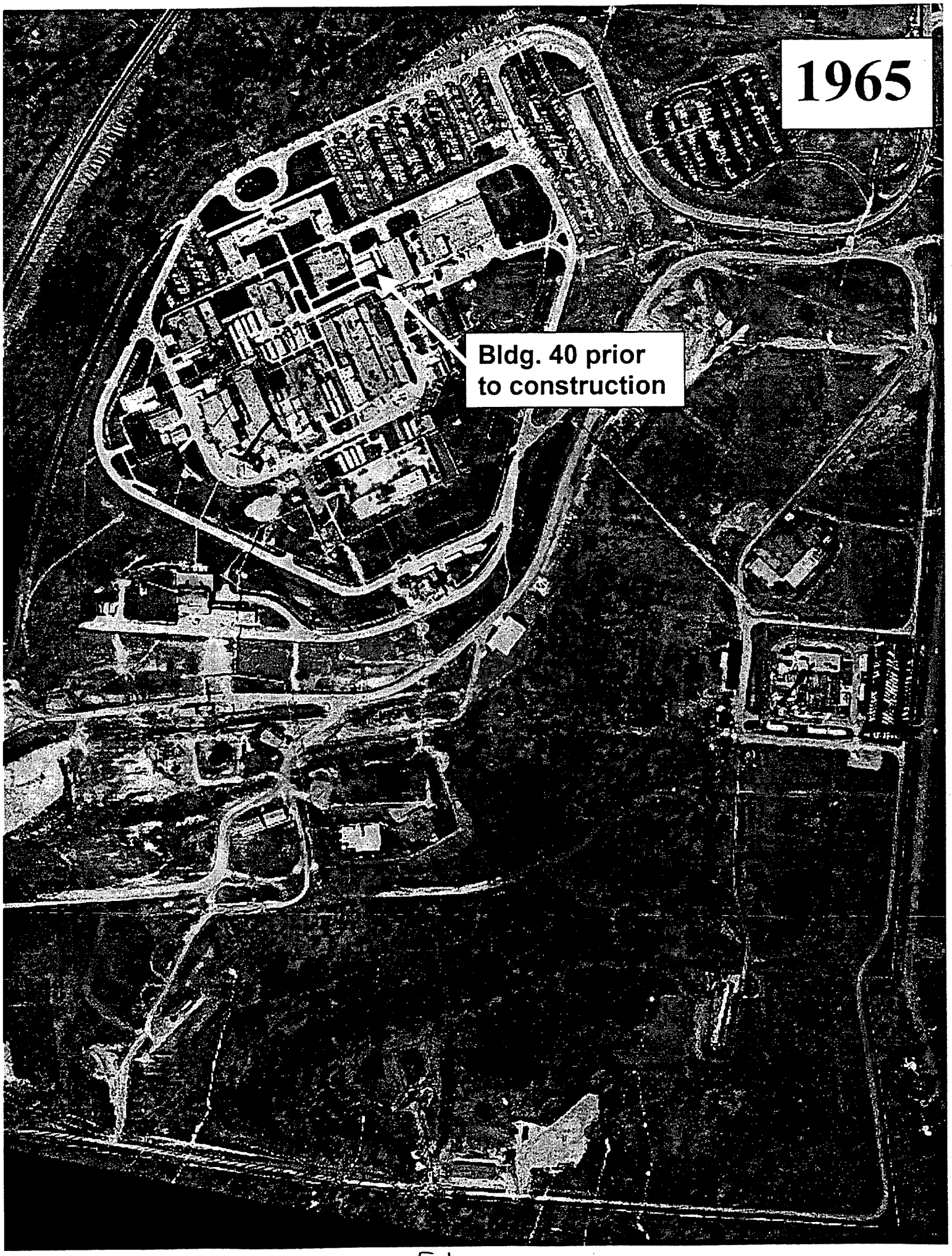
NOT FOR PUBLIC DISSEMINATION

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

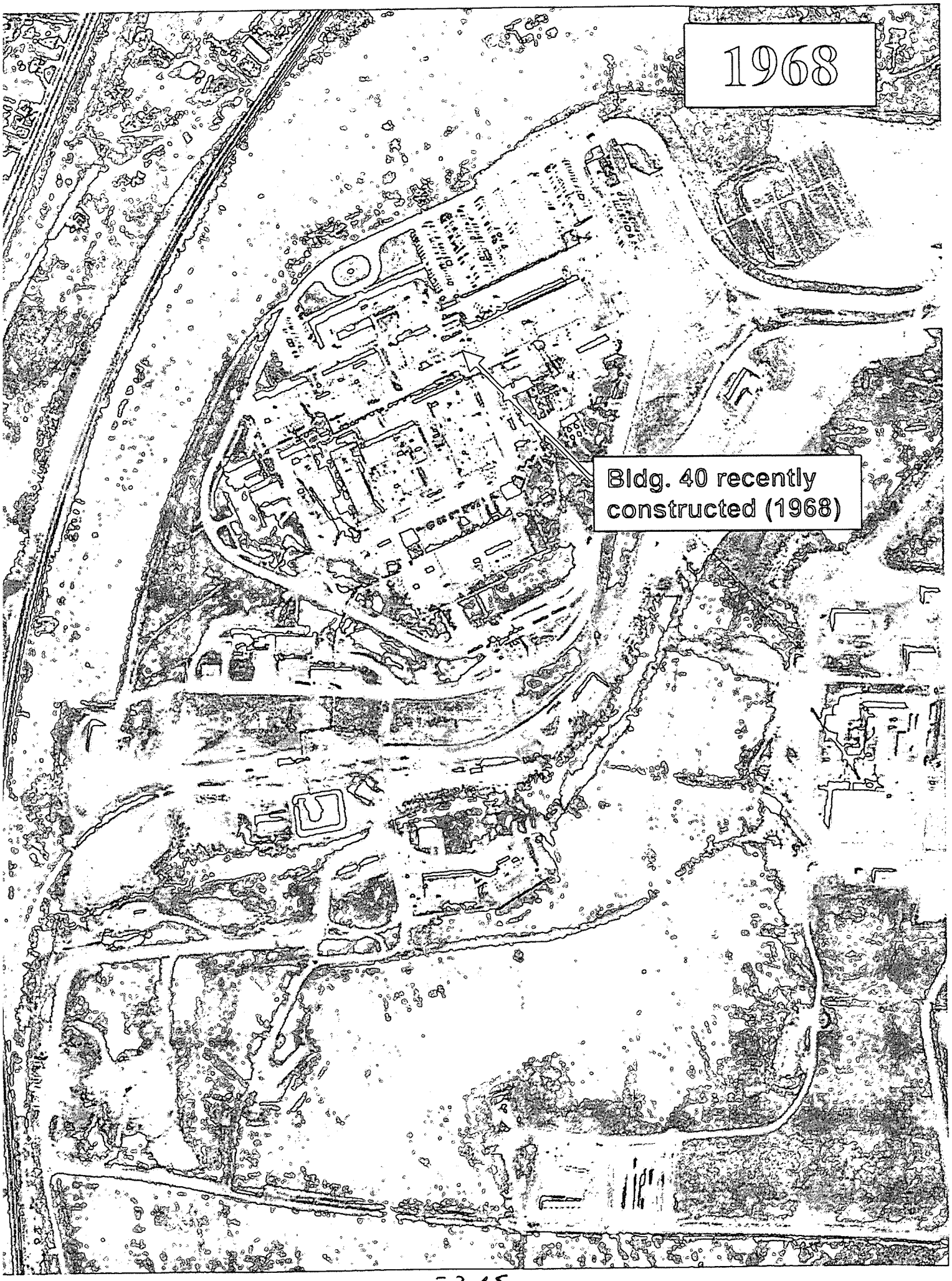
DRAWING NUMBER FSC911290	JOB NUMBER 12335
DRAWING CLASSIFICATION UCNI	
SIZE	CODE 14865 SCALE AS NOTED

Appendix E

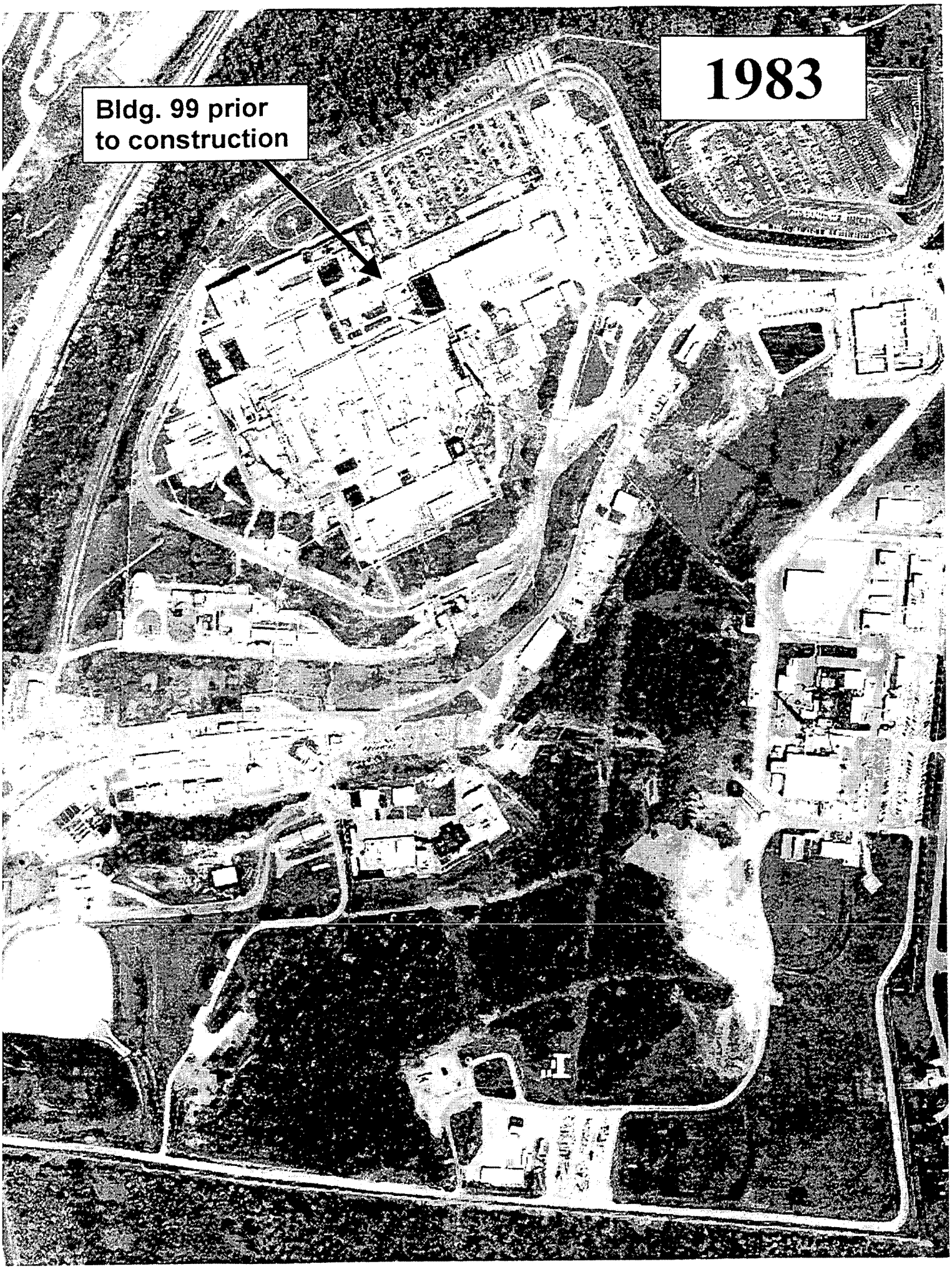
Aerial Photographs



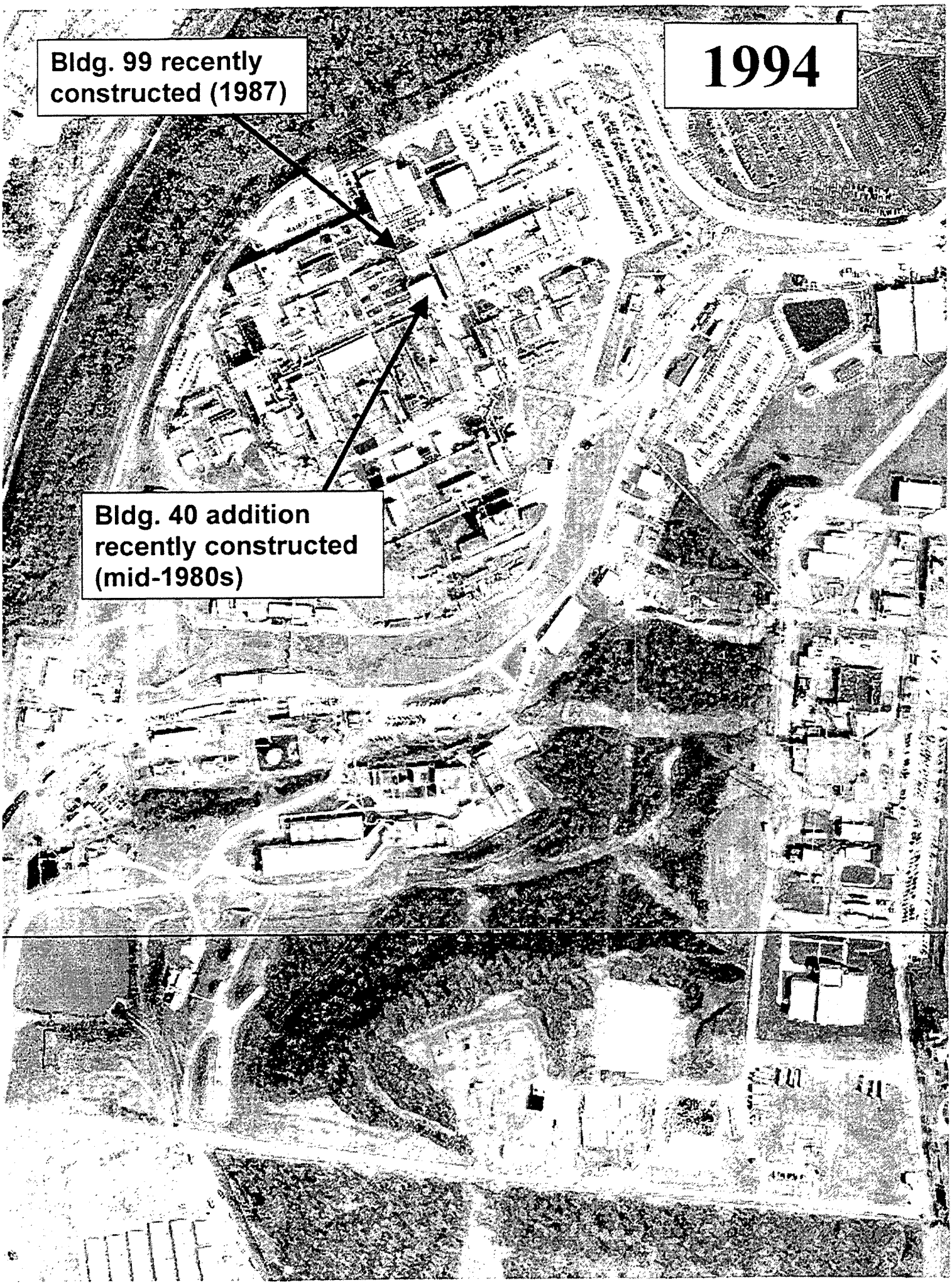
Elos

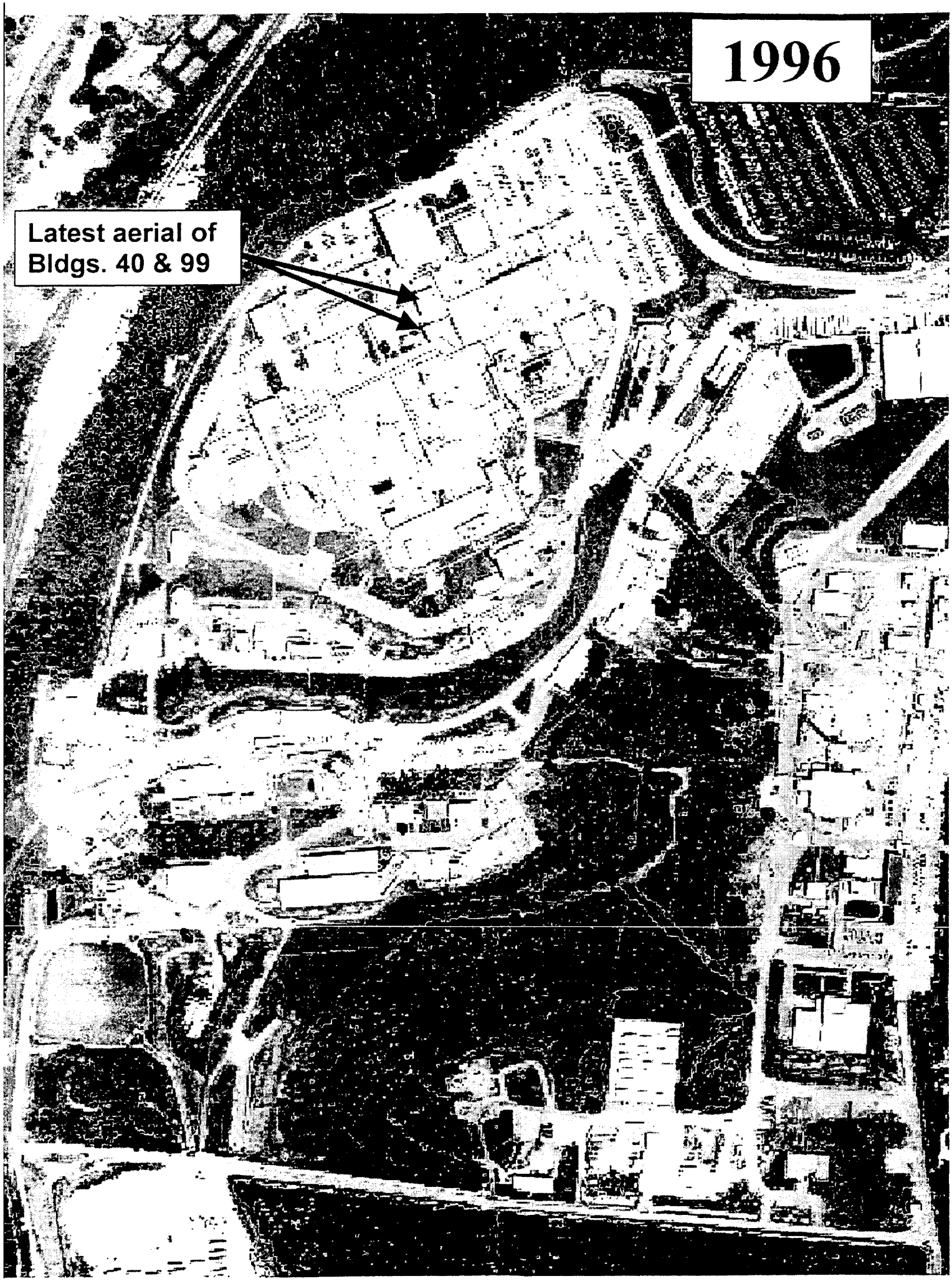


E 265



E3 of 5


Bldg. 99 recently constructed (1987)
1994
Bldg. 40 addition recently constructed (mid-1980s)



ES&S

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

	Pages
• Building 40	F1 through F50
• Building 99	F51 through F97

9.63 BUILDING 40

9.63.1 Scope of Building 40 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.

A team of environmental professionals performed a walk-through of Building 40 on November 29, 1995. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is present as Attachment 1 (Section 9.63.6.1). Escorting the appraisers was the building manager, and other knowledgeable personnel such as the process manager. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.63.6.2).

9.63.2 Description of Building 40

Building 40 is a three-story, 12,200-square-foot concrete block slab-on-grade structure with brick facing. The building was constructed in 1968, and the annex was added in 1993 (MD-10391, *Asbestos Program Manual*, 9-14-95). The location is shown in Attachment 3 (Section 9.63.6.3). The building is bordered by a sidewalk on all sides. Adjacent buildings are Building 99 to the north, Building M to the south, Building G to the east, and Building C to the west. The roof is asphalt and metal built-up membrane. On the first floor of the structure (approximately 6,150 square feet) are printing and microfilming shops, and a vault for document storage. Offices are located on the second floor (approximately 3,880 square feet). The third floor (approximately 2,170 square feet) houses utility services with interstitial space between the ceiling and roof for duct work. Floor plans are presented as Attachment 4 (Section 9.63.6.4). The building is serviced by central steam for heat and chilled water, and electrical service of 240V (*Mound Facility Physical Characterization*, 12-1-93).

The building has been used for the same purpose since construction.. No research, development, or production activities using radioactive or energetic materials have occurred in the building (*Mound Facility Physical Characterization*, 12-1-93).

9.63.3 Summary of Findings

Building 40 houses a print shop on the first floor and offices on the second floor. The third floor is a utility penthouse. The print shop contains processes conventional to printing: presses, developing, microfilming, reproduction, and document assembly. The building is well-maintained. Several issues of environmental concern were identified during the walk-through or during review of reference materials.

F 1 of 97

9.63.4 Observations

9.63.4.1 Air Emissions

There are three fumehoods. They are included in the Mound Air Emissions Inventory. A determination has been made by the EG&G Environmental Technology and Monitoring Group that sources are *de minimis*. No documentation is available to support the claim. Permit applications have not been filed with the Ohio Environmental Protection Agency. There are no fuel-burning units in the building. There is no evidence of fugitive dust.

9.63.4.2 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.

9.63.4.2.1 Sanitary Wastewater

The building has sanitary services. According to a diagram of underground lines, presented as Attachment 5 (Section 9.63.6.5), the building is serviced by a sanitary line. 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. It should be noted that, according to drawings, there is an abandoned segment of sanitary line that runs beneath the building. The sink in the first-floor janitor's closet drains very slowly, and has a hand-printed sign over it suggesting that it not be used. It may run slowly because it drains into the abandoned line.

It is assumed that sinks in the film processing area discharge into the sanitary collection system. The process chemicals include heavy metals. There is no heavy metals trap, such as a silver trap, to recover metals. According to the process manager, it was investigated but not considered cost-effective.

Sanitary effluent is conveyed to the on-site tertiary wastewater treatment facility, and subsequently discharged to the Great Miami River. There is no monitoring of building effluent. Based on operations information, supplied by the process owner, effluent from Building 40 does

not deviate from that expected by the sanitary treatment plant manager, however, there is no supporting data.

9.63.4.2.2 Storm Wastewater

The building is also serviced by storm drains as shown in Attachment 5 (Section 9.63.6.5). All visible interior floor drains have been plugged. Exterior grates and drains were not tested to confirm that they connect to the storm drainage system. Inspection showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water has entered the storm drainage system.

9.63.4.2.3 Chemicals

Many chemicals are stored and used in the print shop. The list is included in the BMQ in Attachment 2 (Section 9.63.6.2). A list of chemicals residing in Building 40 is included in the BMQ. The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994. Confirmation of the 1994 inventory was not attempted as 1995 data were being compiled at the time of the appraisal.

It is not uncommon to find that wastewater lines which drain from photo and print process areas are contaminated by silver and mercury. Evidence of such contamination may be found by analyzing effluent from the building. At Mound facilities, effluent monitoring has been conducted routinely for mercury and there is no evidence of contamination. Routine monitoring is not conducted for silver. However, there has been no monitoring of building effluent; concentrations may be diluted.

9.63.4.3 Potable and Service Water

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross connection. The fountains which supply drinking water have not been tested for lead. According to EPA protocol, annual sampling criteria does not require testing of each fountain. There is service water supplied to the building; it is not distributed within the building.

9.63.4.4 Chemical Storage and Hazardous Materials

Chemicals used in the print shop and associated processes are stored in Building 40. There is a flammables storage cabinet which meets standard National Fire Protection Association (NFPA) requirements. Chemicals are stored in the building in accordance with applicable standards. Material Safety Data Sheets (MSDS) are available in the building.

The building is equipped with appropriate emergency response equipment such as a chemical spill containment kit, eyewash, safety shower, and fire extinguisher. Inspection tags were present and current. There is an emergency evacuation plan, and signs were posted in work areas.

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

The building was tested and does contain asbestos-containing building material (MD-10391, *Asbestos Program Manual*, 9-14-95). There is no evidence of friable asbestos. Ceiling repair work being conducted in the first-floor men's restroom and janitor's closet were properly marked and contained, and signs were posted indicating the presence of asbestos.

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

9.63.4.5 Solid, Hazardous and Radioactive Waste

Solid wastes are removed by janitorial personnel to a site collection point, then shipped offsite to a local landfill by a contractor. Aluminum cans, glass and cardboard are removed by janitorial personnel to specific collection points, then sent offsite to be recycled by a contractor. White paper is collected and sent offsite to be recycled by a service contractor. Scrap metal is collected at a specific site, then sent offsite to be recycled by a contractor. Lead acid batteries are recycled by a contractor. Waste Management maintains the service contracts for the respective contractors. Classified paper is collected at specific collection points, then is transported by Security to the Montgomery County South Incinerator. This service contract is maintained by Security. There is no evidence that hazardous materials or wastes are mixed with solid waste streams, based on observations of trash containers.

Hazardous wastes are generated by the printing and associated procedures. "Blankrola" is a liquid cleaner for the offset presses. Estimated use is 1 gallon per week. Dry ink is used as a toner in copying machines. Cartridges are changed once per month, and are recycled by the warehouse. Photo waste consists of a developer and fixer which is used to develop silver-based film for prints. There is no silver recovery process or silver trap in Building 40. Aluminum plates are used in the printing process (*Characterization of Mound's Hazardous, Radioactive, and Mixed Waste*, 8-16-90").

All hazardous wastes generated by the process, maintenance and cleaning, are stored in a Satellite Accumulation Area located inside the building proximate to and within view of the work area. The procedures and appearance conform to Resource Conservation and Recovery Act (RCRA) requirements. Wastes are collected and transported by a representative of the EG&G Waste Management Group, and are stored in Building 72 for ultimate disposal. There is no onsite treatment of waste. All are disposed of under a contract with Rollins. Waste disposal manifests and Certificates of Disposal are maintained by the EG&G Waste Management Group. Manifests were reviewed; they conform to RCRA requirements.

Solvent-contaminated rags used to clean the presses are stored in a closed can and are sent offsite for cleaning by a contractor. No records were available for review in Building 40. Review of procurement/contract records was not within the scope of this appraisal. Trichloroethane is occasionally used to clean equipment.

9.63.4.6 Waste Minimization and Pollution Prevention

At Mound there is an active program to minimize waste streams in accordance with state and federal requirements and Executive Order 12856.

Programs for waste minimization are in place including aluminum can recycling. The print shop actively encourages customers to make use of recycled paper stock. Additional opportunities for waste minimization activities include a review of use of printing inks, changing from solvent-based to soy-based inks. The photographic darkroom uses fixer and developer to process materials having a silver base. According to the process manager, a determination was made that the cost of equipment to recover the silver was excessive based on the amount which could be recovered.

9.63.5 Findings and Recommendations

Photographs were taken to document environmental appraisal activities. They are included as Attachment 6 (Section 9.63.6.6). The environmental appraisal of Building 40 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.

40-1. Drainage from the janitor's closet should be investigated to confirm that there is not a connection to the wastewater line which runs beneath the building, shown to be cut and plugged. If there is an improper connection, drainage should be rerouted.

40-2. Building effluent wastewater is not routinely analyzed for mercury or silver. An analysis should be performed. Drainage lines should be investigated to confirm that there is no residual contamination from silver or mercury.

40-3. Solvent-contaminated rags are shipped offsite for cleaning. Treatment records were unavailable for inspection. The process manager should review the contract and confirm proper handling and treatment at the contractor cleaning facility. Use of trichloroethane should be discontinued.

40-4. Opportunities for waste reduction in the print shop should be considered. Review work practices involving solvents to determine the waste generated, and evaluate methods of curtailing solvent evaporation and solvent use replacement. The feasibility of switching to water-based inks should also be considered. Process modification and material substitution should be examined to reduce the uses of those solvents associated with cleaning, cleanup, and degreasing. It was not determined at the time of the inspection if waste photo solutions containing silver have been targeted for waste minimization.

40-5. MSDS sheets should be prominently displayed, clearly labeled, and readily available. A visitor to the area should be able to walk into the room and find them immediately.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 40

Appraisers: Nancy Vyas civil/environmental engineer
Name Discipline

See below
Name Discipline

Name Discipline

Name Discipline

Building Manager: Jeff Boston

Process Manager: Barry Leiter

Date: 11-29-95 pm

Team Review:
Eunice Warmoth
Ron Paulick
John Hausfeld
John Puckett
Mary Sizemore
Mary Louise Hoagland
Mark Gillat
F7 of 97

ENVIRONMENTAL APPRAISAL CHECKLIST

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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

Environmenta' aisal Checklist

Building Name: 40 Appraisers: V/yas Date: 11-29-95, 12:44

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)	Some chemicals should be stored in flammable cabinets.
	Is the building in operation? What are the processes and where do they discharge to?	Y / N _____ _____	
	Do the floor drains, sinks & toilets appear to be draining properly?	(Y / N)	Yes, except 1st floor janitors closet. All floor drains are plugged.
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	Sanitary Storm	
	Is there a sump/pit in the building? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	Y (N) _____ _____ Y / N Y / N	
	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)	

Janitor's closet neatly kept.

FIRST Floor Janitor's closet drains v. slowly. Abandoned sanitary line under B-40

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Environmental Appraisal Checklist

Building Name: 40 Appraisers: Vyas Date: 11-29-95 PM

Clean Air Act (CAA) Screening Checklist

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

CAA Checklist

Regulatory Guideline	Question	Response	Comments
	Are there existing air permits or applications applicable to the building?	Y (N)	No permits, no documentation ~~for deminimus determination~~
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.	N/A Y / N	
OAC 3745-31	Are there any sources that are not included in the air emissions database? If so, note the room, hood number, active or not, POC, and applicable air emission database information on Table B.	(Y) N	
OAC 3745-31-03	Are there sources which are lab equipment of lab fumeheads used exclusively for chemical or physical analyses and bench scale lab equipment? These sources do not require a permit. However, the air emissions database should be updated.	(Y) N	
	Has there been any release of air contaminants from this building?	Y (N)	

• Develop documentation for deminimus

Environmenta' . aisal Checklist

Building Name: 40 Appraisers: Vyas Date: 11-29-95

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
hot glue binder	1	—	Y / (N)	Y / (N) not used for 10 years	—	—	—	—	—
developer	2	002232	Y (N)	(Y) / N					
micro-filming	6	—	Y / (N)	(Y) / N					
solvent cleaning	100	—	Y / (N)	(Y) / N	TCA	≈ 8oz/mo.	0	continuous	—
			Y / N	Y / N					

Source: visual observation

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Environmental Appraisal Checklist

Building Name: Appraisers: Date: 11-29-95

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	Segregate chemicals in storage area.
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	Store printer developer in flammables cabinet.
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	(Y) (N)	Storage area chemicals to be segregated.
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 NA	

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o Segregate storage area chemicals

Environmental Appraisal Checklist

Building Name: Appraisers: Date: 11-29-95

HM Checklist

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

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Environmental Appraisal Checklist

Building Name: 40 Appraisers: Vyas Date: 11-29-95

HM Checklist

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

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

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

Source: _____

Environmental Appraisal Checklist

Building Name: Appraisers: Date: 11-29-95

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)	Does actual or potential cross-connections exist between potable (light green) and service water (dark green)?	(Y) N	penthouse mister-rooms photo lab (backflow preventers installed)
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)	There is no service water — No Need.
	Does the facility contain any water coolers or fountains that are not lead free? Complete Table C.	(Y) N	Rm 1 2nd floor

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
40	Rm 1	not known	no markings
40	2nd floor	not known	no markings
	corridor		

Source: _____

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Environmental Appraisal Checklist

Building Name: 40 Appraisers: [illegible] Date: 11-29-95

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	containers of materials are marked by chemical content.
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	developer generates RCRA waste

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Environmental aisal Checklist

Building Name: 40 Appraisers: Vyas Date: 11 29-95

RCRA Checklist

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

- Solvent contaminated cleaning rags are stored in an unmarked container. Container should be marked. Contract for off-site cleaning/recovery should be reviewed to confirm compliance with requirements for CWA, RCRA. Visit contractor facility. (Return visit 11/29-95 pm. Can marked)
- Process manager + haz waste handlers have training records.
- Generator's waste profile sheets on-file with process manager.

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Environmental Appraisal Checklist

Building Name: Vyas Appraisers: 40 Date: 1-29-95

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:	NA	
	Are the containers in good condition?	Y / N	
	Are the waste compatible with the containers?	Y / N	
	Are the containers kept closed except during filling?	Y / N	
	Are the containers managed in such a way, that they are not ruptured, or leaks caused?	Y / N	
	Is the area inspected at least once weekly?	Y / N	
	Is the inspection recorded? Where is the log? Is it properly completed, dated, and signed?	Y / N Y / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the facility boundary?	Y / N	
	Are incompatible wastes managed in such a way that they will not react with another incompatible waste?	Y / N	
OAC 3745-52-34(B)	Has any of the waste (except in Building 23, Building 72 and the Burn Area) been managed in excess of 90-days?	Y / N	
	If no go to next section.		
	If yes, note.		
	For Building 23, Building 72 & Burn area use special checklist.		

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Building Name: 40 Appraisers: VGJD Date: 1-29-95

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: 40

Appraisers: Vyas

Date: 1-29-95

RCRA Checklist

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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	

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General Comments:

Building Name: 40 Appraisers: VJW Date: 11-29-95

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	Asbestos Survey – shows presence. Men's room 1st floor is under repair – proper signing & procedures
	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	area was surrounded plastic – no work going on – appears to be appropriate practice
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: 40 Appraisers: Vyas Date: 1-29-95

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

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

TSCA Checklist

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

Building Name: 40 Appraisers: Vyas Date: 1-29-95

TSCA Checklist

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

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Environmental Appraisal Checklist

Building Name: 40 Appraisers: Vyas Date: 1-29-95

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TSCA Checklist

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

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GENERAL COMMENTS:

Building Name: 40 Appraisers: Vyas Date: 1-29-95

Low-Level Waste and Transuranic Waste Screening Checklist

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

Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: 40 Appraisers: Vyas Date: 1-29-95

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Low-Level Waste and Transuranic Waste Checklist

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

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Building Name: 40 Appraisers: Vyas Date: 1-29-95

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Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: 40 Appraisers: Vyas Date: 1-29-95

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Low-Level Waste and Transuranic Waste Checklist

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

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Building Name: 40 Appraisers: Vujas Date: 1-29-95

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Low-Level Waste and Transuranic Waste Checklist

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

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: 40 Appraisers: Vugo Date: 1-29-95

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	from cleaning rags
	Is vehicle maintenance performed?	Y / (N)	
	Are oils used ?	Y / (N)	
	Are these corrosive wastes?	Y / (N)	
	Are there sludges?	Y / (N)	
	Are there halogenated organic (nonsolvent) wastes?	Y / (N)	
	Are metals recovered from wastewater?	Y / (N)	silver not recovered
	Is waste sludge generated?	Y / (N)	
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N N/A	
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

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Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

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Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		
	Reclaiming process to remove water and solvents by heat?	Y / N	
	Gravity setting?	Y / N	
	Screening?	Y / N	
	Centrifugation?	Y / N	
	Filtration?	Y / N	
SOLVENT WASTES			
	Has there been an attempt to reduce volume or toxicity by:		
	Eliminating solvents?	(Y) / N	Generator reviewing use of
	Reducing the use of solvents?	(Y) / N	soy-based ink. No solvent
	Reducing the loss of solvents?	(Y) / N	needed. Water cleaning
	Increasing recyclability?	(Y) / N	Cleaning rags recycled.
	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	

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Building Name: Appraisers: Date:

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 Cleaned off-site
	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?		N/A
	Separators cleaned and checked?	Y / N	
	Parts not allowed to enter the degreaser while wet?	Y / N	
	Sludge from the bottom of the tank not allowed to accumulate?	Y / N	
	Lids kept on tanks?	Y / N	
	Freeboard space on tanks increased?	Y / N	
	Are better operating practices used to reduce waste?	Y / N	
	How long is solvent waste stored and where?	_____	rags picked up routinely & mixed with other site solvent contaminated materials; Cleaned off-site by contractor. Investigate contract/contractor.

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Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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

4. Provide a physical description of the building.

This is a three-story, concrete block structure with brick facing. Total area is 12,200 ft^2. Roof is of BUM (asphalt and metal), and HVAC systems are central steam and chilled water. 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?

Building contains printing and microfilming shops, a small storage area, a vault for classified documents, and offices.

Source: Mound Buildings, 5-9-95

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

Source: Mound Buildings, 5-9-95

Building Manager's Questionnaire

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Process(es) Housed: Print shop, word processing

How Wastes Are Generated:

Blankrola is a cleaner for the offset presses. The label on the can reads "Offset Automatic Blanket Cleaner Solution, AB Dick 4-1235." It is automatically pumped from a fresh can, through the press, and into an empty can. Estimated use is 1 gal per week.

Dry ink is the toner used in copying machines. The toner is usually changed once a month.

Photowaste is developer and fixer used to develop silver-based film for prints. Only the negatives are produced in this building. All developer and fixer are collected in waste cans for pickup by Waste Management.

Aluminum waste is in the form of plates used in the printing process.

The lead waste was old lead bricks that were used for doorstops. They were discarded during a site-wide lead cleanup effort. There are no more in the building.

Contact:
Phone #:

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

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Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

10. Does the building have air emission sources? No

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

Source: Mound Air Emissions Database 11/30/95

Building Manager's Questionnaire

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95

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

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

Source: Air Permits 2/4/95

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

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

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

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

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

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

17. Does the building contain transformers or capacitors? NO

Source: PCB ANNUAL DOCUMENT LOG

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

Source: PCB ANNUAL DOCUMENT LOG

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

Chemical Name	State	Amount (MAX)
BLACK OPAQUE	L	4 GA
PAK REFILL	L	16 OZ
SILICONE OIL	L	1000 ML
STARTER	S	1 LB
TONER (BLACK)	S	1200 G
TONER (CYAN)	S	1200 G
TONER (MAGENTA)	S	1800 G
TONER (YELLOW)	S	1200 G
ANTI-STATIC FLUID	L	48 OZ
AUTOMATIC BLANKET WASH	L	2 GA
BLANKET FIX	L	12 OZ
CLEAN-N-EASY	S	4 PT
CLEANING SOLVENT	L	2 PT
CYLINDER CLEANER	L	1 PT
DEGLAZING SOLVENT	L	5 PT
DEVELOPER	S	36 LB
DRY INK	S	30 LB
FOUNTAIN CONCENTRATE	L	20 QT
FURNITURE POLISH	G	16 OZ
FUSER AGENT	L	4 L
INK ROLLER CONDITIONER	L	12 PT
INK ROLLER DESENSITIZER	S	3 PT
NON-OXIDIZING INK BLACK	S	45 LB
NON-OXIDIZING INK COLOR	S	80 LB
OFFSET SPRAY POWDER	S	5 LB
OXIDIZING INK BLACK	S	2 LB
OXIDIZING INK COLOR	S	2 LB
PROPANOL	L	1500 ML
TACK REDUCER	S	2 LB
TONER HIGH YIELD	S	908 G
WESTERN A.G.E.	L	3 GA
CRONALAR FIXER PART A	L	11 GA
CRONALAR FIXER PART B	L	9 GA
CRONALITH LIQUID DEVELOPER(A)	L	7 GA
CRONALITH LIQUID DEVELOPER(B)	L	3 GA
DEVELOPER (RA2001)	L	5 GA
PMT ACTIVATOR	L	6 GA
VIKING 2-IN-1 DEVELOPER-GUM	L	5 GA
VIKING NEGATIVE MAKE-UP SOLUTION	L	8 GA

Source: Chemical Inventory 1994

Building Manager's Questionnaire

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Chemical	Amount	Clean-up Measures

Source: _____

21. Where do waste chemicals go?

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

23. Where do excess janitorial supplies go?

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

NONE

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

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

Source: _____

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

Materials	Amount
4-1200 Safety Zone Cleaner	12.3
Bldg 40 Photofixer	22.2
Developer II Concentrate	25.0
Developer II Concentrate	25.1
Dry Ink	41.3
Epoxy Resin	3.6
Fixer II concentrate	47.2
Ink Paste	2.7
Kodak PMT Activator	9.6
Kodak PMT Activator	10.2
Kodak PMT II Activator	20.9
Mercury Thermometer	0.3
Multigraphics Hydrogen Cyanide Ferrocyanide	0.7
Photo Fixer	28.1
Photo Fixer	7.3
Photo Fixer Sample, LP94-875	0.4
Photo Fixer, Sample 94-004	1.0
Photo Waste	138.0
Photo Waste	148.6
Photo Waste	65.5
Photo Waste	84.9
Photo Waste	258.4
Photo Waste	207.2

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

Building Manager's Questionnaire

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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

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

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

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

Source: _____

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Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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Building Manager's Questionnaire

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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

Building Name: 40 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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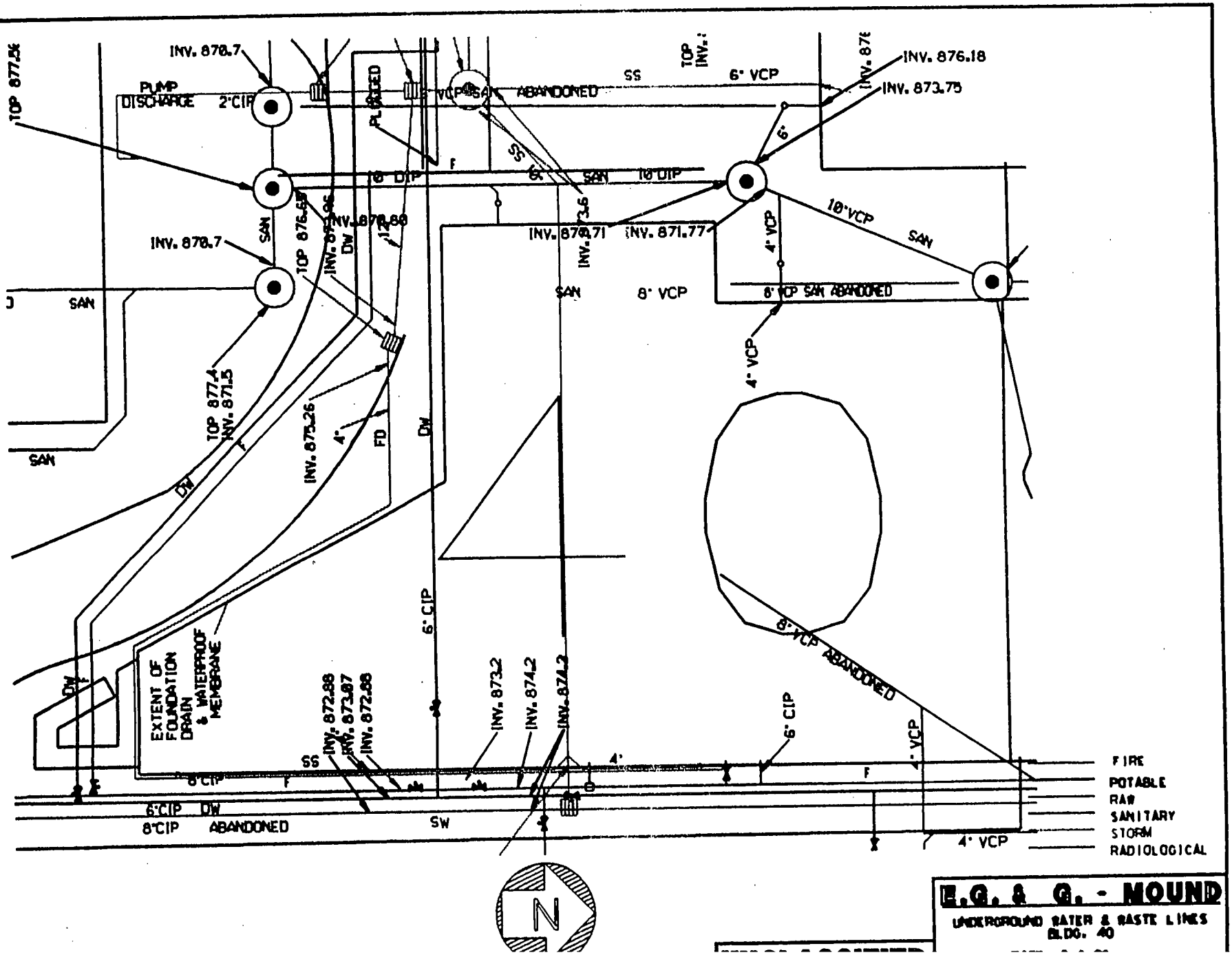
INV. 870.7
PUMP DISCHARGE
2"CIP
PLUGGED
VCP
SAN
ABANDONED
SS
6" VCP
INV. 876.18
INV. 873.75
6"
8" DIP
SAN
10" DIP
10" VCP
SAN
INV. 871.71
INV. 871.77
4" VCP
8" VCP
8" VCP SAN ABANDONED
4" VCP
INV. 870.7
SAN
TOP 877.4
INV. 871.5
INV. 875.26
4"
FD
DW
6" CIP
EXTENT OF FOUNDATION DRAIN & WATERPROOF MEMBRANE
INV. 872.88
INV. 873.87
INV. 872.88
INV. 873.2
INV. 874.2
INV. 874.2
8" VCP ABANDONED
6" CIP
4" VCP
6" CIP
8" CIP
6" CIP DW
8" CIP ABANDONED
SW
4" VCP
FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL
N
E.G. & G. - MOUND
UNDERGROUND WATER & WASTE LINES
BLDG. 40

Mound Plant Building 40

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9.105 BUILDING 99

9.105.1 Scope of Building 99 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 site-wide 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 99 on February 29, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is presented as Attachment 1 (Section 9.105.6.1). Escorting the appraisers were knowledgeable personnel such as process owners. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.105.6.2).

9.105.2 Description of Building 99

Building 99 is a four-story, 11,412 square-foot, reinforced concrete building with a built-up membrane roof. The location is shown in Attachment 3 (Section 9.105.6.3). The building is bordered by Building OSE to the north, Building 40 to the south, Building G to the east, and Building C to the west. The first and second floors are administrative areas for security personnel. The first floor also contains a locksmith shop. The third floor houses the Emergency Operation Center. The fourth floor is a penthouse used as a mechanical room. Floor plans are presented as Attachment 4 (Section 9.105.6.4). The building is serviced by central steam for heat, chilled water, and electrical service (*Mound Facility Physical Characterization*, 12-1-93).

Building 99 was constructed in 1989. The building has been used for the same purposes since construction. The building is not known to be contaminated with radiological or energetic materials (*Mound Facility Physical Characterization*, 12-1-93).

9.105.3 Summary of Findings

Building 99 contains office areas, a locksmith shop, an emergency operation center, and a mechanical room. These areas are still in use. The building is well-maintained, but one issue of environmental concern was identified during the walk-through and review of reference materials.

9.105.4 Observations

9.105.4.1 Air Emissions

There are no processes that create air emissions. There are no fuel-burning units in the building. There is no evidence of fugitive dust. No air emission permit applications have been submitted to the Regional Air Pollution Control Agency (RAPCA) for activities in the building.

9.105.4.2 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.

9.105.4.2.1 Sanitary Wastewater

The building does have sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.105.6.5), the building is serviced by a sanitary line. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort; therefore, neither dye tests nor smoke tests were conducted.

Sanitary effluent is conveyed to the onsite tertiary wastewater treatment facility, and subsequently discharged to the Great Miami River. There is no monitoring of building effluent. Based on operations data, supplied by the process owner, effluent from Building 99 does not deviate from that expected by the sanitary treatment plant manager.

9.105.4.2.2 Storm Wastewater

The building is serviced by storm drains as shown in Attachment 5 (Section 9.105.6.5). Exterior grates and drains were not tested to confirm that they connect to the storm drainage system. Inspection showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water has entered the storm drainage system.

9.105.4.2.3 Chemicals

A list of chemicals residing in Building 99 is included in the BMQ, Attachment 2 (Section 9.105.6.2). The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994. Confirmation of the 1994 inventory was not attempted as 1995 data were being compiled at the time of the appraisal.

Storage, handling, and disposal of chemicals listed in the BMQ, included as Attachment 2 (Section 9.105.6.2), were reviewed to assure conformance to regulations related to 40 CFR 122, 40 CFR 261-265, 40 CFR 268, and 29 CFR 1910. None of the chemicals listed in the BMQ are Clean Water Act priority pollutants. There is no evidence that chemicals stored in the building have entered the wastewater collection system. There have been no reported spills from Building 99. There are floor drains in the building.

9.105.4.3 Potable and Service Water

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross connection. The fountains which supply drinking water have not been tested for lead. According to EPA protocol, annual sampling criteria do not require testing of each fountain. Water is also supplied to a fire sprinkler system in the building.

9.105.4.4 Chemical Storage and Hazardous Materials

There are janitorial, locksmith and office supplies used and stored in Building 99, such as Cherry Insecticide and Loctite. These materials were not identified as chemicals on the BMQ, included as Attachment 2 (Section 9.105.6.2) or on the annual chemical inventory. Material Safety Data Sheets (MSDS's) were not readily available for these materials.

The building is equipped with appropriate emergency response equipment such as a fire sprinkler system and fire extinguishers. There is an Emergency Evacuation Plan, and signs were posted in work areas.

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

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

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

9.105.4.5 Solid, Hazardous, and Radioactive Waste

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

9.105.4.6 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.

9.105.5 Findings and Recommendations

Photographs were taken to document the environmental appraisal. They are included as Attachment 6 (Section 9.105.6.6). The environmental appraisal of Building 99 indicates that the following action item should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

99-1 In accordance with 29 CFR 1910.1200, MSDS's should be prominently displayed, clearly labeled, and readily available. A visitor to the area should be able to walk into the room and find them immediately.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 99

Appraisers:

Name _____ Discipline _____

Name _____ Discipline _____

Name _____ Discipline _____

Name _____ Discipline _____

Building Manager: JEFFREY L. BOSTON

Process Manager: VINCENT C. HANSON

Date: 2/29/96

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ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental ... Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hoagland, Mary Sizemore

Date: 2-29-96

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	JANITORIAL SUPPLIES WD-40, LOCKSMITH supplies BRASS
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	SECURITY COMMUNICATIONS CENTER; OFFICES
	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	SANITARY AND STORM
	Is there a sump/pit in the building? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	Y / (N) _____ _____ Y / N Y / N	 N/A N/A
	Are there any manholes, catch basins, drains, or fill pipes in or around the building? If so, are there any unusual appearances, colors, and/or odors? Describe in comment section. Can chemicals flow into the drain?	(Y) / N Y / (N) (Y) / N	RUST STAINED JANITOR'S SINK JUST JANITORIAL

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hoagland, Mary Sizemore

Date: 2/29/96

Clean Air Act (CAA) Screening Checklist

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

CAA Checklist

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

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hogland, Mary Sizemore

Date: 2-29-96

CAA Checklist

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

TABLE A

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

Source:_____

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hoggland, Mary Sizemore

Date: 2-29-96

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	JANITORIAL/OFFICE SUPPLIES
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	Y / (N)	NO MSDS AVAILABLE FOR OFFICE AND JANITORIAL SUPPLIES
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	NO DRUMS IN OR AROUND BUILDING; CONTAINERS OF JANITORIAL AND OFFICE SUPPLIES SEALED
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	N/A NO FLAMMABLE STORAGE CABINETS OR CONTAINERS IN BUILDING
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	Y / (N)	
29 CFR 1910.106(d)(4)	Inside Flammable/combustible storage rooms must meet the following: 4 in. raised sill or trench that drains to a safe area, liquid tight wall/floor joints, self-closing doors, gravity or mechanical exhaust providing 6 room changes/hr., exhaust switch located outside room, at least one 3 ft. aisle; no cracks in secondary containment.	Y / N	N/A

Environmental Appraisal Checklist

Building Name: 99 Appraisers: John Puckett, Mary Louise Hagland, Mary Sizemore Date: 2-29-96

HM Checklist

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

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hoagland, Mary Sizemore

Date: 2-29-96

HM Checklist

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

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

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

Source: _____

Environmental Appraisal Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hoagland, Mary Sizemore

Date: 2-29-96

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	ROOM 211, SERVICE TO BUILDING
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	ROOM 211 - JANITOR'S SINK ROOM 111 - JANITOR'S SINK ROOM 312 - JANITOR'S SINK DRINKING WATER → SERVICE WATER
	Are sources of service water (janitorial and laboratory faucets, or outdoor spigots) posted as non-potable water sources?	Y / N	N/A
	Does the facility contain any water coolers or fountains that are not lead free? Complete Table C.	Y / N	SEE BELOW

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
99	2ND FLOOR-EAST	DP7WH-1-PE	OASIS
99	1ST FLOOR-COM. CTR	DP7WH-1-PE	OASIS
99	EOC	DP7WH-1-PE	OASIS

Source: _____

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hoagland, Mary Sizemore

Date: 2-29-96

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	WD-40 LUBRICATING OIL, BRASS PROCESS KNOWLEDGE
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)	

Environmental Appraisal Checklist

Building Name: 99 Appraisers: John Puckett, Mary Louise Hoagland, Mary Sizemore Date: 2-29-96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: John Puckett, Mary Louise Hoagland, Mary Sizemore

Date: 2/29/96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

RCRA Checklist

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

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Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

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

General Comments:

Environmental Appraisal Checklist

Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

Asbestos Screening Checklist

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

Asbestos Checklist

Although Building Built After 1985, Accor To Asbestos Program Manual 9/6/95, The B Is Noted To Contain Suspect Building Mate None Were Observe

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	
	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: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

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

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Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

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TSCA Checklist

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

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Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

TSCA Checklist

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

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Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

Low-Level Waste and Transuranic Waste Screening Checklist

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

Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

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Low-Level Waste and Transuranic Waste Checklist

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

Environmental Appraisal Checklist

Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

Low-Level Waste and Transuranic Waste Checklist

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

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Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

Low-Level Waste and Transuranic Waste Checklist

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

Environmental Appraisal Checklist

Building Name: 99 Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore Date: 2/29/96

Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

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)	White paper & aluminum cans are recycled Janitorial supplies NABC non-acid disinfectant cleaner
	Are there solvent wastes?	Y/(N)	
	Is vehicle maintenance performed?	Y/(N)	
	Are oils used ?	Y/(N)	
	Are these corrosive wastes?	Y/(N)	
	Are there sludges?	Y/(N)	
	Are there halogenated organic (nonsolvent) wastes?	Y/(N)	
	Are metals recovered from wastewater?	Y/(N)	
	Is waste sludge generated?	Y/(N)	
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N	N/A
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

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Building Name: 99

Appraisers: Mary Louise Hogland, John Puckett, Mary Sizemore

Date: 2/29/96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Environmental Appraisal Checklist

Building Name: 99 Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore Date: 2/29/96

Waste Minimization/Pollution Prevention Activities Checklist

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

Environmental Appraisal Checklist

Building Name: 99 Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore 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	
	Are drip tanks used to capture losses?	Y / N	
	Is a solvent sink used for mineral solvents rather than a dunk bucket or dip tank?	Y / N	
	Does a waste hauler collect solvent waste for recycling or treatment?	Y / N	
OILS			
	What kind of oils are used?		
	Hydraulic oil?	Y / N	
	Transformer oil?	Y / N	
	Metal working fluids?	Y / N	
	Spent lubricating oils?	Y / N	
	Can the process be modified or changed to use water-based fluids?	Y / N	
	Are these good housekeeping and operation practices used to minimize oil waste production?		
	Use oils not contaminated with other liquids?	Y / N	
	Oil spills prevented?	Y / N	
	Drip pans installed?	Y / N	
	Oil soaked rags laundered?	Y / N	
	Rags and absorbants used to their limit?	Y / N	

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Environmental Appraisal Checklist

Building Name: 99

Appraisers: Mary Louise Hoagland, John Puckett, Mary Sizemore

Date: 2/29/96

Waste Minimization/Pollution Prevention Activities Checklist

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

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9.105-35

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Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

1. What are the access requirements (training, clearance, etc.)?
L or Q clearance is required to access the 1st Floor Security operations area (Limited Area) as well as badge reader access. Room 103 requires a Q clearance when processing SRD. The 3rd Floor requires a L or Q clearance during non-exercise or non-incident hours. During EOC exercises or ~~training~~ actual incidents or when SR is being processed, a Q clearance is required for access.
2. What protective equipment is required to enter the building?

None

3. Are there any restricted areas? Yes No
Where are they? 1st Floor – Security operations area (Limited Area)
Room 103 – restricted access Rm 104 and 108 restricted access.
3rd Floor – Emergency operations area (Limited Area).

4. Provide a physical description of the building.

Building is a four-story, 11,412-ft² building constructed with a BUM roof (coal tar). HVAC services are central steam and chilled water. The building is not contaminated with any radiological 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?

Central location for security.
First floor—alarm system, radio console, badge reader, lock shop; second floor—security management; third floor—emergency operations center.

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

9.105-30

Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Process(es) Housed: Security operations offices

How Wastes Are Generated:

No hazardous wastes are generated in this building.

Contact:
Phone #:

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

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9 105-40

Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

9. In the last six months, have any modifications been made to the building or to processes in the building? (Yes) No
   2nd floor cubicle mods
10. Does the building have air emission sources? No

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

Source: Mound Air Emissions Database 11/30/95

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Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95

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

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

Source: Air Permits 2/4/95

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

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

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

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

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

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Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

17. Does the building contain transformers or capacitors? No

Source: PCB ANNUAL DOCUMENT LOG

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

Source: PCB ANNUAL DOCUMENT LOG

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

Chemical Name	State	Amount (MAX)
NONE		

Source: Chemical Inventory 1994

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Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Chemical	Amount	Clean-up Measures

Source: _____

21. Where do waste chemicals go?

N/A

22. What janitorial supplies are stored inside or outside of the building?
Standard janitorial supplies, i.e., disinfectant carpet cleaner, disinfectant bathroom cleaner, glass cleaner, etc.

23. Where do excess janitorial supplies go?

N/A

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

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Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

NONE

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

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

Source: _____

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

Materials	Amount

Source: _____

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9.105-45

Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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

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

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

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

Source: _____

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9 105-46

Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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Building Manager's Questionnaire

Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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

NONE KNOWN

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Building Name: 99 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

white paper

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

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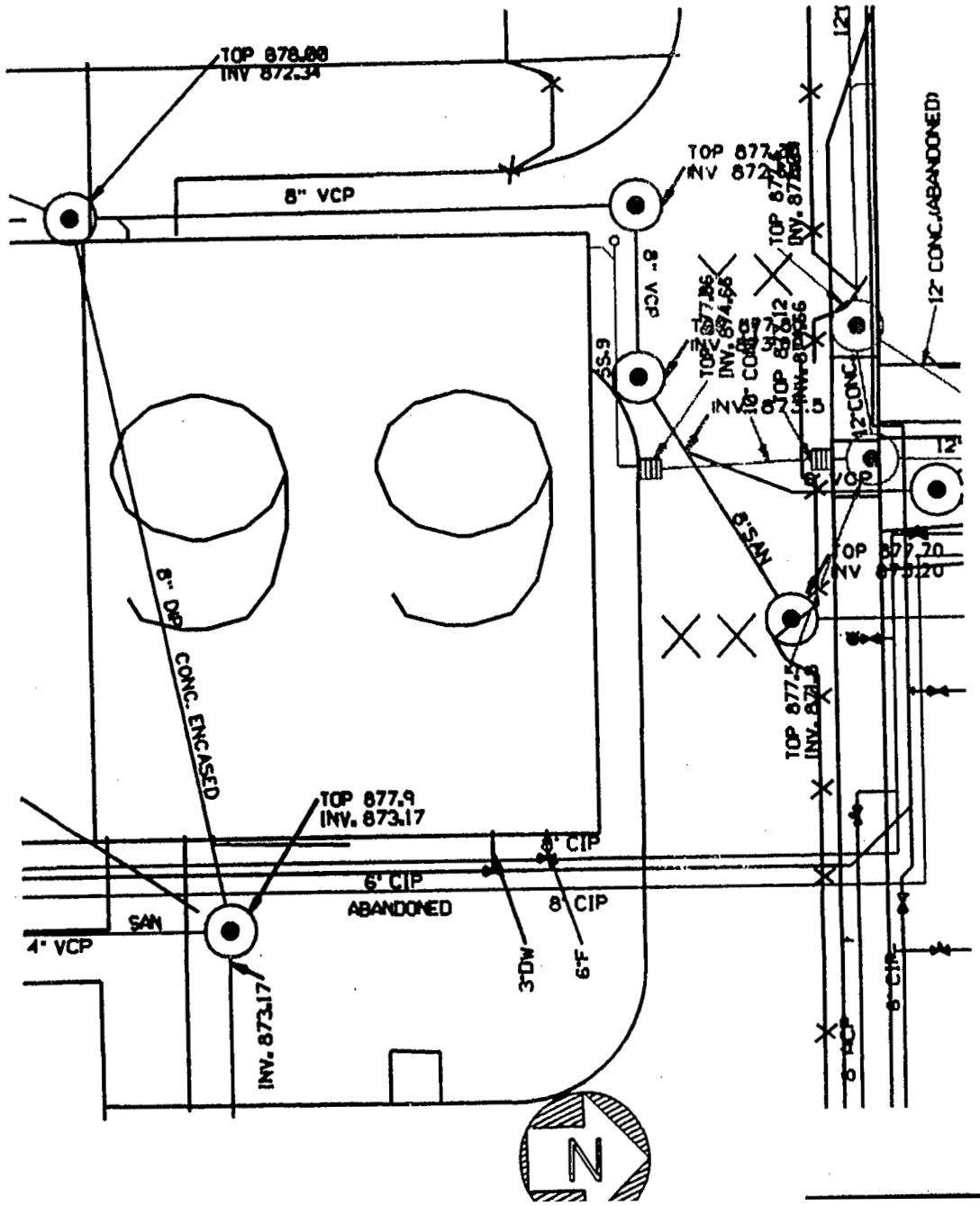

FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL

E.G. & G. - MOUND

UNDERGROUND WATER & WASTE LINES
BLDG. 99

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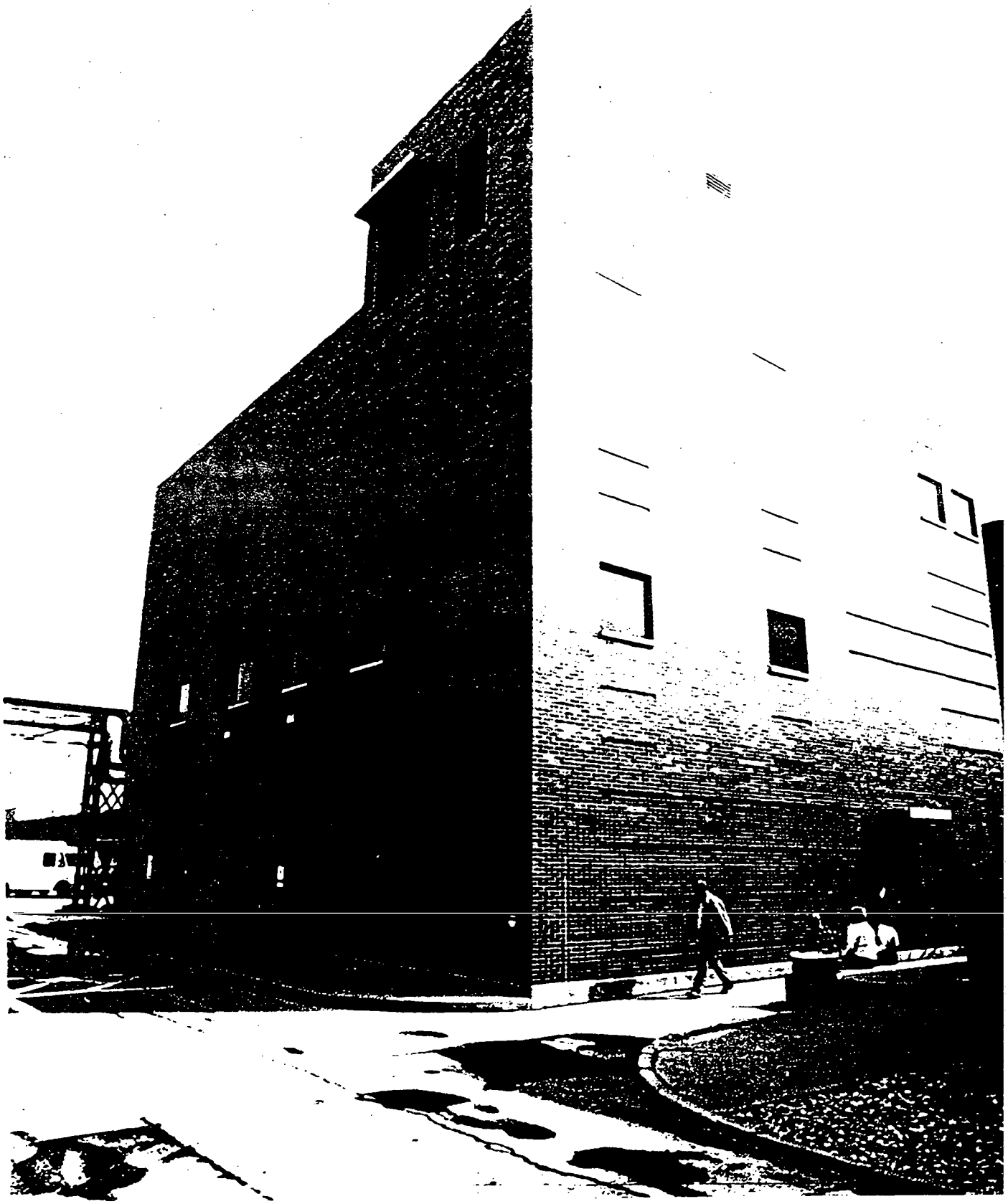

Mound Plant Building 99

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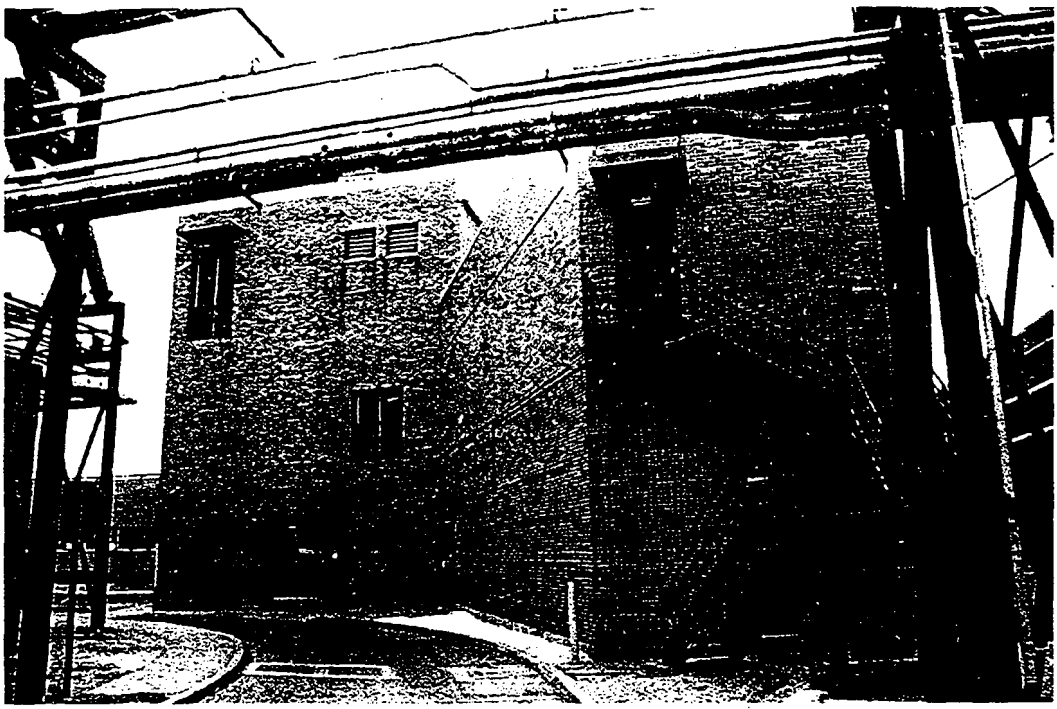
Appendix G

Radiological Information

Building 40 Final Status Report – G 1 through 80
Building 99 Final Status Report – G 81 through 147

Final Status Report
For
Building 40



Prepared by: Roderick C. Case / Date: July 2, 2003

Reviewed by: Galen Tomlinson / Date: 7-14-03

Approved by: A. Stephen Collas / Date: 7/14/03

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1.0 Historical Review

Building 40 was constructed in 1968 and named the "Printing Services Facility." At the time of construction, the building was 2,560ft^2. A mid-1980's addition on the southern side of this building increased the square footage of the building to 12,227ft^2 including a utility penthouse. The first floor contained printing and microfilming equipment, a small storage area, and a vault for classified documents. The second floor was primarily office space.

In the late 1990's, the Training Department was relocated to Building 40. This group occupied the rooms on the southern end of the first floor addition. While in this area, the trainers erected mock, or "for training only" radiological controlled and contamination areas that were used to train, and to test Radiological Worker II students. These areas were for training purposes only, and no radioactive material was present.

By the late 1990's, the second floor offices had been vacated, and the second floor areas had undergone "Safe Shutdown." Then in 2002, the print shop was also relocated to another building, and that area was also subjected to Safe Shutdown and was cleaned out.

In 2002, the former Print Shop area was used to stage excess properties that were offered for sale under auction. Office space was used briefly by the CH2MHill transition team in the later part of the year.

Building 40 has been used for the same purpose since construction and no research, development, or production activities using radioactive or energetic materials have occurred in the building. Building 40 is scheduled for demolition in accordance with Miamisburg Closure Project goals.

2.0 Survey Objectives

The objective of this survey plan is to confirm the classification of Building 40 as non-impacted. This is accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains. 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 in each 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. Since no process activities were ever associated with Building 40, it is assumed that Pu-238 is the potential contaminant of concern and the Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta measurements.

2.1 Survey Design

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

Survey Unit 1 – First Floor interior surfaces

Survey Unit 2 – Second Floor interior surfaces

Survey Unit 3 – Penthouse, Roof, and Exterior Walls

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

Twenty (20) judgmental data points were placed throughout each survey unit and are broadly representative of the survey unit. Hallways and major walkways throughout the building were scanned for alpha contamination.

Ten (30) judgmental data points were placed on the roof and Penthouse area and ten (11) judgmental data points were located on exterior walls.

Sediment samples were collected from floor drains and sink traps. If no sediment was available in these areas, smears were obtained for isotopic analysis. 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 43-20 hand-held gas flow proportional (GFP) detector and a 43-37 GFP large area floor probe for alpha measurements. A Ludlum 2360 with an L 43-93 scintillation probe was used for beta 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 $DCGL_w$. One data point on the upper roof was above the $DCGL_w$ (148 $dpm/100cm^2$). It was believed that the elevated reading was the result of short-lived activity from Radon daughters. To test this, the affected area was covered with a polyethylene sheet for 24 hours and re-surveyed. This process interrupts the equilibrium of the short-lived activity and allows the radon daughters to decay. The re-survey results (71 $dpm/100cm^2$) showed that no long-lived activity was present at this location. All of the remaining data points were found to be below the $DCGL_w$. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1.

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

Total Activity Results

Area	Alpha ($dpm/100cm^2$)			Beta ($dpm/100cm^2$)		
	Max	Average	±	Max	Average	±
Survey Unit 1	51	17.6	6.12	1155	367.3	125.0
Survey Unit 2	24	10.2	3.08	535	288.0	77.5
Survey Unit 3	77	42.8	15.8	1855	1643.6	105.3

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

Removable Alpha & Beta Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	5.99	0.85	0.69	6.4	1.8	0.92
Survey Unit 2	6.02	0.70	0.71	3.48	1.10	0.49
Survey Unit 3	6.56	1.67	0.76	9.44	3.35	0.86

The highest removable tritium activity was 24.19 dpm/100cm2 (RSDS# 03-TF-0086). The average removable tritium was 2.32 dpm/100cm2 (± 0.96).

The floors and major walkways in Survey Units 1 & 2 were scanned for alpha activity. The highest activity measured was 48 dpm/100cm2 (RSDS# 03-TF-0078).

2.3 Sediment Sample Data

Sediment and smear samples were obtained from accessible floor drains and sink traps. 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. Sediment samples were analyzed by gamma and alpha spectroscopy. No activity was observed in any sediment sample above the screening levels. Direct alpha and beta measurements were taken at each sample location. The highest fixed activity observed was 24 dpm/100cm^2 alpha and 1290 dpm/100cm^2 beta (See RSDS # 03-TF-0098).

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Six data points were selected at random from the sample group of 81 data points. The highest and lowest alpha measurements and corresponding beta measurements were selected from each survey unit. 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
SU1QC 9	51	14.28	13	350	37.42	200
SU1QC14	0	0.00	13	45	13.42	150
SU2QC 2	0	0.00	6	265	32.56	240
SU2QC16	24	9.80	32	210	28.98	325
SU3QC 7	6	4.90	13	25	10.00	170
SU3QC36	77	17.55	71	335	36.61	460
Variance (S^2)	996.3		591.5	19910		13678
Ratio			1.68			1.5
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 is to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 40 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 40 meets the surface release criteria established by DOE Order 5400.5.

The following tables show the maximum fixed and removable activity on the inside and outside building surfaces.

Building 40 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-0086	Roof	6.56	20
Highest Alpha Fixed Activity	03-TF-0086	Exterior Wall	77	100
Highest Beta Smearable Activity	03-TF-0086	Interior Wall	9.44	1000
Highest Beta Fixed Activity	03-TF-0086	Exterior Wall	1855	5000
Highest Tritium Smearable Activity	03-TF-0086	Interior Wall	24.19	10,000
Note 1: DOE Order 5400.5 (DCGLw)				

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3.0 Attachments and Enclosures

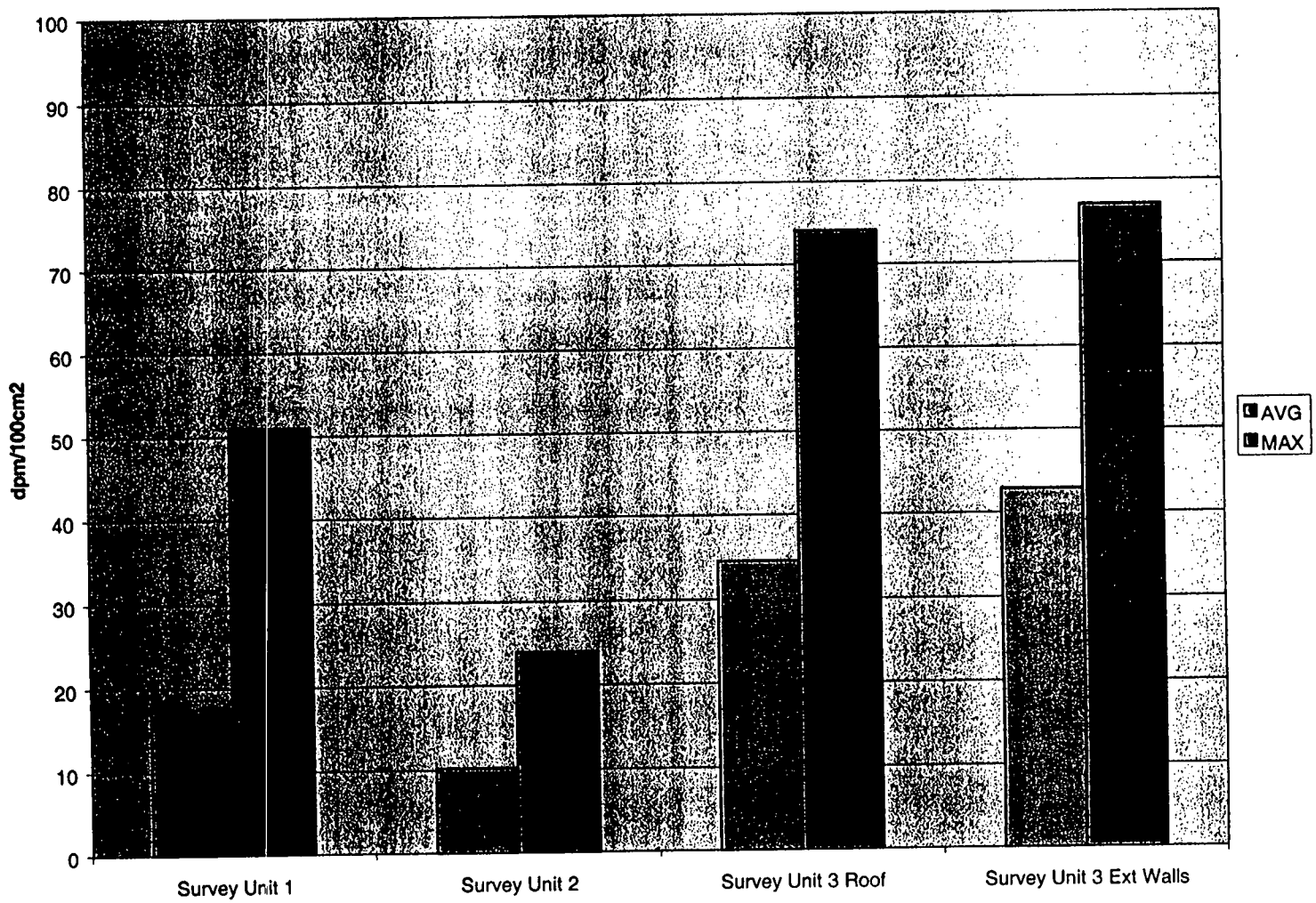
Attachment 1 – Average Total Alpha and Beta Graph

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 40-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 40 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, Issue 29, Op. No. 30031,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator,* Section 6.3


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

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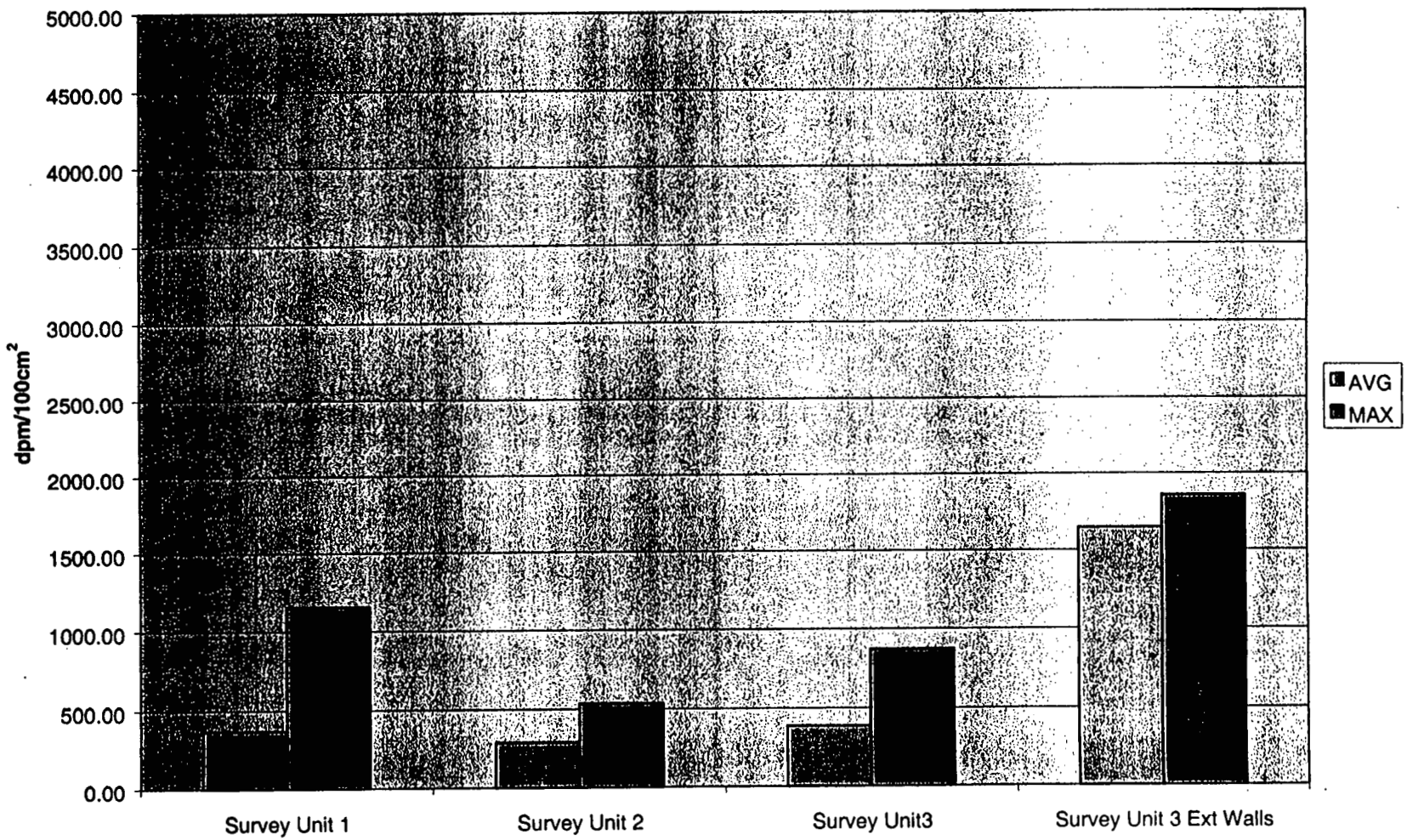
Building 40 Final Status Report
Attachment 1

Building 40 Average and Maximum Total Beta Activity



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Building 40 Survey Data Collection Sheet

		Smearable			Fixed	
Location	RSDS#	α	β	H^3	α	β
SU1-01	0080	2.02	0	0	13	340
SU1-02	0080	0	2.56	0	32	305
SU1-03	0080	2.01	1.16	4.95	6	520
SU1-04	0080	2.01	1.16	11.57	13	355
SU1-05	0080	2.01	1.16	0.28	13	215
SU1-06	0080	5.99	6.04	2.83	0	270
SU1-07	0080	0	0	0	6	380
SU1-08	0080	0	5.12	2.88	19	170
SU1-09	0080	0	1.28	3.11	51	350
SU1-10	0080	0	0	0.83	32	590
SU1-11	0080	0	1.28	1.73	45	190
SU1-12	0080	0	1.28	0	6	275
SU1-13	0080	0	0	0	13	225
SU1-14	0080	0	5.12	0	0	45
SU1-15	0080	3.01	1.16	0	26	45
SU1-16	0080	0	6.4	0.8	19	170
SU1-17	0080	0	1.28	0	6	715
SU1-18	0080	0	0	7.23	13	905
SU1-19	0080	0	1.28	9.68	13	125
SU1-20	0080	0	0	1.42	26	1155
SU2-01	0081	0	1.28	5.11	6	340
SU2-02	0081	6.02	3.48	1.24	0	265
SU2-03	0081	0	1.28	0	6	205
SU2-04	0081	0	0	0	6	310
SU2-05	0081	0	0	0	12	535
SU2-06	0081	2.01	1.16	4.11	12	415
SU2-07	0081	0	0	0.25	12	335
SU2-08	0081	0	1.28	0.25	12	445
SU2-09	0081	0	0	0	6	465
SU2-10	0081	0	2.56	0	12	380
SU2-11	0081	2.01	1.16	0	0	485
SU2-12	0081	0	2.56	0	12	465
SU2-13	0081	0	2.56	0	24	470
SU2-14	0081	0	1.28	0	6	260
SU2-15	0081	0	2.56	0	12	60
SU2-16	0081	4.03	1.01	2.11	24	210
SU2-17	0081	0	0	0	18	-45
SU2-18	0081	0	0	0	6	20
SU2-19	0081	0	0	3.93	0	55
SU2-20	0081	0	0	1.18	18	85
SU3PF-01	0086	4.37	3.8	0	39	515
SU3PF-02	0086	0	1.37	0.58	19	510
SU3PF-03	0086	0	8.22	5.36	26	160
SU3PF-04	0086	0	0	22.39	32	675

Building 40 Survey and Sample Data
Enclosure 1

Location	RSDS#	a	b	H^3 a		b
SU3PF-05	0086	2.18	2.58	3	64	870
SU3PW-06	0086	0	0	7.25	26	135
SU3PW-07	0086	4.37	5.17	1.56	6	25
SU3PW-08	0086	0	2.74	0	19	130
SU3PW-09	0086	2.18	9.44	24.19	26	-165
SU3V-10	0086	0	1.37	11.35	26	205
SU3R-11	0086	0	5.48	0	58	135
SU3R-12	0086	0	2.74	2.47	45	250
SU3R-13	0086	0	6.85	0	71	145
SU3R-14	0086	2.18	2.58	0	51	335
SU3R-15	0086	0	5.48	2.51	64	280
SU3R-16	0086	2.18	5.32	3.54	71	148 335
SU3R-17	0086	6.56	3.64	2.31	58	95
SU3R-18	0086	4.37	3.8	0	58	360
SU3R-19	0086	2.18	5.32	0	74	250
SU3R-20	0086	4.37	2.43	3.54	54	315
SU3R-21	0086	6.56	0.9	2.58	40	605
SU3R-22	0086	0	1.37	0	10	525
SU3R-23	0086	0	5.48	0	10	830
SU3R-24	0086	0	0	7.12	30	810
SU3R-25	0086	2.18	3.95	0	10	380
SU3R-26	0086	4.37	3.8	0	0	580
SU3R-27	0086	0	2.74	0.53	10	715
SU3R-28	0086	2.19	1.21	0	0	605
SU3R-29	0086	0	2.74	0	40	530
SU3R-30	0086	0	0	9.44	0	485
SU3W-31	0086	2.18	2.58	2.15	40	1580
SU3W-32	0086	0	0	0	6	1820
SU3W-33	0086	0	2.74	0	45	1665
SU3W-34	0086	0	1.37	0	71	1500
SU3W-35	0086	0	4.11	1.49	58	1435
SU3W-36	0086	2.18	3.95	0	77	1675
SU3W-37	0086	2.18	2.58	0	71	1855
SU3W-38	0086	2.19	1.21	0.92	58	1850
SU3W-39	0086	2.18	8.06	0	6	1725
SU3W-40	0086	2.19	0	0	26	1295
SU3W-41	0086	2.19	1.21	8.51	13	1680
DR-01	0098	3.1	0.68	0	-8	470
DR-02	0098	0	1.35	0	0	395
DR-03	0098	2.51	1.29	3.26	24	745
DR-04	0098	0	2.25	0	16	1290
DR-05	0098	0	0	7.33	8	400
DR-06	0098	1.44	0	18.61	16	235
DR-07	0098	1.36	1.4	8.23	0	200
DR-08	0098	0	5.95	12.06	8	335
DR-09	0098	0.19	8.32	2.89	0	235
DR-10	0098	2.95	2.85	7.91	8	260

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Building 40 Survey and Sample Data
Enclosure 1

		α	β	H^3	α		β
	Avg	1.19321	2.305926	2.324444	25.48148		528.5185
	SD	1.784092	2.22858	4.391828	22.2228		504.228
SU's	Max	6.56	9.44	24.19	77	148	1855
	#	81	81	81	81	1	81
	+/-	0.388536	0.485335	0.956442	4.839632		109.8097
	Avg	1.155	2.409	6.029	7.2		456.5
	SD	1.300925	2.701565	6.067188	9.577752		333.7335
Drains	Max	3.1	8.32	18.61	24		1290
	#	10	10	10	10		10
	+/-	0.806322	1.674447	3.760482	5.936352		206.8502

Scans			
SU1S-01	0078		45
SU1S-02	0078		48
SU1S-03	0078		26
SU1S-04	0078		32
SU2S01	0078		21
SU2S02	0078		10
SU2S03	0078		14
		Avg	28
		SD	14.59452
		Max	48

Notes:

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	Smearable			Fixed	
	α	β	H^3	α	β
Survey Unit 1					
Number	20	20	20	20	20
Avg	0.8525	1.814	2.3655	17.6	367.25
SD	1.566185	2.104963	3.439881	13.97517	285.23524
Max	5.99	6.4	11.57	51	1155
+/-	0.686411	0.922541	1.507594	6.124887	125.00986
Survey Unit 2					
Number	20	20	20	20	20
Avg	0.7035	1.1085	0.909	10.2	288
SD	1.632938	1.124237	1.612951	7.045715	176.92104
Max	6.02	3.48	5.11	24	535
+/-	0.715667	0.492718	0.706907	3.087921	77.539062
Survey Unit 3 Roof & Penthouse					
Number	30	30	30	30	30
Avg	1.674667	3.350667	3.657333	34.56667	387.5
SD	2.123164	2.417931	6.149336	23.52209	257.9453
Max	6.56	9.44	24.19	74	870
+/-	0.759765	0.865246	2.200512	8.41727	92.304539
SU3 Ext Walls					
Number	11	11	11	11	11
Avg	1.39	2.528182	1.188182	42.81818	1643.6364
SD	1.102034	2.29728	2.541251	26.6714	178.18657
Max	2.19	8.06	8.51	77	1855
+/-	0.651261	1.357606	1.501783	15.76179	105.30154

Graph Data Alpha				
	Survey Uni	Survey Uni	Survey Unit	Survey Unit 3 Ext Walls
AVG	17.6	10.2	34.57	42.82
MAX	51	24	74	77
Graph Data Beta				
	Survey Uni	Survey Uni	Survey Unit	Survey Unit 3 Ext Walls
AVG	367.25	288.00	387.50	1643.64
MAX	1155	535	870	1855

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Building 40 Survey and Sample Data
Enclosure 1

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg(cpm)	Bkg(cpm)
1	2350	5673/5143	8/13/03	0080	2	
2	2360	5833/5847	3/13/04	0080		164
3	2360	5833/5847	3/13/04	0081		164
4	2350	5673/5143	8/13/03	0081	0.6	
5	2350	5671/5148	9/11/03	0081	0.4	
6	2350	5673/5143	8/13/03	0086	1.8	
7	2360	5833/5847	3/13/04	0086		169
8	2350	5673/5676	8/13/03	0078	5.6	
9	2350	5671/5675	9/11/03	0078	9.4	
10	2360	5833/5847	3/13/04	0098	1	161

Sample Data RSDS# 0098

Gamma spec qualitative only

40-01-D1				
40-01-D2	Cs-137			
40-01-D3				
40-01-D4	Th234			
40-01-D5	Co60	Pb210	Ra226	Th234
40-01-D6	Cs137	Am241		
40-01-D7	Pb210	Ac227	Pa231	Th232
40-01-D8	Th232	Th234	Am241	
40-01-D9	Th230			
40-01-D10	Pb210	Ra226	Pu238	

alpha spec pCi/sample

	Pu238	Pu239/240	Th232	Th230	Th228	Th227	U238	U235	U233/234
40-01-D1	<LDL	<LDL	0.06	0.06	<LDL	<LDL	<LDL	<LDL	0.07
40-01-D2	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL
40-01-D3	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	0.06	<LDL
40-01-D4	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	0.05	<LDL	<LDL
40-01-D5	<LDL	<LDL	<LDL	<LDL	0.08	<LDL	<LDL	<LDL	0.12
40-01-D6	<LDL	<LDL	<LDL	0.06	<LDL	<LDL	<LDL	<LDL	0.05
40-01-D7	0.58	<LDL	<LDL	0.06	<LDL	<LDL	<LDL	<LDL	<LDL
40-01-D8	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	0.19	<LDL	<LDL
40-01-D9	<LDL	<LDL	<LDL	<LDL	<LDL	0.08	<LDL	<LDL	<LDL
40-01-D10	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL	<LDL

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Replicate Fixed Point QC

	alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	initial	2σ	replicate	initial	2σ	replicate
SU1QC 9	51	14.28	13	350	37.42	200
SU1QC14	0	0.00	13	45	13.42	150
SU2QC 2	0	0.00	6	265	32.56	240
SU2QC16	24	9.80	32	210	28.98	325
SU3QC 7	6	4.90	13	25	10.00	170
SU3QC36	77	17.55	71	335	36.61	460
Variance (S2) =	996.2667		591.4667	19910		13678
Ratio			1.6844			1.4557
Agreement			YES			YES

QC Measurements

Location	RSDS#	α	β
SU1QC 9	0080	13	200
SU1QC14	0080	13	150
SU2QC 2	0081	6	240
SU2QC16	0081	32	325
SU3QC36	0086	71	460
SU3QC 7	0086	13	170

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

SURVEY PLAN FORM

SP NUMBER	40-01	**DATE OF REQUEST**	February 24, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 40		
PURPOSE	The purpose of this SP is to characterize Building 40 to support decisions on final disposition.		
SURVEY UNIT # 1	First Floor	**SURVEY UNIT # 4**	
SURVEY UNIT # 2	Second Floor	**SURVEY UNIT**	
SURVEY UNIT # 3	Roof and Exterior Surfaces	**SURVEY UNIT**	

SAMPLE TYPE

☐ **SURFACE SOIL SAMPLE:**

☐ **SUB-SURFACE SOIL SAMPLE:**

☒ **SEDIMENT SAMPLE:** See specific sediment sampling instructions on page 3.

☐ **Rubbelized Material:**

☐ **OTHER:**

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	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 43-20 Hand Probe		
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L-2350	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Perform 1 minute counts at specified locations not more than ¼" from surface
		PROBE TYPE	43-20 Hand Probe		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE**	L 2360	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	L 43-89		
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 Survey Plan Continuation Sheet.

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SP NUMBER	40-01	DATE OF REQUEST	February 24, 2003

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Safety Considerations

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

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

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

Static Measurements Using L 2350 with 43-20 (alpha) probe and L 2360 with 43-89 (beta) probe

1. Perform an alpha and beta count on at least twenty (20) data points in Survey Units 1 & 2. Data points are selec by the surveyor and should be broadly representative of the entire survey unit.
2. Perform an alpha and beta measurement on at least ten (10) data points on the roof and penthouse areas. D points are randomly selected by the surveyor and should be broadly representative of the entire survey unit.
3. Perform an alpha and beta measurement on at least ten (10) data points on the building exterior walls and expo: foundations. Data points are randomly selected by the surveyor and should be broadly representative of the en survey unit
4. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
5. 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.

Sediment Samples

1. Collect approximately 250ml of debris from each accessible ventilation unit opening, floor drain, roof gutter and 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 Mo procedures.
5. Show sample location on the RSDS map.
6. Submit sediment samples to laboratory for gamma spectroscopy analysis. Submit smears for gross alpha and b analysis.
7. Additional intrusive samples may be collected in areas of elevated activity as determined by the MARSSIM Engineer.

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Quality Control

1. QC measurements will be performed by re-surveying 2 data points in each survey unit. Data points selected for resurvey should include the highest and lowest readings in the survey unit.
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	February 24, 2003
Technical Reviewer	RM Coblentz	DATE	02/24/03
Rad Con Manager	Danny R. Riley	DATE	02/24/03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	DATE	7-2-03
Technical Reviewer	G. Tomlinson	DATE	7-14-03
Rad Con Manager	R Collins	DATE	7-14-03
COMMENTS			

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Attachment 2

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									
40-01-									

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) 40-FIRST FLOOR-ALL	SURVEY NO. 03-TF-0080
PURPOSE: MARSSIM SURVEY PLAN 40-01 SURVEY UNIT 1	RWP NO. N/A
	DATE: 4-1-03
	TIME: 1430

MAP/DRAWING

SEE ATTACHED

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5143	8-13-03
2360	5833/5647	3-13-04
	N/A	

[redacted]

	HPs 6178 5214	Date: 4-14-03
Counted by: (Signature) SEE	HPs	Date:
Counted by: (Print Name) ATTACHED		
Revi[redacted]ture)	HPs 7492	Date: 4-16-03
Revi[redacted] Name)		

ML-9620 (2-98)

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Survey No. 03-TF-0080

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTACHED		MAP PAGE 7
		N	A	

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

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-1

RSDS#03-TF-0080 RCT: SKC RCT: BJH

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	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	5673	5214	5143	2		4/1/03	9:06	10	300	13	
SRCCHECK	5673	5214	5143	2		4/1/03	9:11	2011	60	12919	
SRCCHECK	5673	5214	5143	2		4/1/03	9:13	2009	60	12906	
SRCCHECK	5673	5214	5143	2		4/1/03	9:16	1988	60	12771	
SRCCHECK	5673	5214	5143	2		4/1/03	9:17	2017	60	12958	
SU-1 01	5673	5214	5143	2	1	4/1/03	13:21	2	60	13	
SU-1 02	5673	5214	5143	2	2	4/1/03	13:31	5	60	32	
SU-1 03	5673	5214	5143	2	3	4/1/03	13:42	1	60	6	
SU-1 04	5673	5214	5143	2	4	4/1/03	13:46	2	60	13	
SU-1 05	5673	5214	5143	2	5	4/1/03	13:47	2	60	13	
SU-1 06	5673	5214	5143	2	6	4/1/03	13:49	0	60	0	
SU-1 07	5673	5214	5143	2	7	4/1/03	13:52	1	60	6	
SU-1 08	5673	5214	5143	2	8	4/1/03	13:53	3	60	19	
SU-1 09	5673	5214	5143	2	9	4/1/03	13:55	8	60	51	
SU-1 10	5673	5214	5143	2	10	4/1/03	14:00	5	60	32	
SU-1 11	5673	5214	5143	2	11	4/1/03	14:02	7	60	45	
SU-1 12	5673	5214	5143	2	12	4/1/03	14:04	1	60	6	
SU-1 13	5673	5214	5143	2	13	4/1/03	14:06	2	60	13	
SU-1 14	5673	5214	5143	2	14	4/1/03	14:08	0	60	0	
SU-1 15	5673	5214	5143	2	15	4/1/03	14:10	4	60	26	
SU-1 16	5673	5214	5143	2	16	4/1/03	14:14	3	60	19	
SU-1 17	5673	5214	5143	2	17	4/1/03	14:16	1	60	6	
SU-1 18	5673	5214	5143	2	18	4/1/03	14:18	2	60	13	
SU-1 19	5673	5214	5143	2	19	4/1/03	14:20	2	60	13	
SU-1 20	5673	5214	5143	2	20	4/1/03	14:22	4	60	26	
QC 9	5673	7474	5143	2		4/7/03	12:06	2	60	13	
QC 14	5673	7474	5143	2		4/7/03	12:08	2	60	13	

40-BLDG CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0080 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
1	5833	6178	5847	1	4/2/03	232	60	340
2	5833	6178	5847	2	4/2/03	225	60	305
3	5833	6178	5847	3	4/2/03	268	60	520
4	5833	6178	5847	4	4/2/03	235	60	355
5	5833	6178	5847	5	4/2/03	207	60	215
6	5833	6178	5847	6	4/2/03	218	60	270
7	5833	6178	5847	7	4/2/03	240	60	380
8	5833	6178	5847	8	4/2/03	198	60	170
9	5833	6178	5847	9	4/2/03	234	60	350
10	5833	6178	5847	10	4/2/03	262	60	490
11	5833	6178	5847	11	4/2/03	202	60	190
12	5833	6178	5847	12	4/2/03	219	60	275
13	5833	6178	5847	13	4/2/03	209	60	225
14	5833	6178	5847	14	4/2/03	173	60	45
15	5833	6178	5847	15	4/2/03	173	60	45
16	5833	6178	5847	16	4/2/03	198	60	170
17	5833	6178	5847	17	4/2/03	307	60	715
18	5833	6178	5847	18	4/2/03	345	60	905
19	5833	6178	5847	19	4/2/03	189	60	125
20	5833	6178	5847	20	4/2/03	395	60	1155
QC 9	5833	7474	5847	1	4/7/03	203	60	200
QC 14	5833	7474	5847	2	4/7/03	193	60	150
BETA BACKGROUND FOR 4-2-2003 WAS---------->								164
BETA BACKGROUND FOR 4-7-2003 WAS---------->								163

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Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200304031542	**Count Date:**	4/3/2003
Group:	I	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0080 HARVEY-20 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

Efficiency (%)				Spillover (%)			
Alpha:	35.30	±	0.11	Alpha to Beta:	9.38	±	0.00
Beta:	44.94	±	0.12	Beta to Alpha:	0.85	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	69	2.02	1.89	0.00	0.14
2	39	0.00	0.02	2.56	2.10
3	65	2.01	1.89	1.16	1.49
4	63	2.01	1.89	1.16	1.49
5	62	2.01	1.89	1.16	1.49
6	43	5.99	3.27	6.04	3.33
7	3	0.00	0.00	0.00	0.00
8	35	0.00	0.03	5.12	2.97
9	53	0.00	0.02	1.28	1.48
10	5	0.00	0.00	0.00	0.00
11	25	0.00	0.02	1.28	1.48
12	51	0.00	0.02	1.28	1.48
13	54	0.00	0.00	0.00	0.00
14	23	0.00	0.03	5.12	2.97
15	8	2.01	1.89	1.16	1.49
16	74	0.00	0.04	6.40	3.32
17	72	0.00	0.02	1.28	1.48
18	38	0.00	0.00	0.00	0.00
19	79	0.00	0.02	1.28	1.48
20	41	0.00	0.00	0.00	0.00
		DJH		DJH	

YJBrown

Batch ID: 03-TF-0080 HARVEY-20 BSB

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~~Page 1 of 1~~

DJH 4-14-03

G2S06 #47

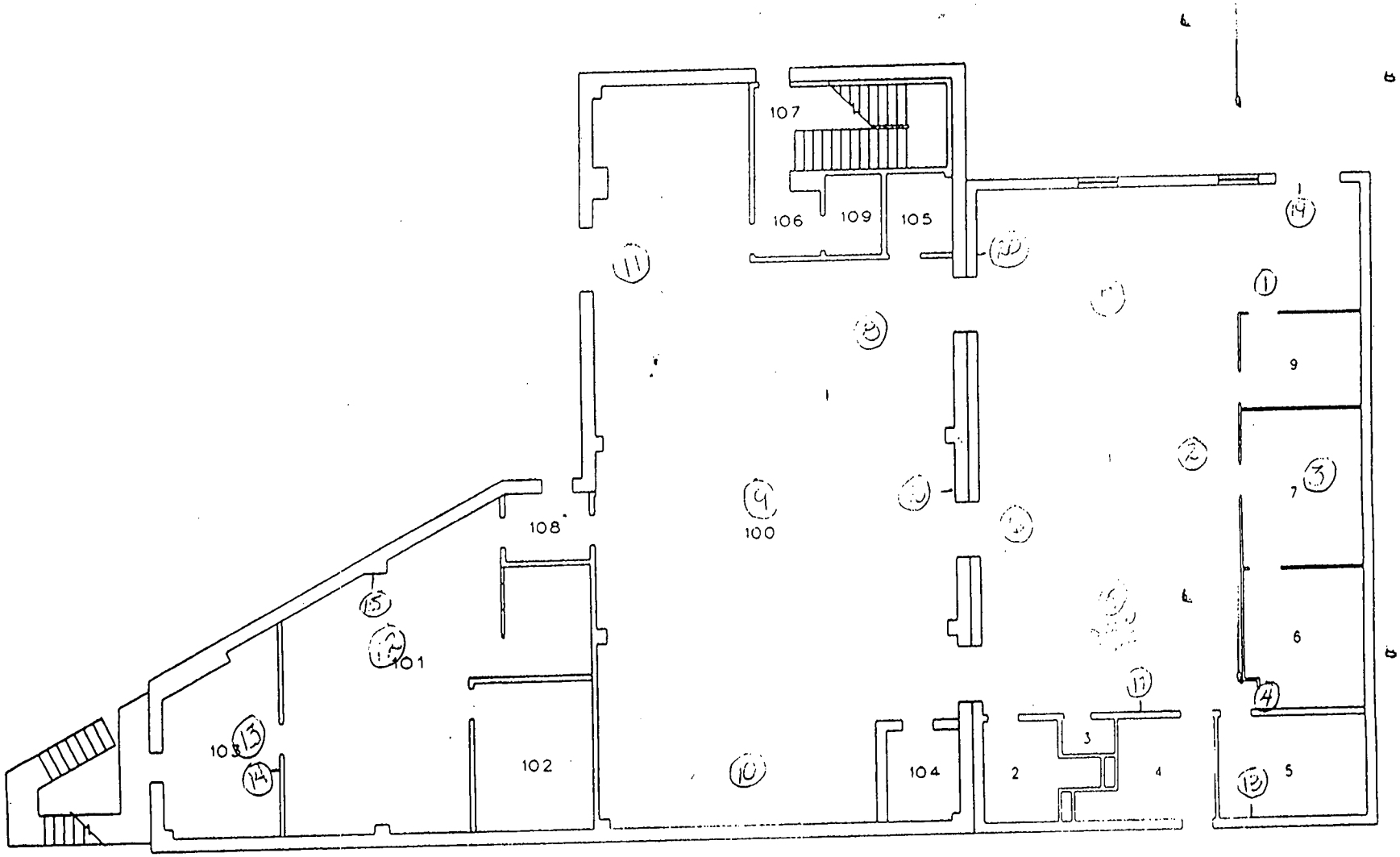
Time: 2.00
Data Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS0
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5	- 18.6	0	0.0	6.59
Region B:	2.0	- 18.6	0	0.0	6.41
Region C:	40.0	- 2000	0	0.0	11.38

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
~~03-TF-0080~~ HARVEY-20 BSB 03-17-0080 bsb 4/8/03
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT3.dat
Count Data Filename: C:\DATA\SDATA3.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	6.59	6.41	11.38	547.77	3	B		0.00
0	2.00	257.27	251.99	1.12	497.72	0		555.72	64.26
1	2.00	0.00	0.00	0.00	668.94	0		0.00	0.00
2	2.00	0.00	0.09	0.12	617.45	0		0.00	0.00
3	2.00	2.41	2.59	0.00	544.21	0		4.95	9.34
4	2.00	5.91	6.09	0.00	610.70	0		11.57	10.32
5	2.00	0.14	0.00	0.00	622.65	0		0.28	7.79
6	2.00	1.41	1.59	0.12	577.72	0		2.83	8.65
7	2.00	0.00	0.00	0.12	478.91	0		0.00	0.00
8	2.00	1.25	0.93	0.02	450.98	0		2.88	9.82
9	2.00	1.34	1.52	0.00	443.44	0		3.11	9.97
10	2.00	0.43	0.61	0.12	609.88	0		0.83	8.00
11	2.00	0.91	0.72	0.00	654.10	0		1.73	7.99
12	2.00	0.00	0.00	1.12	476.82	0		0.00	0.00
13	2.00	0.00	0.00	0.62	438.71	0		0.00	0.00
14	2.00	0.00	0.00	2.12	686.49	0		0.00	0.00
15	2.00	0.00	0.00	0.00	674.14	0		0.00	0.00
16	2.00	0.41	0.59	0.00	623.68	0		0.80	7.91
17	2.00	0.00	0.00	0.00	681.13	0		0.00	0.00
18	2.00	3.91	4.09	4.62	709.79	0		7.23	9.01
19	2.00	4.91	5.09	0.12	599.87	0		9.68	10.01
20	2.00	0.72	0.90	0.00	597.57	0		1.42	8.21

Dg H



BLDG 40
FIRST FLOOR
CLASS: UNCL

03-TT-0080 DA 7 of 7

G2708147

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 40 - SECOND FLOOR - ALL	SURVEY NO. 03-TF-0081
PURPOSE: MARISSM SURVEY PLAN 40-01 SURVEY UNIT 2	RWP NO. N/A
	DATE: 4-2-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5833/5847	3-13-04
2350	5673/5143	8-13-03
2350	5671/5148	9-11-03
	N/A	

[redacted] HPs 6179 7474 Date: 4-14-03

Counted by: (Signature) SEE HPs Date:

Counted by: (Print Name) ATTACHED

[redacted] HPs 5214 Date: 04-17-03

[redacted]

ML-9620 (2-98)

Survey No. 03-TF-0081

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTACHED		MAP SEE PAGE 8
		N	A	

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

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

G-300g 147

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-2

RSDS#03-TF-0081 RCT: DGH RCT: KA

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	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	5671	6178	5148	3		4/2/03	9:26	2	300	2	
SRC CHECK	5671	6178	5148	3		4/2/03	9:28	2034	60	11955	
SRC CHECK	5671	6178	5148	3		4/2/03	9:29	2048	60	12037	
SRC CHECK	5671	6178	5148	3		4/2/03	9:31	1901	60	11173	
SRC CHECK	5671	6178	5148	3		4/2/03	9:32	2120	60	12460	
SU-2 01	5671	6178	5148	3	1	4/2/03	14:34	1	60	6	
SU-2 02	5671	6178	5148	3	2	4/2/03	14:36	0	60	0	
SU-2 03	5671	6178	5148	3	3	4/2/03	14:38	1	60	6	
SU-2 04	5671	6178	5148	3	4	4/2/03	14:39	1	60	6	
SU-2 05	5671	6178	5148	3	5	4/2/03	14:41	2	60	12	
SU-2 06	5671	6178	5148	3	6	4/2/03	14:42	2	60	12	
SU-2 07	5671	6178	5148	3	7	4/2/03	14:43	2	60	12	
SU-2 08	5671	6178	5148	3	8	4/2/03	14:45	2	60	12	
SU-2 09	5671	6178	5148	3	9	4/2/03	14:47	1	60	6	
SU-2 10	5671	6178	5148	3	10	4/2/03	14:51	2	60	12	
SU-2 11	5671	6178	5148	3	11	4/2/03	14:53	0	60	0	
SU-2 12	5671	6178	5148	3	12	4/2/03	14:54	2	60	12	
SU-2 13	5671	6178	5148	3	13	4/2/03	14:56	4	60	24	
SU-2 14	5671	6178	5148	3	14	4/2/03	15:00	1	60	6	
SU-2 15	5671	6178	5148	3	15	4/2/03	15:02	2	60	12	
SU-2 16	5671	6178	5148	3	16	4/2/03	15:03	4	60	24	
SU-2 17	5671	6178	5148	3	17	4/2/03	15:05	3	60	18	
SU-2 18	5671	6178	5148	3	18	4/2/03	15:06	1	60	6	
SU-2 19	5671	6178	5148	3	19	4/2/03	15:09	0	60	0	
SU-2 20	5671	6178	5148	3	20	4/2/03	15:12	3	60	18	

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-2 QC CHECK

RSDS#03-TF-0081 RCT: KA RCT: 27-H

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	7474	5143	2		4/7/03	11:54	3	300	4
SRC CHECK	5673	7474	5143	2		4/7/03	11:57	2051	60	13176
SRC CHECK	5673	7474	5143	2		4/7/03	11:59	1990	60	12784
SRC CHECK	5673	7474	5143	2		4/7/03	12:01	2001	60	12855
SRC CHECK	5673	7474	5143	2		4/7/03	12:02	2036	60	13080
QC 2	5673	7474	5143	2		4/7/03	12:22	1	60	6
QC 16	5673	7474	5143	2		4/7/03	12:25	5	60	32

40-BLDG CHARACTERIZATION BETA SURVEY UNIT 2

RSDS#03-TF-0081 RCT: DJA RCT: KA

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
1	5833	6178	5847	1	4/2/03	232	60	340
2	5833	6178	5847	2	4/2/03	217	60	265
3	5833	6178	5847	3	4/2/03	205	60	205
4	5833	6178	5847	4	4/2/03	226	60	310
5	5833	6178	5847	5	4/2/03	271	60	535
6	5833	6178	5847	6	4/2/03	247	60	415
7	5833	6178	5847	7	4/2/03	231	60	335
8	5833	6178	5847	8	4/2/03	253	60	445
9	5833	6178	5847	9	4/2/03	257	60	465
10	5833	6178	5847	10	4/2/03	240	60	380
11	5833	6178	5847	11	4/2/03	261	60	485
12	5833	6178	5847	12	4/2/03	257	60	465
13	5833	6178	5847	13	4/2/03	198	60	170
14	5833	6178	5847	14	4/2/03	216	60	260
15	5833	6178	5847	15	4/2/03	176	60	60
16	5833	6178	5847	16	4/2/03	206	60	210
17	5833	6178	5847	17	4/2/03	155	60	-45
18	5833	6178	5847	18	4/2/03	168	60	20
19	5833	6178	5847	19	4/2/03	175	60	55
20	5833	6178	5847	20	4/2/03	181	60	85
QC 2	5833	7474	5847	1	4/7/03	211	60	240
QC 16	5833	7474	5847	2	4/7/03	228	60	325
BETA BACKGROUND FOR 4-2-2003 WAS---------->								164
BETA BACKGROUND FOR 4-7-2003 WAS---------->								163

G-3308 147

Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200304031447	**Count Date:**	4/3/2003
Group:	E	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0081 HARVEY-20 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

	Efficiency (%)				Spillover (%)			
Alpha:	35.30	±	0.11		Alpha to Beta:	9.38	±	0.00
Beta:	44.94	±	0.12		Beta to Alpha:	0.85	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	30	0.00	0.02	1.28	1.48
2	61	6.02	3.27	3.48	2.58
3	36	0.00	0.02	1.28	1.48
4	9	0.00	0.00	0.00	0.00
5	60	0.00	0.00	0.00	0.00
6	99	2.01	1.89	1.16	1.49
7	14	0.00	0.00	0.00	0.00
8	13	0.00	0.02	1.28	1.48
9	2	0.00	0.00	0.00	0.00
10	52	0.00	0.02	2.56	2.10
11	100	2.01	1.89	1.16	1.49
12	16	0.00	0.02	2.56	2.10
13	56	0.00	0.02	2.56	2.10
14	86	0.00	0.02	1.28	1.48
15	92	0.00	0.02	2.56	2.10
16	87	4.03	2.67	1.04	1.50
17	26	0.00	0.00	0.00	0.00
18	49	0.00	0.00	0.00	0.00
19	18	0.00	0.00	0.00	0.00
20	82	0.00	0.00	0.00	0.00

DJH DJH

Batch ID: 03-TF-0081 HARVEY-20 BSB

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03 Apr 2003 16:13 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 2 PW H3 #403727 User : 526

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	7.37
Region B:	2.0 -	18.6	0	0.0	7.27
Region C:	40.0 -	2000	0	0.0	12.59

Quench Indicator: tSIE/AEC
~~Ext Std Terminator: Count~~
~~03-TF-0081 HARVEY-20 BSB~~
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT2.DAT
Count Data Filename: C:\DATA\SDATA2.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.37	7.27	12.59	491.20	3	B		0.00
0	2.00	396.95	382.47	0.72	508.65	0		845.91	86.72
1	2.00	2.63	2.09	0.00	624.35	0		5.11	9.29
2	2.00	0.64	0.73	0.00	623.85	0		1.24	8.44
3	2.00	0.00	0.00	2.09	646.24	0		0.00	0.00
4	2.00	0.00	0.00	0.00	683.04	0		0.00	0.00
5	2.00	0.00	0.00	0.41	666.12	0		0.00	0.00
6	2.00	2.22	1.35	0.00	702.42	0		4.11	8.73
7	2.00	0.13	0.00	0.00	688.22	0		0.25	7.92
8	2.00	0.13	0.00	0.00	664.40	0		0.25	8.02
9	2.00	0.00	0.00	0.00	666.10	0		0.00	0.00
10	2.00	0.00	0.00	0.00	691.28	0		0.00	0.00
11	2.00	0.00	0.00	0.00	689.73	0		0.00	0.00
12	2.00	0.00	0.00	0.00	696.22	0		0.00	0.00
13	2.00	0.00	0.00	0.91	659.70	0		0.00	0.00
14	2.00	0.00	0.00	0.00	709.06	0		0.00	0.00
15	2.00	0.00	0.00	0.00	716.88	0		0.00	0.00
16	2.00	1.13	1.23	0.00	700.98	0		2.11	8.30
17	2.00	0.00	0.00	0.00	709.34	0		0.00	0.00
18	2.00	0.00	0.00	0.00	706.50	0		0.00	0.00
19	2.00	2.13	2.23	0.00	717.35	0		3.93	8.64
20	2.00	0.63	0.29	0.00	688.76	0		1.18	8.14

BJ*

BJBrown

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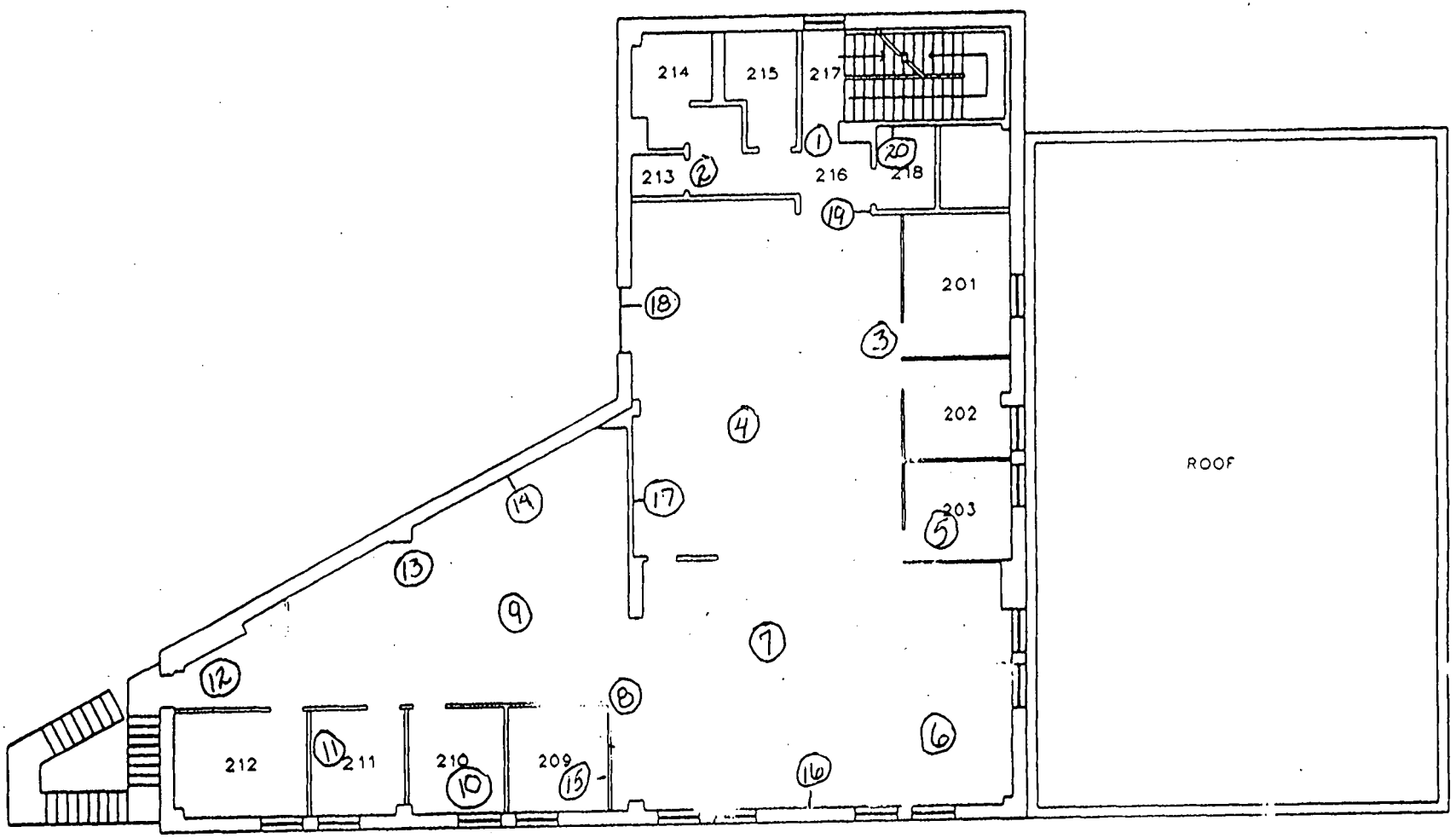

BLDG 40
SECOND FLOOR
CLASS: UNCL

03-TF-0081 Page 8 of 8

C-3647.147

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 40-ROOF-PENTHOUSE	SURVEY NO. 03-TF-0086
PURPOSE: MARISSM SURVEY PLAN 40-01 UNIT 3	RWP NO. N/A
	DATE: 4-14-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5143	8-13-03
2360	5833/5847	3-13-04
	N/A	

[redacted] HPs# 7474 Date: 04-17-03

Counted by: (Signature) SEE ATTACHED HPs Date:

Counted by: (Print Name) [redacted] HPs 6178 Date: 4-17-03

ML-9620 (2-98)

G-3708 147

Survey No. 03-TF-0086

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-5	SEE	ATTACHED		PENTHOUSE FLOOR
6-9	↓	↓	↓	PENTHOUSE WALLS
10				INSIDE OF VENT.
11-20				UPPER ROOF
21-22				DRAIN
23-30				LOWER ROOF
31				OUTSIDE WALL
32-40	↓	↓	↓	EXTERIOR WALLS
		N	A	

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

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-3

RSDS#03-TF-0086 RCT: SKR RCT: KA

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	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	5673	5214	5143	2		4/14/03	8:13	9	300	12	
SRCCHECK	5673	5214	5143	2		4/14/03	8:33	2072	60	13311	
SRCCHECK	5673	5214	5143	2		4/14/03	8:35	2049	60	13163	
SRCCHECK	5673	5214	5143	2		4/14/03	8:36	2063	60	13253	
SRCCHECK	5673	5214	5143	2		4/14/03	8:37	2093	60	13446	
SU-3 01	5673	5214	5143	2	1	4/14/03	9:02	6	60	39	
SU-3 02	5673	5214	5143	2	2	4/14/03	9:06	3	60	19	
SU-3 03	5673	5214	5143	2	3	4/14/03	9:08	4	60	26	
SU-3 04	5673	5214	5143	2	4	4/14/03	9:10	5	60	32	
SU-3 05	5673	5214	5143	2	5	4/14/03	9:12	10	60	64	
SU-3 06	5673	5214	5143	2	6	4/14/03	9:13	4	60	26	
SU-3 07	5673	5214	5143	2	7	4/14/03	9:15	1	60	6	
SU-3 08	5673	5214	5143	2	8	4/14/03	9:17	3	60	19	
SU-3 09	5673	5214	5143	2	9	4/14/03	9:20	4	60	26	
SU-3 10	5673	5214	5143	2	10	4/14/03	9:22	4	60	26	
SU-3 11	5673	5214	5143	2	11	4/14/03	11:37	9	60	58	
SU-3 12	5673	5214	5143	2	12	4/14/03	11:38	7	60	45	
SU-3 13	5673	5214	5143	2	13	4/14/03	11:41	11	60	71	
SU-3 14	5673	5214	5143	2	14	4/14/03	11:42	8	60	51	
SU-3 15	5673	5214	5143	2	15	4/14/03	11:44	10	60	64	
SU-3 16	5673	5214	5143	2	16	4/14/03	11:46	23	60	148	
SU-3 17	5673	5214	5143	2	17	4/14/03	11:47	9	60	58	
SU-3 18	5673	5214	5143	2	18	4/14/03	11:49	9	60	58	
SU-3 19	5673	5214	5143	2	19	4/14/03	11:50	11	60	71	
SU-3 20	5673	5214	5143	2	20	4/14/03	11:52	8	60	51	
SU-3 32	5673	5214	5143	2	32	4/14/03	13:19	1	60	6	
SU-3 33	5673	5214	5143	2	33	4/14/03	13:22	7	60	45	
SU-3 34	5673	5214	5143	2	34	4/14/03	13:23	11	60	71	
SU-3 35	5673	5214	5143	2	35	4/14/03	13:25	9	60	58	
SU-3 36	5673	5214	5143	2	36	4/14/03	13:27	12	60	77	
SU-3 37	5673	5214	5143	2	37	4/14/03	13:29	11	60	71	

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-3

RSDS# 03-TF-0086 RCT: DKR RCT: KA

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
SU-3 38	5673	5214	5143	2	38	4/14/03	13:31	9	60	58
SU-3 39	5673	5214	5143	2	39	4/14/03	13:33	1	60	6
SU-3 40	5673	5214	5143	2	40	4/14/03	13:34	4	60	26
SU-3 41	5673	5214	5143	2	41	4/14/03	13:36	2	60	13

40 BLDG CHARACTERIZATION BETA SURVEY UNIT 3

RSDS#03-TF-0086 RCT: SK RCT: KA

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
1	5833	7474	5847	1	4/14/03	272	60	515
2	5833	7474	5847	2	4/14/03	271	60	510
3	5833	7474	5847	3	4/14/03	261	60	460
4	5833	7474	5847	4	4/14/03	304	60	675
5	5833	7474	5847	5	4/14/03	343	60	870
6	5833	7474	5847	6	4/14/03	196	60	135
7	5833	7474	5847	7	4/14/03	174	60	25
8	5833	7474	5847	8	4/14/03	195	60	130
9	5833	7474	5847	9	4/14/03	136	60	-165
10	5833	7474	5847	10	4/14/03	210	60	205
11	5833	7474	5847	11	4/14/03	196	60	135
12	5833	7474	5847	12	4/14/03	219	60	250
13	5833	7474	5847	13	4/14/03	198	60	145
14	5833	7474	5847	14	4/14/03	236	60	335
15	5833	7474	5847	15	4/14/03	225	60	280
16	5833	7474	5847	16	4/14/03	236	60	335
17	5833	7474	5847	17	4/14/03	188	60	95
18	5833	7474	5847	18	4/14/03	241	60	360
19	5833	7474	5847	19	4/14/03	219	60	250
20	5833	7474	5847	20	4/14/03	232	60	315
32	5833	7474	5847	32	4/14/03	533	60	1820
33	5833	7474	5847	33	4/14/03	502	60	1665
34	5833	7474	5847	34	4/14/03	469	60	1500
35	5833	7474	5847	35	4/14/03	456	60	1435
36	5833	7474	5847	36	4/14/03	504	60	1675
37	5833	7474	5847	37	4/14/03	540	60	1855
38	5833	7474	5847	38	4/14/03	539	60	1850
39	5833	7474	5847	39	4/14/03	514	60	1725
40	5833	7474	5847	40	4/14/03	428	60	1295
41	5833	7474	5847	41	4/14/03	505	60	1680
QC 16	5833	5214	5847	1	4/15/03	261	60	460
QC 07	5833	5214	5847	2	4/15/03	203	60	170
QC 32	5833	5214	5847	3	4/15/03	427	60	1290
BETA BACKGROUND FOR 4-14-2003 WAS---------->								169
BETA BACKGROUND FOR 4-15-2003 WAS---------->								169

40 BLDG CHARACTERIZATION SURVEY UNIT-3

RSDS# 03-TF-0086 RCT: SKR RCT: KA

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
21	5833	7474	5847	21	4/14/03	290	60	605	5	60	40
22	5833	7474	5847	22	4/14/03	274	60	525	2	60	10
23	5833	7474	5847	23	4/14/03	335	60	830	2	60	10
24	5833	7474	5847	24	4/14/03	331	60	810	4	60	30
25	5833	7474	5847	25	4/14/03	245	60	380	2	60	10
26	5833	7474	5847	26	4/14/03	285	60	580	1	60	0
27	5833	7474	5847	27	4/14/03	312	60	715	2	60	10
28	5833	7474	5847	28	4/14/03	290	60	605	1	60	0
29	5833	7474	5847	29	4/14/03	275	60	530	5	60	40
30	5833	7474	5847	30	4/14/03	266	60	485	1	60	0
31	5833	7474	5847	31	4/14/03	485	60	1580	5	60	40
BETA BACKGROUND FOR 4-14-2003 WAS---------->								169			
ALPHA BACKGROUND FOR 4-14-2003 WAS---------->								1			

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40 BUILDING CHARACTERIZATION ALPHA SURVEY QC CHECKS UNIT-3

RSDS#03-TF-0086 RCT: SR RCT: KA

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
43-37 BKG:	0	EFF:	0.212	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	5673	7474	5143	2		4/15/03	12:35	8	300	10
SRC CHECK	5673	7474	5143	2		4/15/03	12:37	2124	60	13645
SRC CHECK	5673	7474	5143	2		4/15/03	12:38	2105	60	13523
SRC CHECK	5673	7474	5143	2		4/15/03	12:40	2112	60	13568
SRC CHECK	5673	7474	5143	2		4/15/03	12:42	2089	60	13420
QC 16	5673	7474	5143	2	1	4/15/03	12:47	11	60	71
QC 07	5673	7474	5143	2	2	4/15/03	12:49	2	60	13
QC 32	5673	7474	5143	2	3	4/15/03	12:51	7	60	45

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Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200304150818	**Count Date:**	4/15/2003
Group:	H	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0086 HARVEY-41 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13	Alpha to Beta:	11.39	±	0.00
Beta:	46.13	±	0.13	Beta to Alpha:	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	68	4.37	2.72	3.80	2.51
2	34	0.00	0.00	1.37	1.45
3	3	0.00	0.00	8.22	3.54
4	89	0.00	0.00	0.00	0.00
5	40	2.18	1.92	2.58	2.05
6	15	0.00	0.00	0.00	0.00
7	50	4.37	2.72	5.17	2.90
8	11	0.00	0.00	2.74	2.04
9	6	2.18	1.92	9.44	3.83
10	35	0.00	0.00	1.37	1.45
11	28	0.00	0.00	5.48	2.89
12	68	0.00	0.00	2.74	2.04
13	71	0.00	0.00	6.85	3.23
14	14	2.18	1.92	2.58	2.05
15	12	0.00	0.00	5.48	2.89
16	36	2.18	1.92	5.32	2.90
17	45	6.56	3.33	3.64	2.52
18	58	4.37	2.72	3.80	2.51
19	28	2.18	1.92	5.32	2.90
20	88	4.37	2.72	2.43	2.06
21	73	6.56	3.33	0.90	1.47
22	24	0.00	0.00	1.37	1.45
23	62	0.00	0.00	5.48	2.89
24	81	0.00	0.00	0.00	0.00
25	31	2.18	1.92	3.95	2.51
26	81	4.37	2.72	3.80	2.51
27	76	0.00	0.00	2.74	2.04
28	57	2.19	1.92	1.21	1.45
29	69	0.00	0.00	2.74	2.04
30	42	0.00	0.00	0.00	0.00
31	59	2.18	1.92	2.58	2.05
32	37	0.00	0.00	0.00	0.00
33	98	0.00	0.00	2.74	2.04
34	74	0.00	0.00	1.37	1.45
35	65	0.00	0.00	4.11	2.50
36	39	2.18	1.92	3.95	2.51
37	4	2.18	1.92	2.58	2.05

Alpha/Beta Analysis

Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13	Alpha to Beta:	11.39	±	0.00
Beta:	46.13	±	0.13	Beta to Alpha:	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
38	63	2.19	1.92	1.21	1.45
39	65	2.18	1.92	8.06	3.54
40	43	2.19	1.92	0.00	0.16
41	3	2.19	1.92	1.21	1.45

Batch ID: 03-TF-0086 HARVEY-41 BSB

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

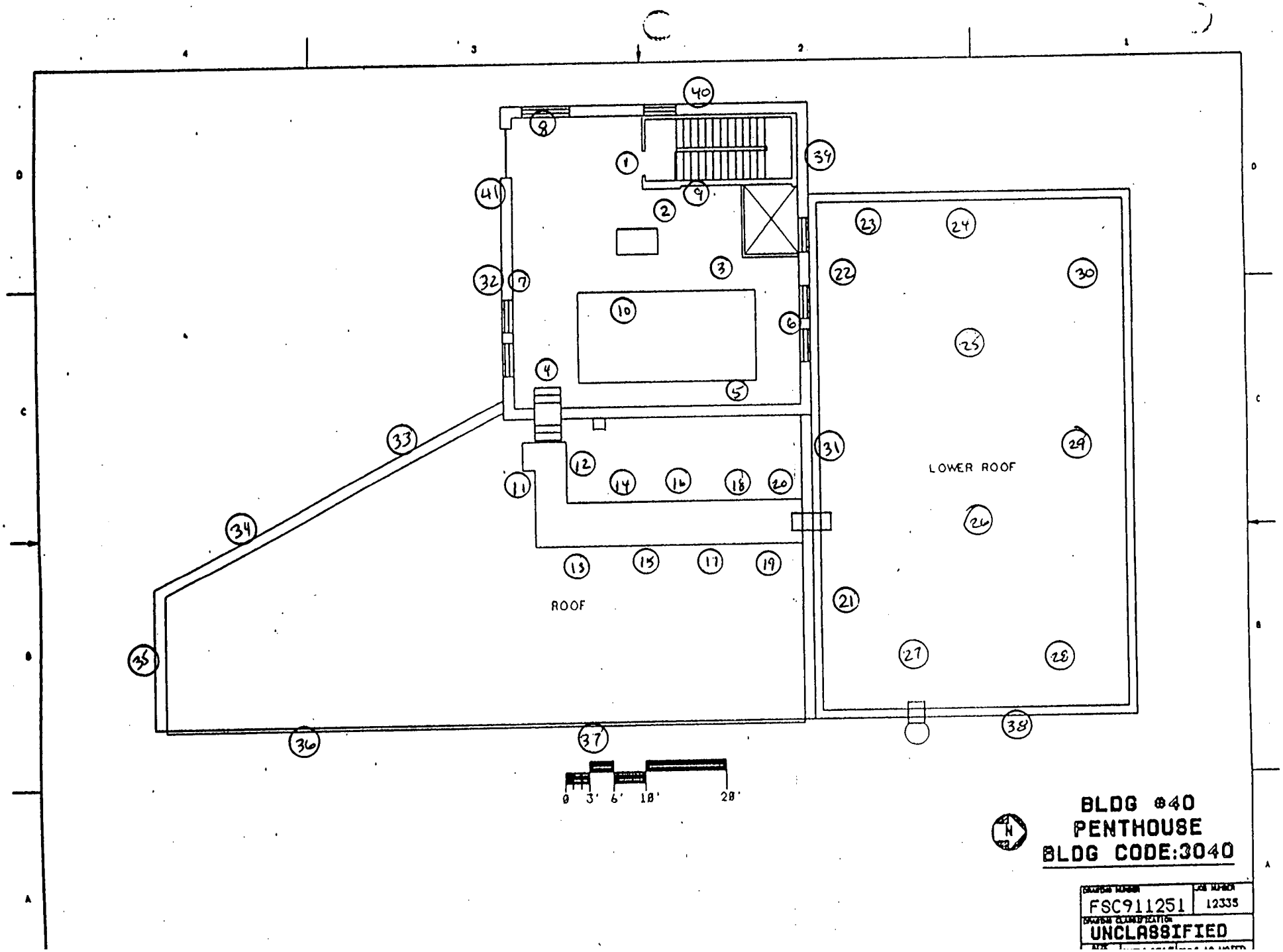
	LL	UL	LCR	2S%	BKG
Region A:	0.5	- 18.6	0	0.0	7.70
Region B:	2.0	- 18.6	0	0.0	7.40
Region C:	40.0	- 2000	0	0.0	11.70

Quench Indicator: tSIE/AEC
~~Ext Std Terminator: Count~~
03-TF-0086 HARVEY-41 BSB
~~Luminescence Correction On~~
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.70	7.40	11.70	589.42	0	B		0.00
0	2.00	94.94	91.86	0.00	501.97	0		203.99	34.42
1	2.00	0.00	0.00	0.00	589.05	0		0.00	0.00
2	2.00	0.30	0.29	0.00	623.91	0		0.58	8.47
3	2.00	2.63	2.94	0.00	555.94	0		5.36	9.93
4	2.00	11.47	9.87	6.30	613.91	0		22.39	12.67
5	2.00	1.46	1.60	0.00	539.11	0		3.00	9.54
6	2.00	3.80	4.10	2.80	650.04	0		7.25	9.75
7	2.00	0.80	0.80	0.00	617.48	0		1.56	8.73
8	2.00	0.00	0.00	0.00	621.72	0		0.00	0.00
9	2.00	12.81	11.72	33.30	668.75	0		24.19	12.67
10	2.00	4.94	4.74	15.21	449.56	0		11.35	12.27
11	2.00	0.00	0.00	0.80	551.55	0		0.00	0.00
12	2.00	1.30	1.60	1.80	654.18	0		2.47	8.74
13	2.00	0.00	0.00	5.30	594.01	0		0.00	0.00
14	2.00	0.00	0.00	4.30	587.47	0		0.00	0.00
15	2.00	1.30	1.27	0.00	631.23	0		2.51	8.86
16	2.00	1.80	1.83	2.30	601.98	0		3.54	9.26
17	2.00	1.08	1.28	2.80	506.29	0		2.31	9.71
18	2.00	0.00	0.00	2.30	478.88	0		0.00	0.00
19	2.00	0.00	0.00	2.80	506.48	0		0.00	0.00
20	2.00	1.60	1.79	4.30	477.64	0		3.54	10.32
21	2.00	1.30	1.34	0.00	592.11	0		2.58	9.11
22	2.00	0.00	0.00	0.00	437.08	0		0.00	0.00
23	2.00	0.00	0.00	0.00	368.46	0		0.00	0.00
24	2.00	3.80	3.68	0.00	683.90	0		7.12	9.58
25	2.00	0.00	0.00	0.00	609.48	0		0.00	0.00
26	2.00	0.00	0.00	0.00	366.18	9		0.00	0.00
27	2.00	0.24	0.48	2.30	486.19	0		0.53	9.54
28	2.00	0.00	0.00	0.00	491.36	0		0.00	0.00
29	2.00	0.00	0.00	0.00	681.84	0		0.00	0.00
30	2.00	4.80	4.82	1.19	603.64	0		9.44	10.45
31	2.00	1.15	0.58	0.00	688.78	0		2.15	8.52
32	2.00	0.00	0.10	0.00	659.65	0		0.00	0.00
33	2.00	0.00	0.00	0.00	663.04	0		0.00	0.00
34	2.00	0.00	0.25	0.00	676.69	0		0.00	0.00
35	2.00	0.80	1.10	0.00	689.81	0		1.49	8.37

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM FLAG	DPM1	2SIGMA
36	2.00	0.00	0.00	0.00	675.70	0	0.00	0.00
37	2.00	0.00	0.00	0.80	671.29	0	0.00	0.00
38	2.00	0.50	0.33	0.00	709.29	0	0.92	8.16
39	2.00	0.00	0.00	0.00	659.40	0	0.00	0.00
40	2.00	0.00	0.00	1.58	702.63	0	0.00	0.00
41	2.00	4.30	3.84	0.00	594.41	0	8.51	10.32

03-TF-0086


ROOF
LOWER ROOF
0 3' 6' 18' 28'
N
BLDG #40
PENTHOUSE
BLDG CODE:3040
FSC911251
12335
UNCLASSIFIED

C4807 1/4

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 40 FLOOR ALL	SURVEY NO. 03-TF-0078
PURPOSE: MARSSIM SURVEY PLAN 40-01	RWP NO. N/A
	DATE: 3-31-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5676	8-13-03
2350	5671/5675	9-11-03
	N/A	

[redacted]	HP# 5214 7494	Date: 4-8-03
[redacted]		
Counted by: (Signature) N/A	HP# N/A	Date: N/A
Counted by: (Print Name)		
[redacted]	HP# 6178	Date: 4-8-03
[redacted]		

ML-9620 (2-98)

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Survey No. 03-TF-0078

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

N A

COMMENTS:

NOTES:

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

ML-9620 (4-98)

G-S007 147

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-1 FLOOR SCAN

RSDS# 03-TF-0078 RCT: RA RCT: JR

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	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	5673	5214	5676	3		3/31/03	12:22	28	300	9	
SRCCHECK	5673	5214	5676	3		3/31/03	12:48	2023	60	3268	
SRCCHECK	5673	5214	5676	3		3/31/03	12:50	1998	60	3228	
SRCCHECK	5673	5214	5676	3		3/31/03	12:52	2195	60	3546	
SRCCHECK	5673	5214	5676	3		3/31/03	12:55	1994	60	3221	
SRCCHECK	5673	5214	5676	3		3/31/03	12:57	2112	60	3412	
SRCCHECK	5673	5214	5676	3		3/31/03	12:59	2144	60	3463	
SU-1S 01	5673	5214	5676	3	1	3/31/03	14:11	14	30	45	
SU-1S 02	5673	5214	5676	3	2	3/31/03	14:14	15	30	48	
SU-1S 03	5673	5214	5676	3	3	3/31/03	14:16	8	30	26	
SU-1S 04	5673	5214	5676	3	4	3/31/03	14:18	10	30	32	

40 BUILDING CHARACTERIZATION ALPHA SURVEY FLOOR SCAN

RSDS# 03-TF-0078 RCT: KA RCT: SKR

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	5214	5676	3		4/1/03	8:26	17	300	5
SRCCHECK	5673	5214	5676	3		4/1/03	8:48	2136	60	3451
SRCCHECK	5673	5214	5676	3		4/1/03	8:50	2042	60	3299
SRCCHECK	5673	5214	5676	3		4/1/03	8:52	2079	60	3358
SRCCHECK	5673	5214	5676	3		4/1/03	8:53	2144	60	3463
SRCCHECK	5673	5214	5676	3		4/1/03	8:58	2028	60	3276
SRCCHECK	5673	5214	5676	3		4/1/03	8:59	2138	60	3454

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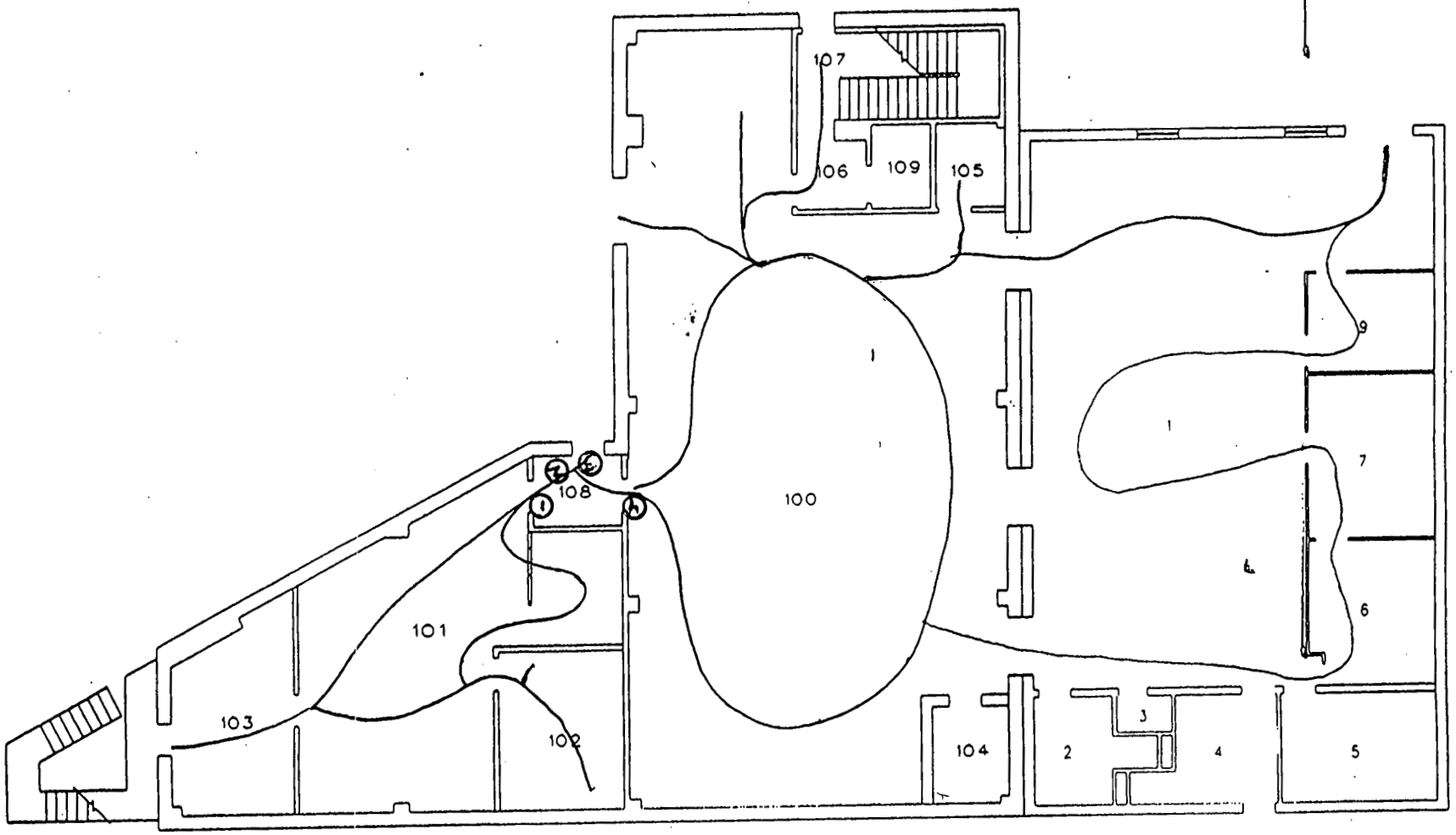

BLDG 40
FIRST FLOOR
CLASS: UNCL

03-TF-0078

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GS32 147

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-2 FLOOR SCAN

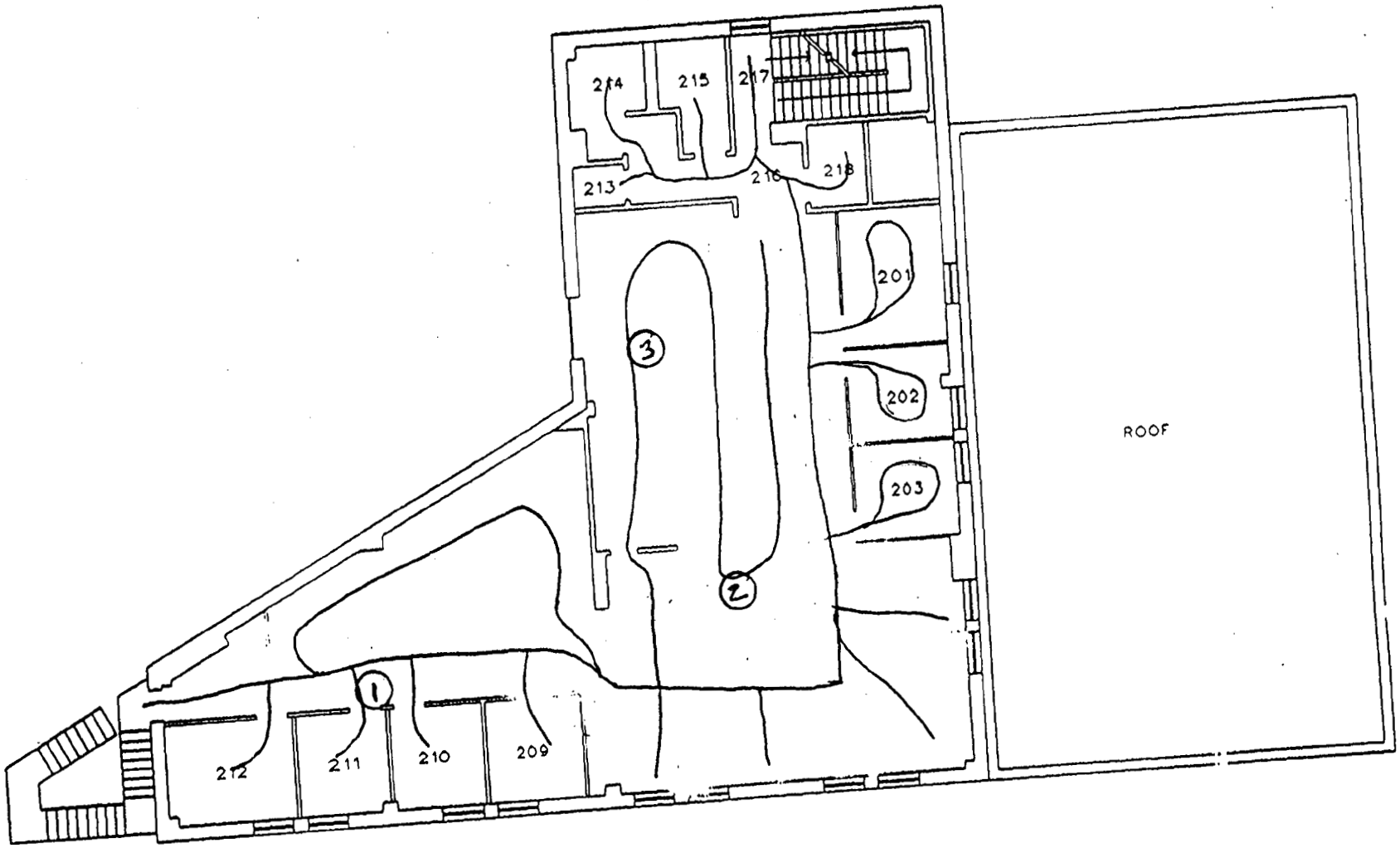
RSDS#03-TF-0078 RCT: KA RCT:_____

43-20 BKG:	0	EFF:	0.188	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :
43-37 BKG:	0	EFF:	0.199	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5671	7474	5675	4		4/1/03	8:24	47	300	16
SRC CHECK	5671	7474	5675	4		4/1/03	9:00	2086	60	3590
SRC CHECK	5671	7474	5675	4		4/1/03	9:02	2188	60	3765
SRC CHECK	5671	7474	5675	4		4/1/03	9:04	2285	60	3932
SRC CHECK	5671	7474	5675	4		4/1/03	9:05	2245	60	3863
SRC CHECK	5671	7474	5675	4		4/1/03	9:07	2069	60	3561
SRC CHECK	5671	7474	5675	4		4/1/03	9:08	2239	60	3853

40 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT-2 FLOOR SCAN

RSDS# 03-TF-0078 RCT: KA RCT: _____

43-20 BKG:	0	EFF:	0.188	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.199	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	5671	7474	5675	4		4/2/03	9:04	33	300	11	
SRC CHECK	5671	7474	5675	4		4/2/03	9:08	2136	60	3676	
SRC CHECK	5671	7474	5675	4		4/2/03	9:09	2079	60	3578	
SRC CHECK	5671	7474	5675	4		4/2/03	9:11	2346	60	4037	
SRC CHECK	5671	7474	5675	4		4/2/03	9:13	2170	60	3734	
SRC CHECK	5671	7474	5675	4		4/2/03	9:15	2147	60	3695	
SRC CHECK	5671	7474	5675	4		4/2/03	9:16	2140	60	3683	
SU-2S 01	5671	7474	5675	4		4/2/03	10:17	6	30	21	
SU-2S 02	5671	7474	5675	4		4/2/03	10:24	3	30	10	
SU-2S 03	5671	7474	5675	4		4/2/03	10:25	4	30	14	



BLDG 40
SECOND FLOOR
CLASS: UNCL

03-TF-0078

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C-Seq 142

RADIOLOGICAL SURVEY DATA SHEET

LOCATION (BLDG./AREA/ROOM) BUILDING 40 DRAINS	SURVEY NO. 03-TF-0098
PURPOSE: SAMPLE AND SURVEY FLOOR DRAINS PER PLAN 40-01 FOR MARSSIM	RWP NO. N/A
	DATE: 4/29/03
	TIME: 1500

MAP / DRAWING

SEE ATTACHED DATA AND DRAWINGS

COPY

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
— · — · · = radiological boundary

△# = mrem/hr neutron
□# = air sample number
(#) = swipe number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/4393	5833/5847	3-13-04
	N/A	

Completed [redacted]		HP# 5214	Date: ~~4/29/03~~ 6-27-03
Completed [redacted]			
Counted by: (Signature)		HP#	Date:
Counted by: (Print Name) SEE ATTACHED			
[redacted]		HP# 6178	Date: 6-27-0
[redacted]			

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Survey No. 03-TF-0098

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ATTACHED RESULTS

SEE

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

COMMENTS: DRAIN SAMPLES #D1 THRU #D10 AT WIPE LOCATIONS

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 printou results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If needed, mark N/A.

ML-9620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR001
Batch Ended: 4/30/03 10:55
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0098 RILEY-10 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
B2	1	3.10	2.91		0.68	2.21	
B3	2	0.00	2.19		1.35	1.98	
B4	3	2.51	2.94		1.29	2.21	
C1	4	0.00	2.03		2.25	2.15	
C2	5	0.00	1.81		0.00	1.26	
C3	6	1.44	2.11		0.00	1.45	
C4	7	1.36	2.04		1.40	2.41	
D1	8	0.00	2.13		5.95	3.95	
D2	9	0.19	2.25		8.32	3.45	
D3	10	2.95	3.10		2.85	2.69	

COPY

G-592

COPY

30 Apr 2003 11:26 TRI-CARB - 1.09 ~~Page #1~~
Protocol #: 1 PW H3 #407906 User : 5

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	7.50
Region B:	2.0 -	18.6	0	0.0	7.05
Region C:	40.0 -	2000	0	0.0	10.71

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0098 RILEY-10 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	7.50	7.05	0	B	599.08		0.000	10.71
0	2.00	235.25	216.79	0		461.07	484.64	52.042	2.79
1	2.00	0.00	0.00	0		366.13	0.00	0.000	0.00
2	2.00	0.00	0.00	0		553.13	0.00	0.000	2.79
3	2.00	1.84	1.79	0		628.85	3.26	8.267	7.29
4	2.00	0.00	0.00	0		554.51	0.00	0.000	1.79
5	2.00	4.00	2.45	0		588.22	7.33	9.356	11.73
6	2.00	10.26	9.88	0		601.90	18.61	11.297	7.79
7	2.00	4.31	3.76	0		537.71	8.23	9.867	0.00
8	2.00	6.96	6.92	0		665.95	12.06	9.807	2.29
9	2.00	1.57	2.03	0		583.53	2.89	8.464	6.79
10	2.00	4.00	2.95	0		497.60	7.91	10.092	3.29

QR

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RDS# 03-TF-0098

PAGE 4

40-BLDG DRAIN CHARACTERIZATION ALPHA/BETA SURVEY PLAN 40-01

RSDS# 03-TF-0098 RCT: [illegible] 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	1	04/29/2003	255	60	470	0	60	-8
2	5833	5214	5847	2	04/29/2003	240	60	395	1	60	0
3	5833	5214	5847	3	04/29/2003	310	60	745	4	60	24
4	5833	5214	5847	4	04/29/2003	419	60	1290	3	60	16
5	5833	5214	5847	5	04/29/2003	241	60	400	2	60	8
6	5833	5214	5847	6	04/29/2003	208	60	235	3	60	16
7	5833	5214	5847	7	04/29/2003	201	60	200	1	60	0
8	5833	5214	5847	8	04/29/2003	228	60	335	2	60	8
9	5833	5214	5847	9	04/29/2003	208	60	235	1	60	0
10	5833	5214	5847	10	04/29/2003	213	60	260	2	60	8
BETA BACKGROUND FOR 4-29-2003 WAS---------->								161			
ALPHA BACKGROUND FOR 4-29-2003 WAS---------->								1			

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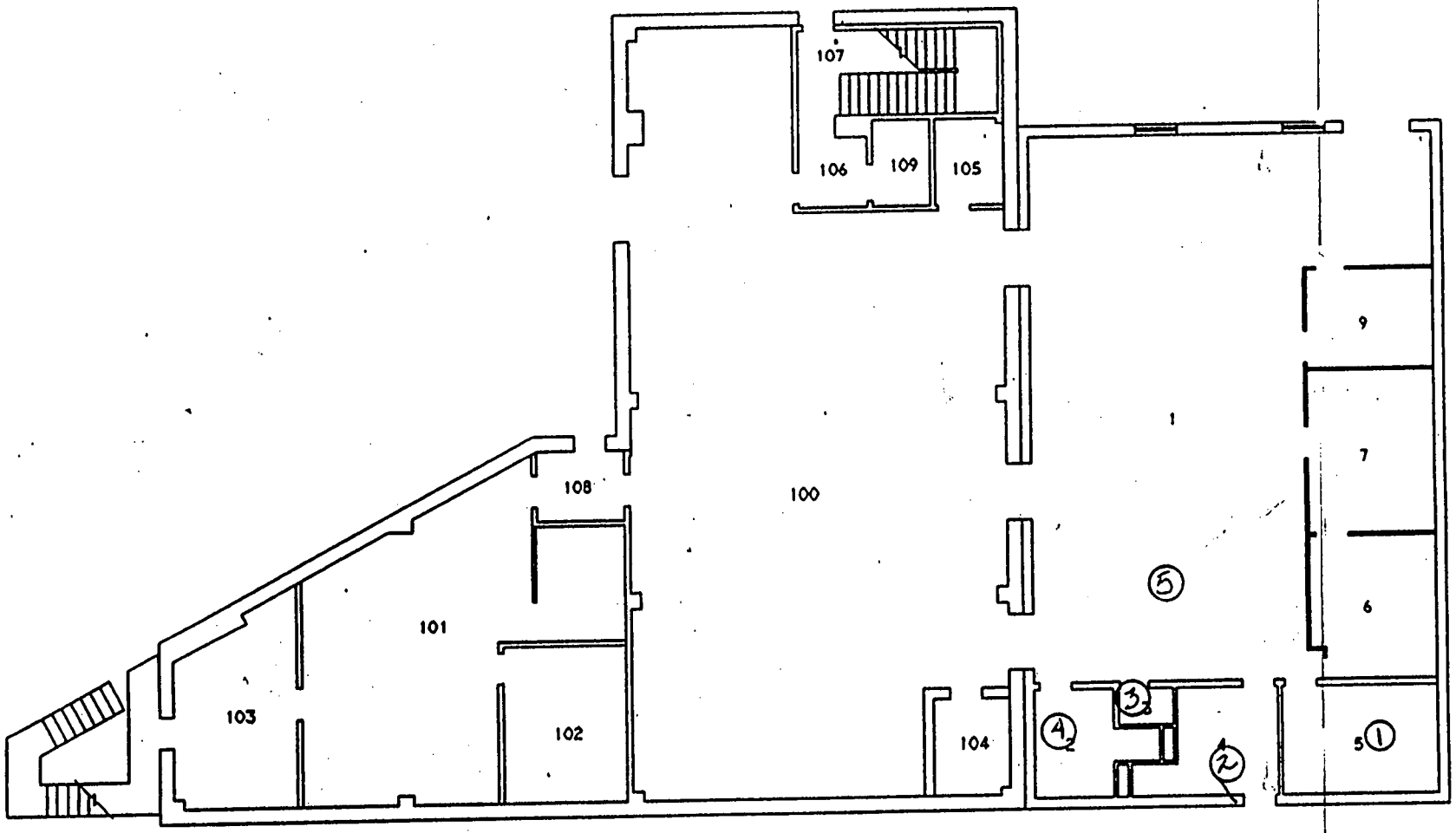
REV	DATE	REVISION	BY	CHKD	ENG	APPD	APVD	R
B	12/12/91	ASBUILT ISSUE	DCW				DVO	



BLDG #40
FIRST FLOOR
BLDG CODE 3040

UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials

SHEET	1	2	3	4	5	6	TITLE
TOTAL	3	3	3				BLDG #40 FLOOR PLANS

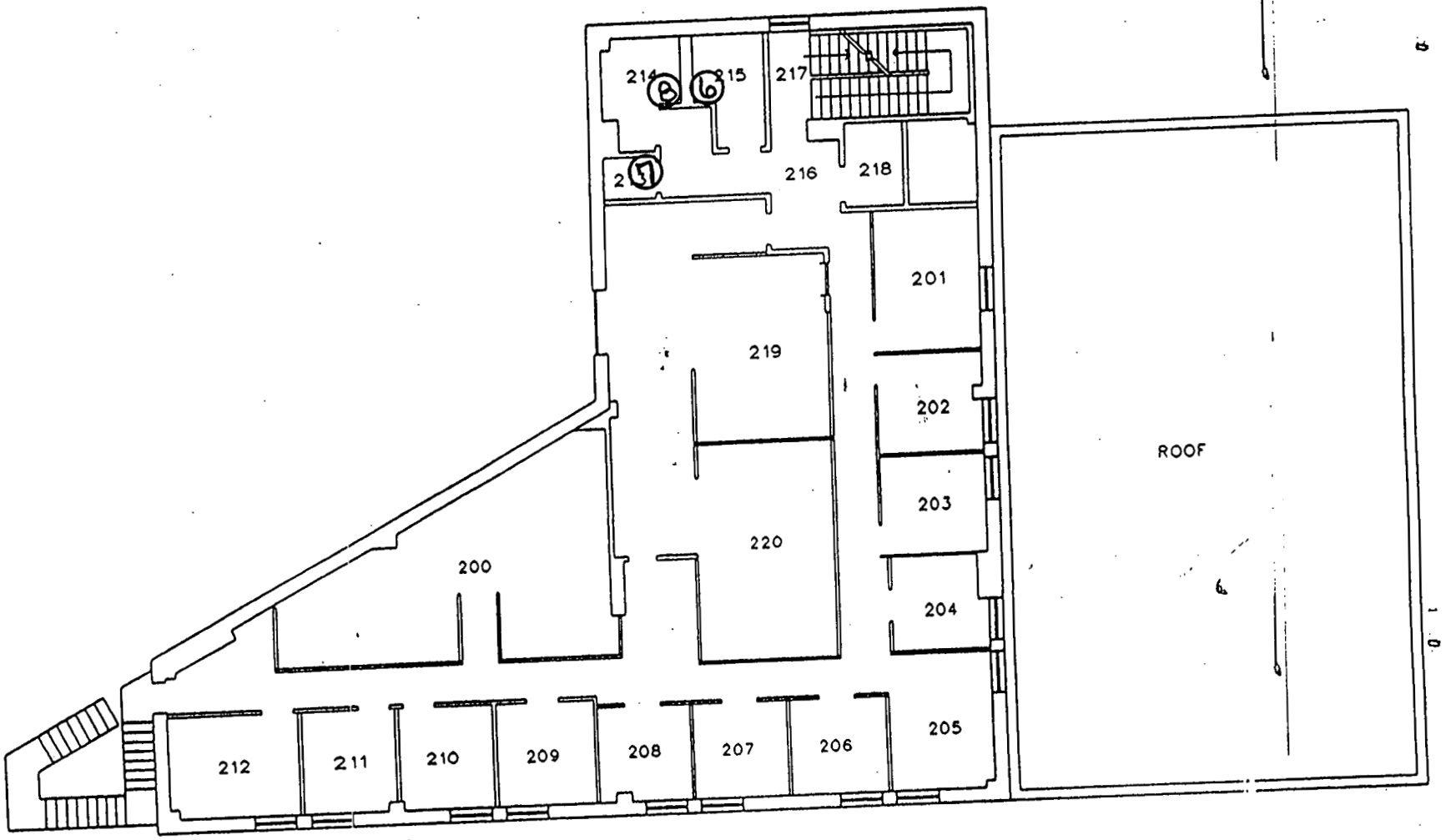
PARTY CLASSIFICATION

DIVISION CLASSIFICATION: UNCLASSIFIED

SIZE: C | DRAWING NUMBER: FSC911251 | JOB NUMBER: 12335

APPROVALS: SAFETY COMMITTEE REVIEWED: ___NONE ___RNCNC ___SCNC ___DNNC
TECH. REP. ___ DATE:

G6 2 of 147



BLDG 4[illegible]
SECOND FLOOR
CLASS: UNCL

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RSDS 03-TF-0098

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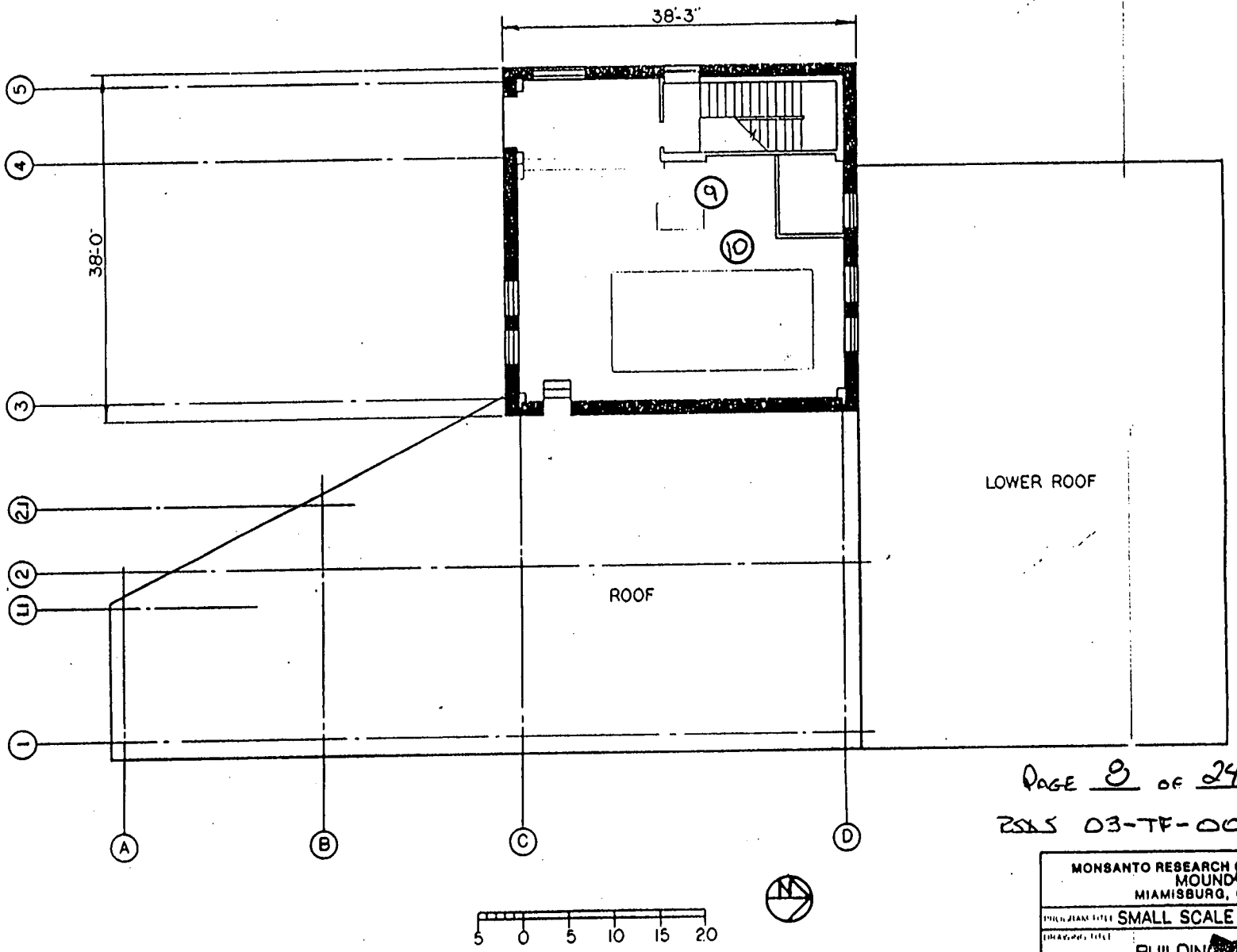

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RSLS 03-TF-009

MONSANTO RESEARCH CORPORATION
MOUND
MIAMISBURG, OHIO

PROJECT TITLE SMALL SCALE FLOOR PLANS

DRAWING TITLE BUILDING 20 PENTHOUSE

DWG. TYPE ARH

DESIGN H.K. WEAVER

G-649 147

SURVEY PLAN FORM 40-01
Attachment 2

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
40-01-D1	4/29/03			40 ROOM 5 FLOOR DRAIN	SKL	04-30-03	0710	SKL	GB
40-01-D2	4/29/03			40 ROOM 4 FLOOR DRAIN	SKL				
40-01-D3	4/29/03			40 ROOM 3 SLOP SINK	SKL				
40-01-D4	4/29/03			40 ROOM 2 FLOOR DRAIN	SKL				
40-01-D5	4/29/03	NA		40 ROOM 1 FLOOR DRAIN	SKL				
40-01-D6	4/29/03			40 ROOM 215 FLOOR DRAIN	SKL				
40-01-D7	4/29/03			40 ROOM 213 FLOOR DRAIN (SLOP SINK)	SKL				
40-01-D8	4/29/03			40 ROOM 214 FLOOR DRAIN	SKL				
40-01-D9	4/29/03			40 ROOM 301P #1 FLOOR DRAIN	SKL				
40-01-D10	4/29/03			40 ROOM 301P #2 FLOOR DRAIN	SKL	04-30-03	0710	SKL	GB
40-01-									
40-01-				NA					
40-01-									

COPY

GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: M[illegible]5[illegible]5
File ID: Mg102122.s0[illegible]
Priority: Yes

COPY

Description\Location
40-01-D1

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA

Comments
No activity observed.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSDS 03-TF-0098

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GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15
File ID: Mg102123.s0
Priority: Yes

COPY

Description\Location
40-01-D2

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
K-40		
Cs-137		

Comments

Qualitative report only.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSAS 03-TF-0098

G-6706 147

GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15407
File ID: Mg301110.s0
Priority: Yes

COPY

Description\Location
40-01-D3

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA

Comments
No activity observed.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSAS 03-TF-0098
Pg 12 of 6

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GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15408
File ID: Mg400536.s0
Priority: Yes

COPY

Description\Location
40-01-D4

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
K-40		
Th-234		

Comments
Qualitative report only.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSDS 03-TF-0098

G-69-8147

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GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15409
File ID: Mg500396.0
Priority: Yes

COPY

Description\Location
40-01-D5

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
K-40		
Co-60		
Pb-210		
Ra-226		
Th-234		

Comments
Qualitative report only.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSAS 03-TF-0090

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GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15410
File ID: Mg102124.s0
Priority: Yes

COPY

Description\Location
40-01-D6

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
Cs-137		
Am-241		

Comments
Qualitative report only.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSAS 03-TF-0098

G 7156 197

B1586

GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15411
File ID: Mg102125.s0
Priority: Yes

Description\Location
40-01-D7

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
Pb-210		
Ac-227		
Pa-231		
Th-232		

Comments
Qualitative report only.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSDS 03-TF-0098 Pg 16.

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GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15412
File ID: Mg301111.s0
Priority: Yes

COPY

Description\Location
40-01-D8

Collector: ~~5214~~
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
Th-232		
Th-234		
Am-241		

Comments
Qualitative report only.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

2505 03-TF-0098

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Ps 17 of

GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15413
File ID: Mg400537.s0
Priority: Yes

COPY

Description\Location
40-01-D9

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
K-40		
Th-230		

Comments

Qualitative report only. Low confidence for Th-230.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSLS 03-TF-0098

G-74-8-147

Rj 18

GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15414
File ID: Mg500397.s0
Priority: Yes

COPY

Description\Location
40-01-D10

Collector: 5214
Date Received: 4/30/03
Date Collected: 4/29/03

Radionuclide	Activity (pCi)	MDA
Pb-210		
Ra-226		
Pu-238		

Comments
Qualitative report only.

Date: 5/ 1/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

RSAS 03-TF-0098
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SURVEY PLAN FORM 40-01
Attachment 2

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
40-01-D1	4/29/03			40 ROOM 5 FLOOR DRAIN	SKL	05-08-03 ~~4-30-03~~ SKL	~~0710~~ 1500	SKL	4812 [redacted]
40-01-D2	4/29/03			40 ROOM 4 FLOOR DRAIN	SKL				
40-01-D3	4/29/03			40 ROOM 3 SLOP SINK	SKL				
40-01-D4	4/29/03			40 ROOM 2 FLOOR DRAIN	SKL				
40-01-D5	4/29/03	NA		40 ROOM 1 FLOOR DRAIN	SKL				
40-01-D6	4/29/03			40 ROOM 215 FLOOR DRAIN	SKL				
40-01-D7	4/29/03			40 ROOM 213 (SLOP SINK) FLOOR DRAIN	SKL				
40-01-D8	4/29/03			40 ROOM 214 FLOOR DRAIN	SKL				
40-01-D9	4/29/03			40 ROOM 301P #1 FLOOR DRAIN	SKL				
40-01-D10	4/29/03			40 ROOM 301P #2 FLOOR DRAIN	SKL	05-08-03 SKL	1500	SKL	
40-01-									
40-01-				NA					
40-01-									

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BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
05-08-03	DRAIN SAMPLES	DAN RILEY	10
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
SMAP/TFV	DAN RILEY 4235		OSW-413
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
	4-22-03	03-TF-0098	

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:

IDENTIFIED & QUANTIFIED

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
03041656	BLDG. 40 DRAINS	D1	
57		D2	
58		D3	
59		D4	
60		D5	
61		D6	
62		D7	
63		D8	
64		D9	
03041665	BLDG. 40 DRAINS	D10	

COMMENTS:

ANALYZED BY: L. Hopkins

DATE: 6-24-03

ML-5222 (1-01)

G7706 147 Ds 21624

Laboratory ID#:	0304656 - 0304665
Project/function:	SMPP/TFV
Submitted:	May 8, 2003
Submitted by:	D. Riley
Point of Contact:	D. Riley____ x4235
RSDS#:	03-TF-0098
Date:	Jun 26, 2003

Lab ID 0304656
Sample Location Bldg. 40 Drains # D1

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.06
Pu-239/240	<LDL	<LDL	0.13
Th-232	0.06	0.04	0.06
Th-230	0.06	0.04	0.06
Th-228	<LDL	<LDL	0.06
Th-227	<LDL	<LDL	0.11
U-238	<LDL	<LDL	0.04
U-235	<LDL	<LDL	0.11
U-233/234	0.07	0.03	0.04

Lab ID 0304657
Sample Location Bldg. 40 Drains # D2

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.05
Pu-239/240	<LDL	<LDL	0.05
Th-232	<LDL	<LDL	0.06
Th-230	<LDL	<LDL	0.06
Th-228	<LDL	<LDL	0.06
Th-227	<LDL	<LDL	0.06
U-238	<LDL	<LDL	0.14
U-235	<LDL	<LDL	0.14
U-233/234	<LDL	<LDL	0.07

Lab ID 0304658
Sample Location Bldg. 40 Drains # D3

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.06
Pu-239/240	<LDL	<LDL	0.12
Th-232	<LDL	<LDL	0.12
Th-230	<LDL	<LDL	0.06
Th-228	<LDL	<LDL	0.12
Th-227	<LDL	<LDL	0.12
U-238	<LDL	<LDL	0.05
U-235	0.06	0.03	0.05
U-233/234	<LDL	<LDL	0.10

RSDS-03-TF-0098

Lab ID 0304659
Sample Location Bldg. 40 Drains # D4

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.15
Pu-239/240	<LDL	<LDL	0.07
Th-232	<LDL	<LDL	0.11
Th-230	<LDL	<LDL	0.05
Th-228	<LDL	<LDL	0.05
Th-227	<LDL	<LDL	0.13
U-238	0.05	0.03	0.05
U-235	<LDL	<LDL	0.09
U-233/234	<LDL	<LDL	0.05

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Lab ID 0304660
Sample Location Bldg. 40 Drains # D5

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.13
Pu-239/240	<LDL	<LDL	0.07
Th-232	<LDL	<LDL	0.16
Th-230	<LDL	<LDL	0.11
Th-228	0.08	0.04	0.06
Th-227	<LDL	<LDL	0.06
U-238	<LDL	<LDL	0.05
U-235	<LDL	<LDL	0.11
U-233/234	0.12	0.05	0.05

Lab ID 0304661
Sample Location Bldg. 40 Drains # D6

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.12
Pu-239/240	<LDL	<LDL	0.12
Th-232	<LDL	<LDL	0.05
Th-230	0.06	0.03	0.05
Th-228	<LDL	<LDL	0.05
Th-227	<LDL	<LDL	0.11
U-238	<LDL	<LDL	0.09
U-235	<LDL	<LDL	0.05
U-233/234	0.05	0.03	0.05

Lab ID 0304662
Sample Location Bldg. 40 Drains # D7

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	0.58	0.11	0.05
Pu-239/240	<LDL	<LDL	0.10
Th-232	<LDL	<LDL	0.06
Th-230	0.06	0.04	0.06
Th-228	<LDL	<LDL	0.06
Th-227	<LDL	<LDL	0.12
U-238	<LDL	<LDL	0.11
U-235	<LDL	<LDL	0.05
U-233/234	<LDL	<LDL	0.05

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Lab ID 0304663
Sample Location Bldg. 40 Drains # D8

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.07
Pu-239/240	<LDL	<LDL	0.15
Th-232	<LDL	<LDL	0.05
Th-230	<LDL	<LDL	0.05
Th-228	<LDL	<LDL	0.11
Th-227	<LDL	<LDL	0.05
U-238	0.19	0.08	0.09
U-235	<LDL	<LDL	0.21
U-233/234	<LDL	<LDL	0.18

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Lab ID 0304664
Sample Location Bldg. 40 Drains # D9

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.06
Pu-239/240	<LDL	<LDL	0.06
Th-232	<LDL	<LDL	0.05
Th-230	<LDL	<LDL	0.05
Th-228	<LDL	<LDL	0.05
Th-227	0.08	0.04	0.05
U-238	<LDL	<LDL	0.06
U-235	<LDL	<LDL	0.16
U-233/234	<LDL	<LDL	0.13

Lab ID 0304665
Sample Location Bldg. 40 Drains # D10

Isotope	pCi / Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.08
Pu-239/240	<LDL	<LDL	0.08
Th-232	<LDL	<LDL	0.11
Th-230	<LDL	<LDL	0.13
Th-228	<LDL	<LDL	0.16
Th-227	<LDL	<LDL	0.11
U-238	<LDL	<LDL	0.20
U-235	<LDL	<LDL	0.22
U-233/234	<LDL	<LDL	0.17

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HP # Date

Data Verification

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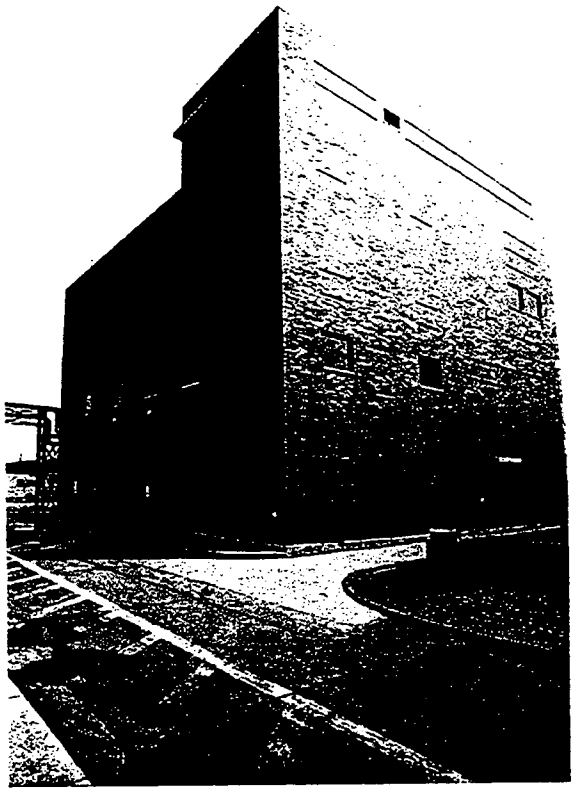
Final Status Report
For
Building 99



Prepared by: Roderick C. Case / Date: September 8, 2003

Reviewed by: Kevin Doody / Date: 9/11/03

Approved by: A. Stephen Collas / Date: 9/16/03

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1.0 Historical Review

Building 99 was constructed in 1989 and is centrally located on the "Main Hill", connected to the northern side of Building 40. Named the Security Operations Facility, Building 99 is a three-story building with a total area of 11412ft^2.

Building 99 through its brief 15-plus year history has been used to support security operations, including providing administrative areas for security staff, as well as providing a location for the Security Communications Center, a lock smiths shop, Mound's Emergency Operations Center (EOC), and other site control related activities.

Building 99 has been used for the same purpose since construction and no research, development, or production activities using radioactive or energetic materials have occurred in the building.

A complete structural and operational history can be found in Reference 1.

2.0 Survey Objectives

The objective of this survey plan was to confirm the classification of Building 99 as non-impacted. No radioactive processes occurred in this building and no radioactive material was ever used or stored there. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains or ventilation systems. The survey data was compared to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined in the Survey Plan Form (see Enclosures).

Table 1 lists the permissible surface contamination guideline values as stated in DOE Order 4500.5. These limits are the Derived Concentration Guidelines (DCGL's) for building and structure release.

Table 1

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

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

The average activity levels shown in Table 1 assumes that the residual contamination is uniformly distributed across the survey unit and is the $DCGL_w$ for this survey. The maximum activity shown in Table 1 represents the Elevated Measurement Comparison ($DCGL_{emc}$) for small (<100cm^2) areas of activity that may be observed in the survey unit while scanning. Since no process activities were ever associated with Building 99, it is assumed that Pu-238 is the potential contaminant of concern and the Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta measurements.

2.1 Survey Design

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

Survey Unit 1 – First Floor interior surfaces

Survey Unit 2 – Second Floor interior surfaces

Survey Unit 3 – Third Floor interior surfaces

Survey Unit 4 – External surfaces (Roof and Exterior Walls)

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 surfaces and the relative shift was calculated as 2.95. The required number of data points ($n = 20$) was obtained from Table 5.5, Reference 2.

Twenty (20) judgmental data points were placed throughout each survey unit and are broadly representative of the survey unit. Hallways and major walkways throughout the building were scanned for alpha contamination.

Ten (10) judgmental data points were placed on the roof area and ten (10) judgmental data points were located on exterior walls.

Sediment samples were collected from floor drains and ventilation units. Since no sediment was available in these areas, smear samples were obtained for analysis. 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 L 43-68 hand-held gas flow proportional (GFP) detector for alpha and beta fixed point measurements and a L 43-37 GFP large area floor probe for alpha scan measurements. A Ludlum 2360 with an L 43-89 scintillation probe was used in accordance with Reference 4 for sediment location and exterior alpha and beta measurements. 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 $DCGL_w$. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1.

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

Total Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	88	24.1	9.83	2076	1122.6	152.9
Survey Unit 2	61	12.7	7.13	2160	1271.8	149.4
Survey Unit 3	38	15.0	5.04	2151	1159.5	157.1
Survey Unit 4	70	41.7	8.07	3447	1685.6	642.9

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	3.62	0.58	0.42	3.94	1.29	0.57
Survey Unit 2	4.37	1.09	0.65	5.48	2.22	0.73
Survey Unit 3	4.37	1.31	0.72	8.22	2.27	1.08
Survey Unit 4	2.19	0.55	0.43	8.22	2.44	1.00

The highest removable tritium activity was 35.25 dpm/100cm^2 (RSDS# 03-TF-0193). The average removable tritium was 3.00 dpm/100cm^2 (±1.24).

The floors and major walkways throughout the building were scanned for alpha activity. The highest activity measured was 22 dpm/100cm^2 (RSDS# 03-TF-0191).

2.3 Sediment Sample Data

Sediment smear samples were obtained from floor drains and ventilation units. Sediment smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan (See RSDS # 03-TF-0181). No isotopic analysis was performed on sediment smear samples since no gross alpha, beta, or tritium activity was observed at any sediment sample location above background. The highest removable gross alpha was 8.06 dpm/100cm^2, 15.36 dpm/100cm^2 beta, and 16.62 dpm/100cm^2 tritium. Direct alpha and beta measurements were taken at each sample location. The highest direct activity observed was 80 dpm/100cm^2 alpha and 980 dpm/100cm^2 beta.

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Eight data points were selected from the sample group of 80 data points. The highest and lowest alpha measurements and corresponding beta measurements were selected from each survey unit. 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
QC4-13	15	7.75	31	3203	113.2	3165
QC4-14	61	15.62	46	1569	79.2	1813
QC1-09	38	12.33	38	723	53.8	986
QC1-01	0	0	15	949	61.6	949
QC2-01	61	15.62	54	1728	83.1	2151
QC2-10	0	0	8	1221	69.9	1315
QC3-02	38	12.33	31	2151	92.8	1662
QC3-11	0	0	0	1118	66.9	1080
Variance (S^2)	430.3		353.0	656355		563083
Ratio			1.22			1.17
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 detector source holder to ensure a reproducible geometry is achieved. The acceptance criterion 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 confirm the classification of Building 99 as non-impacted and to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 99 satisfy the site release criteria established by DOE Order 5400.5. All of the survey data was found to meet 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 99 meets the surface release criteria established by DOE Order 5400.5.

The following table shows the maximum fixed and removable activity on the inside and outside building surfaces.

Building 99 Survey Results

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 2)
Highest Alpha Smearable Activity	03-TF-0192	Floor	4.37	20
Highest Alpha Fixed Activity	03-TF-0193	Floor	88	100
Highest Beta Smearable Activity	03-TF-0182	Exterior Wall	8.22	1000
Highest Beta Fixed Activity	03-TF-0182	Exterior Wall	3447	5000
Highest Tritium Smearable Activity	03-TF-0193	Floor	35.3	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 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

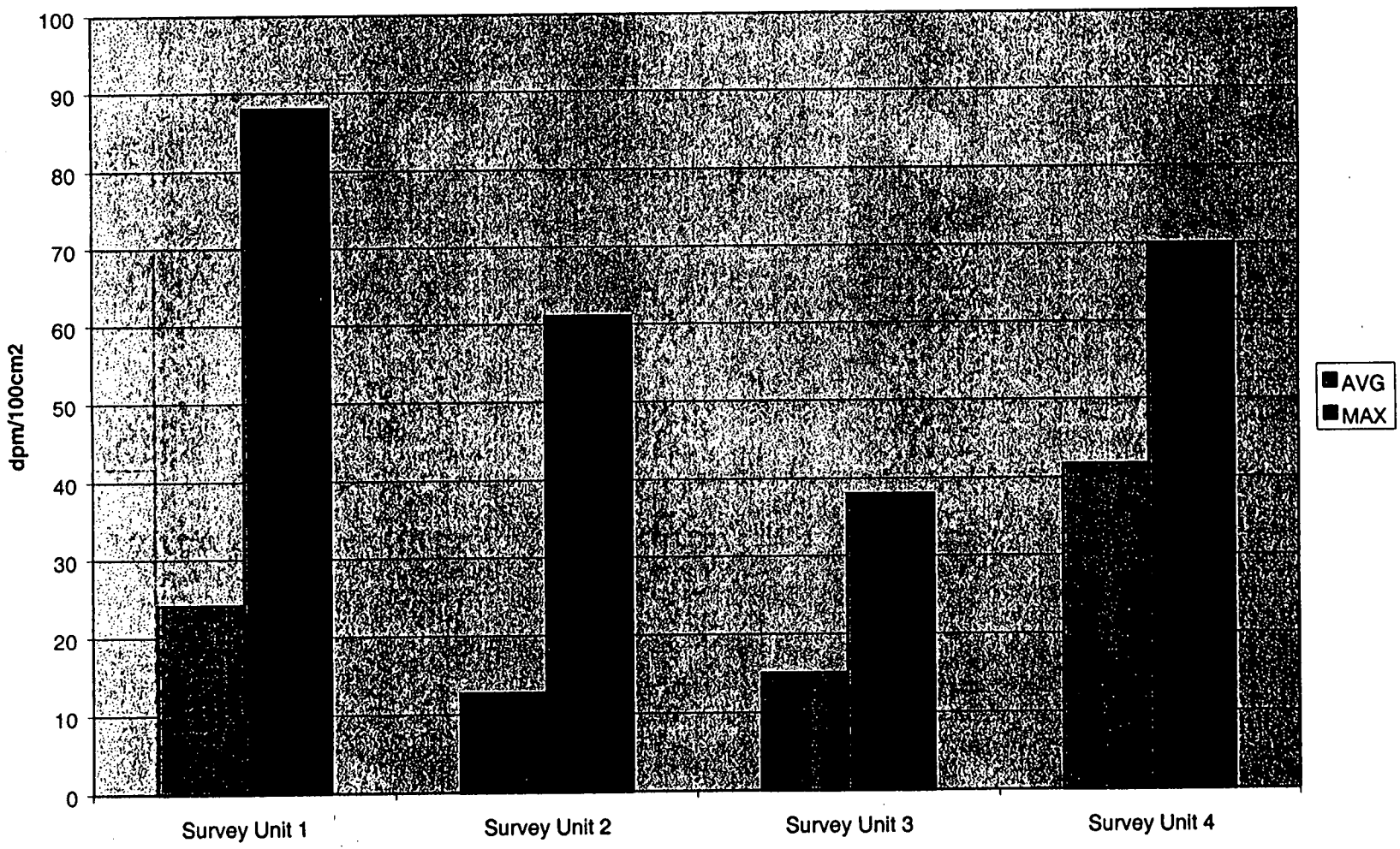
Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 99-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 99 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, Issue 29, Op. No. 30030,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator,* Section 6.3

Building 99 Average & Maximum Total Alpha



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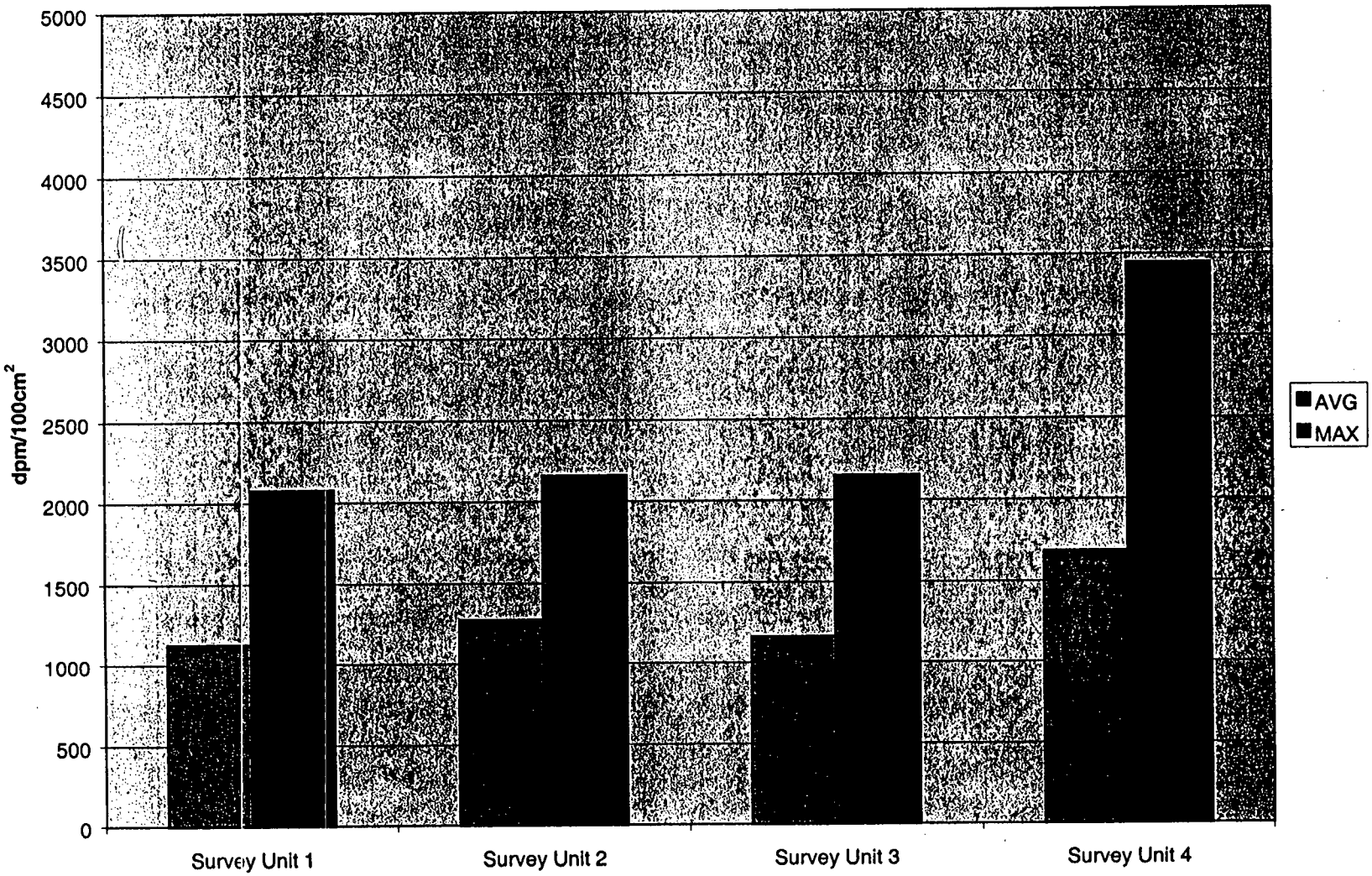
Building 99 Average and Maximum Total Beta Activity



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Building 99 Survey and Sample Data Analysis Worksheet
Enclosure 1

Building 99 Survey Data Collection Sheet

		Smearable			Fixed	
Location	RSDS#	α	β	H^3	α	β
SU1 01	0193	1.28	0.05	4.18	0	949
SU1 02	0193	0	0.14	35.25	8	1043
SU1 03	0193	0	1.66	9.42	15	845
SU1 04	0193	1.5	3.73	22.88	8	1080
SU1 05	0193	0	2.8	0	31	911
SU1 06	0193	0	0.43	0	23	1033
SU1 07	0193	3.62	3.94	4.92	15	1043
SU1 08	0193	1.13	0.19	6.13	8	1071
SU1 09	0193	0	0	4.01	38	723
SU1 10	0193	1.31	0	3.87	23	939
SU1 11	0193	0	1.83	0.5	0	789
SU1 12	0193	1.3	2.06	0	23	2076
SU1 13	0193	0	0	2.98	23	864
SU1 14	0193	0	1.57	0.48	8	817
SU1 15	0193	0	0.32	4.23	8	873
SU1 16	0193	0	0.38	1.01	31	1578
SU1 17	0193	0	0.2	8.19	15	1315
SU1 18	0193	0	2.39	0	51	1408
SU1 19	0193	0	1.66	4.39	88	1462
SU1 20	0193	1.5	2.54	10.64	66	1632
SU2-01	0192	0	1.37	0	61	1728
SU2-02	0192	0	1.37	0.03	46	2160
SU2-03	0192	0	2.74	0	23	2104
SU2-04	0192	0	1.74	0.49	8	949
SU2-05	0192	0	0	4.62	0	1014
SU2-06	0192	0	5.48	0	0	1259
SU2-07	0192	0	2.74	0	0	1212
SU2-08	0192	0	5.48	0	8	902
SU2-09	0192	2.18	2.58	0	23	1155
SU2-10	0192	2.18	2.58	0	0	1221
SU2-11	0192	2.18	2.58	0.74	15	1296
SU2-12	0192	0	2.74	0.3	8	1334
SU2-13	0192	2.19	0	0	8	1212
SU2-14	0192	0	4.11	6.08	0	1249
SU2-15	0192	2.18	3.95	0.48	0	1193
SU2-16	0192	0	0	2.33	8	1043
SU2-17	0192	4.37	1.06	4.15	8	1183
SU2-18	0192	2.19	1.21	0	0	1080
SU2-19	0192	4.37	0	0.93	15	1071
SU2-20	0192	0	2.74	0	23	1071
SU3-01	0192	0	0	2.31	15	1606
SU3-02	0192	0	2.74	0.48	38	2151
SU3-03	0192	0	2.74	17.3	15	1794
SU3-04	0192	2.18	2.58	0	31	996

Building 99 Survey and Sample Data Analysis Worksheet
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	
SU3-05	0192	4.37	0	4.62	31	1061	
SU3-06	0192	0	8.22	4.14	0	911	
SU3-07	0192	0	5.48	4.48	8	939	
SU3-08	0192	0	0	8.56	8	1005	
SU3-09	0192	0	2.74	15.52	0	1024	
SU3-10	0192	2.19	0	0	8	864	
SU3-11	0192	4.37	5.17	1.47	0	1118	
SU3-12	0192	2.18	6.69	10.15	15	939	
SU3-13	0192	0	1.37	0.79	15	1033	
SU3-14	0192	4.37	1.06	0	15	770	
SU3-15	0192	2.19	0	0	0	1071	
SU3-16	0192	2.19	0	10.15	15	1259	
SU3-17	0192	0	2.74	0	8	930	
SU3-18	0192	2.19	1.21	0	23	986	
SU3-19	0192	0	0	3.45	31	1071	
SU3-20	0192	0	2.74	0	23	1662	
SU4-01	0182	0	1.37	0	70	215	
SU4-02	0182	2.19	1.21	0	70	340	
SU4-03	0182	0	4.11	0	40	290	
SU4-04	0182	0	0	0	60	300	
SU4-05	0182	0	2.74	0	50	275	
SU4-06	0182	0	4.11	0	10	290	
SU4-07	0182	0	4.11	0	50	135	
SU4-08	0182	0	2.74	0	40	405	
SU4-09	0182	0	1.37	0	50	535	
SU4-10	0182	0	1.37	0	20	270	b-bkg
SU4-11	0182	2.19	0	0	38	3146	2073
SU4-12	0182	2.19	0	3.1	23	3137	2064
SU4-13	0182	0	4.11	0	15	3203	2130
SU4-14	0182	0	0	1.31	61	1569	496
SU4-15	0182	0	8.22	0	38	3344	2271
SU4-16	0182	0	2.74	0.84	54	3344	2271
SU4-17	0182	0	1.37	0.3	31	3447	2374
SU4-18	0182	0	0	2.6	15	3400	2327
SU4-19	0182	2.18	2.58	0	38	3024	1951
SU4-20	0182	2.18	6.69	5.44	61	3043	1970
DV-01	0181	0	0	11.18	0	-125	
DV-02	0181	1.99	2.44	13.24	70	120	
DV-03	0181	2.01	1.16	2.29	40	-10	
DV-04	0181	0	0	5.27	30	60	
DV-05	0181	8.06	2.08	10.06	60	320	
DV-06	0181	0	0	5.89	40	65	
DV-07	0181	0	1.28	13.28	80	450	
DV-08	0181	0	1.28	7.03	10	100	
DV-09	0181	0	2.56	4.6	40	15	
DV-10	0181	4	3.6	11.28	70	235	
DV-11	0181	0	2.56	8.56	70	30	
DV-12	0181	1.99	2.44	6.14	70	235	

Building 99 Survey and Sample Data Analysis Worksheet
Enclosure 1

Location	RSDS#	α	β	H^3	α	β
DV-13	0181	2.01	1.16	5.93	40	430
Dv-14	0181	0	0	0	80	70
DV-15	0181	0	15.36	18.62	40	130
DV-16	0181	6.02	3.58	11.74	60	175
DV-17	0181	0	1.28	1.66	50	145
DV-18	0181	4.03	1.04	10.19	60	980

	α	β	H^3	α	β
Avg	0.883	2.0585	3.003	23.3625	1309.863
SD	1.322729	1.994472	5.626785	20.7433	810.1574
Max	4.37	8.22	35.25	88	3447
#	80	80	80	80	80
Conf	0.28985	0.437049	1.232999	4.545487	177.53
Var	1.749611	3.977919	31.6607	430.2847	656355

Notes:

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

Building 99 Survey and Sample Data Analysis Worksheet
Enclosure 1

	Survey Unit 1 Smearable			Fixed	
	α	β	H^3	α	β
Number	20	20	20	20	20
Avg	0.582	1.2945	6.154	24.10	1122.55
SD	0.950106	1.29826	8.692112	22.43329	348.97647
Max	3.62	3.94	35.25	88	2076
Conf	0.416394	0.568976	3.80941	9.831629	152.94264
	Survey Unit 2				
Number	20	20	20	20	20
Avg	1.092	2.2235	1.0075	12.70	1271.8
SD	1.50344	1.670882	1.815648	16.27429	341.00264
Max	4.37	5.48	6.08	61	2160
Conf	0.658899	0.732282	0.795727	7.132382	149.44803
	Survey Unit 3				
Number	20	20	20	20	20
Avg	1.3115	2.274	4.171	14.95	1159.5
SD	1.647634	2.452939	5.381951	11.51875	358.37947
Max	4.37	8.22	17.3	38	2151
Conf	0.722093	1.075027	2.358697	5.048214	157.06361
	Survey Unit 4 Roof & Walls				
Number	20	20	20	20	20
Avg	0.5465	2.442	0.6795	41.70	1685.6
SD	0.971159	2.28008	1.437119	18.42795	1466.8627
Max	2.19	8.22	5.44	70	3447
Conf	0.425621	0.999269	0.629833	8.076246	642.86817
	Drains				
Number	18	18	18	18	18
Avg	1.672778	2.323333	8.164444	50.55556	190.27778
SD	2.414149	3.451964	4.732836	22.61499	246.32279
Max	8.06	15.36	18.62	80	980
Conf	1.115258	1.594695	2.186415	10.44739	113.79307

Graph Data Alpha	Survey Unit 1	Survey Unit 2	Survey Unit3	Survey Unit4
AVG	24.1	12.7	14.95	41.7
MAX	88	61	38	70

Graph Data Beta	Survey Unit 1	Survey Unit 2	Survey Unit3	Survey Unit4
AVG	1122.55	1271.8	1159.5	1685.6
MAX	2076	2160	2151	3447

Building 99 Survey and Sample Data Analysis Worksheet
Enclosure 1

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg(cpm)	β Bkg(cpm)
1	L2360	5833/5847	3/13/04	0182	1	129
2	L2350	5855/5864	6/18/04	0182	0.8	114
3	L2350	5855/5864	6/18/04	0182	0.8	571
4	L2360	5833/5847	3/13/04	0181	1	129
5	L2350	5855/5864	6/18/04	0193	0.6	101
6	L2350	5855/5864	6/18/04	0192	0.8	88
7	L2350	5855/5850	6/18/04	0191	5.2	

Floor Scan Results dpm/100cm2

	RSDS	a
SU1FS-1	0191	11
SU1FS-2	0191	15
SU2FS-1	0191	18
SU3FS-1	0191	22
SU3FS-2	0191	15

Building 99 Survey and Sample Data Analysis Worksheet
Enclosure 1

Replicate Fixed Point QC

	alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	initial	2σ	replicate	initial	2σ	replicate
QC4-13	15	7.75	31	3203	113.19	3165
QC4-14	61	15.62	46	1569	79.22	1813
QC1-09	38	12.33	38	723	53.78	986
QC1-01	0	0.00	15	949	61.61	949
QC2-01	61	15.62	54	1728	83.14	2151
QC2-10	0	0.00	8	1221	69.89	1315
QC3-02	38	12.33	31	2151	92.76	1662
QC3-11	0	0.00	0	1118	66.87	1080
Variance (S2) =	430.2847		352.9821	656355.01		563082.98
Ratio			1.218998			1.1656453
Agreement			YES			YES

QC Measurements

Location	RSDS#	α	β
QC4-13	0182	31	3165
QC4-14	0182	46	1813
QC1-09	0193	38	986
QC1-01	0193	15	949
QC2-01	0192	54	2151
QC2-10	0192	8	1315
QC3-02	0192	31	1662
QC3-11	0192	0	1080

Enclosure 2

SURVEY PLAN FORM

SP NUMBER	99-01	DATE OF REQUEST	5/1/03
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 99		
PURPOSE	The purpose of this SP is to characterize Building 99 to support decisions on final disposition.		
SURVEY UNIT # 1	First Floor	SURVEY UNIT # 4	Exterior Surfaces and Penthouse
SURVEY UNIT # 2	Second Floor	SURVEY UNIT	
SURVEY UNIT # 3	Third Floor	SURVEY UNIT	

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

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

☐ Rubbelized Material:

☐ OTHER:

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 43-20 Hand Probe		
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L-2350	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Perform 1 minute counts at specified locations not more than ¼" from surface
		PROBE TYPE	43-20 Hand Probe		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE	L 2360	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	L 43-89 (or equivalent)		
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 Survey Plan Continuation Sheet.

SP NUMBER	99-01	DATE OF REQUEST	5/1/03

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Safety Considerations

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

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

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

Static Measurements Using L 2350 with 43-20 (alpha) probe and L 2360 with 43-89 (beta) probe (or equivalent)

1. Perform an alpha and beta count on at least twenty (20) data points in Survey Units 1 & 2. Data points are selected by the surveyor and should be broadly representative of the entire survey unit.
2. Perform an alpha and beta measurement on at least ten (10) data points on the roof and penthouse areas. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit.
3. Perform an alpha and beta measurement on at least ten (10) data points on the building exterior walls and exposed foundations. Datá points are randomly selected by the surveyor and should be broadly representative of the entire survey unit
4. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
5. 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.

Sediment Samples

1. Collect approximately 250ml of debris from each accessible ventilation unit opening, floor drain, roof gutter 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. Show sample location on the RSDS map.
6. Submit sediment samples to laboratory for gamma spectroscopy analysis. Submit smears for gross alpha and beta analysis.
7. Additional intrusive samples may be collected in areas of elevated activity as determined by the MARSSIM Engineer.

Continued Next Page

Quality Control

1. QC measurements will be performed by re-surveying 2 data points in each survey unit. Data points selected for resurvey should include the highest and lowest readings in the survey unit.
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	Roderick C. Case	DATE	5/1/03
Technical Reviewer	Galen Tomlinson	DATE	5-08-03
Rad Con Manager	A S Collas	DATE	5/~~30~~ 29/03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. Case	DATE	9-8-03
Technical Reviewer	KGW DOOAS	DATE	9/16/03
Rad Con Manager	A S Collas	DATE	9/16/03

COMMENTS

Use L43-68 probe in place of L43-20. Use L2360 for exterior α and β.
Use L2360 for vent & drains

R. Case
8/6/03

Attachment 2

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									
99-01-									

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) Bldg 99 VENTS & DRAINS	SURVEY NO. 03-TF-0181
PURPOSE: CHARACTERIZATION	RWP NO. NA
	DATE: 8-6-03
	TIME: 1530

MAP/DRAWING

See ATTAched

COPY

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 cont. measurement in dpm/100cm²

INSTRUMENTS USED

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

[redacted]	HP# 7474	Date: 8-11-03
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) [redacted] ATTAched		
R[redacted]	HP# 5214	Date: 08-11-03
R[redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0181

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-18	See Attached		NA	See Maps
		N	A	

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

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

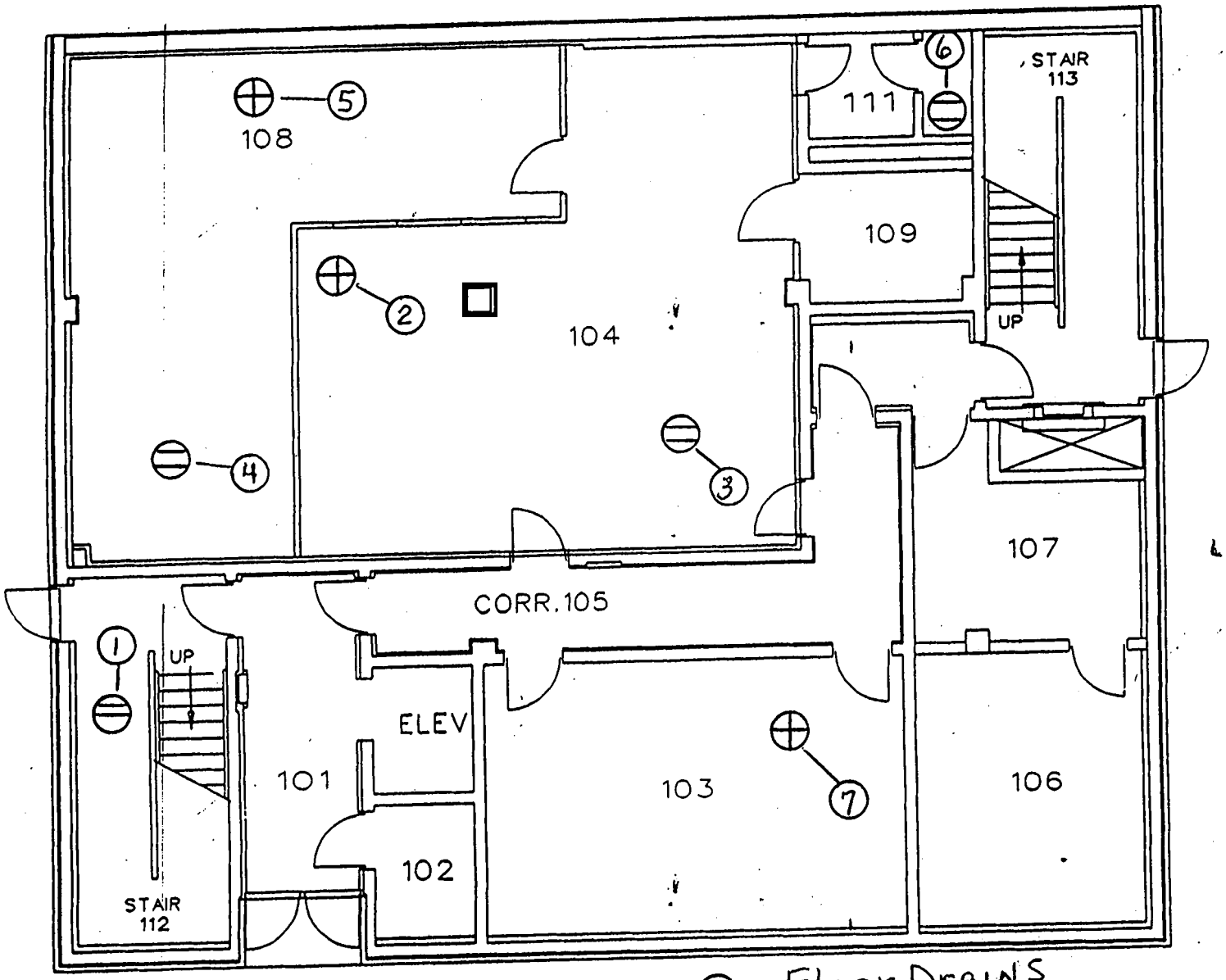
99-BLDG CHARACTERIZATION ALPHA/BETA SURVEY Vents and Drains

RSDS# 03-TF-0181 RCT: KA RCT: _____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	7474	5847	1	8/6/03	104	60	-125	1	60	0
2	5833	7474	5847	2	8/6/03	153	60	120	8	60	70
3	5833	7474	5847	3	8/6/03	127	60	-10	5	60	40
4	5833	7474	5847	4	8/6/03	141	60	60	4	60	30
5	5833	7474	5847	5	8/6/03	193	60	320	7	60	60
6	5833	7474	5847	6	8/6/03	142	60	65	5	60	40
7	5833	7474	5847	7	8/6/03	219	60	450	9	60	80
8	5833	7474	5847	8	8/6/03	149	60	100	2	60	10
9	5833	7474	5847	9	8/6/03	132	60	15	5	60	40
10	5833	7474	5847	10	8/6/03	176	60	235	8	60	70
11	5833	7474	5847	11	8/6/03	135	60	30	8	60	70
12	5833	7474	5847	12	8/6/03	176	60	235	8	60	70
13	5833	7474	5847	13	8/6/03	215	60	430	5	60	40
14	5833	7474	5847	14	8/6/03	143	60	70	9	60	80
15	5833	7474	5847	15	8/6/03	155	60	130	5	60	40
16	5833	7474	5847	16	8/6/03	164	60	175	7	60	60
17	5833	7474	5847	17	8/6/03	158	60	145	6	60	50
18	5833	7474	5847	18	8/6/03	325	60	980	7	60	60
BETA BACKGROUND (CPM) FOR 8-06-2003 WAS---------->								129			
ALPHA BACKGROUND (CPM) FOR 8-06-2003 WAS---------->								1			

COPY

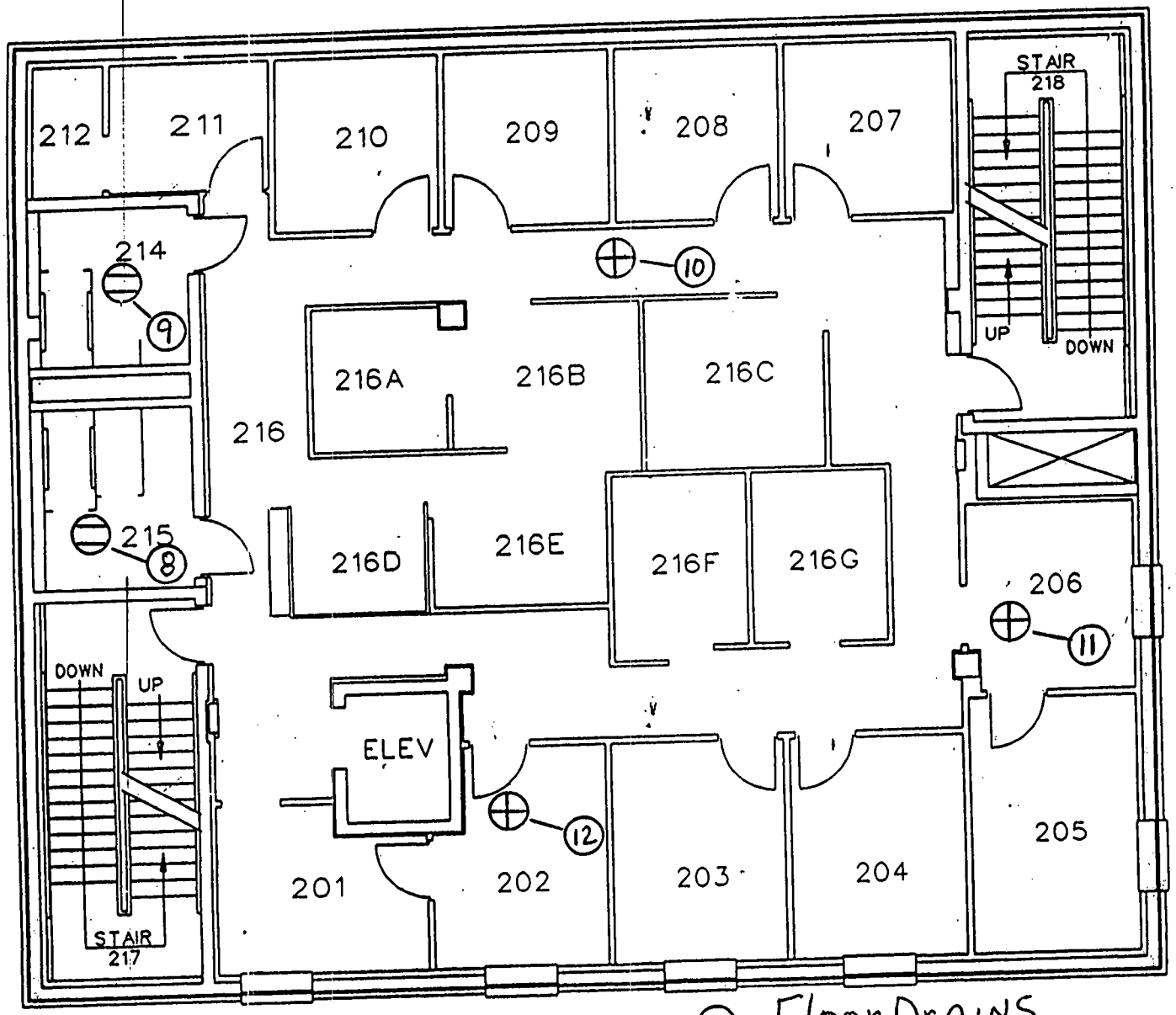
LM1 2p3 of 5



⊖ = Floor Drains
⊕ = Ventilation

BLDG 99
FIRST FLOOR
CLASS: UCNI

COPY



⊖ = Floor Drains
⊕ = Ventilation

BLDG 99
SECOND FLOOR
CLASS: UNCL

COPY

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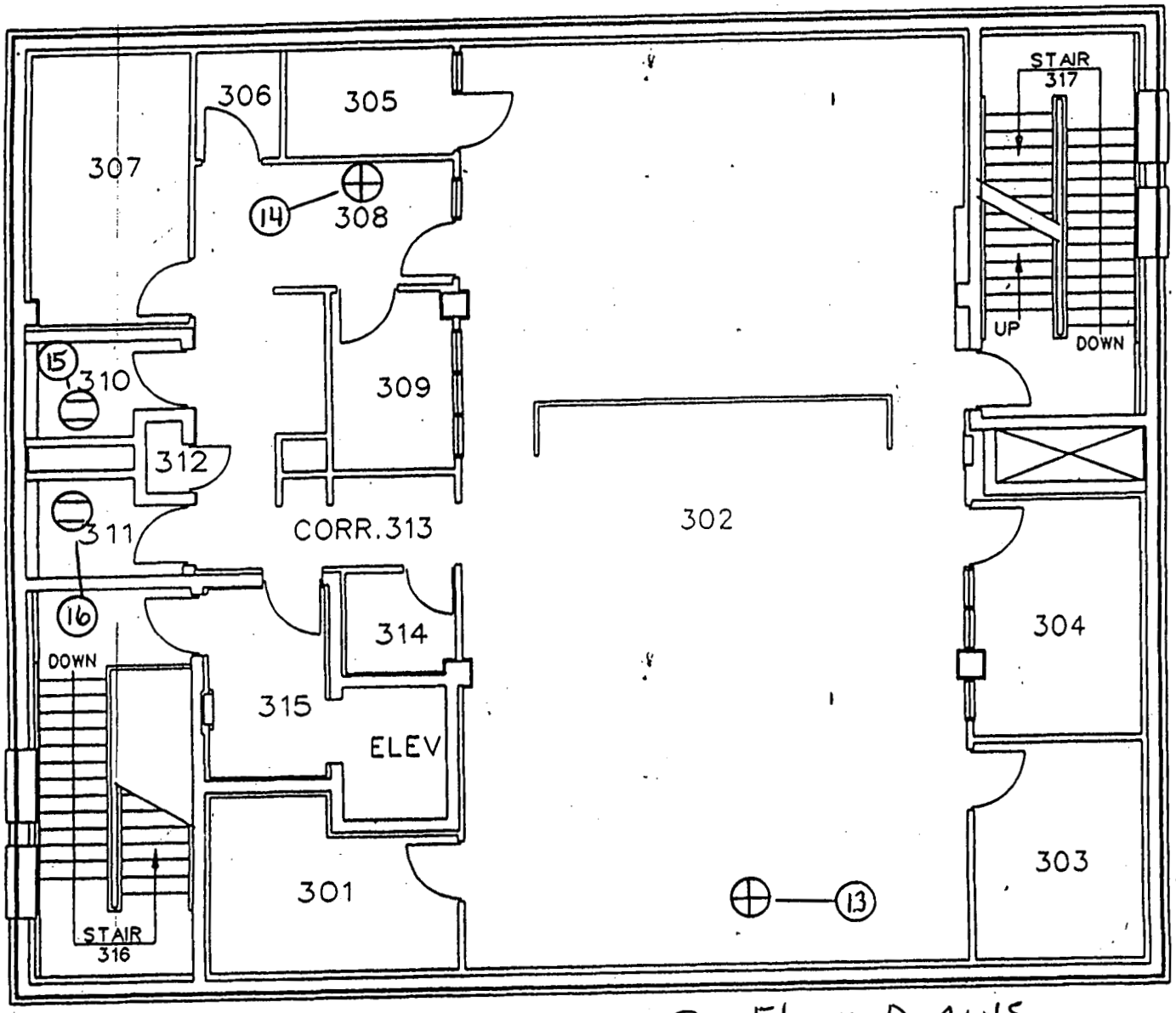
KA 03-TF-0181 5 of 9



⊖ = Floor DrAINS

⊕ = VenTilATIONS

BLDG 99
THIRD FLOOR
CLASS: UCNI

COPY

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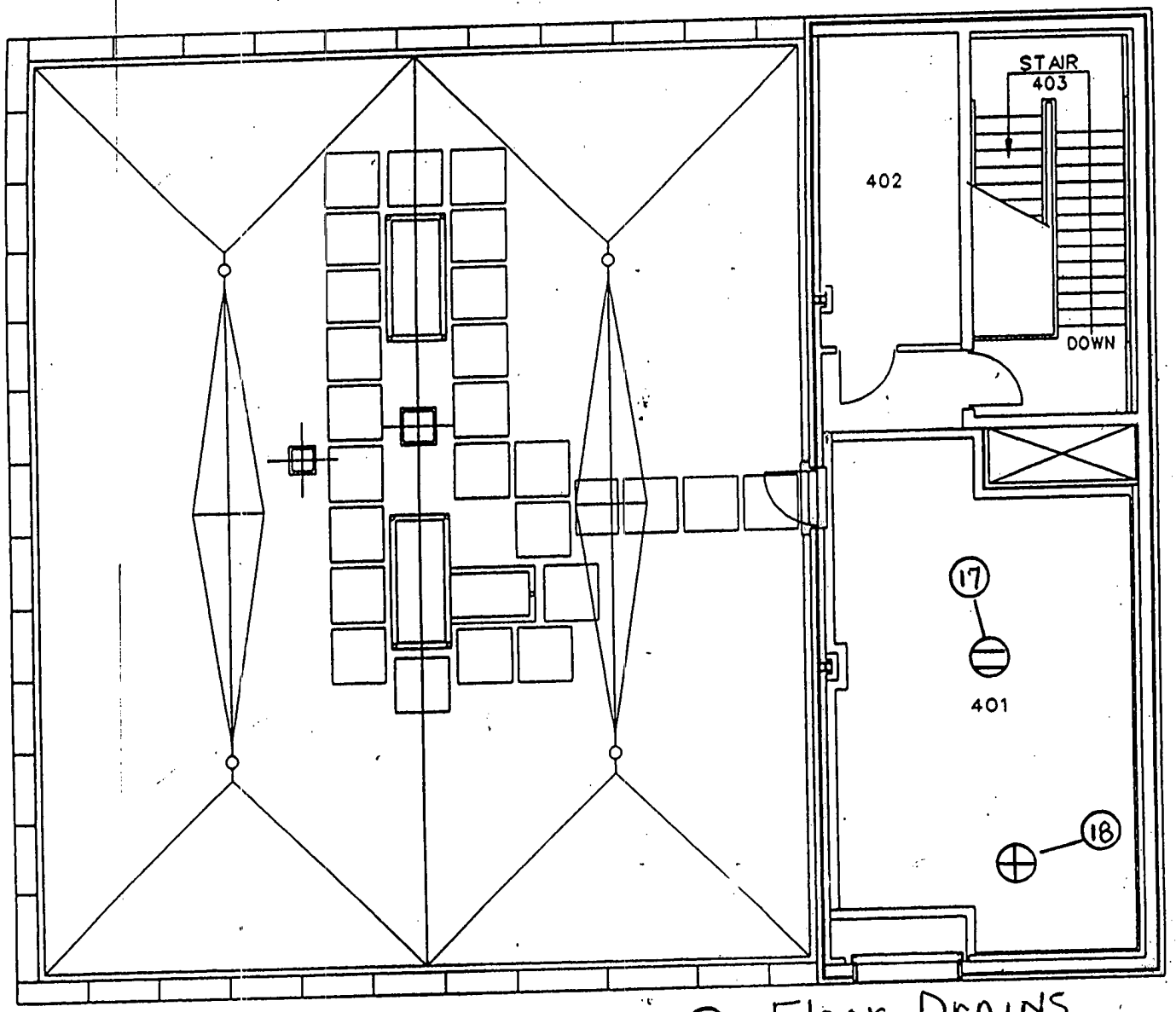

⊖ = Floor Drains

⊕ = Ventilations

BLDG 99
PENTHOUSE
CLASS: UNCL

COPY

KA 03-TF-0181 7 of 9

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	6.25
Region B:	2.0 -	18.6	0	0.0	5.95
Region C:	40.0 -	2000	0	0.0	12.20

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0181 ABER-18 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT3.dat
Count Data Filename: C:\DATA\SDATA3.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	6.25	5.95	0	B	492.65		0.000	12.20
0	2.00	250.82	234.96	0		446.69	543.05	56.738	0.00
1	2.00	5.81	5.50	0		559.88	11.18	9.948	3.30
2	2.00	7.33	6.77	0		642.90	13.24	9.865	6.30
3	2.00	1.25	0.55	13		627.22	2.29	7.650	0.30
4	2.00	2.75	2.62	0		567.62	5.27	8.669	0.00
5	2.00	5.26	3.93	0		567.87	10.06	9.678	0.00
6	2.00	3.25	3.55	0		641.67	5.89	8.393	0.00
7	2.00	6.88	5.68	0		557.12	13.28	10.371	13.30
8	2.00	3.75	2.78	0		595.06	7.03	8.894	2.30
9	2.00	2.57	2.86	0		657.21	4.60	8.028	0.30
10	2.00	5.75	5.83	0		536.49	11.28	10.112	1.30
11	2.00	4.60	4.40	0		604.54	8.56	9.161	3.80
12	2.00	3.34	3.47	0		621.28	6.14	8.557	10.80
13	2.00	2.80	2.09	0		462.77	5.93	9.619	5.25
14	2.00	0.00	0.00	0		615.22	0.00	0.000	2.30
15	2.00	9.84	9.63	0		581.74	18.62	11.187	4.30
16	2.00	6.25	5.53	0		592.48	11.74	9.863	3.09
17	2.00	0.84	1.13	0		524.46	1.66	8.086	3.30
18	2.00	5.11	4.66	0		515.11	10.19	10.034	0.80

KA

B S Brown

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Batch ID:	Smear Unit 2 - 200308071031	Count Date:	8/7/2003
Group:	F	Count Minutes:	1.5
Serial Number:	78218-2	Count Mode:	Simultaneous
Batch ID:	03-TF-0181 ABER-18 BSB	Operating Volts:	1380
Selected Geometry:	Swipe/Smear	Cal Due Dates:	6/19/2004

Efficiency (%)				Spillover (%)			
Alpha:	35.30	±	0.11	Alpha to Beta:	9.38	±	0.00
Beta:	44.94	±	0.12	Beta to Alpha:	0.85	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	77	0.00	0.00	0.00	0.00
2	27	1.99	1.89	2.44	2.10
3	3	2.01	1.89	1.16	1.49
4	93	0.00	0.00	0.00	0.00
5	35	8.06	3.78	2.08	2.12
6	80	0.00	0.00	0.00	0.00
7	28	0.00	0.02	1.28	1.48
8	5	0.00	0.02	1.28	1.48
9	2	0.00	0.02	2.56	2.10
10	14	4.00	2.67	3.60	2.58
11	88	0.00	0.02	2.56	2.10
12	59	1.99	1.89	2.44	2.10
13	42	2.01	1.89	1.16	1.49
14	75	0.00	0.00	0.00	0.00
15	7	0.00	0.06	15.36	5.14
16	48	6.02	3.27	3.48	2.58
17	95	0.00	0.02	1.28	1.48
18	60	4.03	2.67	1.04	1.50

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 99	SURVEY NO. 03-TF-0182
PURPOSE: MARSSIM SURVEY PLAN 99-01 EXTERIOR SURFACES AND PENTHOUSE UNIT-4	RWP NO. N/A
	DATE: 08-11-03
	TIME: 0930

MAP/DRAWING

SEE ATTACHED DATA AND DRAWING

COPY

LEGEND:
# = mrem/hr (γ) whole body
# E = mrem/hr (β+n+γ) extremity on contact
K= factor of 1000
- - - - - - - = radiological boundary

△# = 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
2360/43-93	5833-5847	03-13-04
2350-1	5855/5864	06-18-04
	N/A	

ML-9620

[redacted]	HP# 7474 5214	Date: 8-12-03
[redacted]		
Counted by: (Signature)	HP#	Date:
Counted by: (Print) [redacted] ATTACHED		
[redacted]	HP# 6178	Date: 8-12-03
[redacted]		

RSDS# 03-TF-0182

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

See attached results

N/A

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
22				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
99				
70				

See attached results

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 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

99-BLDG CHARACTERIZATION ALPHA/BETA SURVEY Roof and Penthouse

RSDS# 03-TF-0182 RCT: KA RCT: SR

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	7474	5847	1	8/6/03	172	60	215	8	60	70
2	5833	7474	5847	2	8/6/03	197	60	340	8	60	70
3	5833	7474	5847	3	8/6/03	187	60	290	5	60	40
4	5833	7474	5847	4	8/6/03	189	60	300	7	60	60
5	5833	7474	5847	5	8/6/03	184	60	275	6	60	50
6	5833	7474	5847	6	8/6/03	187	60	290	2	60	10
7	5833	7474	5847	7	8/6/03	156	60	135	6	60	50
8	5833	7474	5847	8	8/6/03	210	60	405	5	60	40
9	5833	7474	5847	9	8/6/03	236	60	535	6	60	50
10	5833	7474	5847	10	8/6/03	183	60	270	3	60	20
BETA BACKGROUND (CPM) FOR 8-06-2003 WAS---------->								129			
ALPHA BACKGROUND (CPM) FOR 8-06-2003 WAS---------->								1			

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99 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 4

RSDS# 03-TF-0182 RCT: KA RCT: SK

43-68 BKG:	0	EFF:	0.2075	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	1
43-37 BKG:	0	EFF:	0.187	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	7474	5864	1		8/7/03	12:08	4	300	6	
SRCCHECK	5855	7474	5864	1		8/7/03	12:11	1851	60	14159	
SRCCHECK	5855	7474	5864	1		8/7/03	12:13	1939	60	14833	
SRCCHECK	5855	7474	5864	1		8/7/03	12:15	2194	60	16783	
SRCCHECK	5855	7474	5864	1		8/7/03	12:17	2044	60	15636	
99U-4 11	5855	7474	5864	1	11	8/7/03	12:57	5	60	38	
99U-4 12	5855	7474	5864	1	12	8/7/03	13:00	3	60	23	
99U-4 13	5855	7474	5864	1	13	8/7/03	13:03	2	60	15	
99U-4 14	5855	7474	5864	1	14	8/7/03	13:07	8	60	61	
99U-4 15	5855	7474	5864	1	15	8/7/03	13:09	5	60	38	
99U-4 16	5855	7474	5864	1	16	8/7/03	13:12	7	60	54	
99U-4 17	5855	7474	5864	1	17	8/7/03	13:18	4	60	31	
99U-4 18	5855	7474	5864	1	18	8/7/03	13:21	2	60	15	
99U-4 19	5855	7474	5864	1	19	8/7/03	13:25	5	60	38	
99U-4 20	5855	7474	5864	1	20	8/7/03	13:28	8	60	61	
QC 13	5855	5214	5864	1		8/7/03	13:42	4	60	31	
QC 14	5855	5214	5864	1		8/7/03	13:45	6	60	46	

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99 BUILDING CHARACTERIZATION BETA SURVEY UNIT 4

RSDS# 03-TF-0182 RCT: [illegible] RCT: [illegible]

43-68 BKG:	0	EFF:	0.169	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	7474	5864	2		8/7/03	12:23	571	300	1073	
SRCCHECK	5855	7474	5864	2		8/7/03	12:26	2077	60	19508	
SRCCHECK	5855	7474	5864	2		8/7/03	12:29	2030	60	19066	
SRCCHECK	5855	7474	5864	2		8/7/03	12:34	2408	60	22617	
SRCCHECK	5855	7474	5864	2		8/7/03	12:36	2295	60	21555	
99U-4 11	5855	7474	5864	2	11	8/7/03	12:58	335	60	3146	
99U-4 12	5855	7474	5864	2	12	8/7/03	13:02	334	60	3137	
99U-4 13	5855	7474	5864	2	13	8/7/03	13:04	341	60	3203	
99U-4 14	5855	7474	5864	2	14	8/7/03	13:08	167	60	1569	
99U-4 15	5855	7474	5864	2	15	8/7/03	13:11	356	60	3344	
99U-4 16	5855	7474	5864	2	16	8/7/03	13:14	356	60	3344	
99U-4 17	5855	7474	5864	2	17	8/7/03	13:19	367	60	3447	
99U-4 18	5855	7474	5864	2	18	8/7/03	13:22	362	60	3400	
99U-4 19	5855	7474	5864	2	19	8/7/03	13:26	322	60	3024	
99U-4 20	5855	7474	5864	2	20	8/7/03	13:29	324	60	3043	
QC 13	5855	5214	5864	2		8/7/03	13:43	337	60	3165	
QC 14	5855	5214	5864	2		8/7/03	13:46	193	60	1813	

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Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200308111329	**Count Date:**	8/11/2003
Group:	J	**Count Minutes:**	1.5
Serial Number:	~~78218-1~~	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0182 RILEY-20 BSB	**Operating Volts:**	1410
Selected Geometry:	~~Swipe/Smear~~	**Cal Due Dates:**	6/19/2004

	Efficiency (%)				**Spillover (%)**			
Alpha:	34.73	±	0.13		**Alpha to Beta:**	11.39	±	0.00
Beta:	46.13	●	0.13		**Beta to Alpha:**	0.07	●	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	34	0.00	0.00	1.37	1.45
2	39	2.19	1.92	1.21	1.45
3	72	0.00	0.00	4.11	2.50
4	8	0.00	0.00	0.00	0.00
5	63	0.00	0.00	2.74	2.04
6	87	0.00	0.00	4.11	2.50
7	74	0.00	0.00	4.11	2.50
8	73	0.00	0.00	2.74	2.04
9	31	0.00	0.00	1.37	1.45
10	45	0.00	0.00	1.37	1.45
11	13	2.19	1.92	0.00	0.16
12	43	2.19	1.92	0.00	0.16
13	44	0.00	0.00	4.11	2.50
14	64	0.00	0.00	0.00	0.00
15	38	0.00	0.00	8.22	3.54
16	6	0.00	0.00	2.74	2.04
17	73	0.00	0.00	1.37	1.45
18	81	0.00	0.00	0.00	0.00
19	20	2.18	1.92	2.58	2.05
20	85	2.18	1.92	6.69	3.24
~~21~~	~~85~~	~~2.07~~	~~1.92~~	~~110.83~~	~~13.01~~
~~22~~	~~85~~	~~8.73~~	~~3.84~~	~~15.82~~	~~5.02~~

Delete Dup 8/11/03 bt

KA KA

B S Brown

Batch ID: 03-TF-0182 RILEY-20 BSB

KA 8-12-03

~~Page 1 of 1~~

Protocol #: 1 PW H3 #407906 User : 5268

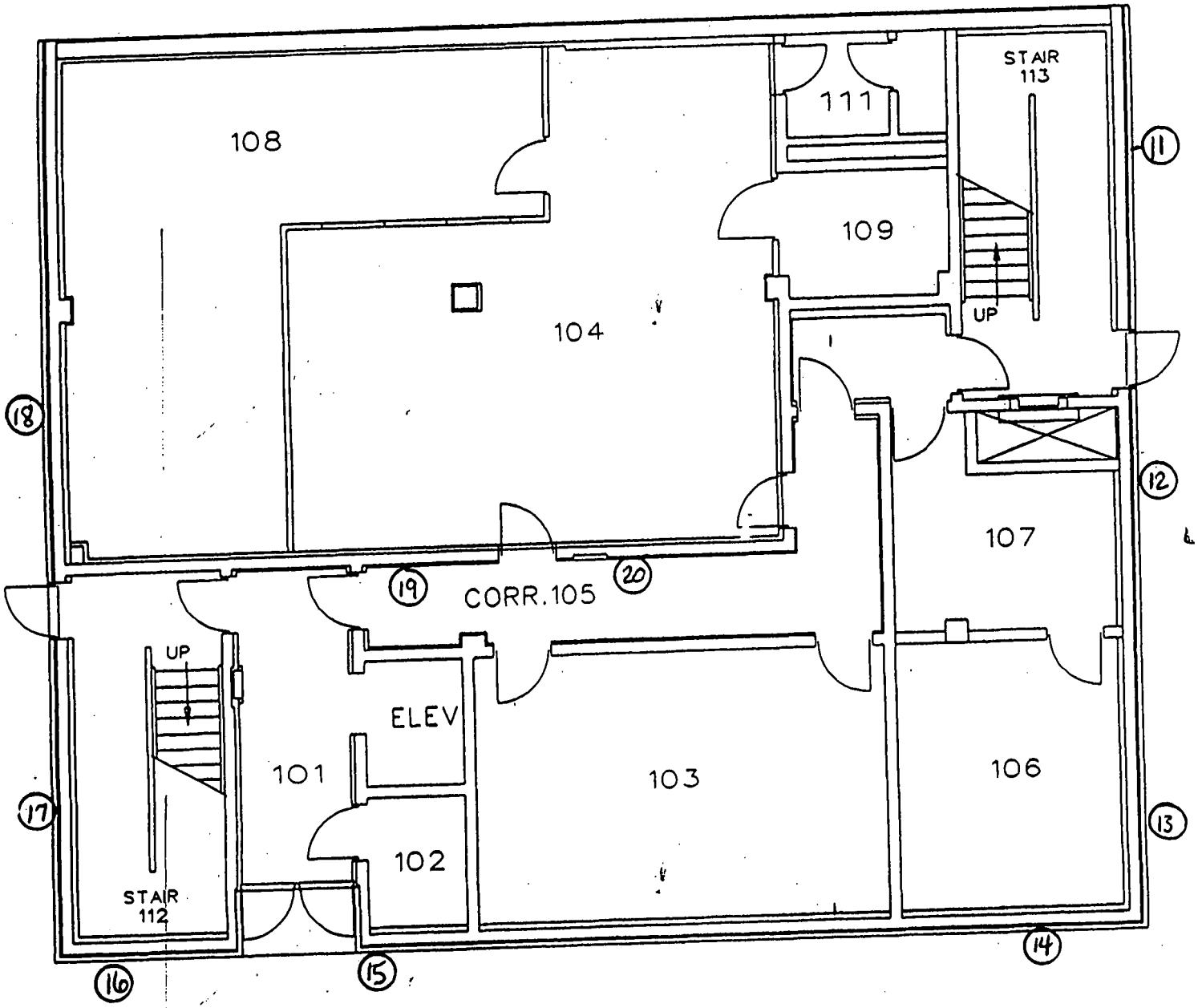
Time: 2.00
Data Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5	18.6	0	0.0	8.03
Region B:	2.0	18.6	0	0.0	7.60
Region C:	40.0	2000	0	0.0	12.57

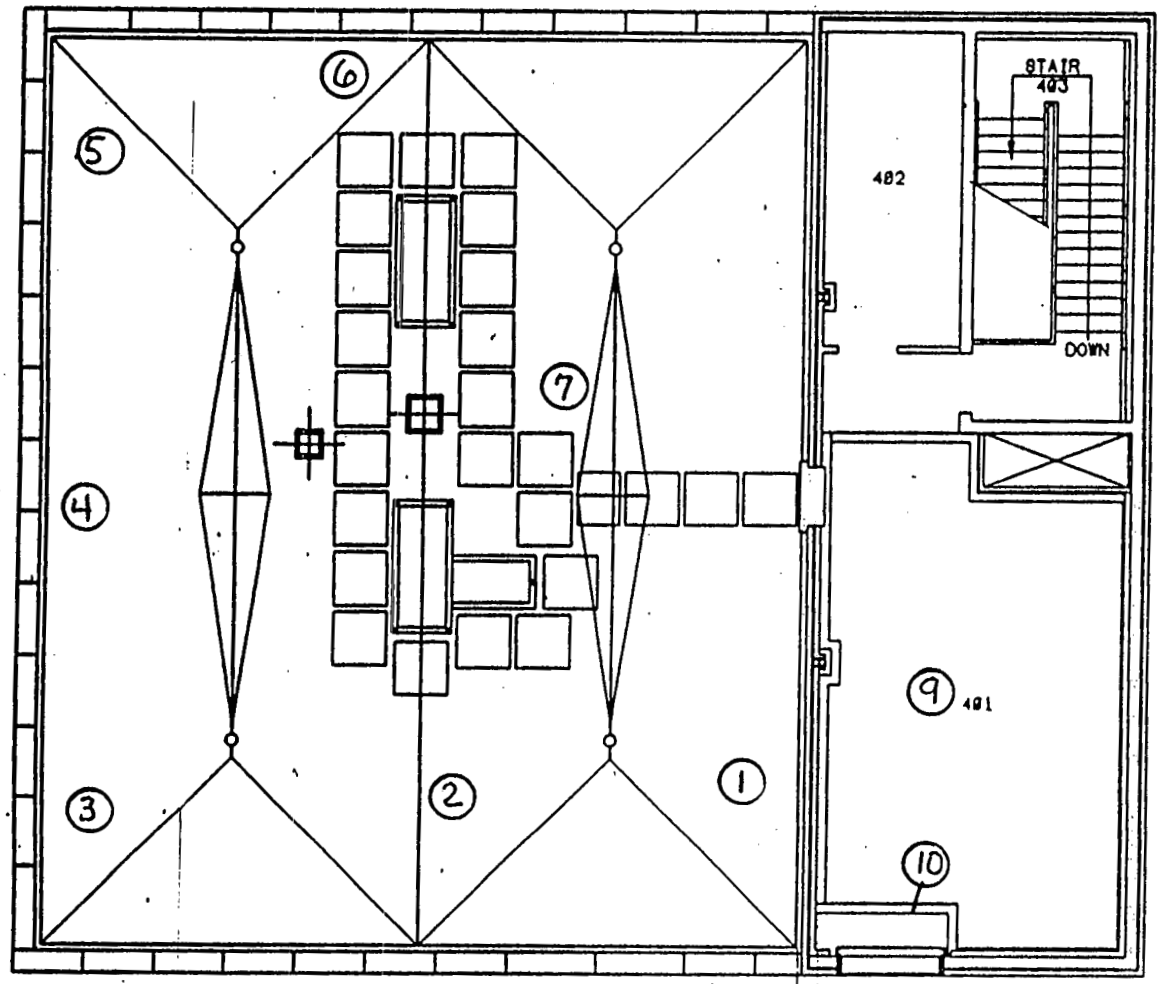
Quench Indicator: tSIE/AEC
~~Ext Std Terminator: Count~~
03-TF-0182 RILEY-20 BSB
~~Coincidence Time~~(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	8.03	7.60	0	B	588.92		0.000	12.57
0	2.00	212.22	197.99	0		454.56	454.62	50.943	0.00
1	2.00	0.00	0.00	0		443.57	0.00	0.000	0.00
2	2.00	0.00	0.00	0		378.50	0.00	0.000	0.00
3	2.00	0.00	0.40	0		494.78	0.00	0.000	0.00
4	2.00	0.00	0.00	0		515.98	0.00	0.000	3.93
5	2.00	0.00	0.00	0		455.46	0.00	0.000	0.00
6	2.00	0.00	0.00	0		572.98	0.00	0.000	1.93
7	2.00	0.00	0.00	0		379.25	0.00	0.000	0.00
8	2.00	0.00	0.00	0		570.10	0.00	0.000	0.00
9	2.00	0.00	0.00	0		339.60	0.00	0.000	0.00
10	2.00	0.00	0.00	0		420.33	0.00	0.000	0.00
11	2.00	0.00	0.00	0		652.63	0.00	0.000	0.43
12	2.00	1.69	1.81	0		622.15	3.10	8.739	0.00
13	2.00	0.00	0.00	0		664.29	0.00	0.000	0.00
14	2.00	0.71	1.15	0		623.59	1.31	8.344	0.00
15	2.00	0.00	0.00	0		652.81	0.00	0.000	0.00
16	2.00	0.47	0.55	0		643.02	0.84	8.125	1.43
17	2.00	0.17	0.44	0		640.86	0.30	8.017	0.00
18	2.00	1.47	1.50	0		669.62	2.60	8.354	0.00
19	2.00	0.00	0.00	0		662.24	0.00	0.000	0.00
20	2.00	2.97	3.09	0		622.02	5.44	9.222	0.00

KA



BLDG 99
FIRST FLOOR
CLASS: UCNI



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

UNCLASSIFIED

BLDG #99
PENTHOUSE
BLDG CODE:3099

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	FSC911290
JOB NUMBER	12335
DRAWING CLASSIFICATION	UCNI
SIZE	C
CODE	14065
SCALE	AS NOTED
ISSUE	0
SHEET	4
STATUS	HD-REL-12/13/91

03-TF-0182

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) 99 FLOOR 1-3	SURVEY NO. 03-TF-0191
PURPOSE: MARSSIM SURVEY PLAN 99-01 FLOOR SCAN UNITS 1, 2, AND 3	RWP NO. N/A
	DATE: 8-25-03
	TIME: 1530

MAP/DRAWING

COPY

SEE ATTACHED

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

INSTRUMENTS USED

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

[redacted] HP# 678 Date: 9-2-03

Counted by: (Signature) SEE HP# Date:

Counted by: (Print Name) [redacted] ATTACHED

Rev [redacted] HP# 5214 Date: 09-03-03

Rev [redacted]

ML-9620 (2-98)

Survey No. 03-TF-0191

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: N/A

NOTES:

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

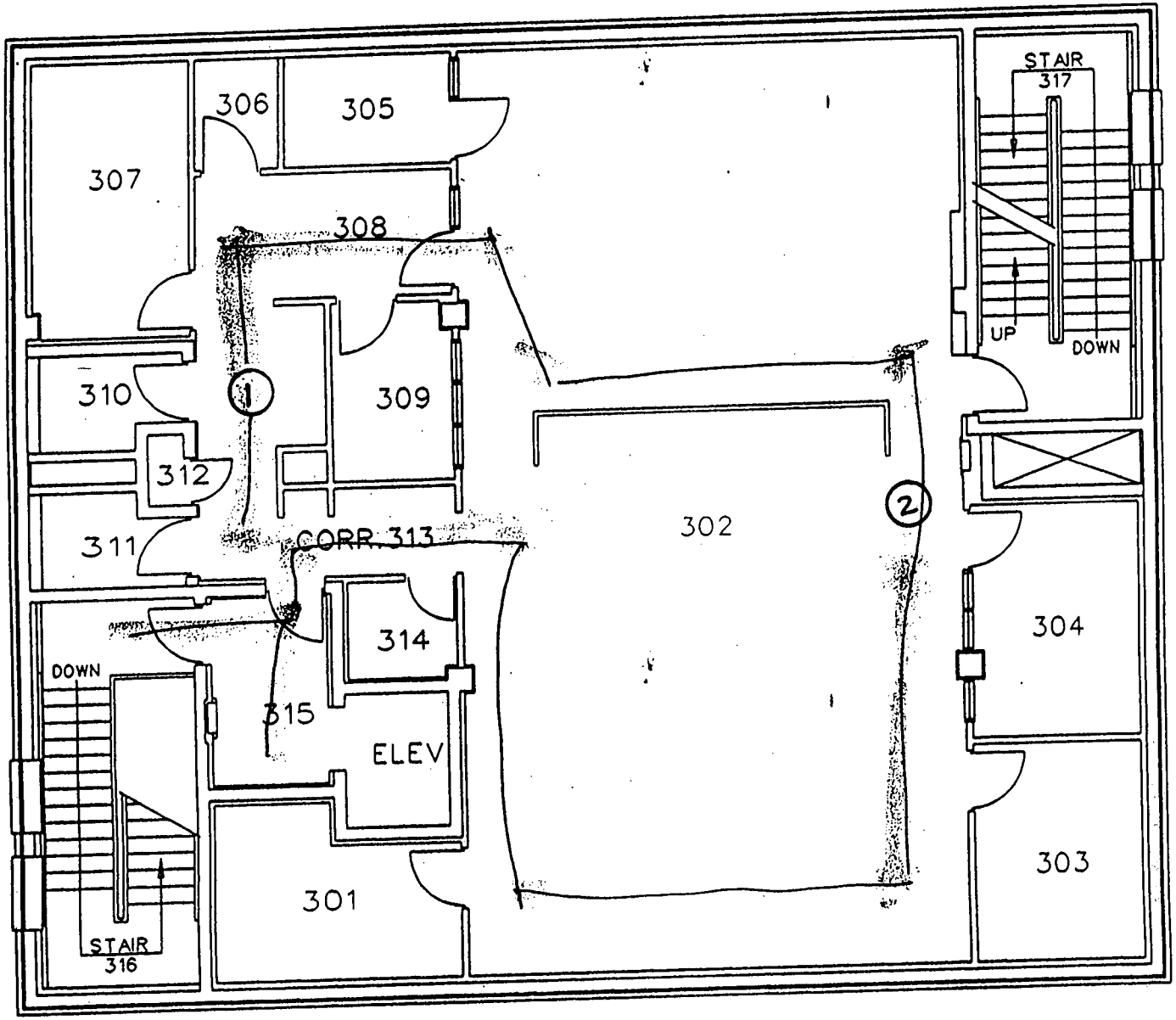
ML-9620 (4-98)

99 BUILDING CHARACTERIZATION ALPHA FLOOR SCAN SURVEY

UNIT 1-3

RSDS# 03-TF-0191 RCT: DGH RCT: N/A

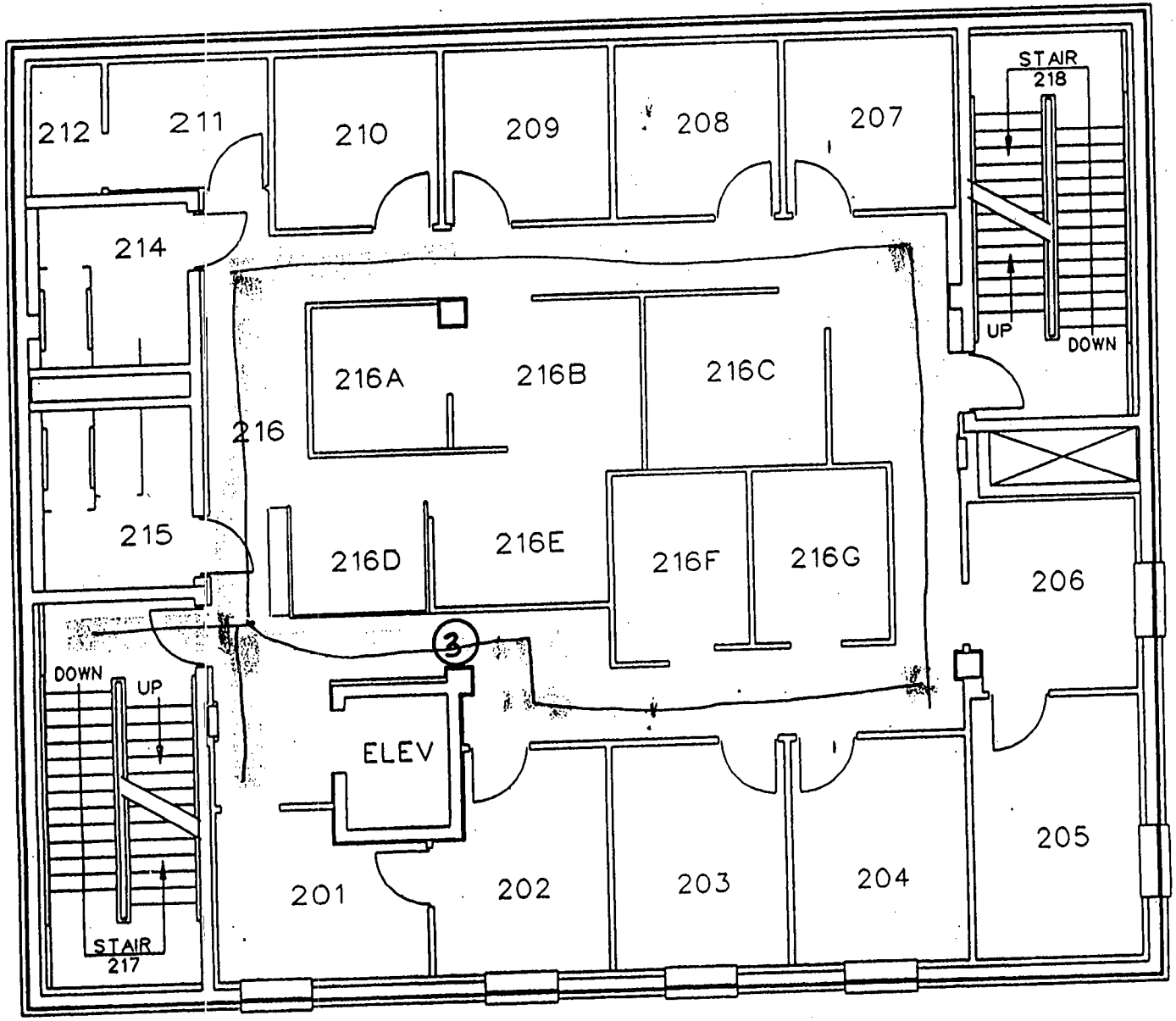
43-68 BKG:	0	EFF:	0.2075	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	1
43-37 BKG:	0	EFF:	0.187	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5855	6178	5850	3		8/25/03	7:04	26	300	10	
SRC CHECK	5855	6178	5850	3		8/25/03	7:06	2208	60	4044	
SRC CHECK	5855	6178	5850	3		8/25/03	7:08	2154	60	3945	
SRC CHECK	5855	6178	5850	3		8/25/03	7:10	2198	60	4025	
SRC CHECK	5855	6178	5850	3		8/25/03	7:17	2235	60	4093	
SRC CHECK	5855	6178	5850	3		8/25/03	7:19	2093	60	3833	
SRC CHECK	5855	6178	5850	3		8/25/03	7:20	2185	60	4002	
U-3FS 01	5855	6178	5850	3	1	8/25/03	8:36	6	30	22	
U-3FS 02	5855	6178	5850	3	2	8/25/03	8:38	4	30	15	
U-2FS 01	5855	6178	5850	3	3	8/25/03	10:21	5	30	18	
SRC BKG	5855	6178	5850	3		8/26/03	7:42	20	300	7	
SRC CHECK	5855	6178	5850	3		8/26/03	7:45	2185	60	4002	
SRC CHECK	5855	6178	5850	3		8/26/03	7:47	2145	60	3928	
SRC CHECK	5855	6178	5850	3		8/26/03	7:49	2289	60	4192	
SRC CHECK	5855	6178	5850	3		8/26/03	7:51	2202	60	4033	
SRC CHECK	5855	6178	5850	3		8/26/03	7:52	2209	60	4045	
SRC CHECK	5855	6178	5850	3		8/26/03	7:54	2350	60	4304	
U-1FS O1	5855	6178	5850	3	4	8/26/03	8:27	3	30	11	
U-1FS O2	5855	6178	5850	3	5	8/26/03	8:33	4	30	15	



BLDG 99
THIRD FLOOR
CLASS: UCNI

03-TF-0191 Page 4 of 6

G12462 LMS



BLDG 99
SECOND FLOOR
CLASS: UNCL

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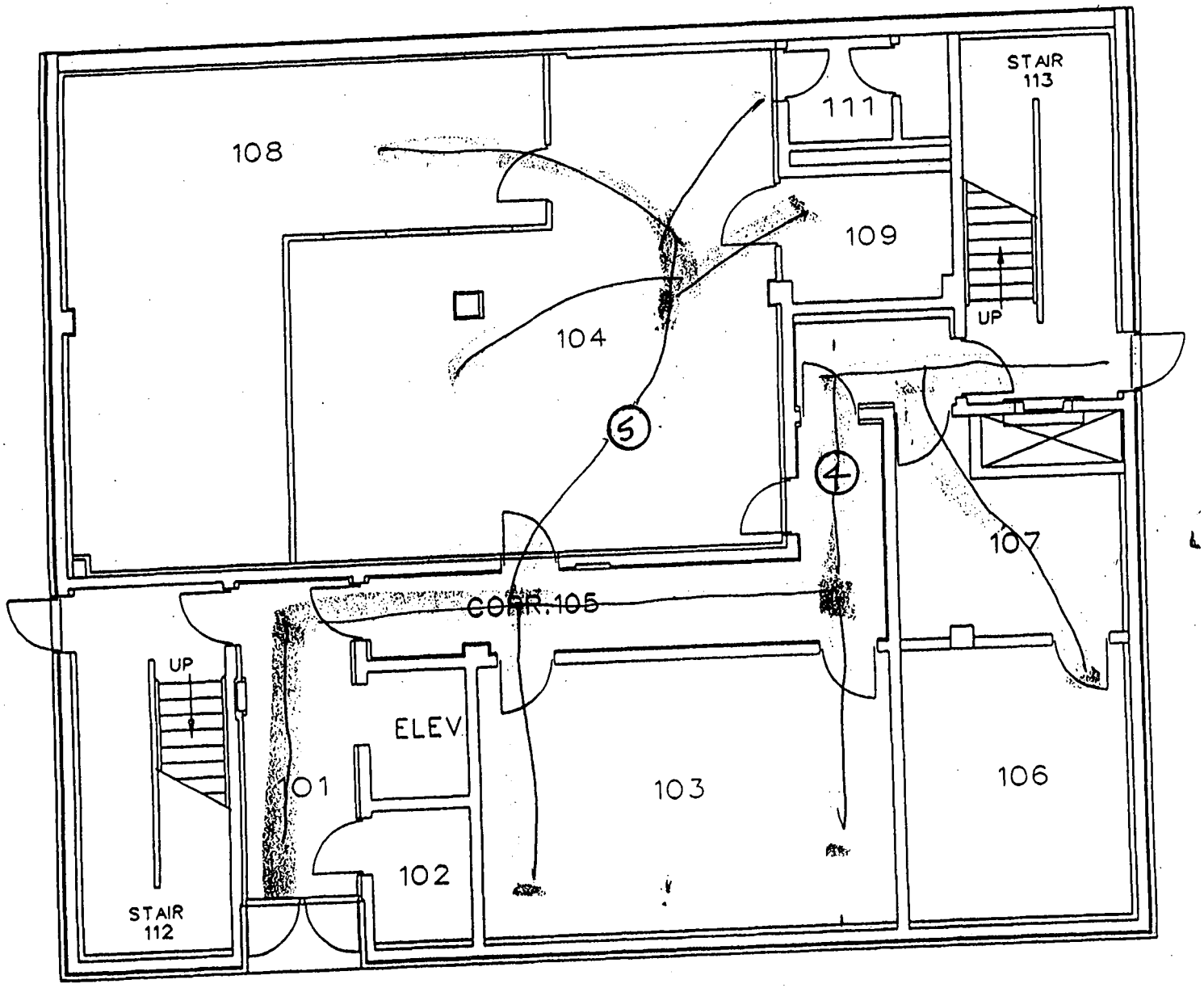

BLDG 99
FIRST FLOOR
CLASS: UCNI

03-TF-0191 Doc 6 of 6

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 99 2ND AND 3RD FLOOR	SURVEY NO. 03-TF-0192
PURPOSE: MARSSIM SURVEY PLAN 99-01 SURVEY UNITS 2 AND 3	RWP NO. N/A
	DATE: 8-25-03
	TIME: 1530

MAP/DRAWING

COPY

SEE ATTACHED

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	5855/5864	6-18-04
2360	5033/5041	5-13-04
	N/A	

[redacted] HP# 6178 Date: 9-2-03

Counted by: (Signature) SEE HP# Date:

Counted by: (Print Name) [redacted] ATTACHED

Revie[redacted] HP# 5214 Date: 09-03-03

Revie[redacted]

ML-9620 (2-98)

Survey No. 03-TF-0192

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36	SEE	ATTACHED		UNIT 2
37	↓	↓	↓	↓
38				
39				
40	↓	↓	↓	↓
		N	A	

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

99 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 3

RSDS# 03-TF-0192 RCT: DgH RCT: N/A

43-68 BKG:	0	EFF:	0.2075	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	1
43-37 BKG:	0	EFF:	0.187	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	6178	5864	1		8/25/03	7:28	4	300	6	
SRC CHECK	5855	6178	5864	1		8/25/03	7:30	1883	60	14404	
SRC CHECK	5855	6178	5864	1		8/25/03	7:32	1951	60	14924	
SRC CHECK	5855	6178	5864	1		8/25/03	7:33	2060	60	15758	
SRC CHECK	5855	6178	5864	1		8/25/03	7:35	2089	60	15980	
U-3 01	5855	6178	5864	1	1	8/25/03	8:46	2	60	15	
U-3 02	5855	6178	5864	1	2	8/25/03	8:51	5	60	38	
U-3 03	5855	6178	5864	1	3	8/25/03	8:54	2	60	15	
U-3 04	5855	6178	5864	1	4	8/25/03	8:56	4	60	31	
U-3 05	5855	6178	5864	1	5	8/25/03	9:01	4	60	31	
U-3 06	5855	6178	5864	1	6	8/25/03	9:04	0	60	0	
U-3 07	5855	6178	5864	1	7	8/25/03	9:07	1	60	8	
U-3 08	5855	6178	5864	1	8	8/25/03	9:21	1	60	8	
U-3 09	5855	6178	5864	1	9	8/25/03	9:24	0	60	0	
U-3 10	5855	6178	5864	1	10	8/25/03	9:27	1	60	8	
U-3 11	5855	6178	5864	1	11	8/25/03	9:30	0	60	0	
U-3 12	5855	6178	5864	1	12	8/25/03	9:32	2	60	15	
U-3 13	5855	6178	5864	1	13	8/25/03	9:35	2	60	15	
U-3 14	5855	6178	5864	1	14	8/25/03	9:38	2	60	15	
U-3 15	5855	6178	5864	1	15	8/25/03	9:43	0	60	0	
U-3 16	5855	6178	5864	1	16	8/25/03	9:45	2	60	15	
U-3 17	5855	6178	5864	1	17	8/25/03	9:48	1	60	8	
U-3 18	5855	6178	5864	1	18	8/25/03	9:52	3	60	23	
U-3 19	5855	6178	5864	1	19	8/25/03	9:55	4	60	31	
U-3 20	5855	6178	5864	1	20	8/25/03	9:58	3	60	23	
QC 02	5855	6178	5864	1		8/25/03	10:01	4	60	31	
QC 11	5855	6178	5864	1		8/25/03	10:06	0	60	0	

99 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 2

RSDS# 03-TF-0192 RCT: D/A RCT: D/A

43-68 BKG:	0	EFF:	0.2075	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # : 1
43-37 BKG:	0	EFF:	0.187	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	6178	5864	1		8/25/03	7:28	4	300	6
SRC CHECK	5855	6178	5864	1		8/25/03	7:30	1883	60	14404
SRC CHECK	5855	6178	5864	1		8/25/03	7:32	1951	60	14924
SRC CHECK	5855	6178	5864	1		8/25/03	7:33	2060	60	15758
SRC CHECK	5855	6178	5864	1		8/25/03	7:35	2089	60	15980
U-2 01	5855	6178	5864	1	21	8/25/03	12:15	8	60	61
U-2 02	5855	6178	5864	1	22	8/25/03	12:19	6	60	46
U-2 03	5855	6178	5864	1	23	8/25/03	12:26	3	60	23
U-2 04	5855	6178	5864	1	24	8/25/03	12:29	1	60	8
U-2 05	5855	6178	5864	1	25	8/25/03	12:32	0	60	0
U-2 06	5855	6178	5864	1	26	8/25/03	12:35	0	60	0
U-2 07	5855	6178	5864	1	27	8/25/03	12:37	0	60	0
U-2 08	5855	6178	5864	1	28	8/25/03	12:40	1	60	8
U-2 09	5855	6178	5864	1	29	8/25/03	12:43	3	60	23
U-2 10	5855	6178	5864	1	30	8/25/03	12:46	0	60	0
U-2 11	5855	6178	5864	1	31	8/25/03	12:48	2	60	15
U-2 12	5855	6178	5864	1	32	8/25/03	12:51	1	60	8
U-2 13	5855	6178	5864	1	33	8/25/03	12:54	1	60	8
U-2 14	5855	6178	5864	1	34	8/25/03	12:57	0	60	0
U-2 15	5855	6178	5864	1	35	8/25/03	12:59	0	60	0
U-2 16	5855	6178	5864	1	36	8/25/03	13:02	1	60	8
U-2 17	5855	6178	5864	1	37	8/25/03	13:04	1	60	8
U-2 18	5855	6178	5864	1	38	8/25/03	13:07	0	60	0
U-2 19	5855	6178	5864	1	39	8/25/03	13:10	2	60	15
U-2 20	5855	6178	5864	1	40	8/25/03	13:12	3	60	23
QC 01	5855	6178	5864	1		8/25/03	13:16	7	60	54
QC 10	5855	6178	5864	1		8/25/03	13:19	1	60	8

99 BUILDING CHARACTERIZATION BETA SURVEY UNIT 3

RSDS# 03-TF-0192 RCT: DGH RCT: N/A

43-68 BKG:	0	EFF:	0.169	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	6178	5864	2		8/25/03	7:41	440	300	827	
SRC CHECK	5855	6178	5864	2		8/25/03	7:45	1755	60	16484	
SRC CHECK	5855	6178	5864	2		8/25/03	7:47	1857	60	17442	
SRC CHECK	5855	6178	5864	2		8/25/03	7:48	2086	60	19592	
SRC CHECK	5855	6178	5864	2		8/25/03	7:50	2052	60	19273	
U-3 01	5855	6178	5864	2	1	8/25/03	8:47	171	60	1606	
U-3 02	5855	6178	5864	2	2	8/25/03	8:52	229	60	2151	
U-3 03	5855	6178	5864	2	3	8/25/03	8:55	191	60	1794	
U-3 04	5855	6178	5864	2	4	8/25/03	8:57	106	60	996	
U-3 05	5855	6178	5864	2	5	8/25/03	9:02	113	60	1061	
U-3 06	5855	6178	5864	2	6	8/25/03	9:05	97	60	911	
U-3 07	5855	6178	5864	2	7	8/25/03	9:08	100	60	939	
U-3 08	5855	6178	5864	2	8	8/25/03	9:22	107	60	1005	
U-3 09	5855	6178	5864	2	9	8/25/03	9:25	109	60	1024	
U-3 10	5855	6178	5864	2	10	8/25/03	9:28	92	60	864	
U-3 11	5855	6178	5864	2	11	8/25/03	9:31	119	60	1118	
U-3 12	5855	6178	5864	2	12	8/25/03	9:33	100	60	939	
U-3 13	5855	6178	5864	2	13	8/25/03	9:36	110	60	1033	
U-3 14	5855	6178	5864	2	14	8/25/03	9:39	82	60	770	
U-3 15	5855	6178	5864	2	15	8/25/03	9:44	114	60	1071	
U-3 16	5855	6178	5864	2	16	8/25/03	9:46	134	60	1259	
U-3 17	5855	6178	5864	2	17	8/25/03	9:49	99	60	930	
U-3 18	5855	6178	5864	2	18	8/25/03	9:53	105	60	986	
U-3 19	5855	6178	5864	2	19	8/25/03	9:56	114	60	1071	
U-3 20	5855	6178	5864	2	20	8/25/03	9:59	177	60	1662	
QC 02	5855	6178	5864	2		8/25/03	10:02	177	60	1662	
QC 11	5855	6178	5864	2		8/25/03	10:07	115	60	1080	

99 BUILDING CHARACTERIZATION BETA SURVEY UNIT 2

RSDS# 03-TF-0192 RCT: DgH RCT: D/A

43-68 BKG:	0	EFF:	0.169	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	6178	5864	2		8/25/03	7:41	440	300	827	
SRC CHECK	5855	6178	5864	2		8/25/03	7:45	1755	60	16484	
SRC CHECK	5855	6178	5864	2		8/25/03	7:47	1857	60	17442	
SRC CHECK	5855	6178	5864	2		8/25/03	7:48	2086	60	19592	
SRC CHECK	5855	6178	5864	2		8/25/03	7:50	2052	60	19273	
U-2 01	5855	6178	5864	2	21	8/25/03	12:16	184	60	1728	
U-2 02	5855	6178	5864	2	22	8/25/03	12:20	230	60	2160	
U-2 03	5855	6178	5864	2	23	8/25/03	12:27	224	60	2104	
U-2 04	5855	6178	5864	2	24	8/25/03	12:30	101	60	949	
U-2 05	5855	6178	5864	2	25	8/25/03	12:33	108	60	1014	
U-2 06	5855	6178	5864	2	26	8/25/03	12:36	134	60	1259	
U-2 07	5855	6178	5864	2	27	8/25/03	12:38	129	60	1212	
U-2 08	5855	6178	5864	2	28	8/25/03	12:41	96	60	902	
U-2 09	5855	6178	5864	2	29	8/25/03	12:44	123	60	1155	
U-2 10	5855	6178	5864	2	30	8/25/03	12:47	130	60	1221	
U-2 11	5855	6178	5864	2	31	8/25/03	12:49	138	60	1296	
U-2 12	5855	6178	5864	2	32	8/25/03	12:52	142	60	1334	
U-2 13	5855	6178	5864	2	33	8/25/03	12:55	129	60	1212	
U-2 14	5855	6178	5864	2	34	8/25/03	12:58	133	60	1249	
U-2 15	5855	6178	5864	2	35	8/25/03	13:00	127	60	1193	
U-2 16	5855	6178	5864	2	36	8/25/03	13:03	111	60	1043	
U-2 17	5855	6178	5864	2	37	8/25/03	13:05	126	60	1183	
U-2 18	5855	6178	5864	2	38	8/25/03	13:08	115	60	1080	
U-2 19	5855	6178	5864	2	39	8/25/03	13:11	114	60	1071	
U-2 20	5855	6178	5864	2	40	8/25/03	13:14	114	60	1071	
QC 01	5855	6178	5864	2		8/25/03	13:17	229	60	2151	
QC 10	5855	6178	5864	2		8/25/03	13:20	140	60	1315	

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200308260640	**Count Date:**	8/26/2003
Group:	G	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0192 HARVEY-40 BSB	**Operating Volts:**	1410
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

	Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13		**Alpha to Beta:**	11.39	±	0.00
Beta:	46.13	±	0.13		**Beta to Alpha:**	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	80	0.00	0.00	0.00	0.00
2	28	0.00	0.00	2.74	2.04
3	5	0.00	0.00	2.74	2.04
4	2	2.18	1.92	2.58	2.05
5	14	4.37	2.72	0.00	0.23
6	86	0.00	0.00	8.22	3.54
7	4	0.00	0.00	5.48	2.89
8	14	0.00	0.00	0.00	0.00
9	36	0.00	0.00	2.74	2.04
10	43	2.19	1.92	0.00	0.16
11	28	4.37	2.72	5.17	2.90
12	6	2.18	1.92	6.69	3.24
13	8	0.00	0.00	1.37	1.45
14	10	4.37	2.72	1.06	1.46
15	56	2.19	1.92	0.00	0.16
16	2	2.19	1.92	0.00	0.16
17	86	0.00	0.00	2.74	2.04
18	66	2.19	1.92	1.21	1.45
19	37	0.00	0.00	0.00	0.00
20	84	0.00	0.00	2.74	2.04
21	34	0.00	0.00	1.37	1.45
22	39	0.00	0.00	1.37	1.45
23	72	0.00	0.00	2.74	2.04
24	8	0.00	0.00	2.74	2.04
25	63	0.00	0.00	0.00	0.00
26	87	0.00	0.00	5.48	2.89
27	74	0.00	0.00	2.74	2.04
28	73	0.00	0.00	5.48	2.89
29	13	2.18	1.92	2.58	2.05
30	45	2.18	1.92	2.58	2.05
31	22	2.18	1.92	2.58	2.05
32	33	0.00	0.00	2.74	2.04
33	13	2.19	1.92	0.00	0.16
34	31	0.00	0.00	4.11	2.50
35	43	2.18	1.92	3.95	2.51
36	44	0.00	0.00	0.00	0.00
37	73	4.37	2.72	1.06	1.46

DJA 9-2-03 DJA

Alpha/Beta Analysis

Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13	Alpha to Beta:	11.39	±	0.00
Beta:	46.13	±	0.13	Beta to Alpha:	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
38	64	2.19	1.92	1.21	1.45
39	38	4.37	2.72	0.00	0.23
40	6	0.00	0.00	2.74	2.04
		DJH		DJH	

Batch ID: 03-TF-0192 HARVEY-40 BSB

DJH 9-2-03

27 Aug 2003 07:57 TRI-CARB - 1.09 User : 5268
Protocol #: 1 PW H3 #407906

9-2-03

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	8.74
Region B:	2.0 -	18.6	0	0.0	8.29
Region C:	40.0 -	2000	0	0.0	11.91

Quench Indicator: tSIE/AEC
~~Ext Std Terminator: Count~~
~~03-TF-0192 HARVEY-40 BSB~~
~~Coincidence Time(ns): 18~~
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	8.74	8.29	0	B	585.10		0.000	11.91
0	2.00	173.72	161.85	0		453.97	372.44	45.480	0.00
1	2.00	1.26	1.21	0		621.56	2.31	8.902	6.09
2	2.00	0.26	0.00	0		615.90	0.48	8.550	2.09
3	2.00	8.76	8.13	0		528.19	17.30	12.285	11.69
4	2.00	0.00	0.15	0		546.08	0.00	0.000	7.09
5	2.00	2.45	2.21	0		586.32	4.62	9.597	7.09
6	2.00	2.26	1.39	0		625.15	4.14	9.249	11.19
7	2.00	2.44	1.77	0		619.44	4.48	9.354	9.59
8	2.00	4.58	3.98	0		598.12	8.56	10.269	7.59
9	2.00	8.26	7.45	0		591.62	15.52	11.531	5.59
10	2.00	0.00	0.00	0		631.17	0.00	0.000	0.09
11	2.00	0.76	0.71	0		557.54	1.47	9.149	1.09
12	2.00	5.54	4.85	0		625.71	10.15	10.379	1.09
13	2.00	0.43	0.71	0		622.91	0.79	8.572	0.00
14	2.00	0.00	0.00	0		509.83	0.00	0.000	0.00
15	2.00	0.00	0.00	0		634.41	0.00	0.000	0.09
16	2.00	5.49	4.46	0		612.03	10.15	10.468	0.59
17	2.00	0.00	0.00	0		567.28	0.00	0.000	0.00
18	2.00	0.00	0.00	0		618.94	0.00	0.000	2.09
19	2.00	1.76	2.21	0		537.17	3.45	9.705	1.09
20	2.00	0.00	0.00	0		588.66	0.00	0.000	1.52
21	2.00	0.00	0.00	0		384.34	0.00	0.000	2.09
22	2.00	0.02	0.46	0		631.33	0.03	8.356	0.00
23	2.00	0.00	0.00	0		594.25	0.00	0.000	2.09
24	2.00	0.26	0.71	0		587.97	0.49	8.734	0.00
25	2.00	2.26	1.71	0		489.56	4.62	10.334	0.09
26	2.00	0.00	0.00	0		622.73	0.00	0.000	0.09
27	2.00	0.00	0.00	0		654.51	0.00	0.000	0.00
28	2.00	0.00	0.00	0		650.61	0.00	0.000	4.09
29	2.00	0.00	0.00	0		655.16	0.00	0.000	0.00
30	2.00	0.00	0.00	0		578.36	0.00	0.000	0.00
31	2.00	0.42	0.71	0		658.01	0.74	8.346	0.09
32	2.00	0.16	0.61	0		573.11	0.30	8.793	2.08
33	2.00	0.00	0.00	0		597.56	0.00	0.000	0.59
34	2.00	3.28	2.94	0		610.36	6.08	9.724	0.09
35	2.00	0.26	0.21	0		614.20	0.48	8.561	1.59

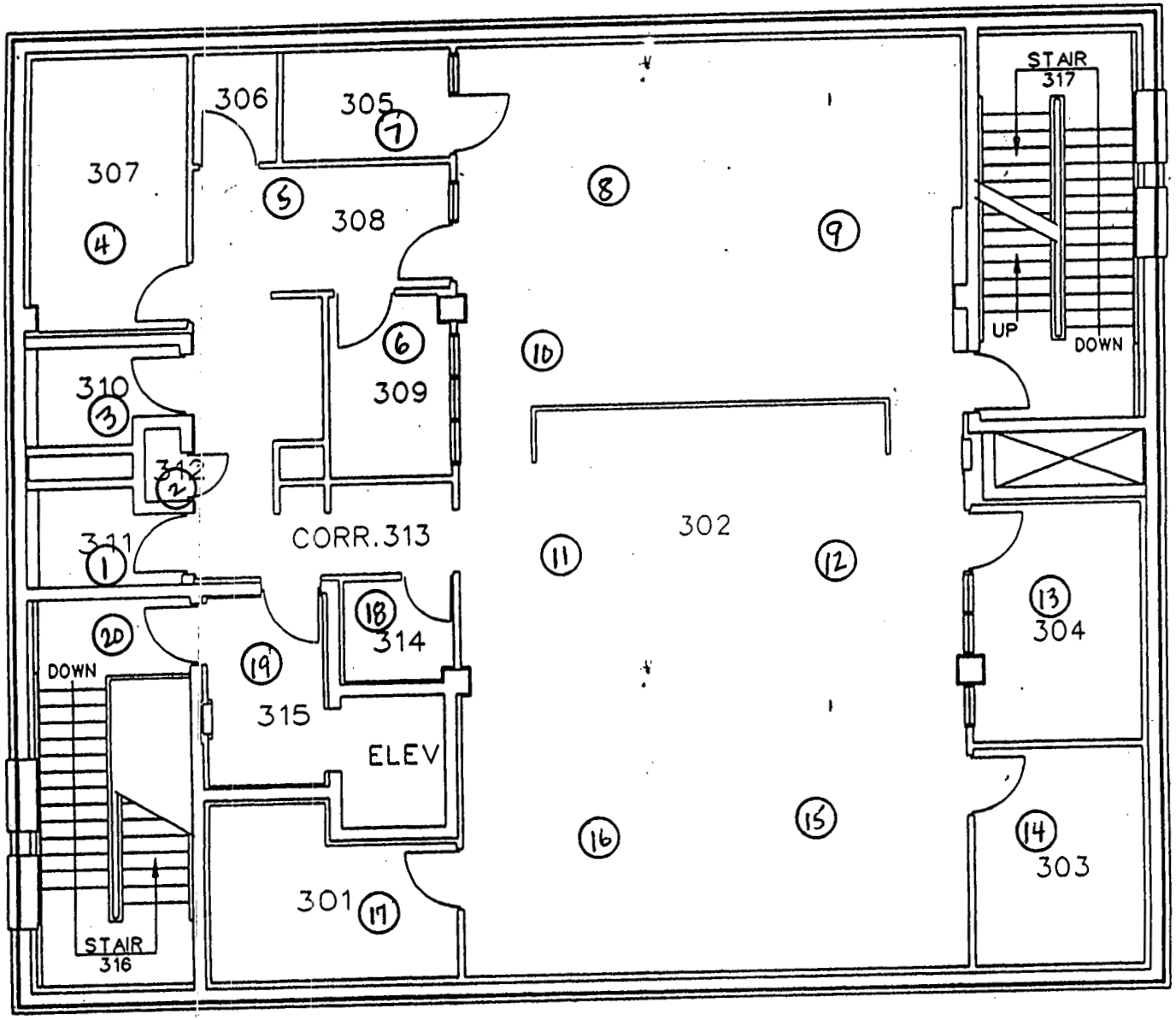
27 Aug 2003 09:41 TRI-CARB - 1.09 ~~Page #2~~
Protocol #: 1 PW H3 #407906 User : 5268

DJH 9-2-03

S#	TIME	CPMA	CPMB	LUM FLAG	tSIE	DPM1	2SIGMA	CPMC
36	2.00	1.26	0.62	0	611.13	2.33	8.972	0.00
37	2.00	2.26	1.89	0	623.43	4.15	9.261	3.09
38	2.00	0.00	0.00	0	615.46	0.00	0.000	0.00
39	2.00	0.51	0.00	0	623.48	0.93	8.598	2.59
40	2.00	0.00	0.00	0	605.68	0.00	0.000	2.09

DJH

03-TF-0192

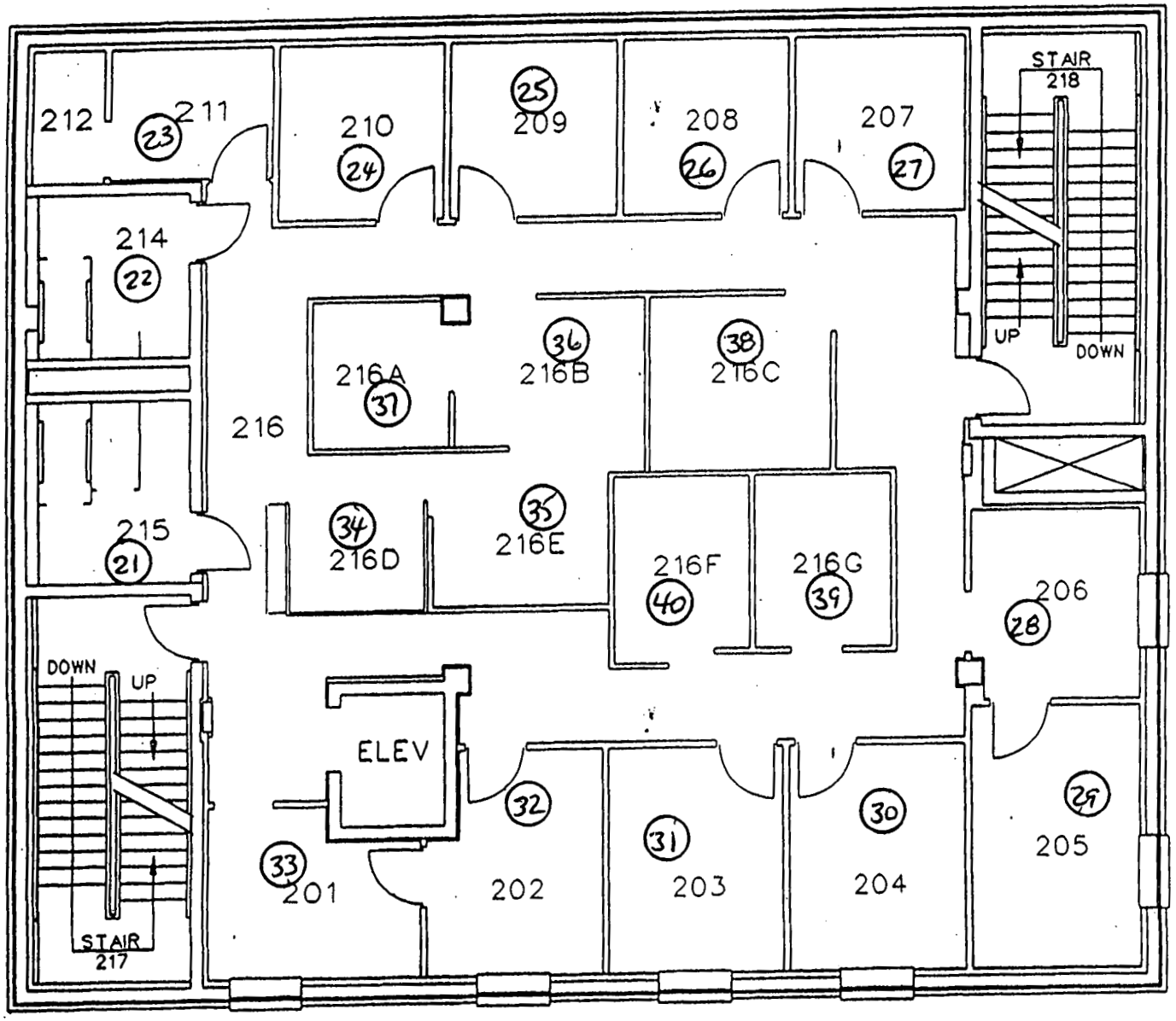


BLDG 99
THIRD FLOOR
CLASS: UCNI

03-TF-0192

G037 of 147

11 of 12



BLDG 99
SECOND FLOOR
CLASS: UNCL

03-TF-0192

12 of 12

G13804 M7

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 99 FIRST FLOOR	SURVEY NO. 03-TF-0193
PURPOSE: MARSSIM SURVEY PLAN 99-01 UNIT 1	RWP NO. N/A
	DATE: 8-26-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED

COPY

COPY

LEGEND: # = mrem/hr (γ) whole body
Ē = mrem/hr (β̄+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	5855/5864	6-18-04
2360	5833/5847	3-13-04
2350	5854/5861	6-17-04
	N/A	

[redacted]	HP# 6178	Date: 9-2-03
Counted by: (Signature) SEE	HP#	Date:
[redacted] ATTACHED		
[redacted]	HP# 5214	Date: 09-08-03
[redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0193

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination									
Swipes (dpm/100cm²)									
Sample #	β/γ	Alpha	Tritium	Comments		Sample #	β/γ	Alpha	Tritium	Comments
1	SEE ATTACHED			UNIT 1						
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18								N/A		
19										
20	✓	✓	✓	✓						
		N/A								

COPY

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

99 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1

RSDS# 03-TF-0193 RCT: DgH RCT: N/A

43-68 BKG:	0	EFF:	0.2075	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	1
43-37 BKG:	0	EFF:	0.187	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	6178	5864	1		8/26/03	6:49	3	300	5	
SRC CHECK	5855	6178	5864	1		8/26/03	7:19	1878	60	14366	
SRC CHECK	5855	6178	5864	1		8/26/03	7:21	1907	60	14588	
SRC CHECK	5855	6178	5864	1		8/26/03	7:22	2122	60	16233	
SRC CHECK	5855	6178	5864	1		8/26/03	7:24	2100	60	16064	
U-1 01	5855	6178	5864	1	1	8/26/03	9:52	0	60	0	
U-1 02	5855	6178	5864	1	2	8/26/03	9:55	1	60	8	
U-1 03	5855	6178	5864	1	3	8/26/03	9:57	2	60	15	
U-1 04	5855	6178	5864	1	4	8/26/03	10:00	1	60	8	
U-1 05	5855	6178	5864	1	5	8/26/03	10:03	4	60	31	
U-1 06	5855	6178	5864	1	6	8/26/03	10:07	3	60	23	
U-1 07	5855	6178	5864	1	7	8/26/03	10:10	2	60	15	
U-1 08	5855	6178	5864	1	8	8/26/03	10:13	1	60	8	
U-1 09	5855	6178	5864	1	9	8/26/03	8:51	5	60	38	
U-1 10	5855	6178	5864	1	10	8/26/03	8:54	3	60	23	
U-1 11	5855	6178	5864	1	11	8/26/03	8:58	0	60	0	
U-1 12	5855	6178	5864	1	12	8/26/03	9:01	3	60	23	
U-1 13	5855	6178	5864	1	13	8/26/03	9:04	3	60	23	
U-1 14	5855	6178	5864	1	14	8/26/03	9:08	1	60	8	
U-1 15	5855	6178	5864	1	15	8/26/03	9:11	1	60	8	
U-1 16	5855	6178	5864	1	16	8/26/03	9:14	4	60	31	
U-1 17	5855	6178	5864	1	17	8/26/03	9:17	2	60	15	
QC 09	5855	6178	5864	1		8/26/03	10:16	5	60	38	
QC 01	5855	6178	5864	1		8/26/03	10:19	2	60	15	

99 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1

RSDS# 03-TF-0193 RCT: Dgtl RCT: N/A

43-68 BKG:	0	EFF:	0.2165	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	1
43-37 BKG:	0	EFF:	0.2002	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	5854	6178	5861	1		8/28/03	10:05	13	300	19
SRC CHECK	5854	6178	5861	1		8/28/03	10:08	2006	60	14707
SRC CHECK	5854	6178	5861	1		8/28/03	10:09	2122	60	15558
SRC CHECK	5854	6178	5861	1		8/28/03	10:11	2047	60	15008
SRC CHECK	5854	6178	5861	1		8/28/03	10:12	2009	60	14729
U-1 18	5854	6178	5861	1	18	8/28/03	10:43	7	60	51
U-1 19	5854	6178	5861	1	19	8/28/03	10:47	12	60	88
U-1 20	5854	6178	5861	1	20	8/28/03	10:50	9	60	66

99 BUILDING CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0193 RCT: Dgt RCT: N/A

43-68 BKG:	0	EFF:	0.169	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	6178	5864	2		8/26/03	7:30	505	300	949
SRC CHECK	5855	6178	5864	2		8/26/03	7:32	1981	60	18606
SRC CHECK	5855	6178	5864	2		8/26/03	7:33	2001	60	18794
SRC CHECK	5855	6178	5864	2		8/26/03	7:34	2257	60	21198
SRC CHECK	5855	6178	5864	2		8/26/03	7:36	2326	60	21847
U-1 01	5855	6178	5864	2	1	8/26/03	9:53	101	60	949
U-1 02	5855	6178	5864	2	2	8/26/03	9:56	111	60	1043
U-1 03	5855	6178	5864	2	3	8/26/03	9:59	90	60	845
U-1 04	5855	6178	5864	2	4	8/26/03	10:01	115	60	1080
U-1 05	5855	6178	5864	2	5	8/26/03	10:04	97	60	911
U-1 06	5855	6178	5864	2	6	8/26/03	10:08	110	60	1033
U-1 07	5855	6178	5864	2	7	8/26/03	10:11	111	60	1043
U-1 08	5855	6178	5864	2	8	8/26/03	10:14	114	60	1071
U-1 09	5855	6178	5864	2	9	8/26/03	8:52	77	60	723
U-1 10	5855	6178	5864	2	10	8/26/03	8:55	100	60	939
U-1 11	5855	6178	5864	2	11	8/26/03	8:59	84	60	789
U-1 12	5855	6178	5864	2	12	8/26/03	9:02	221	60	2076
U-1 13	5855	6178	5864	2	13	8/26/03	9:05	92	60	864
U-1 14	5855	6178	5864	2	14	8/26/03	9:09	87	60	817
U-1 15	5855	6178	5864	2	15	8/26/03	9:12	93	60	873
U-1 16	5855	6178	5864	2	16	8/26/03	9:15	168	60	1578
U-1 17	5855	6178	5864	2	17	8/26/03	9:18	140	60	1315
QC 09	5855	6178	5864	2		8/26/03	10:17	105	60	986
QC 01	5855	6178	5864	2		8/26/03	10:20	101	60	949

99 BUILDING CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0193 RCT: N/A RCT: N/A

43-68 BKG:	0	EFF:	0.177	PROBE AREA:	126	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.192	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	5854	6178	5861	2		8/28/03	10:18	577	300	1035	
SRC CHECK	5854	6178	5861	2		8/28/03	10:22	2213	60	19846	
SRC CHECK	5854	6178	5861	2		8/28/03	10:23	2389	60	21424	
SRC CHECK	5854	6178	5861	2		8/28/03	10:25	2556	60	22922	
SRC CHECK	5854	6178	5861	2		8/28/03	10:26	2480	60	22240	
U-1 18	5854	6178	5861	2	18	8/28/03	10:44	157	60	1408	
U-1 19	5854	6178	5861	2	19	8/28/03	10:48	163	60	1462	
U-1 20	5854	6178	5861	2	20	8/28/03	10:51	182	60	1632	

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR004
Batch Ended: 9/2/03 9:56
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: 03-TF-0193 HARVEY-20 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	1.28	2.03		0.05	1.79	
A2	2	0.00	1.96		0.14	1.59	
A3	3	0.00	2.17		1.66	2.13	
A4	4	1.50	2.06		3.73	2.66	
B1	5	0.00	1.98		2.80	2.46	
B2	6	0.00	1.96		0.43	1.69	
B3	7	3.62	2.99		3.94	2.92	
B4	8	1.13	1.98		0.19	1.71	
C1	9	0.00	2.02		0.00	1.23	
C2	10	1.31	1.80		0.00	1.12	
C3	11	0.00	2.15		1.83	2.19	
C4	12	1.30	1.98		2.06	2.30	
D1	13	0.00	2.05		0.00	1.78	
D2	14	0.00	2.12		1.57	2.06	
D3	15	0.00	2.23		0.32	1.83	
D4	16	0.00	2.14		0.38	1.72	
A1	17	0.00	2.03		0.20	1.79	
A2	18	0.00	1.98		2.39	2.26	
A3	19	0.00	2.17		1.66	2.13	
A4	20	1.50	2.04		2.54	2.38	

DJH DJH

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DJH 9-4-03

BBBrown

G1452 LM

02 Sep 2003 10:01 TRI-CARB - 1.09
Protocol #: 3 PW H3 #407906 User : 5268

DGA 9-4-03

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

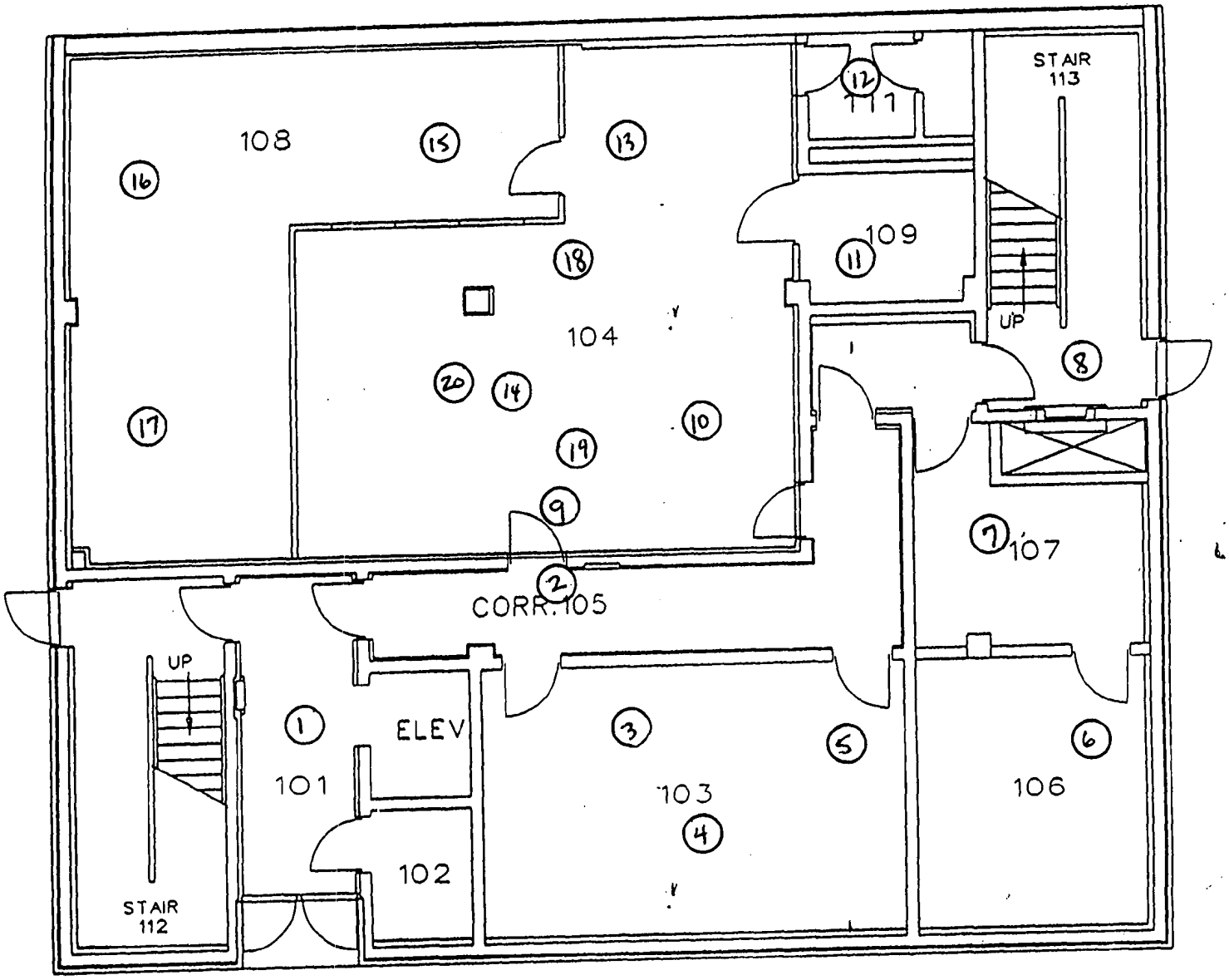
	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	8.75
Region B:	2.0 -	18.6	0	0.0	8.45
Region C:	40.0 -	2000	0	0.0	13.86

Quench Indicator: tSIE/AEC
~~Ext Std Terminator: Count~~
03-TF-0193 HARVEY-20 BSB
~~Luminescence Correction On~~
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT3.dat
Count Data Filename: C:\DATA\SDATA3.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	8.75	8.45	0	B	494.40		0.000	13.86
0	2.00	229.54	216.45	0		446.14	497.36	54.062	0.00
1	2.00	2.14	0.77	0		542.62	4.18	9.816	5.22
2	2.00	17.19	15.78	0		487.98	35.25	15.368	21.64
3	2.00	5.25	5.18	0		653.04	9.42	10.080	0.72
4	2.00	12.17	10.26	0		590.07	22.88	12.718	0.64
5	2.00	0.00	0.00	0		582.74	0.00	0.000	2.14
6	2.00	0.00	0.00	0		638.66	0.00	0.000	0.00
7	2.00	2.25	1.09	0		440.70	4.92	11.026	0.00
8	2.00	3.07	3.13	0		514.04	6.13	10.410	0.64
9	2.00	2.13	1.55	0		586.09	4.01	9.482	1.14
10	2.00	2.10	1.92	0		613.94	3.87	9.271	0.00
11	2.00	0.27	0.57	0		609.55	0.50	8.600	0.00
12	2.00	0.00	0.00	0		600.43	0.00	0.000	0.00
13	2.00	1.62	1.13	0		620.65	2.98	9.048	0.00
14	2.00	0.25	0.00	0		570.33	0.48	8.855	0.00
15	2.00	2.25	0.77	0		592.56	4.23	9.482	11.14
16	2.00	0.48	0.78	0		473.81	1.01	9.787	0.00
17	2.00	4.25	4.05	0		559.90	8.19	10.466	4.64
18	2.00	0.00	0.05	0		573.41	0.00	0.000	0.00
19	2.00	2.25	2.05	0		544.51	4.39	9.845	0.00
20	2.00	5.75	5.55	0		611.31	10.64	10.564	0.00

SYSTEM NORMALIZED

C14 IPA DATA PROCESSED - 02-Sep-2003 11:15
C14 Eff (0-156 keV) = 96.56 %
H3 IPA DATA PROCESSED - 02-Sep-2003 11:16
H3 Eff (0-18.6 keV) = 65.52 %



BLDG 99
FIRST FLOOR
CLASS: UCNI

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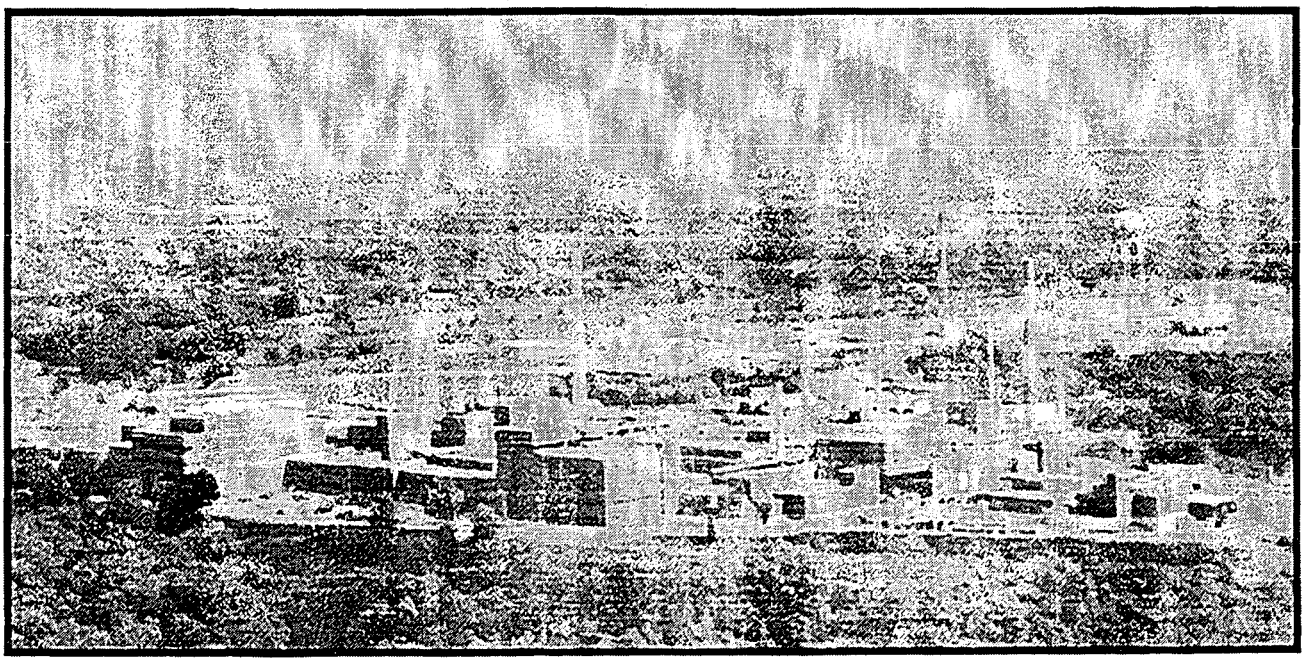
Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Buildings 40 and 99
(Demolition)

Final
October 2003
Volume 2 of 2 (Appendix H through Appendix Q)



Due to the document size, the final version of the Buildings 40 and 99 BDP is printed in two volumes: Volume 1 of 2 contains the text through Appendix G, and Volume 2 of 2 contains Appendix H through Appendix Q.

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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

No Radon data for Building 99

Bldg	Bldg Description	Room	pCi/l	pCi/l	Manid	Supid	Date	Date	Comments
21		ABOVE AIR SAMPLER	161.1	125.6	1678055	1666782	12/14/89	2/16/90	MET - OLD THORIUM S
21		ABOVE AIR SAMPLERS	116.7		1668548		12/14/89	2/16/90	MET - OLD THORIUM S
	SM	19 MID EAST WALL	4.0		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED
48		114 B CLOSET ON SPRINKLER PIPE	3.2		1671292		12/12/89	2/19/90	
19		ROOM 1	2.6		1678051		12/12/89	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		12/18/89	2/19/90	
57		ROOM 1	1.9		1661565		12/12/89	2/19/90	
87		143	1.5		1661563		12/12/89	2/19/90	
998	FIRE STATION	ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654468		12/12/89	2/19/90	
24		ROOM 1 PLANT NORTH WALL	1.3		1672087		12/12/89	2/19/90	
	PAINT SHOP	PS 4	1.2		1661518		12/12/89	2/16/90	
30		ROOM 3 EAST	1.1		1671262		12/12/89	2/16/90	
100		103 MIDDLE OF NORTH WALL	1.0		1678060		12/12/89	2/19/90	
37		6 NORTH WALL	1.0		1678044		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		12/12/89	2/19/90	
67		101 M	.9		1678021		12/12/89	2/19/90	
G-13	LOG	G-514 WEST WALL	.9		1661544		12/12/89	2/16/90	
	T	CORRIDOR 26	.9		1678035		1/15/90	2/19/90	
	T	153	.9		1678067		1/15/90	2/19/90	
	T	78	.9		1678077		1/15/90	2/19/90	
	T	30	.9		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		12/12/89	2/16/90	
	SM	8 WEST WALL AT OLD RECOVERY	.6		1672057		12/11/89	2/16/90	
	MO BLDG	MO 6	.6		1678045		12/18/89	2/16/90	
07		124	.6		1678032		12/12/89	2/19/90	
84		ROOM 116 ON NORTH WALL RIGHT OF CEN	.7	.5	1661524	1661535	12/12/89	2/19/90	
49		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666783	1668532	12/15/89	2/19/90	
22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1678070		12/12/89	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	.9	1672048	1667159	12/13/89	2/16/90	
69		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/89	2/19/90	
26		ROOM 84 SOUTH WEST WALL	.6		1671270		12/12/89	2/16/90	
35		RM 7	.6		1654459		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		1/12/90	2/19/90	
93		HALLWAY 107 (MIDWAY)	.6		1661629		12/12/89	2/20/90	
98	FIRE STATION	ROOM 114 BORX	.6		1661507		12/12/89	2/19/90	
	COS	RM STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/89	2/19/90	
	OSW	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	

Area	Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	45		WORK STATION AREA	.4		1681568		12/14/89	2/19/90	
	46		81 EAST WALL	.4		1672070		12/12/89	2/19/90	
	49		WALL OUTSIDE RM 125	.4		1678020		12/14/89	2/19/90	
	51		107 TOP OF FUME HOOD	.4		1681575		12/12/89	2/19/90	
	63		ROOM 134	.4		1672059		12/13/89	2/20/90	
	63W		RM 4	.4		1678078		12/14/89	2/19/90	
	65		ROOM 10 CONFERANCE ROOM	.4		1671284		12/14/89	2/19/90	
	66		OFFICE AREA	.4		1681554		12/12/89	2/19/90	
	68		EAST WALL CENTER BEAM	.4		1681555		12/14/89	2/19/90	
	69		RM 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		1671285		12/12/89	2/19/90	
	95	SH/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	12/12/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.6		1671208		12/12/89	2/19/90	
	"B" 135	175 WEST WALL	.5		1678040		12/12/89	2/16/90	
46		ELECTRICAL PANEL RM IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
40		100	.6		1654480		12/12/89	2/16/90	
43		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
44		ON BULLETIN BOARD	.5		1678047		12/12/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5		1678050		12/12/89	2/16/90	
50		CELL 113	.5		1681582		12/12/89	2/19/90	
78		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1681605		12/18/89	2/16/90	
89		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
81		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1681593		12/15/89	2/16/90	
92		HALLWAY RIGHT OFF ROOM 8	.5		1661509		12/12/89	2/19/90	
94		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
	A	215 WEST WALL	.6		1661572		12/14/89	2/16/90	
	A	1040 WEST WALL	.5		1681580		12/14/89	2/16/90	
	COS	110 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	210 WALL CABINET TO RIGHT OF SINK	.5		1681590		12/12/89	2/19/90	
	E BUILDING	158 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.6		1678072		12/14/89	2/16/90	
	E ANNEX	E 212 NORTH WALL	.5		1681587		12/18/89	2/16/90	
	GK BUILDING	ROOM 2	.6		1678065		12/12/89	2/16/90	
	GP 81	1A MIDDLE OF WEST WALL	.6		1678054		12/12/89	2/19/90	
	K BLDG	ROOM 127	.6		1681571		12/12/89	2/16/90	
	MH	MH-8	.6		1671268		12/18/89	2/19/90	
	E BUILDING	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	N BUILDING	N 100	.5		1678056		12/15/89	2/19/90	
	OSE	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSN	4NT FLOOR	.5		1678028		12/12/89	2/16/90	
	OSE	CORR 212 SOUTH WALL NEAR 218 DOOR	.6		1678036		12/15/89	2/16/90	
	OSN	319	.5		1678069		12/13/89	2/16/90	
	OSN	2ND FLOOR	.5		1681611		12/12/89	2/16/90	
	POWER HOUSE PH-1	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	R BUILDING	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	SW/R TRITIUM COMPLEX	128 OVER LARGE METAL FLOOR DISC	.5		1678019		12/12/89	2/16/90	
	W BLDG	W135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
	WO BLDG	WOA 110	.5		1671301		12/18/89	2/16/90	
	"B" 124	EAST WALL	.5		1667189		12/12/89	2/16/90	
	OSE	113 BULLETIN BOARD OPPOSITE ELEVATO	.5		1678027		12/15/89	2/16/90	
TF-2		114 EAST WALL CENTER OF ROOM	.4		1678064		12/12/89	2/19/90	
	MH	MH-24	.4		1667187		12/14/89	2/19/90	
	OS BUILDING	CORRIDOR 7 NEXT TO ROOM 216	.4		1661614		12/13/89	2/19/90	
	GP 81	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
27		CELL 8 - WALL	.4		1681583		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	101	.4		1672061		12/12/89	2/19/90	
29		HALLWAY	.4		1672105		12/14/89	2/19/90	
	TEST FIRE BUILDING 3	3-315	.4		1672036		12/12/89	2/19/90	
38	PP BLDG	PP CORR 16/BAY 2 WALL	.4		1681570		12/14/89	2/19/90	
39		BREAK RM	.4		1678050		12/14/89	2/19/90	
42		101 B EAST WALL	.4		1678031		12/13/89	2/19/90	

Appendix I

Asbestos Information

Building 40 – I 3 through 58
Building 99 – I 59 through 117

Asbestos

An asbestos inspection (attached) of Buildings 40 and 99 was conducted in late June 2003. In both buildings, fire doors are assumed to contain asbestos. Also in Room 106 of Building 99, a nonfriable tabletop contains asbestos. These items will be removed, packaged, and properly labeled for disposal by asbestos worker trained personnel prior to demolition.

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ASBESTOS MATERIALS REPORT
for

Building 40
Miamisburg Closure Project
Miamisburg, Ohio

prepared for

CH2M Hill Mound, Inc.
P.O. Box 3030
Miamisburg, OH 45343-3030

by

Cole & Associates
Training & Consulting, Inc.
451 SW 10th Street
Suite 100
Renton, WA 98055

CTC PROJECT #CTC-03-365-03

6 / 27 / 03

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B - LABORATORY BULK SAMPLE ANALYSIS REPORT
C - OHIO ASBESTOS HAZARD EVALUATION SPECIALIST CERTIFICATION
D - LABORATORY CERTIFICATE OF ACCREDITATION
E - ASBESTOS SURVEY SUMMARY

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EXECUTIVE SUMMARY

Cole & Associates, Training & Consulting, Inc. (CTC) was retained by CH2M Hill Mound, Inc. to conduct a "Building Survey (Inspection)" on Building 40, Miamisburg Closure Project at Miamisburg, Ohio. The purpose of this inspection was to determine the presence of Asbestos Containing Materials (ACM) and Asbestos Containing Building Materials (ACBM) for planned demolition activities.

Authorization to perform this Building Survey was received via contract on June 25, 2003.

The subject structure consists of a three-story 12,200 square foot concrete block slab-on-grade building with brick facing and an asphalt and metal built up membrane roof constructed in 1968 with an Annex added in 1993.

This survey was conducted on June 26th, 2003. The survey encompassed the interior and the exterior of the building. Suspect materials were looked for and sampled by Robert Parsons and William Rutherford.

Samples were taken and transported to and analyzed by the NVLAP certified laboratory, LA Testing, 159 Pasadena Avenue, South Pasadena, CA 91030.

SCOPE OF SERVICES

CTC was retained by CH2M Hill Mound, Inc. to conduct a "Building Survey (Inspection)" on Building 40, Miamisburg Closure Project at Miamisburg, Ohio. The purpose of this inspection was to determine the presence of Asbestos Containing Materials (ACM) Asbestos Containing Building Materials (ACBM) for planned demolition activities.

Authorization to perform this Building Survey was received via contract on June 25, 2003.

A visual inspection and sampling survey of the facility was conducted in accordance with general Environmental Protection Agency & Asbestos Hazard Emergency Response Act (EPA/AHERA) sampling guidelines to determine the presence of exposed or accessible suspect ACM and or ACBM. A physical hand pressure test was conducted to determine the friability of selected suspect materials.

Bulk samples were obtained from suspect materials that were readily exposed, accessible or suspect during the inspection. Bulk samples were analyzed by LA Testing of South Pasadena California using Polarized Light Microscopy (PLM). The analytical results are presented in "Laboratory Results" of this report.

WARRANTY

CTC warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of this report preparation. Changes in state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine presence, condition and hazard potential of accessible or exposed suspect ACM and or ACBM in the facility at the time of this survey. Test results are valid only for the materials tested.

There is a distinct possibility that conditions may exist that could not be identified within the scope of the survey or that were not apparent during the site visit. This survey covered only those areas that were exposed or physically accessible to the inspector. The survey is limited to the information available from the client at the time the survey was conducted.

No other warranties are implied or expressed.

METHODOLOGY

GENERAL REFERENCES

Inspection, sampling, and assessment procedures were performed in general accordance with the guidelines published by the EPA in 40 CFR Part 763 Subpart E, October 30, 1987.

The inspection consisted of the following major activities: visual inspection and sampling.

VISUAL INSPECTION

The visual inspection was performed by Robert Parsons and William Rutherford, both EPA Certified Asbestos Building Inspectors and Ohio Department of Health Certified Asbestos Hazard Evaluation Specialists. An initial facility "preliminary walk-through" was conducted to determine homogeneous areas and the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

Homogeneous Material Classifications

The walk-through of the building areas was also conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed to be "homogeneous materials" by the EPA and the Ohio DOH.

During this walk-through, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

SAMPLING PROCEDURES

Following the walk-through, the inspectors collected selected samples of exposed or accessible materials identified as suspect ACBM. Destructive sampling was limited to accessible materials. No samples were taken that would cause damage to the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous materials. Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October, 1985). Samples of miscellaneous materials were taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material. Samples of surfacing, flooring and concrete foundation materials were collected.

LABORATORY PROCEDURES

METHOD OF ANALYSIS

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and non-fibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) as described by the "Interim Method of Determination of Asbestos in Bulk Samples, EPA 600/R-93/116 Method." This is a standard method of analysis in optical mineralogy and the current accepted method for the determination of asbestos in bulk samples.

A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACBM may not be accurately identified or quantified

by PLM if the building material involved milling of asbestos fibers to extremely small fibers. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) analysis is available for a more definitive analysis of these very small sized asbestos fibers in those types of building materials.

Laboratory Quality Control Program

LA Testing, Inc. is certified by NVLAP as PLM Lab #200232-0 and maintains an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

FINDINGS AND OBSERVATIONS

GENERAL SUMMARY

Building 40 was built in 1968 with a concrete block slab-on-grade with brick facing and an asphalt and metal built up membrane roof. An Annex was added in 1993. Total square footage of this building is 12,200.

During this building survey asbestos containing building materials were not identified within this structure. None of the ACM debris identified in the 1993 report was found. An inaccessible space behind the wall of Room 218 was discovered and penetration of the wall was accomplished. The area was determined to be a pipe chase which contained fiberglass covered piping. The pipe elbows also appeared to be fiberglass covered, but due to the inaccessible nature of the area itself sampling could not be accomplished. It was decided, in agreement with the BTR, that during demolition of this area, a CTC representative will be available and on hand should sampling be required.

A material is considered by the EPA and State of Ohio to be ACM if at least one (1) sample collected from the area shows asbestos present in an amount greater than one percent (>1%). Please refer to the Sample Analysis Sheets for a more detailed description of the microscopic analysis of these samples.

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR 61) requires an inspection for asbestos be accomplished on facilities that are to undergo demolition or renovation work. Materials found to be ACM will need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable ACM as gaskets, resilient floor covering and asphalt roofing products that contain more than one percent asbestos and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to powder by hand pressure when dry. NESHAP defines a Regulated Asbestos Containing Material (RACM) as: (a) Friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting or abrading and (d) Category II non-friable that may or has become friable during demolition or renovation.

BUILDING SURVEY SUMMARY

For: Building 40, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 26 Jun 2003	
Homogenous Group*	**Room(s)/Location**	**Sample No. (CTC-03-365-40-#)**	**Type of Material**	**Asbestos**	
				Type	**%**
1	**1, 5, 6, 7, 9, 100, 104, 105, 106, 107, 108, 109 Floors**	**Not included in Scope of Work**	**Blue 12" x 12" Tile (Miscellaneous)**	**Assumed**	
2	1, 1a, 5, 6, 7, 9, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 200, 201, 202, 203, 209, 210, 211, 212, 213, 214, 215, 216, 218, 219 Floors	CTC-03-365-40-01	Black Cove Base w/mastic (Miscellaneous)	---	ND
3	1, 1a, 2, 5, 6, 7, 9, 100, 101, 105, 216, Ceilings	CTC-03-365-40-11 CTC-03-365-40-12 CTC-03-365-40-13	White 2' x 4' Tile w/fissures & pinholes (Miscellaneous)	---	ND
4	1 Window	CTC-03-365-40-02	Gray Glazing (Miscellaneous)	---	ND
5	1, 1a, 2, 2a, 4, 4a, 5, 6, 7, 9, 100, 101, 102, 103, 105, 106, 109, 200, 201, 202, 203, 209, 210, 211, 212, 216, 218, 219 Ceilings	CTC-03-365-40-14 CTC-03-365-40-15 CTC-03-365-40-16 CTC-03-365-40-17	White 2' x 4' Tile w/pinholes (Miscellaneous)	---	ND
6	1, 1a, 6, 7, 9, 100, 101, 102, 103, 106, 108, 200, 201, 202, 203, 209, 210, 211, 212, 213, 214, 215, 217, 219, 317, Penthouse, Walls	CTC-03-365-40-18 CTC-03-365-40-19 CTC-03-365-40-20 CTC-03-365-40-21 CTC-03-365-40-22 CTC-03-365-40-23 CTC-03-365-40-24	Gypsum Wallboard (GWB) w/joint compound (Miscellaneous)	---	ND
7	**2, 2a, 3, 4, 4a Walls**	**CTC-03-365-40-03**	**Grey/Green 4.5" x 6" Ceramic Tile w/grout (Miscellaneous)**	**Chrysotile (grout**	**<1% only)**
8	2, 2a, 3, 4, 4a Floors	CTC-03-365-40-04	White 1" x 1" Ceramic Tile w/grout (Miscellaneous)	---	ND
9	**4 Floor**	**Not included in Scope of Work**	Green/Grey 12" x 12" Tile (Miscellaneous)	**Assumed**	
10	107, 217, 317 Floors	CTC-03-365-40-05	Black 1'x 3.5' Stair Tread w/mastic (Miscellaneous)	---	ND
11	101, 102, 103 Floors	CTC-03-365-40-26	White 2' x 2' Raised Tile (Miscellaneous)	---	ND
12	Penthouse	CTC-03-365-40-06	Black 4.5' x 9' Dia Vibration Dampeners (Miscellaneous)	---	ND
Building Inspectors: Robert Parsons William Rutherford				**Certifications: 34302 34308**	
Laboratory: LA Testing, Inc.				**NVLAP No.: 200232-0**	

***Suspect Materials / Homogeneous Sample Groups are listed on Page 8-9.**

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BUILDING SURVEY SUMMARY

For: Building 40, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 26 Jun 2003	
Homogenous Group*	**Room(s)/Location**	**Sample No. (CTC-03-365-40-#)**	**Type of Material**	**Asbestos**	
				Type	**%**
13	Penthouse	CTC-03-365-40-13	Black 3' – 4' Dia Vibration Dampers (Miscellaneous)	---	ND
14	Roof	CTC-03-365-40-08	Silver Painted Flashing (Miscellaneous)	---	ND
15	201, 202, 203, 209, 210, 211, 212, 219, Roof	CTC-03-365-40-09	Gray Window Glazing (Miscellaneous)	---	ND
16	**107, 217, 317**	**Not included in Scope of Work**	**Fire Doors (Miscellaneous)**	**Assumed**	
17	200, 201, 202, 203, 209, 210, 211, 212, 216, 218, 219 Floors	CTC-03-365-40-10	Blue Carpet w/mastic (Miscellaneous)	---	ND
18	213, 214, 215 Floors	CTC-03-365-99-14	White 1" x 1" Ceramic Tile w/grout (Miscellaneous)	---	ND
19	2 Above Doorway	CTC-03-365-40-25	Pipe Joint (Elbow) Insulation (TSI)	---	ND
20	2 above drop ceiling on east wall	CTC-03-365-40-27	Pipe Insulation (TSI) from G Bldg	---	ND

Building Inspectors: Robert Parsons William Rutherford	**Certifications: 34302 34308**
***Laboratory:* LA Testing, Inc.**	**NVLAP No.: 200232-0**

***Suspect Materials / Homogeneous Sample Groups are listed on Page 8-9.**

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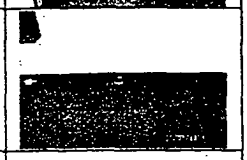
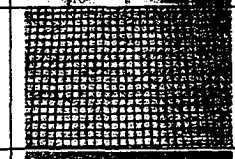
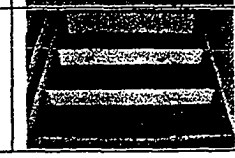
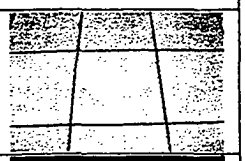
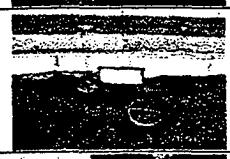
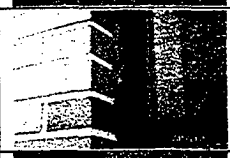
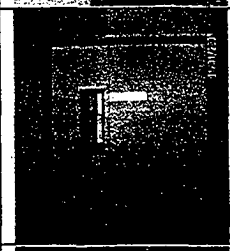
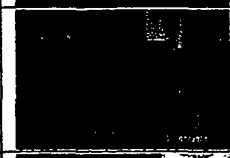
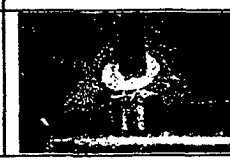
SUSPECT MATERIALS/HOMOGENEOUS SAMPLE GROUPS

No.	Building Material	% Asbestos	Photo
1	Blue 12" x 12" Floor Tile (Miscellaneous)	Assumed	
2	Black Cove Base w/mastic (Miscellaneous)	ND	
3	White 2' x 4' Ceiling Tile w/fissures & pinholes (Miscellaneous)	ND	
4	Gray Window Glazing (Miscellaneous)	ND	
5	White 2' x 4' Ceiling Tile w/pinholes (Miscellaneous)	ND	
6	Gypsum Wallboard (GWB) w/joint compound (Miscellaneous)	ND	
7	Grey/Green 4.5" x 6" Ceramic Wall Tile w/grout (Miscellaneous)	<1% Chrysotile (grout only)	
8	White 1" x 1" Ceramic Floor Tile (Miscellaneous)	ND	
9	Green/Grey 12" x 12" Floor Tile (Miscellaneous)	Assumed	
10	Black 1'x 3.5' Stair Tread (Miscellaneous)	ND	

SUSPECT MATERIALS/HOMOGENEOUS SAMPLE GROUPS

No.	Building Material	% Asbestos	Photo
11	White 2' x 2' Raised Floor Tile (Miscellaneous)	ND	
12	Black 4.5' x 9' Diameter Vibration Dampeners (Miscellaneous)	ND	
13	Black 3' – 4' Diameter Vibration Dampeners (Miscellaneous)	ND	
14	Silver Painted Roof Flashing (Miscellaneous)	ND	
15	Gray Window Glazing (Miscellaneous)	ND	
16	Fire Doors (Miscellaneous)	Assumed	
17	Blue Carpet w/mastic (Miscellaneous)	ND	
18	White 1" x 1" Floor Tile (Miscellaneous)	ND	
19	Pipe Joint (Mudded Elbow) Insulation (TSI)	ND	NO PHOTO
20	Pipe Insulation (TSI)	ND	

Appendix A

FLOOR PLANS

AND

SAMPLE LOCATIONS

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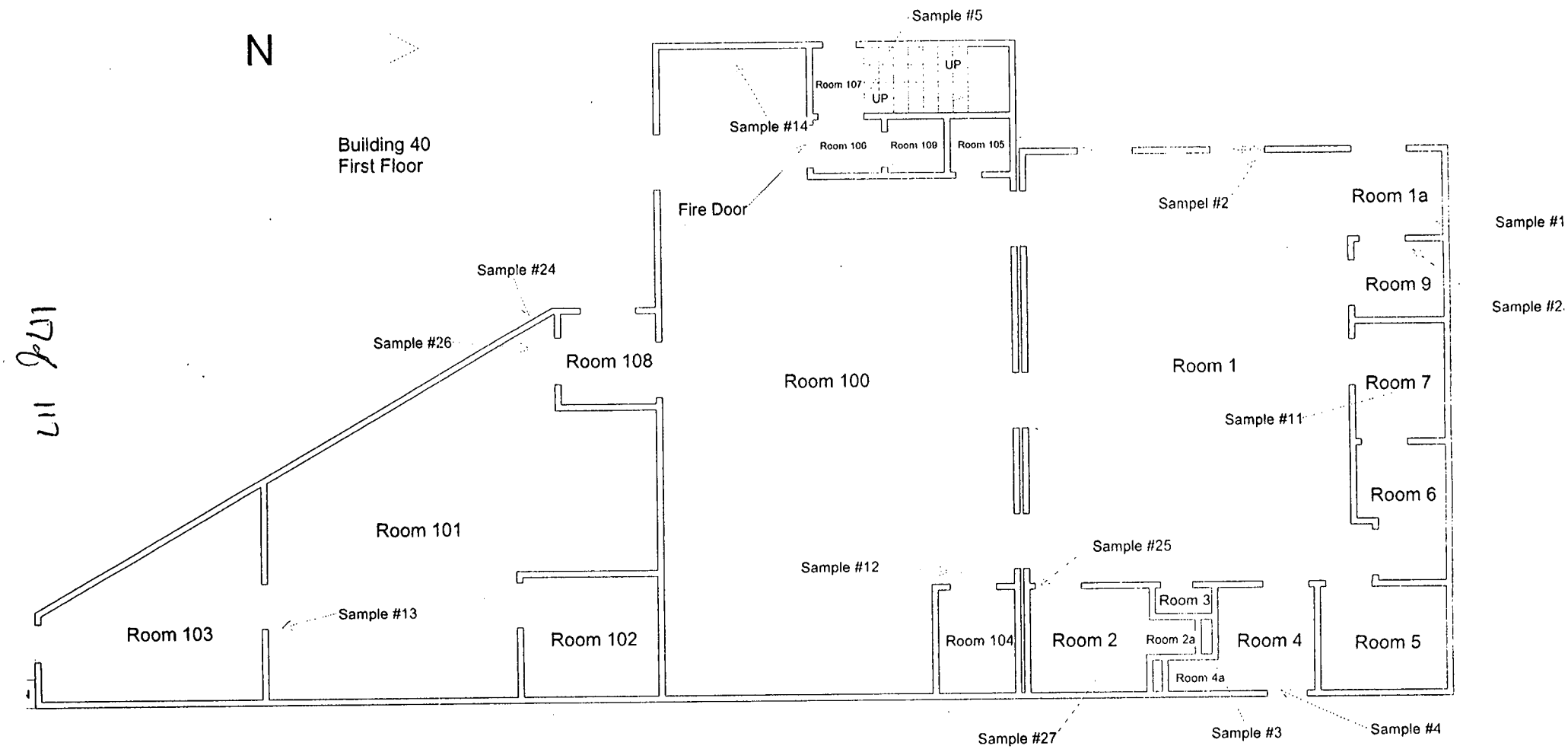
N
Building 40
First Floor
Sample #5
UP
Room 107
UP
Sample #14
Room 106
Room 109
Room 105
Fire Door
Sampel #2
Room 1a
Sample #1
Room 9
Sample #2
Sample #24
Sample #26
Room 108
Room 100
Room 1
Room 7
Sample #11
Room 6
Room 101
Sample #25
Sample #12
Room 3
Sample #13
Room 103
Room 102
Room 104
Room 2
Room 2a
Room 4
Room 5
Room 4a
Sample #27
Sample #3
Sample #4

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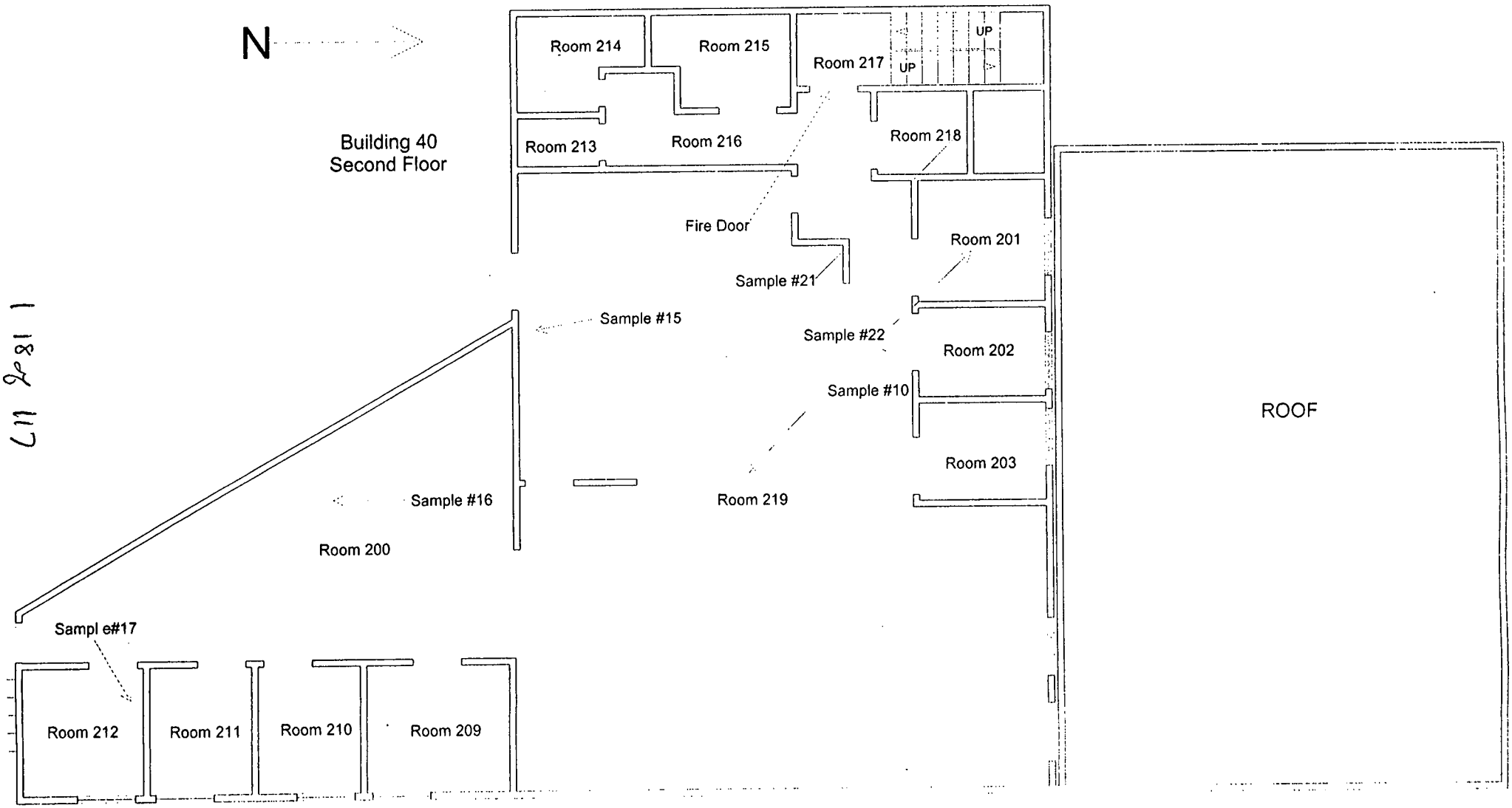
N
Building 40
Second Floor
Room 214
Room 215
Room 217
UP
UP
Room 213
Room 216
Room 218
Fire Door
Room 201
Sample #21
Sample #15
Sample #22
Room 202
Sample #10
ROOF
Room 203
Sample #16
Room 219
Room 200
Sampl e#17
Room 212
Room 211
Room 210
Room 209

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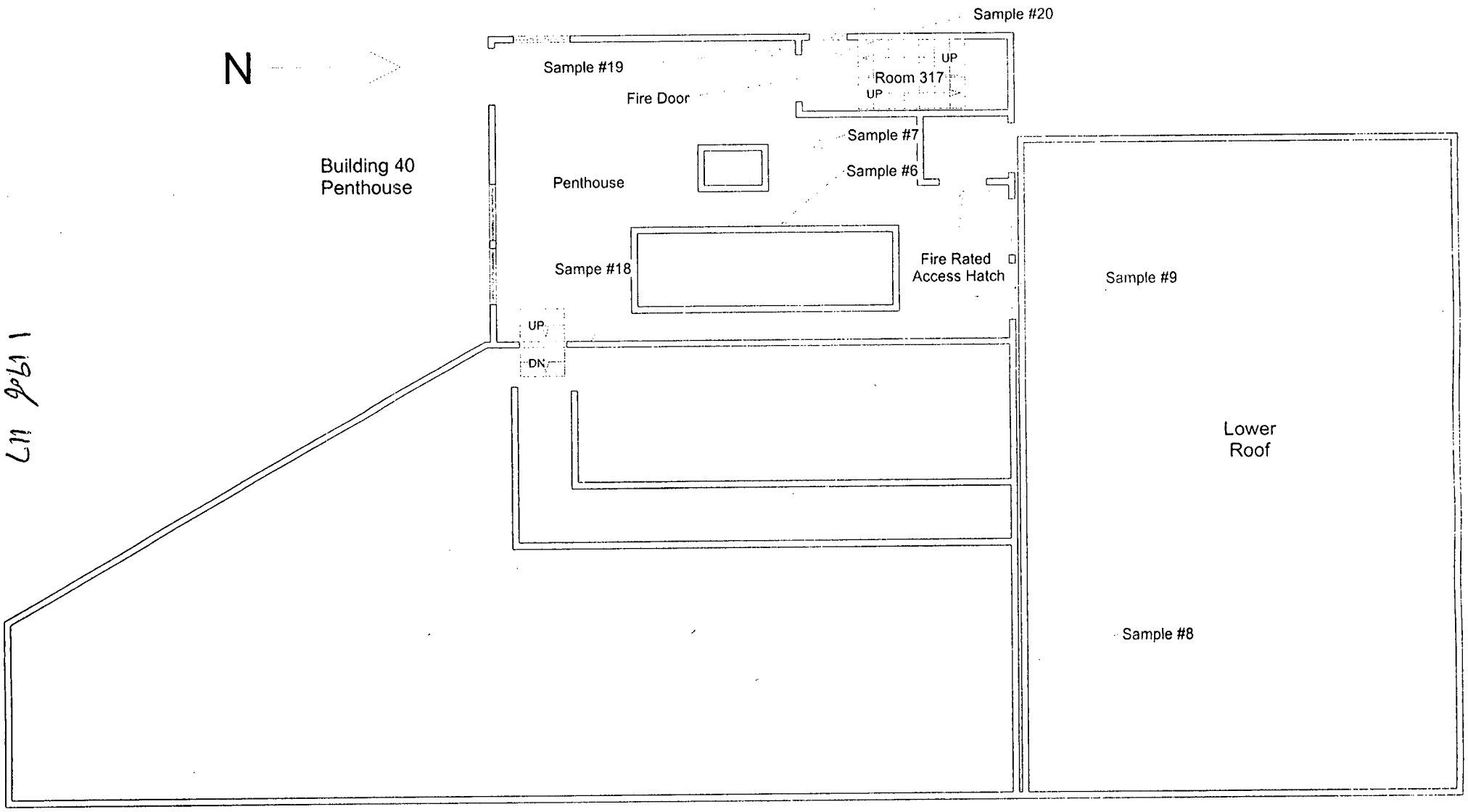
N
Sample #20
Sample #19
Room 317
UP
UP
Fire Door
Sample #7
Sample #6
Building 40
Penthouse
Penthouse
Sampe #18
Fire Rated
Access Hatch
Sample #9
UP
DN
Lower
Roof
Sample #8

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Appendix A - 1

MATERIAL BY

HOMOGENEOUS

NUMBER

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Bldg 40 by Homogenous Area

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	01	106	7x7	49 sq ft	Floor Tile	Blue	12"x12"
40	01	104	7x9	63 sq ft	Floor Tile	Blue	12"x12"
40	01	6	12x12.5	150 sq ft	Floor Tile	Blue	12"x12"
40	01	7	14x16	224 sq ft	Floor Tile	Blue	12"x12"
40	01	105	7x10	70 sq ft	Floor Tile	Blue	12"x12"
40	01	108	8x8	64 sq ft	Floor Tile	Blue	12"x12"
40	01	100	24x50	1200 sq ft	Floor Tile	Blue	12"x12"
40	01	9	9.5x12	114 sq ft	Floor Tile	Blue	12"x12"
40	01	1	29x35	945 sq ft	Floor Tile	Blue	12"x12"
40	01	5	10x14.5	145 sq ft	Floor Tile	Blue	12"x12"
40	01	109	6x9	54 sq ft	Floor Tile	Blue	12"x12"
40	01	107	8x15	164 sq ft	Floor Tile	Blue	12"x12"
40	02	108	8x8	23 lft	Cove Base	Black	4.5"
40	02	212	10x13	41 lft	Cove Base	Black	4.5"
40	02	102	12x15	54 lft	Cove Base	Black	4.5"
40	02	213	4x5	2 lft	Cove Base	Black	4.5"
40	02	103	13x20	58 lft	Cove Base	Black	4.5"
40	02	100	24x50	168 lft	Cove Base	Black	4.5"
40	02	203	9x10	38 lft	Cove Base	Black	4.5"
40	02	202	9x10	29 lft	Cove Base	Black	4.5"
40	02	201	10x12	45 lft	Cove Base	Black	4.5"
40	02	210	10x10	34 lft	Cove Base	Black	4.5"
40	02	105	7x10	24 lft	Cove Base	Black	4.5"
40	02	107	8x15	54 lft	Cove Base	Black	4.5"
40	02	106	7x7	11 lft	Cove Base	Black	4.5"
40	02	209	10x10	37 lft	Cove Base	Black	4.5"
40	02	109	6x9	27 lft	Cove Base	Black	4.5"
40	02	211	10x10	34 lft	Cove Base	Black	4.5"

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Bldg 40 by Homogenous Area

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	02	5	10x14.5	49 lft	Cove Base	Black	4.5"
40	02	9	9.5x12	9.5 lft	Cove Base	Black	4.5"
40	02	214	7x11	31 lft	Cove Base	Black	4.5"
40	02	200	25x43	101 lft	Cove Base	Black	4.5"
40	02	218	6x8	25 lft	Cove Base	Black	4.5"
40	02	101	22x32	107 lft	Cove Base	Black	4.5"
40	02	7	14x16	44 lft	Cove Base	Black	4.5"
40	02	216	6x10	19 lft	Cove Base	Black	4.5"
40	02	219	36x56	172 lft	Cove Base	Black	4.5"
40	02	215	7x11	34 lft	Cove Base	Black	4.5"
40	02	1	26x51	77 lft	Cove Base	Black	4.5"
40	02	1a	12x13	14 lft	Cove Base	Black	4.5"
40	02	104	7x9	29 lft	Cove Base	Black	4.5
40	02	6	12x12.5	48 lft	Cove Base	Black	4.5"
40	03	1a	12x13	32.4 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	1	26x51	56.5 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	9	9.5x12	24 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	105	7x10	36 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	5	10x14.5	24 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	100	24x50	120 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	6	12x12.5	16 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	216	6x10	8 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	2	7x10	24 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	101	22x32	8 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	03	7	14x16	40 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	04	1	26x51	80 sq ft	Window Glazing	Grey	
40	05	102	12x15	180 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	103	13x20	260 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	101	22x32	696 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	109	6x9	54 sq ft	Ceiling Tile	White w/pinholes	2'x4'

Bldg 40 by Homogenous Area

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	05	106	7x7	49 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	105	7x10	34 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	100	24x50	1250 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	2	7x10	48 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	4a	3x4	12 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	4	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	5	10x14.5	121 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	6	12x12.5	134 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	7	14x16	120 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	9	9.5x12	72 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	1	26x51	56.5 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	1a	12x13	64 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	2a	3x4	13 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	201	10x12	120 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	203	9x10	90 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	219	36x56	2016 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	218	6x8	48 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	202	9x10	90 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	210	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	216	6x10	52 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	209	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	211	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	200	25x43	537 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	05	212	10x13	130 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	06	211	10x10	300 sq ft	GWB	Blue	4'x8'
40	06	100	24x50	1344 sq ft	GWB	Blue	4'x8'
40	06	106	7x7	161 sq ft	GWB	Blue	4'x8'
40	06	210	10x10	300 sq ft	GWB	Blue	4'x8'
40	06	214	7x11	225 sq ft	GWB	Blue	4'x8'
40	06	217	4x10	1115 sq ft	GWB	Blue	4'x8'

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Bldg 40 by Homogenous Area

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	06	212	10x13	353 sq ft	GWB	Blue	4'x8'
40	06	213	4x5	154 sq ft	GWB	Blue	4'x8'
40	06	209	10x10	300 sq ft	GWB	Blue	4'x8'
40	06	215	7x11	449 sq ft	GWB	Blue	4'x8'
40	06	101	22x32	914 sq ft	GWB	Blue	4'x8'
40	06	103	13x20	522 sq ft	GWB	Blue	4'x8'
40	06	1a	12x13	59.5 sq ft	GWB	Blue	4'x8'
40	06	200	24x43	921 sq ft	GWB	Blue	4'x8'
40	06	1	26x51	323 sq ft	GWB	Blue	4'x8'
40	06	6	12x12.5	209 sq ft	GWB	Blue	4'x8'
40	06	317	4x10	1115 sq ft	GWB	Blue	4'x8'
40	06	102	12x15	486 sq ft	GWB	Blue	4'x8'
40	06	201	10x12	356 sq gt	GWB	Blue	4'x8'
40	06	9	9.5x12	285 sq ft	GWB	Blue	4'x8'
40	06	7	14x16	374 sq ft	GWB	Blue	4'x8'
40	06	108	8x8	272 sq ft	GWB	Blue	4'x8'
40	06	202	9x10	299 sq ft	GWB	Blue	4'x8'
40	06	219	36x56	1796 sq ft	GWB	Blue	4'x8'
40	06	203	9x10	298 sq ft	GWB	Blue	4'x8'
40	06	Penthouse	36x36	1260 sq ft	GWB	Blue	4'x8'
40	07	4	10x10	456 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	07	2a	3x4	132 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	07	4a	3x4	168 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	07	3	3x5	223 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	07	2	7x10	360 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	08	2	7x10	70 sq ft	Ceramic Floor Tile	White	1"x1"
40	08	3	3x5	15 sq ft	Ceramic Floor Tile	White	1"x1"
40	08	4	10x10	100 sq ft	Ceramic Floor Tile	White	1"x1"
40	08	2a	3x4	12 sq ft	Ceramic Floor Tile	White	1"x1"
40	08	4a	3x4	12 sq ft	Ceramic Floor Tile	White	1"x1"

Bldg 40 by Homogenous Area

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	09	4	10x10	3 sq ft	Floor Tile	Green/Grey	12"x12"
40	10	107	8x15	91 sq ft	Stair Tread	Black	1'x3.5'
40	10	217	4x10	91 sq ft	Stair Tread	Black	3.5'x1'
40	10	317	4x10	91 sq ft	Stair Tread	Black	3.5'x1'
40	11	103	13x20	260 sq ft	Raised Floor Tile	White	2'x2'
40	11	101	22x32	704 sq ft	Raised Floor Tile	White	2'x2'
40	11	102	12x15	180 sq ft	Raised Floor Tile	White	2'x2'
40	12	Penthouse	36x36	1 each	Vibration Dampener	Black	4.5'x9'
40	13	Penthouse	36x36	2 each	Vibration Dampener	Black	3'-4' dia
40	14	Roof	40x60	204 lft	Painted Flashing	Silver	
40	15	210	10x10	1 Window	Window Glazing		
40	15	209	10x10	1 Window	Window Glazing		
40	15	211	10x10	1 Window	Window Glazing		
40	15	Roof	40x60	5 Windows	Window Glazing		
40	15	212	10x13	1 Window	Window Glazing		
40	15	219	36x56	6 Windows	Window Glazing		
40	16	317	4x10	1 each	Fire Door		
40	16	217	4x10	1 each	Fire Door		
40	16	107	4x10	1 each	Fire Door		
40	17	201	10x12	120 sq ft	Carpet w/mastic	Blue	
40	17	200	25x43	537 sq ft	Carpet w/mastic	Blue	
40	17	202	9x10	90 sq ft	Carpet w/mastic	Blue	
40	17	203	9x10	90 sq ft	Carpet w/mastic	Blue	
40	17	219	36x56	2016 sq ft	Carpet w/mastic	Blue	
40	17	218	6x8	48 sq ft	Carpet w/mastic	Blue	
40	17	210	10x10	100 sq ft	Carpet w/mastic	Blue	
40	17	216	6x10	60 sq ft	Carpet w/mastic	Blue	
40	17	211	10x10	100 sq ft	Carpet w/mastic	Blue	
40	17	212	10x13	130 sq ft	Carpet w/mastic	Blue	
40	17	209	10x10	100 sq ft	Carpet w/mastic	Blue	

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Bldg 40 by Homogenous Area

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	18	215	7x11	77 sq ft	Ceramic Floor Tile	White	1"x1"
40	18	214	7x11	77 sq ft	Ceramic Floor Tile	White	1"x1"
40	18	213	4x5	20 sq ft	Floor Tile	White	1"x1"
40	19	2	7x10	2 each	Elbow Insulation	White	
40	20	2	7x10	2 each	Pipe Insulation	White	

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Appendix A - 2

MATERIAL BY

ROOM

NUMBER

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Bldg 40 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	1	01	29x35	945 sq ft	Floor Tile	Blue	12"x12"
40	1	02	26x51	77 lft	Cove Base	Black	4.5"
40	1	03	26x51	56.5 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	1	04	26x51	80 sq ft	Window Glazing	Grey	
40	1	05	26x51	56.5 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	1	06	26x51	323 sq ft	GWB	Blue	4'x8'
40	100	01	24x50	1200 sq ft	Floor Tile	Blue	12"x12"
40	100	02	24x50	168 lft	Cove Base	Black	4.5"
40	100	03	24x50	120 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	100	05	24x50	1250 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	100	06	24x50	1344 sq ft	GWB	Blue Green	4'x8'
40	101	02	22x32	107 lft	Cove Base	Black	4.5"
40	101	03	22x32	8 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	101	05	22x32	696 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	101	06	22x32	914 sq ft	GWB	Blue	4'x8'
40	101	11	22x32	704 sq ft	Raised Floor Tile	White	2'x2'
40	102	02	12x15	54 lft	Cove Base	Black	4.5"
40	102	05	12x15	180 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	102	06	12x15	486 sq ft	GWB	Blue	4'x8'
40	102	11	12x15	180 sq ft	Raised Floor Tile	White	2'x2'
40	103	02	13x20	58 lft	Cove Base	Black	4.5"
40	103	05	13x20	260 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	103	06	13x20	522 sq ft	GWB	Blue	4'x8'
40	103	11	13x20	260 sq ft	Raised Floor Tile	White	2'x2'
40	104	01	7x9	63 sq ft	Floor Tile	Blue	12"x12"
40	104	02	7x9	29 lft	Cove Base	Black	4.5
40	105	01	7x10	70 sq ft	Floor Tile	Blue	12"x12"
40	105	02	7x10	24 lft	Cove Base	Black	4.5"

Bldg 40 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	105	03	7x10	36 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	105	05	7x10	34 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	106	01	7x7	49 sq ft	Floor Tile	Blue	12"x12"
40	106	02	7x7	11 lft	Cove Base	Black	4.5"
40	106	05	7x7	49 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	106	06	7x7	161 sq ft	GWB	Blue	4'x8'
40	107	01	8x15	164 sq ft	Floor Tile	Blue	12"x12"
40	107	02	8x15	54 lft	Cove Base	Black	4.5"
40	107	10	8x15	91 sq ft	Stair Tread	Black	1'x3.5'
40	107	16	4x10	1 each	Fire Door		
40	108	01	8x8	64 sq ft	Floor Tile	Blue	12"x12"
40	108	02	8x8	23 lft	Cove Base	Black	4.5"
40	108	06	8x8	272 sq ft	GWB	Blue	4'x8'
40	109	01	6x9	54 sq ft	Floor Tile	Blue	12"x12"
40	109	02	6x9	27 lft	Cove Base	Black	4.5"
40	109	05	6x9	54 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	1a	02	12x13	14 lft	Cove Base	Black	4.5"
40	1a	03	12x13	32.4 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	1a	05	12x13	64 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	1a	06	12x13	59.5 sq ft	GWB	Blue	4'x8'
40	2	03	7x10	24 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	2	05	7x10	48 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	2	07	7x10	360 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	2	08	7x10	70 sq ft	Floor Tile	White	1"x1"
40	2	19	7x10	2 each	Elbow Insulation	White	
40	2	20	7x10	2 each	Pipe Insulation	White	
40	200	02	25x43	101 lft	Cove Base	Black	4.5"
40	200	05	25x43	537 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	200	06	24x43	921 sq ft	GWB	Blue	4'x8'
40	200	17	25x43	537 sq ft	Carpet w/mastic	Blue	

Bldg 40 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	201	02	10x12	45 lft	Cove Base	Black	4.5"
40	201	05	10x12	120 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	201	06	10x12	356 sq gt	GWB	Blue	4'x8'
40	201	17	10x12	120 sq ft	Carpet w/mastic	Blue	
40	202	02	9x10	29 lft	Cove Base	Black	4.5"
40	202	05	9x10	90 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	202	06	9x10	299 sq ft	GWB	Blue	4'x8'
40	202	17	9x10	90 sq ft	Carpet w/mastic	Blue	
40	203	02	9x10	38 lft	Cove Base	Black	4.5"
40	203	05	9x10	90 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	203	06	9x10	298 sq ft	GWB	Blue	4'x8'
40	203	17	9x10	90 sq ft	Carpet w/mastic	Blue	
40	209	02	10x10	37 lft	Cove Base	Black	4.5"
40	209	05	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	209	06	10x10	300 sq ft	GWB	Blue	4'x8'
40	209	15	10x10	1 Window	Window Glazing		
40	209	17	10x10	100 sq ft	Carpet w/mastic	Blue	
40	210	02	10x10	34 lft	Cove Base	Black	4.5"
40	210	05	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	210	06	10x10	300 sq ft	GWB	Blue	4'x8'
40	210	15	10x10	1 Window	Window Glazing		
40	210	17	10x10	100 sq ft	Carpet w/mastic	Blue	
40	211	02	10x10	34 lft	Cove Base	Black	4.5"
40	211	05	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	211	06	10x10	300 sq ft	GWB	Blue	4'x8'
40	211	15	10x10	1 Window	Window Glazing		
40	211	17	10x10	100 sq ft	Carpet w/mastic	Blue	
40	212	02	10x13	41 lft	Cove Base	Black	4.5"
40	212	05	10x13	130 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	212	06	10x13	353 sq ft	GWB	Blue	4'x8'

Bldg 40 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	212	15	10x13	1 Window	Window Glazing		
40	212	17	10x13	130 sq ft	Carpet w/mastic	Blue	
40	213	02	4x5	2 lft	Cove Base	Black	4.5"
40	213	06	4x5	154 sq ft	GWB	Blue	4'x8'
40	213	18	4x5	20 sq ft	Floor Tile	White	1"x1"
40	214	02	7x11	31 lft	Cove Base	Black	4.5"
40	214	06	7x11	225 sq ft	GWB	Blue	4'x8'
40	214	18	7x11	77 sq ft	Floor Tile	White	1"x1"
40	215	02	7x11	34 lft	Cove Base	Black	4.5"
40	215	06	7x11	449 sq ft	GWB	Blue	4'x8'
40	215	18	7x11	77 sq ft	Floor Tile	White	1"x1"
40	216	02	6x10	19 lft	Cove Base	Black	4.5"
40	216	03	6x10	8 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	216	05	6x10	52 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	216	17	6x10	60 sq ft	Carpet w/mastic	Blue	
40	217	06	4x10	1115 sq ft	GWB	Blue	4'x8'
40	217	10	4x10	91 sq ft	Stair Tread	Black	3.5'x1'
40	217	16	4x10	1 each	Fire Door		
40	218	02	6x8	25 lft	Cove Base	Black	4.5"
40	218	05	6x8	48 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	218	17	6x8	48 sq ft	Carpet w/mastic	Blue	
40	219	02	36x56	172 lft	Cove Base	Black	4.5"
40	219	05	36x56	2016 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	219	06	36x56	1796 sq ft	GWB	Blue	4'x8'
40	219	15	36x56	6 Windows	Window Glazing		
40	219	17	36x56	2016 sq ft	Carpet w/mastic	Blue	
40	2a	05	3x4	13 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	2a	07	3x4	132 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	2a	08	3x4	12 sq ft	Floor Tile	White	1"x1"
40	3	07	3x5	223 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"

Bldg 40 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	3	08	3x5	15 sq ft	Floor Tile	White	1"x1"
40	317	06	4x10	1115 sq ft	GWB	Blue	4'x8'
40	317	10	4x10	91 sq ft	Stair Tread	Black	3.5'x1'
40	317	16	4x10	1 each	Fire Door		
40	4	05	10x10	100 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	4	07	10x10	456 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	4	08	10x10	100 sq ft	Floor Tile	White	1"x1"
40	4	09	10x10	3 sq ft	Floor Tile	Green/Grey	12"x12"
40	4a	05	3x4	12 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	4a	07	3x4	168 sq ft	Wall Tile w/mastic	Grey/Green	4.5"x6"
40	4a	08	3x4	12 sq ft	Floor Tile	White	1"x1"
40	5	01	10x14.5	145 sq ft	Floor Tile	Blue	12"x12"
40	5	02	10x14.5	49 lft	Cove Base	Black	4.5"
40	5	03	10x14.5	24 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	5	05	10x14.5	121 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	6	01	12x12.5	150 sq ft	Floor Tile	Blue	12"x12"
40	6	02	12x12.5	48 lft	Cove Base	Black	4.5"
40	6	03	12x12.5	16 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	6	05	12x12.5	134 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	6	06	12x12.5	209 sq ft	GWB	Blue	4'x8'
40	7	01	14x16	224 sq ft	Floor Tile	Blue	12"x12"
40	7	02	14x16	44 lft	Cove Base	Black	4.5"
40	7	03	14x16	40 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	7	05	14x16	120 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	7	06	14x16	374 sq ft	GWB	Blue	4'x8'
40	9	01	9.5x12	114 sq ft	Floor Tile	Blue	12"x12"
40	9	02	9.5x12	9.5 lft	Cove Base	Black	4.5"
40	9	03	9.5x12	24 sq ft	Ceiling Tile	White w/fissures & pinholes	2'x4'
40	9	05	9.5x12	72 sq ft	Ceiling Tile	White w/pinholes	2'x4'
40	9	06	9.5x12	285 sq ft	GWB	Blue	4'x8'

Bldg 40 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	Penthouse	06	36x36	1260 sq ft	GWB	Blue	4'x8'
40	Penthouse	12	36x36	1 each	Vibration Dampener	Black	4.5'x9'
40	Penthouse	13	36x36	2 each	Vibration Dampener	Black	3'-4' dia
40	Roof	14	40x60	204 lft	Painted Flashing	Silver	
40	Roof	15	40x60	5 Windows	Window Glazing		

Appendix A - 3

MATERIAL BY

ROOM NUMBER

AND

REGULATED

MATERIAL

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Bldg 40 by Room # by Regulated Material

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
40	1	01	29x35	945 sq ft	Floor Tile	Blue	12"x12"
40	100	01	24x50	1200 sq ft	Floor Tile	Blue	12"x12"
40	104	01	7x9	63 sq ft	Floor Tile	Blue	12"x12"
40	105	01	7x10	70 sq ft	Floor Tile	Blue	12"x12"
40	106	01	7x7	49 sq ft	Floor Tile	Blue	12"x12"
40	107	01	8x15	164 sq ft	Floor Tile	Blue	12"x12"
40	107	16	4x10	1 each	Fire Door		
40	108	01	8x8	64 sq ft	Floor Tile	Blue	12"x12"
40	109	01	6x9	54 sq ft	Floor Tile	Blue	12"x12"
40	217	16	4x10	1 each	Fire Door		
40	317	16	4x10	1 each	Fire Door		
40	4	09	10x10	3 sq ft	Floor Tile	Green/Grey	12"x12"
40	5	01	10x14.5	145 sq ft	Floor Tile	Blue	12"x12"
40	6	01	12x12.5	150 sq ft	Floor Tile	Blue	12"x12"
40	7	01	14x16	224 sq ft	Floor Tile	Blue	12"x12"
40	9	01	9.5x12	114 sq ft	Floor Tile	Blue	12"x12"

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Appendix B

LABORATORY BULK SAMPLE

ANALYSIS REPORT

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LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9960 Fax: (323) 254-9982 Email: pasadenalab@latesting.com

LA TESTING

Attn: Cole & Associates
451 Southwest Tenth St.
Suite 100
Renton, WA 98055
Fax: (425) 792-5555 Phone: (425) 793-5505
Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos %	Asbestos Type
CTC-635-40-01 320301606-0001		Black Non-Fibrous Homogeneous	Teased		100% Non-fibrous (other)	None	Detected
CTC-635-40-01M 320301606-0136		Brown/Tan/Various Non-Fibrous Heterogeneous	Teased		100% Non-fibrous (other)	None	Detected
CTC-635-40-02 320301606-0002		Blue/Gray/Various Non-Fibrous Heterogeneous	Crushed Dissolved		100% Non-fibrous (other)	None	Detected
CTC-635-40-03 301606-0003		Olive Non-Fibrous Homogeneous	Crushed Dissolved		100% Non-fibrous (other)	None	Detected
CTC-635-40-03 GROUT 320301606-0137		Gray Non-Fibrous Homogeneous	Crushed Dissolved		100% Non-fibrous (other)	<1%	Chrysotile
CTC-635-40-04 320301606-0004		Green Non-Fibrous Homogeneous	Crushed Dissolved		100% Non-fibrous (other)	None	Detected
CTC-635-40-04 GROUT 320301606-0138		Gray Non-Fibrous Heterogeneous	Crushed Dissolved		100% Non-fibrous (other)	None	Detected
CTC-635-40-05 320301606-0005		Gray Non-Fibrous Homogeneous	Teased		100% Non-fibrous (other)	None	Detected
CTC-635-40-05M 320301606-0139		Tan Non-Fibrous Homogeneous	Teased		100% Non-fibrous (other)	None	Detected

Analyst(s)

Jeff Krogstad (163)

or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by LA Testing, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.
is performed by LA Testing (NVLAP #200232-0)

PLM-1

LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
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Attn: Cole & Associates
451 Southwest Tenth St.
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Renton, WA 98055
Fax: (425) 792-5555 Phone: (425) 793-5505
Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
CTC-635-40-06 320301606-0006		Gray Fibrous Heterogeneous	Teased	40%	Glass	60%	Non-fibrous (other)	None	Detected
CTC-635-40-07 320301606-0007		Black Fibrous Heterogeneous	Teased	40%	Glass	60%	Non-fibrous (other)	None	Detected
CTC-635-40-08 320301606-0008		Black/Silver Fibrous Heterogeneous	Teased	15% 2%	Glass Cellulose	83%	Non-fibrous (other)	None	Detected
CTC-635-40-09 320301606-0009		Grayish Non-Fibrous Homogeneous	Teased	<1% <1%	Glass Cellulose	100%	Non-fibrous (other)	None	Detected
CTC-635-40-10 320301606-0010		Tan Non-Fibrous Homogeneous	Teased	5%	Cellulose	95%	Non-fibrous (other)	None	Detected
CTC-635-40-11 320301606-0011		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-40-12 320301606-0012		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-40-13 320301606-0013		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-40-14 320301606-0014		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-40-15 320301606-0015		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected

Analyst(s)

Jeff Krogsted (163)

or other approved signatory

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144 of 117

LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
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LA TESTING

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Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
CTC-635-40-16 320301606-0016		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-40-17 320301606-0017		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-40-18 320301606-0018		Blue/White/Tan Fibrous Heterogeneous	Teased Dissolved	2% 10%	Glass Cellulose	88%	Non-fibrous (other)	None	Detected
CTC-635-40-19 320301606-0019		Blue/White/Tan Fibrous Heterogeneous	Teased Dissolved	<1% 10%	Glass Cellulose	90%	Non-fibrous (other)	None	Detected
CTC-635-40-20 320301606-0020		Blue/White/Tan Fibrous Heterogeneous	Teased Dissolved	<1% 65%	Glass Cellulose	35%	Non-fibrous (other)	None	Detected
CTC-635-40-21 320301606-0021		Blue/White/Tan Fibrous Heterogeneous	Teased Dissolved	<1% 10%	Glass Cellulose	90%	Non-fibrous (other)	None	Detected
CTC-635-40-22 320301606-0022		White/Cream Fibrous Heterogeneous	Teased Dissolved	70%	Cellulose	30%	Non-fibrous (other)	None	Detected
CTC-635-40-23 320301606-0023		Blue/White/Tan Fibrous Heterogeneous	Teased Dissolved	<1% 60%	Glass Cellulose	40%	Non-fibrous (other)	None	Detected
CTC-635-40-24 320301606-0024		Blue/White/Tan Fibrous Heterogeneous	Teased Dissolved	<1% 30%	Glass Cellulose	70%	Non-fibrous (other)	None	Detected
CTC-635-40-25 320301606-0025		Green/Gray Fibrous Heterogeneous	Teased Dissolved	15% 25%	Glass Cellulose	60%	Non-fibrous (other)	None	Detected

Analyst(s)

Jeff Krogstad (163)

or other approved signatory

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LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9960 Fax: (323) 254-9982 Email: pasadenalab@latesting.com

Attn: Cole & Associates
451 Southwest Tenth St.
Suite 100
Renton, WA 98055
Fax: (425) 792-5555 Phone: (425) 793-5505
Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
CTC-635-40-26 320301606-0026		White Fibrous Homogeneous	Teased	90%	Cellulose	10%	Non-fibrous (other)	None	Detected
CTC-635-40-26M 320301606-0140		Yellow Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None	Detected
CTC-635-40-27 320301606-0027		White Fibrous Heterogeneous	Teased Dissolved	20%	Cellulose	80%	Non-fibrous (other)	None	Detected
CTC-635-99-01 301606-0026		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-02 320301606-0029		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-03 320301606-0030		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-04 320301606-0031		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-05 320301606-0032		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-06 320301606-0033		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-07 320301606-0034		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected

Analyst(s)

Jeff Krogstad (163)

or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by LA Testing, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.
This test was performed by LA Testing (NVLAP #200232-0)

PLM-1

Appendix C

OHIO DEPARTMENT OF HEALTH

ASBESTOS HAZARD

EVALUATION SPECIALIST

CERTIFICATION

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OHIO DEPARTMENT OF HEALTH

246 North High Street
Post Office Box 118
Columbus, Ohio 43216-0118

Telephone: (614) 466-3543
www.odh.state.oh.us

BOB TAFT
Governor

J. NICK BAIRD, M.D.
Director of Health

May 29, 2003

Cole & Associates
451 SW 10th Street, #100
Renton, WA 98055

ATTN: Robert Parsons

RE: Evaluation Specialist Certification # 34302

Dear Robert Parsons:

This letter is to inform you that you have been certified by this department as an Asbestos Hazard Evaluation Specialist.

Included with this letter is your identification card. Proof of certification must be available for review at any relevant project.

This certification may be revoked by the Director of Health for violation of any of the requirements of 3701-34 of the Ohio Administrative Code.

This certification will expire on MAY-27-2004.

If you have any questions regarding your identification card please call and speak with the asbestos licensing staff at (614)644-0226.

Sincerely,

Bridgette C. Smith
Licensure Administrator
Asbestos Program
Division of Quality Assurance

An Equal Opportunity Employer/Provider

OHIO DEPARTMENT OF HEALTH

246 North High Street
Post Office Box 118
Columbus, Ohio 43216-0118

Telephone: (614) 466-3543
www.odh.state.oh.us

BOB TAFT
Governor

J. NICK BAIRD, M.D.
Director of Health

June 20, 2003

Cole & Associates, Training & Consulting
451 SW 10th St, Suite 100
Renton, WA 98055

ATTN: William Rutherford

RE: Evaluation Specialist Certification # 34308

Dear William Rutherford:

This letter is to inform you that you have been certified by this department as an Asbestos Hazard Evaluation Specialist.

Included with this letter is your identification card. Proof of certification must be available for review at any relevant project.

This certification may be revoked by the Director of Health for violation of any of the requirements of 3701-34 of the Ohio Administrative Code.

This certification will expire on JUN-16-2004.

If you have any questions regarding your identification card please call and speak with the asbestos licensing staff at (614)644-0226.

Sincerely,

Bridgette C. Smith
Licensure Administrator
Asbestos Program
Division of Quality Assurance

An Equal Opportunity Employer/Provider

Appendix D

LABORATORY

CERTIFICATE

OF

ACCREDITATION

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

LA TESTING
S. PASADENA, CA

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

June 30, 2004
Effective through

C D Fason
For the National Institute of Standards and Technology

NVLAP Lab Code: 200232-0

NVLAP-01C (06-01)

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

BULK ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200232-0

LA TESTING
159 Pasadena Avenue
S. Pasadena, CA 91030
Mr. Derrick Tanner
Phone: 323-254-9960 Fax: 323-254-9982
E-Mail: dtanner@latesting.com

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

June 30, 2004

Effective through

For the National Institute of Standards and Technology

Appendix E

ASBESTOS

BUILDING

SURVEY

SUMMARY

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"Asbestos Building Survey" Summary

Project Number: CTC-03-365-03

Inspectors: Robert Parsons and William Rutherford

Survey Date: 06/27/03

Project Name/Location: Building 40, Miamisburg Closure Project, Miamisburg, OH

Asbestos Containing Building Materials were not identified as a result of this survey, the ACM debris identified in the 1993 report was not found.

Robert Parsons
Senior Project Manager
Asbestos Building Inspector
Certification # 34302

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ASBESTOS MATERIALS REPORT
for

Building 99
Miamisburg Closure Project
Miamisburg, Ohio

prepared for

CH2M Hill Mound, Inc.
P.O. Box 3030
Miamisburg, OH 45343-3030

by

Cole & Associates
Training & Consulting, Inc.
451 SW 10th Street
Suite 100
Renton, WA 98055

CTC PROJECT #CTC-03-365-03

6 / 27 / 03

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A - FLOOR PLANS & SAMPLE LOCATIONS
B - LABORATORY BULK SAMPLE ANALYSIS REPORT
C - OHIO ASBESTOS HAZARD EVALUATION SPECIALIST CERTIFICATION
D - LABORATORY CERTIFICATE OF ACCREDITATION
E - ASBESTOS SURVEY SUMMARY

1 6/06 17

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EXECUTIVE SUMMARY

Cole & Associates, Training & Consulting, Inc. (CTC) was retained by CH2M Hill Mound, Inc. to conduct a "Building Survey (Inspection)" on Building 99, Miamisburg Closure Project, Miamisburg, Ohio. The purpose of this inspection was to determine the presence of Asbestos Containing Materials (ACM) and Asbestos Containing Building Materials (ACBM) for planned demolition activities.

Authorization to perform this Building Survey was received via contract on June 25, 2003.

The subject structure consists of a four-story 11,412 square foot reinforced concrete building with built up membrane roof constructed in 1989.

This survey was conducted on June 27, 2003. The survey encompassed the interior and the exterior of the building. Suspect materials were looked for and sampled by Robert Parsons and Trent R. Slemmons.

Samples were taken and transported to and analyzed by the NVLAP certified laboratory, LA Testing, 159 Pasadena Avenue, South Pasadena, CA 91030.

SCOPE OF SERVICES

CTC was retained by CH2M Hill Mound, Inc. to conduct a "Building Survey (Inspection)" on Building 99, Miamisburg Closure Project, Miamisburg, Ohio. The purpose of this inspection was to determine the presence of Asbestos Containing Materials (ACM) Asbestos Containing Building Materials (ACBM) for planned demolition activities.

Authorization to perform this Building Survey was received via contract on June 25, 2003.

A visual inspection and sampling survey of the facility was conducted in accordance with general Environmental Protection Agency & Asbestos Hazard Emergency Response Act (EPA/AHERA) sampling guidelines to determine the presence of exposed or accessible suspect ACBM. A physical hand pressure test was conducted to determine the friability of selected suspect materials.

Bulk samples were obtained from suspect materials that were readily exposed, accessible or suspect during the inspection. Bulk samples were analyzed by LA Testing of South Pasadena California using Polarized Light Microscopy (PLM). The analytical results are presented in "Laboratory Results" of this report.

WARRANTY

CTC warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of this report preparation. Changes in state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine presence, condition and hazard potential of accessible or exposed suspect ACBM in the facility at the time of this survey. Test results are valid only for the materials tested.

There is a distinct possibility that conditions may exist that could not be identified within the scope of the survey or that were not apparent during the site visit. This survey covered only those areas that were exposed or physically accessible to the inspector. The survey is limited to the information available from the client at the time the survey was conducted.

No other warranties are implied or expressed.

METHODOLOGY

GENERAL REFERENCES

Inspection, sampling, and assessment procedures were performed in general accordance with the guidelines published by the EPA in 40 CFR Part 763 Subpart E, October 30, 1987.

The inspection consisted of the following major activities: visual inspection and sampling.

VISUAL INSPECTION

The visual inspection was performed by Robert Parsons and Trent R. Slemmons, both EPA Certified Asbestos Building Inspectors and Ohio Department of Health Certified Asbestos Hazard Evaluation Specialists. An initial facility "preliminary walk-through" was conducted to determine homogeneous areas and the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

Homogeneous Material Classifications

The walk-through of the building areas was also conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed to be "'homogeneous materials" by the EPA.

During this walk-through, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

SAMPLING PROCEDURES

Following the walk-through, the inspectors collected selected samples of exposed or accessible materials identified as suspect ACBM. Destructive sampling was limited to accessible materials. No samples were taken that would cause damage to the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous materials. Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October, 1985). Samples of miscellaneous materials were taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material. Samples of surfacing, flooring and concrete foundation materials were collected.

LABORATORY PROCEDURES

METHOD OF ANALYSIS

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and non-fibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) as described by the "Interim Method of Determination of Asbestos in Bulk Samples, EPA 600/R-93/116 Method." This is a standard method of analysis in optical mineralogy and the current accepted method for the determination of asbestos in bulk samples.

A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACBM may not be accurately identified or quantified

by PLM if the building material involved milling of asbestos fibers to extremely small fibers. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) analysis is available for a more definitive analysis of these very small sized asbestos fibers in those types of building materials.

Laboratory Quality Control Program

LA Testing, Inc. is certified by NVLAP as PLM Lab #200232-0 and maintains an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

FINDINGS AND OBSERVATIONS

GENERAL SUMMARY

Building 99 was built in 1989 with reinforced concrete and a built-up membrane roof. Total square footage of this building is 11,412.

During this building survey asbestos containing building materials were identified within this structure other than those materials identified during previous building surveys. Inaccessible areas were found to be present between rooms 109 & 111, between rooms 214 & 215, between rooms 310 & 311 as well behind the water fountain in Corridor 313. It was decided, in agreement with the BTR, that during demolition of this area, a CTC representative will be available and on hand should sampling be required of any material found to be within these areas.

A material is considered by the EPA and State of Ohio to be ACM if at least one (1) sample collected from the area shows asbestos present in an amount greater than one percent (>1%). Please refer to the Sample Analysis Sheets for a more detailed description of the microscopic analysis of these samples.

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR 61) requires an inspection for asbestos be accomplished on facilities that are to undergo demolition or renovation work. Materials found to be ACM will need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable ACM as gaskets, resilient floor covering and asphalt roofing products that contain more than one percent asbestos and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to powder by hand pressure when dry. NESHAP defines a Regulated Asbestos Containing Material (RACM) as: (a) Friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting or abrading and (d) Category II non-friable that may or has become friable during demolition or renovation.

BUILDING SURVEY SUMMARY

For: Building 99, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 27 Jun 2003	
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-99-#)	Type of Material	Asbestos	
				Type	%
1	101, 106, 107, 114, 115, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 301, 302, 303, 304, 305, 307, 308, 309, 313, 314, 316, 317, 318, 403 Ceilings	CTC-03-365-99-01 CTC-03-365-99-02 CTC-03-365-99-03 CTC-01-365-99-04 CTC-03-365-99-05 CTC-03-365-99-06 CTC-01-365-99-07	White 2' x 4' Tile w/pinholes & craters (Miscellaneous)	---	ND
2	101, 103, 105, 106, 206, 216, 301, 302, 303, 308, 403 Ceilings	CTC-03-365-99-08 CTC-01-365-99-09 CTC-03-365-99-10 CTC-03-365-99-11 CTC-01-365-99-12	White 2' x 4' Tile w/pinholes & fissures (Miscellaneous)	---	ND
3	101, 103, 104, 105, 106, 107, 111, 112, 113, 114, 115, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 214, 215, 216, 217, 218, 302, 303, 304, 306, 308, 309, 310, 311, 313, 314, 315, 316, 317, 318, 401, 402, 403, Walls	CTC-03-365-99-26 CTC-03-365-99-27 CTC-03-365-99-28 CTC-01-365-99-29 CTC-03-365-99-30 CTC-03-365-99-31 CTC-01-365-99-32	Gypsum Wallboard (GWB) w/joint compound (Miscellaneous)	---	ND
4	**101, 103, 105, 107, 112, 113, 114, 115, 217, 218, 306, 308, 309, 313, 314, 315, 317, 318, 403, Floors**	**Not included in Scope of Work**	**White w/gray marbling 12" x 12" Tile (Miscellaneous)**	**Assumed**	
5	101, 103, 104, 105, 106, 107, 108, 109, 112, 113, 114, 115, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 212, 216, 217, 218, 301, 302, 303, 304, 305, 306, 307, 308, 309, 313, 314, 315, 317, 318, 403, Floors	CTC-03-365-99-13	Tan Cove Base w/mastic (Miscellaneous)	---	ND
6	110, 111, 211, 212, 212, 214, 215, 310, 311, 312 Floors	CTC-03-365-99-14	Tan 1" x 1" Ceramic Tile w/grout (Miscellaneous)	---	ND

Notes: Samples for miscellaneous material groups were determined by making a visual assessment of the material type and appearance.

Building Inspectors: Robert Parsons Trent Slemmons	**Certification: 34302 34309**
Laboratory: LA Testing, Inc.	**NVLAP No.: 200232-0**

***Suspect Materials / Homogeneous Sample Groups are listed on Pages 8-9.**

BUILDING SURVEY SUMMARY

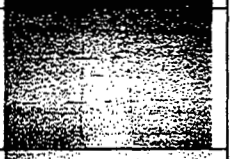
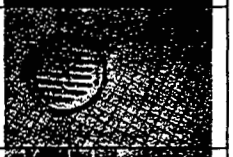
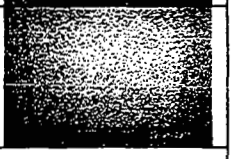
For: Building 99, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 27 Jun 2003	
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-99-#)	Type of Material	Asbestos	
				Type	%
7	110, 111, 211, 214, 215, 310, 311, 312 Walls	CTC-03-365-99-15	Pink / Tan 4.5" x 4.5" Ceramic Tile w/grout (Miscellaneous)	---	
8	303, 304 Ceilings	CTC-03-365-99-16 CTC-03-365-99-17	White 2' x 4' Tile w/pinholes & more craters (Miscellaneous)	---	
9	**206, 304 Walls**	**Not included in Scope of Work**	**Fire Rated Access Hatch (Miscellaneous)**	**Assumed**	
10	401 Ceiling Area	CTC-03-365-99-21	Black Vibration Dampeners (Miscellaneous)	---	ND
11	106, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 216 Floors	CTC-03-365-99-22	Pink Carpet w/mastic (Miscellaneous)	---	ND
12	104, 108 Ceilings	CTC-03-365-99-23 CTC-03-365-99-24	White 2' x 4' Course Tile (Miscellaneous)	---	ND
13	104, 108, 109 Floors	CTC-03-365-40-26	White 2' x 2' Raised Tile (Miscellaneous)	---	ND
14	**106**	**CTC-03-365-99-18**	**Black 6' x 8' Countertop (Miscellaneous)**	**Chrysotile**	**15**
15	**112, 113, 217, 218, 316, 317**	**Not included in Scope of Work**	**Fire Rated Door**	**Assumed**	

Notes: Samples for miscellaneous material groups were determined by making a visual assessment of the material type and appearance.

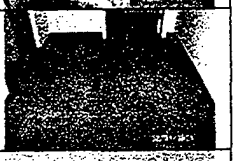
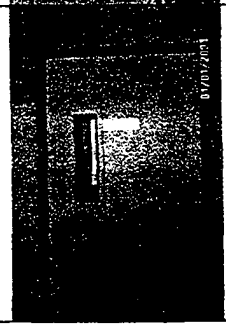
Building Inspectors: Robert Parsons Trent Slemmons	**Certification: 34302 34309**
Laboratory: LA Testing, Inc.	**NVLAP No.: 200232-0**

***Suspect Materials / Homogeneous Sample Groups are listed on Pages 8-9.**

SUSPECT MATERIALS/HOMOGENEOUS SAMPLE GROUPS

No.	Building Material	% Asbestos	Photo
1	White 2' x 4' Ceiling Tile w/pinholes & craters (Miscellaneous)	ND	
2	White 2' x 4' Ceiling Tile w/pinholes & fissures (Miscellaneous)	ND	
3	Gypsum Wallboard (GWB) w/joint compound (Miscellaneous)	ND	
4	White w/gray marbling 12" x 12" Floor Tile (Miscellaneous)	ND	
5	Tan Cove Base w/mastic (Miscellaneous)	ND	
6	Tan 1" x 1" Ceramic Floor Tile w/grout (Miscellaneous)	ND	
7	Pink / Tan 4.5" x 4.5" Ceramic Wall Tile w/grout (Miscellaneous)	ND	
8	White 2' x 4' Ceiling Tile w/pinholes & more craters (Miscellaneous)	ND	
9	Fire Rated Access Hatch	ND	No Photo

SUSPECT MATERIALS/HOMOGENEOUS SAMPLE GROUPS

No.	Building Material	% Asbestos	Photo
10	Black Vibration Dampeners	ND	
11	Pink Carpet w/mastic	ND	
12	White 2' x 4' Course Ceiling Tile (Miscellaneous)	ND	
13	White 2' x 2' Raised Floor Tile (Miscellaneous)	ND	
14	**Black 6' x 8' Countertop (Miscellaneous)**	**15% Chrysotile**	
15	**Fire Rated Doors**	**Assumed**	

Appendix A

FLOOR PLANS

AND

SAMPLE LOCATIONS

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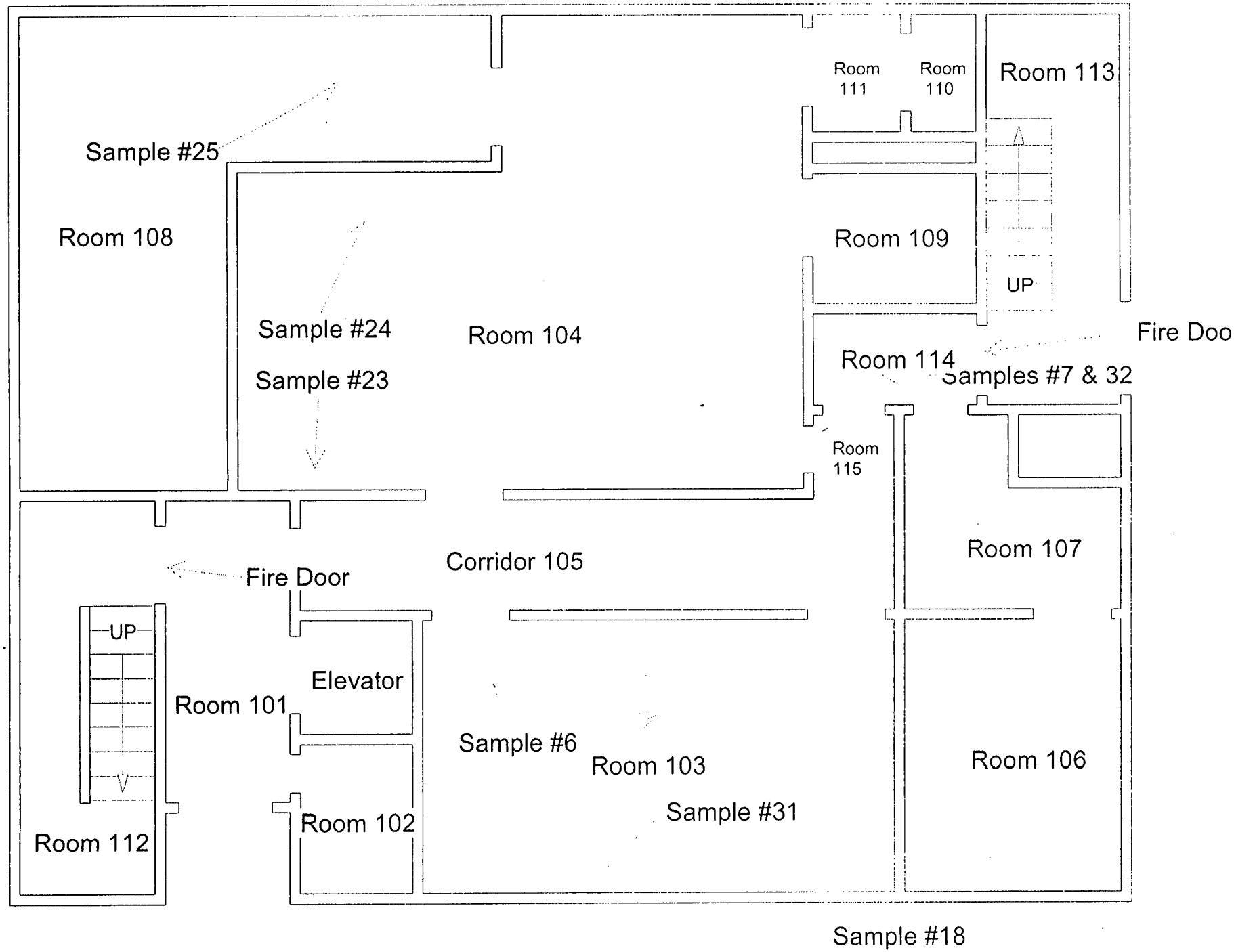
Bldg 99
1st Floor

Plan not
to Scale

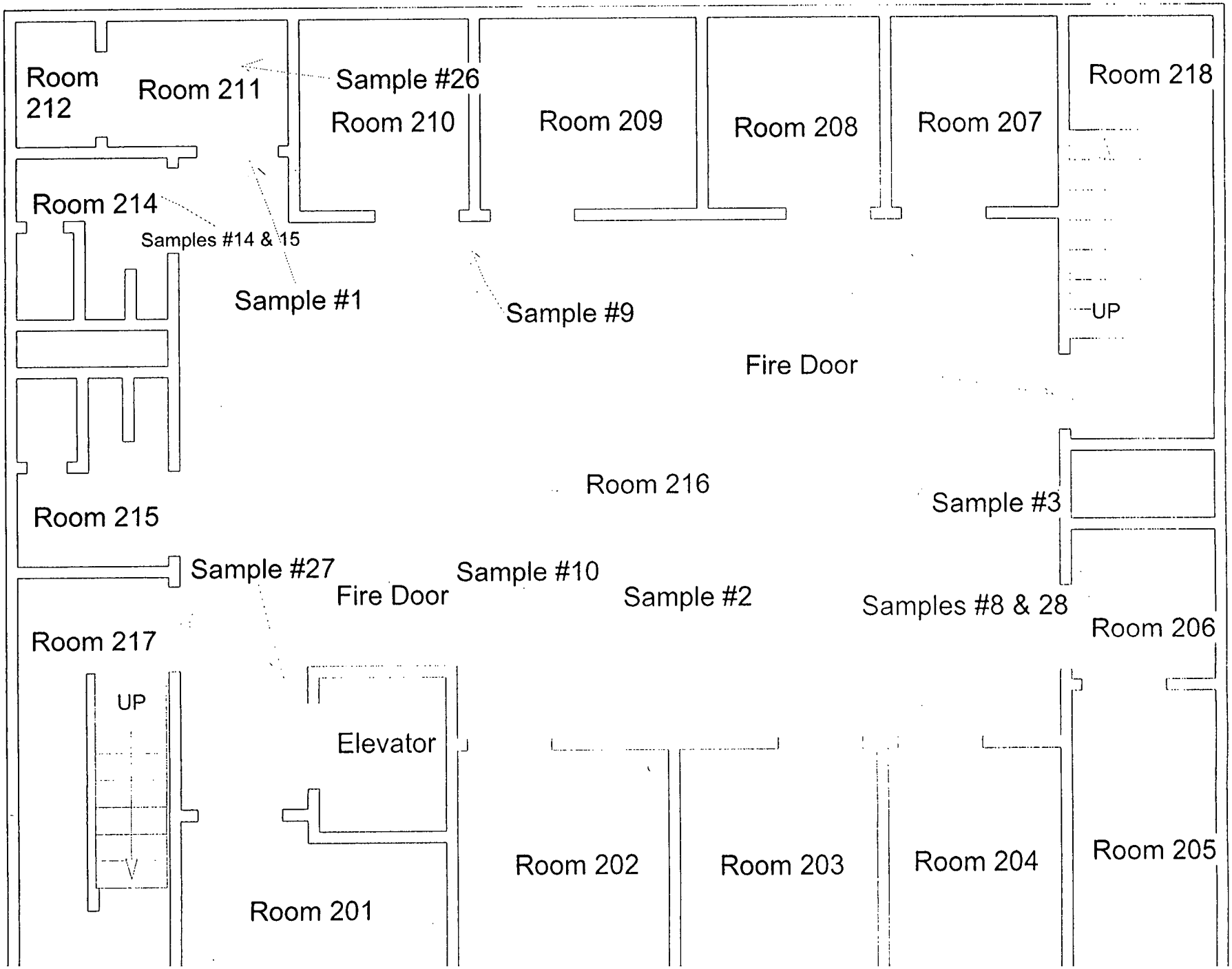
N



Bldg 99
2nd Floor

Plan not
to Scale

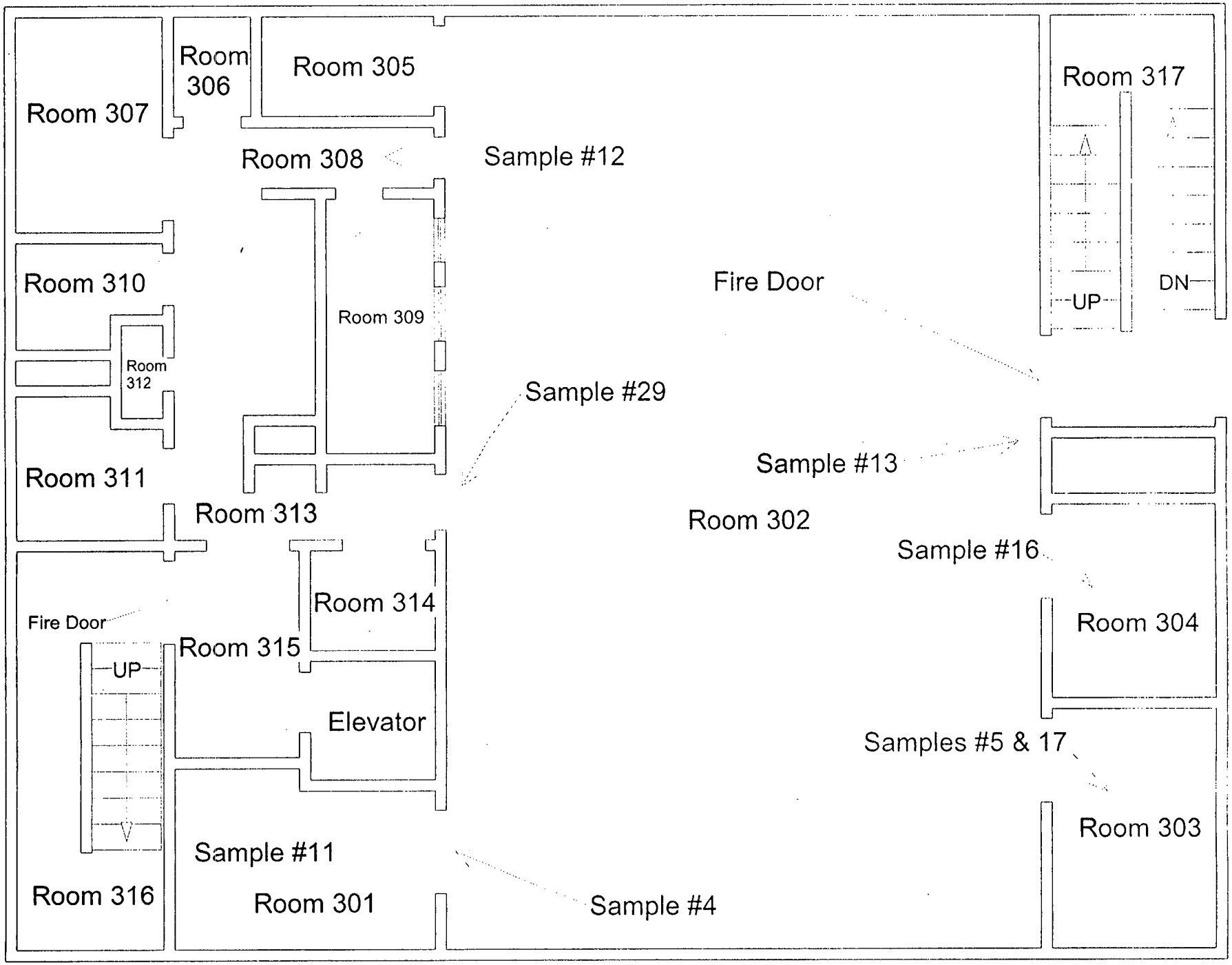
N



Bldg 99
3rd Floor

Plan not
to Scale

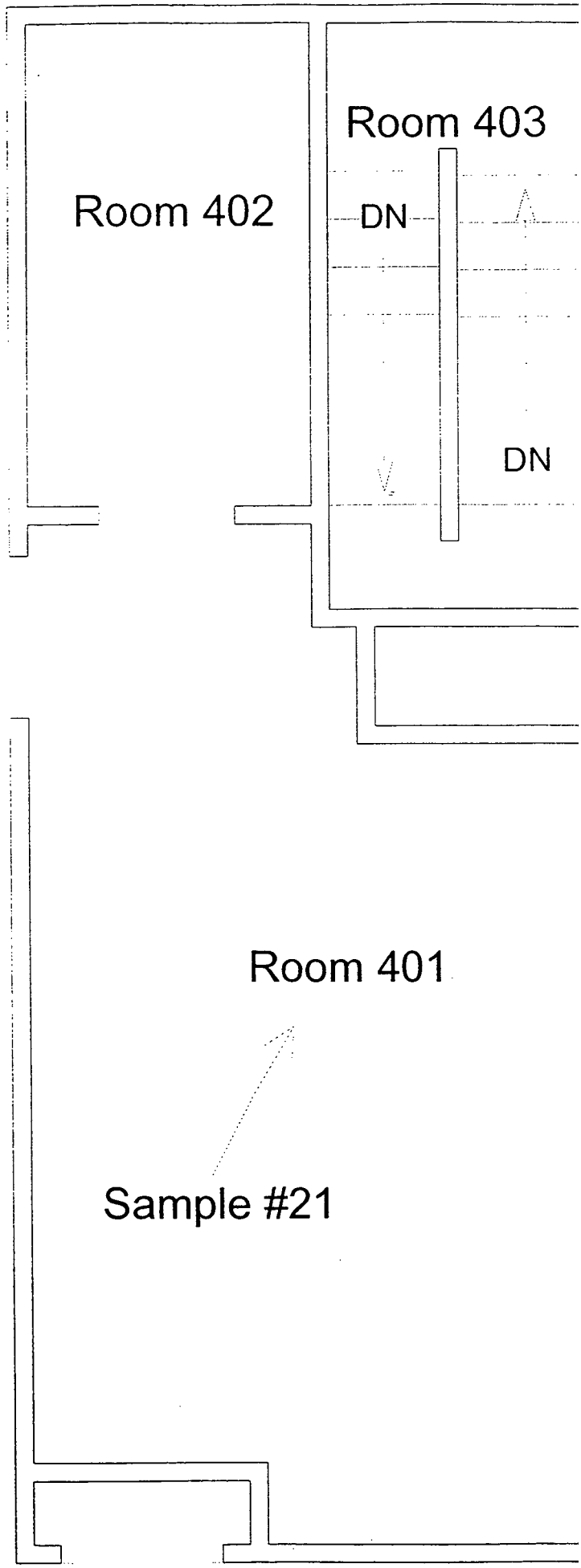
N



Bldg 99
Penthouse

Plan not
to Scale

N



Appendix A - 1

MATERIAL BY

HOMOGENEOUS

NUMBER

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Bldg 99 by Homogeneous Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	1	101	6x18	92 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	106	13x16	200 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	107	13x14	182 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	114	6x9	54 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	115	5x8	40 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	201	10x11	110 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	202	10x12	120 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	203	10x12	120 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	204	10x12	120 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	205	9x15	135 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	206	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	207	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	208	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	209	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	210	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	301	10x13	130 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	302	27x52	1404 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	303	9x12	88 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	304	9x12	108 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	305	6x9	54 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	307	9x15	135 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	308	7x14	98 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	309	6x10	60 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	313	5x10	50 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	314	5x6	30 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	316	10x21	210 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	317	10x21	210 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	1	318	15x17	255 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'

Bldg 99 by Homogeneous Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	1	403	10x21	210 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	10	401	16x28	4 sq ft	Vibration Dampeners	Black	.5'x2'x4'
99	11	106	13x16	200 sq ft	Carpet w/mastic	Pink	
99	11	201	10x11	110 sq ft	Carpet w/mastic	Pink	
99	11	202	10x12	120 sq ft	Carpet w/mastic	Pink	
99	11	203	10x12	120 sq ft	Carpet w/mastic	Pink	
99	11	204	10x12	120 sq ft	Carpet w/mastic	Pink	
99	11	205	9x15	135 sq ft	Carpet w/mastic	Pink	
99	11	206	9x10	90 sq ft	Carpet w/mastic	Pink	
99	11	207	9x10	90 sq ft	Carpet w/mastic	Pink	
99	11	208	9x10	90 sq ft	Carpet w/mastic	Pink	
99	11	209	9x10	90 sq ft	Carpet w/mastic	Pink	
99	11	210	9x10	90 sq ft	Carpet w/mastic	Pink	
99	11	216	28x41	1148 sq ft	Carpet w/mastic	Pink	
99	12	104	28x29	812 sq ft	Ceiling Tile Course	White	4'x2'
99	12	108	28x28	784 sq ft	Ceiling Tile Course	White	4'x2'
99	13	104	28x29	812 sq ft	Floor Tile Raised	White	2'x2'
99	13	108	28x28	784 sq ft	Floor Tile Raised	White	2'x2'
99	13	109	8x10	80 sq ft	Floor Tile Raised	White	2'x2'
99	14	106	13x16	48 sq ft	Countertop	Black	6'x8'
99	15	112	4x10	1 each	Fire Door		
99	15	113	4x10	1 each	Fire Door		
99	15	217	4x10	1 each	Fire Door		
99	15	218	4x10	1 each	Fire Door		
99	15	316	4x10	1 each	Fire Door		
99	15	317	4x10	1 each	Fire Door		
99	2	101	6x18	16 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'

Bldg 99 by Homogeneous Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	2	103	16x24	384 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	105	5x30	150 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	106	13x16	8 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	206	9x10	6 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	216	28x41	1148 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	301	10x13	8 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	302	27x52	1404 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	303	9x12	14 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	308	7x14	4 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	2	403	10x21	210 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	3	101	6x18	384 sq ft	GWB	Tan	4'x8'
99	3	103	16x24	640 sq ft	GWB	Tan	4'x8'
99	3	104	28x29	912 sq ft	GWB	Tan	4'x8'
99	3	105	5x30	560 sq ft	GWB	Tan	4'x8'
99	3	106	13x16	464 sq ft	GWB	Tan	4'x8'
99	3	107	13x14	432 sq ft	GWB	Tan	4'x8'
99	3	111	6x6	192 sq ft	GWB	Tan	4'x8'
99	3	112	10x21	496 sq ft	GWB	Tan	4'x8'
99	3	113	10x21	496 sq ft	GWB	Tan	4'x8'
99	3	114	6x9	240 sq ft	GWB	Tan	4'x8'
99	3	115	5x8	208 sq ft	GWB	Tan	4'x8'
99	3	201	10x11	336 sq ft	GWB	Tan	4'x8'
99	3	202	10x12	352 sq ft	GWB	Tan	4'x8'
99	3	203	10x12	352 sq ft	GWB	Tan	4'x8'
99	3	204	10x12	352 sq ft	GWB	Tan	4'x8'
99	3	205	9x15	384 sq ft	GWB	Tan	4'x8'
99	3	206	9x10	304 sq ft	GWB	Tan	4'x8'
99	3	207	9x10	304 sq ft	GWB	Tan	4'x8'
99	3	208	9x10	304 sq ft	GWB	Tan	4'x8'

Bldg 99 by Homogeneous Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	3	209	9x10	304 sq ft	GWB	Tan	4'x8'
99	3	210	9x10	304 sq ft	GWB	Tan	4'x8'
99	3	211	7x9	256 sq ft	GWB	Tan	4'x8'
99	3	212	4x7	176 sq ft	GWB	Tan	4'x8'
99	3	214	8x9	72 sq ft	GWB	Tan	4'x8'
99	3	215	8x10	288 sq ft	GWB	Tan	4'x8'
99	3	216	28x41	1104 sq ft	GWB	Tan	4'x8'
99	3	217	10x21	496 sq ft	GWB	Tan	4'x8'
99	3	218	10x21	496 sq ft	GWB	Tan	4'x8'
99	3	302	27x52	1264 sq ft	GWB	Tan	4'x8'
99	3	303	9x12	336 sq ft	GWB	Tan	4'x8'
99	3	304	9x12	336 sq ft	GWB	Tan	4'x8'
99	3	306	5x6	176 sq ft	GWB	Tan	4'x8'
99	3	308	7x14	336 sq ft	GWB	Tan	4'x8'
99	3	309	6x10	256 sq ft	GWB	Tan	4'x8'
99	3	310	5x8	40 sq ft	GWB	Tan	4'x8'
99	3	311	5x8	40 sq ft	GWB	Tan	4'x8'
99	3	313	5x10	240 sq ft	GWB	Tan	4'x8'
99	3	314	5x6	176 sq ft	GWB	Tan	4'x8'
99	3	315	6x10	256 sq ft	GWB	Tan	4'x8'
99	3	316	10x21	496 sq ft	GWB	Tan	4'x8'
99	3	317	10x21	496 sq ft	GWB	Tan	4'x8'
99	3	318	15x17	512 sq ft	GWB	Tan	4'x8'
99	3	401	16x28	88 sq ft	GWB	Tan	4'x8'
99	3	402	8x17	400 sq ft	GWB	Tan	4'x8'
99	3	403	10x21	496 sq ft	GWB	Tan	4'x8'
99	4	101	6x18	108 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	103	16x24	384 sq ft	Floor Tile	White w/gray marbling	12"x12"

1 8206 117

Bldg 99 by Homogeneous Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	4	105	5x30	150 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	107	13x14	182 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	112	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	113	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	114	6x9	54 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	115	5x8	40 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	217	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	218	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	306	5x6	30 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	308	7x14	98 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	309	6x10	60 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	313	5x10	50 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	314	5x6	30 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	315	6x10	60 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	317	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	318	15x17	255 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	403	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	4	Elevator	6x9	54 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	5	101	6x18	48 lft	Cove Base	Tan	4.5"
99	5	103	16x24	80 lft	Cove Base	Tan	4.5"
99	5	104	28x29	114 lft	Cove Base	Tan	4.5"
99	5	105	5x30	70 lft	Cove Base	Tan	4.5"
99	5	106	13x16	58 lft	Cove Base	Tan	4.5"
99	5	107	13x14	54 lft	Cove Base	Tan	4.5"
99	5	108	28x28	112 lft	Cove Base	Tan	4.5"
99	5	109	8x10	36 lft	Cove Base	Tan	4.5"
99	5	112	10x21	62 lft	Cove Base	Tan	4.5"
99	5	113	10x21	62 lft	Cove Base	Tan	4.5"
99	5	114	6x9	30 lft	Cove Base	Tan	4.5"

Bldg 99 by Homogeneous Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	5	115	5x8	26 lft	Cove Base	Tan	4.5"
99	5	201	10x11	42 lft	Cove Base	Tan	4.5"
99	5	202	10x12	44 lft	Cove Base	Tan	4.5"
99	5	203	10x12	44 lft	Cove Base	Tan	4.5"
99	5	204	10x12	44 lft	Cove Base	Tan	4.5"
99	5	205	9x15	48 lft	Cove Base	Tan	4.5"
99	5	206	9x10	38 sq ft	Cove Base	Tan	4.5"
99	5	207	9x10	38 lft	Cove Base	Tan	4.5"
99	5	208	9x10	38 lft	Cove Base	Tan	4.5"
99	5	209	9x10	38 lft	Cove Base	Tan	4.5"
99	5	210	9x10	38 lft.	Cove Base	Tan	4.5"
99	5	212	4x7	22 lft	Cove Base	Tan	4.5"
99	5	216	28x41	138 lft	Cove Base	Tan	4.5"
99	5	217	10x21	21 lft	Cove Base	Tan	4.5"
99	5	218	10x21	62 lft	Cove Base	Tan	4.5"
99	5	301	10x13	46 lft	Cove Base	Tan	4.5"
99	5	302	27x52	158 lft	Cove Base	Tan	4.5"
99	5	303	9x12	42 lft	Cove Base	Tan	4.5"
99	5	304	9x12	42 lft	Cove Base	Tan	4.5"
99	5	305	6x9	30 lft	Cove Base	Tan	4.5"
99	5	306	5x6	22 lft	Cove Base	Tan	4.5"
99	5	307	9x15	48 lft	Cove Base	Tan	4.5"
99	5	308	7x14	42 lft	Cove Base	Tan	4.5"
99	5	309	6x10	32 lft	Cove Base	Tan	4.5"
99	5	313	5x10	30 lft	Cove Base	Tan	4.5"
99	5	314	5x6	22 lft	Cove Base	Tan	4.5"
99	5	315	6x10	32 lft	Cove Base	Tan	4.5"
99	5	317	10x21	62 lft	Cove Base	Tan	4.5"
99	5	318	15x17	64 lft	Cove Base	Tan	4.5"
99	5	403	10x21	62 lft	Cove Base	Tan	4.5"

Bldg 99 by Homogeneous Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	6	110	3x6	18 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	111	6x6	36 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	211	7x9	63 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	212	4x7	28 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	214	8x9	72 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	215	8x10	80 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	310	5x8	40 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	311	5x8	40 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	6	312	2x4	8 sq ft	Ceramic Floor Tile	Tan	1"x1"
99	7	110	3x6	72 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	7	111	6x6	192 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	7	211	7x9	128 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	7	214	8x9	272 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	7	215	8x10	36 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	7	310	5x8	189 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	7	311	5x8	264 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	7	312	2x4	52 sq ft	Ceramic Wall Tile	Pink/Tan	4.5"x4.5"
99	8	303	9x12	16 sq ft	Ceiling Tile /pinholes & more craters	White	2'x4'
99	8	304	13x19	247 sq ft	Ceiling Tile w/pinholes & more craters	White	2'x4'
99	9	304	13x19		Fire Rated Access Hatch	Tan	32"x32"

1 858 117

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Appendix A - 2

MATERIAL BY

ROOM

NUMBER

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Bldg 99 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	101	1	6x18	92 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	101	2	6x18	16 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	101	3	6x18	384 sq ft	GWB	Tan	4'x8'
99	101	4	6x18	108 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	101	5	6x18	48 lft	Cove Base	Tan	4.5"
99	103	2	16x24	384 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	103	3	16x24	640 sq ft	GWB	Tan	4'x8'
99	103	4	16x24	384 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	103	5	16x24	80 lft	Cove Base	Tan	4.5"
99	104	12	28x29	812 sq ft	Ceiling Tile Course	White	4'x2'
99	104	13	28x29	812 sq ft	Floor Tile Raised	White	2'x2'
99	104	3	28x29	912 sq ft	GWB	Tan	4'x8'
99	104	5	28x29	114 lft	Cove Base	Tan	4.5"
99	105	2	5x30	150 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	105	3	5x30	560 sq ft	GWB	Tan	4'x8'
99	105	4	5x30	150 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	105	5	5x30	70 lft	Cove Base	Tan	4.5"
99	106	1	13x16	200 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	106	11	13x16	200 sq ft	Carpet w/mastic	Pink	
99	106	14	13x16	48 sq ft	Countertop	Black	6'x8'
99	106	2	13x16	8 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	106	3	13x16	464 sq ft	GWB	Tan	4'x8'
99	106	5	13x16	58 lft	Cove Base	Tan	4.5"
99	107	1	13x14	182 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	107	3	13x14	432 sq ft	GWB	Tan	4'x8'
99	107	4	13x14	182 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	107	5	13x14	54 lft	Cove Base	Tan	4.5"
99	108	5	28x28	112 lft	Cove Base	Tan	4.5"
99	108	12	28x28	784 sq ft	Ceiling Tile Course	White	4'x2'

Bldg 99 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	108	13	28x28	784 sq ft	Floor Tile Raised	White	2'x2'
99	109	5	8x10	36 lft	Cove Base	Tan	4.5"
99	109	13	8x10	80 sq ft	Floor Tile Raised	White	2'x2'
99	110	6	3x6	18 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	110	7	3x6	72 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	111	3	6x6	192 sq ft	GWB	Tan	4'x8'
99	111	6	6x6	36 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	111	7	6x6	192 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	112	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	112	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	112	5	10x21	62 lft	Cove Base	Tan	4.5"
99	112	15	4x10	1 each	Fire Door		
99	113	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	113	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	113	5	10x21	62 lft	Cove Base	Tan	4.5"
99	113	15	4x10	1 each	Fire Door		
99	114	1	6x9	54 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	114	3	6x9	240 sq ft	GWB	Tan	4'x8'
99	114	4	6x9	54 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	114	5	6x9	30 lft	Cove Base	Tan	4.5"
99	115	1	5x8	40 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	115	3	5x8	208 sq ft	GWB	Tan	4'x8'
99	115	4	5x8	40 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	115	5	5x8	26 lft	Cove Base	Tan	4.5"
99	201	1	10x11	110 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	201	11	10x11	110 sq ft	Carpet w/mastic	Pink	

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Bldg 99 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	201	3	10x11	336 sq ft	GWB	Tan	4'x8'
99	201	5	10x11	42 lft	Cove Base	Tan	4.5"
99	202	1	10x12	120 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	202	11	10x12	120 sq ft	Carpet w/mastic	Pink	
99	202	3	10x12	352 sq ft	GWB	Tan	4'x8'
99	202	5	10x12	44 lft	Cove Base	Tan	4.5"
99	203	1	10x12	120 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	203	11	10x12	120 sq ft	Carpet w/mastic	Pink	
99	203	3	10x12	352 sq ft	GWB	Tan	4'x8'
99	203	5	10x12	44 lft	Cove Base	Tan	4.5"
99	204	1	10x12	120 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	204	11	10x12	120 sq ft	Carpet w/mastic	Pink	
99	204	3	10x12	352 sq ft	GWB	Tan	4'x8'
99	204	5	10x12	44 lft	Cove Base	Tan	4.5"
99	205	1	9x15	135 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	205	11	9x15	135 sq ft	Carpet w/mastic	Pink	
99	205	3	9x15	384 sq ft	GWB	Tan	4'x8'
99	205	5	9x15	48 lft	Cove Base	Tan	4.5"
99	206	1	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	206	11	9x10	90 sq ft	Carpet w/mastic	Pink	
99	206	2	9x10	6 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	206	3	9x10	304 sq ft	GWB	Tan	4'x8'
99	206	5	9x10	38 sq ft	Cove Base	Tan	4.5"
99	207	1	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	207	11	9x10	90 sq ft	Carpet w/mastic	Pink	
99	207	3	9x10	304 sq ft	GWB	Tan	4'x8'
99	207	5	9x10	38 lft	Cove Base	Tan	4.5"
99	208	1	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	208	11	9x10	90 sq ft	Carpet w/mastic	Pink	
99	209	5	9x10	38 lft	Cove Base	Tan	4.5"

Bldg 99 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	208	3	9x10	304 sq ft	GWB	Tan	4'x8'
99	208	5	9x10	38 lft	Cove Base	Tan	4.5"
99	209	1	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	209	11	9x10	90 sq ft	Carpet w/mastic	Pink	
99	209	3	9x10	304 sq ft	GWB	Tan	4'x8'
99	210	1	9x10	90 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	210	11	9x10	90 sq ft	Carpet w/mastic	Pink	
99	210	3	9x10	304 sq ft	GWB	Tan	4'x8'
99	210	5	9x10	38 lft	Cove Base	Tan	4.5"
99	211	3	7x9	256 sq ft	GWB	Tan	4'x8'
99	211	6	7x9	63 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	211	7	7x9	128 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	212	3	4x7	176 sq ft	GWB	Tan	4'x8'
99	212	5	4x7	22 lft	Cove Base	Tan	4.5"
99	212	6	4x7	28 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	214	3	8x9	72 sq ft	GWB	Tan	4'x8'
99	214	6	8x9	72 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	214	7	8x9	272 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	215	3	8x10	288 sq ft	GWB	Tan	4'x8'
99	215	6	8x10	80 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	215	7	8x10	36 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	216	11	28x41	1148 sq ft	Carpet w/mastic	Pink	
99	216	2	28x41	1148 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	216	3	28x41	1104 sq ft	GWB	Tan	4'x8'
99	216	5	28x41	138 lft	Cove Base	Tan	4.5"
99	217	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	217	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	217	5	10x21	21 lft	Cove Base	Tan	4.5"

Bldg 99 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	217	15	4x10	1 each	Fire Door		
99	218	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	218	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	218	5	10x21	62 lft	Cove Base	Tan	4.5"
99	218	15	4x10	1 each	Fire Door		
99	301	1	10x13	130 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	301	2	10x13	8 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	301	5	10x13	46 lft	Cove Base	Tan	4.5"
99	302	1	27x52	1404 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	302	2	27x52	1404 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	302	3	27x52	1264 sq ft	GWB	Tan	4'x8'
99	302	5	27x52	158 lft	Cove Base	Tan	4.5"
99	303	1	9x12	88 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	303	2	9x12	14 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	303	3	9x12	336 sq ft	GWB	Tan	4'x8'
99	303	5	9x12	42 lft	Cove Base	Tan	4.5"
99	303	8	9x12	16 sq ft	Ceiling Tile /pinholes & more craters	White	2'x4'
99	304	1	9x12	108 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	304	3	9x12	336 sq ft	GWB	Tan	4'x8'
99	304	5	9x12	42 lft	Cove Base	Tan	4.5"
99	304	8	13x19	247 sq ft	Ceiling Tile w/pinholes & more craters	White	2'x4'
99	304	9	13x19	Fire Rated Access Hatch Door		Tan	32"x32"
99	305	1	6x9	54 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	305	5	6x9	30 lft	Cove Base	Tan	4.5"
99	306	3	5x6	176 sq ft	GWB	Tan	4'x8'
99	306	4	5x6	30 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	306	5	5x6	22 lft	Cove Base	Tan	4.5"

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Bldg 99 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	307	1	9x15	135 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	307	5	9x15	48 lft	Cove Base	Tan	4.5"
99	308	1	7x14	98 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	308	2	7x14	4 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	308	3	7x14	336 sq ft	GWB	Tan	4'x8'
99	308	4	7x14	98 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	308	5	7x14	42 lft	Cove Base	Tan	4.5"
99	309	1	6x10	60 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	309	3	6x10	256 sq ft	GWB	Tan	4'x8'
99	309	4	6x10	60 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	309	5	6x10	32 lft	Cove Base	Tan	4.5"
99	310	3	5x8	40 sq ft	GWB	Tan	4'x8'
99	310	6	5x8	40 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	310	7	5x8	189 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	311	3	5x8	40 sq ft	GWB	Tan	4'x8'
99	311	6	5x8	40 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	311	7	5x8	264 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	312	6	2x4	8 sq ft	Ceramic Floor Tile w/grout	Tan	1"x1"
99	312	7	2x4	52 sq ft	Ceramic Wall Tile w/grout	Pink/Tan	4.5"x4.5"
99	313	1	5x10	50 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	313	3	5x10	240 sq ft	GWB	Tan	4'x8'
99	313	4	5x10	50 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	313	5	5x10	30 lft	Cove Base	Tan	4.5"
99	314	1	5x6	30 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	314	3	5x6	176 sq ft	GWB	Tan	4'x8'
99	314	4	5x6	30 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	314	5	5x6	22 lft	Cove Base	Tan	4.5"
99	315	3	6x10	256 sq ft	GWB	Tan	4'x8'

Bldg 99 by Room Number

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	315	4	6x10	60 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	315	5	6x10	32 lft	Cove Base	Tan	4.5"
99	316	1	10x21	210 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	316	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	316	15	4x10	1 each	Fire Door		
99	317	1	10x21	210 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	317	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	317	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	317	5	10x21	62 lft	Cove Base	Tan	4.5"
99	317	15	4x10	1 each	Fire Door		
99	318	1	15x17	255 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	318	3	15x17	512 sq ft	GWB	Tan	4'x8'
99	318	4	15x17	255 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	318	5	15x17	64 lft	Cove Base	Tan	4.5"
99	401	10	16x28	4 sq ft	Vibration Dampeners	Black	.5'x2'x4'
99	401	3	16x28	88 sq ft	GWB	Tan	4'x8'
99	402	3	8x17	400 sq ft	GWB	Tan	4'x8'
99	403	1	10x21	210 sq ft	Ceiling Tile w/pinholes & craters	White	2'x4'
99	403	2	10x21	210 sq ft	Ceiling Tile w/pinholes & fissures	White	2'x4'
99	403	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	403	3	10x21	496 sq ft	GWB	Tan	4'x8'
99	403	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	403	5	10x21	62 lft	Cove Base	Tan	4.5"
99	Elevator	4	6x9	54 sq ft	Floor Tile	White w/gray marbling	12"x12"

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Appendix A - 3

MATERIAL BY

ROOM NUMBER

AND

BY REGULATED

MATERIAL

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Bldg 99 by Room # by Regulated Material

Bldg Name	HA#	Room #	Room Size (in feet)	Amount	Description	Color	Size
99	101	4	6x18	108 sq ft	Floor Tile	White w/gray marbling	12'x12"
99	103	4	16x24	384 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	105	4	5x30	150 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	106	14	13x16	48 sq ft	Countertop	Black	6'x8'
99	107	4	13x14	182 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	112	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	112	15	4x10	1 each	Fire Door		
99	113	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	113	15	4x10	1 each	Fire Door		
99	114	4	6x9	54 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	115	4	5x8	40 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	217	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	217	15	4x10	1 each	Fire Door		
99	218	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	218	15	4x10	1 each	Fire Door		
99	304	9	13x19	Fire Rated Access Hatch Door		Tan	32"x32"
99	306	4	5x6	30 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	308	4	7x14	98 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	309	4	6x10	60 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	313	4	5x10	50 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	314	4	5x6	30 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	315	4	6x10	60 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	316	15	4x10	1 each	Fire Door		
99	317	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	317	15	4x10	1 each	Fire Door		
99	318	4	15x17	255 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	403	4	10x21	210 sq ft	Floor Tile	White w/gray marbling	12"x12"
99	Elevator	4	6x9	54 sq ft	Floor Tile	White w/gray marbling	12"x12"

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Appendix B

LABORATORY BULK SAMPLE

ANALYSIS REPORT

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LA Testing
59 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9960 Fax: (323) 254-9982 Email: pasadenalab@latesting.com

LA TESTING

Attn: Cole & Associates
451 Southwest Tenth St.
Suite 100
Renton, WA 98055
Fax: (425) 792-5555 Phone: (425) 793-5505
Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
CTC-635-40-26 320301606-0026		White Fibrous Homogeneous	Teased	90%	Cellulose	10%	Non-fibrous (other)	None	Detected
CTC-635-40-26M 320301606-0140		Yellow Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None	Detected
CTC-635-40-27 320301606-0027		White Fibrous Heterogeneous	Teased Dissolved	20%	Cellulose	80%	Non-fibrous (other)	None	Detected
C-635-99-01 320301606-0028		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-02 320301606-0029		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-03 320301606-0030		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-04 320301606-0031		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-05 320301606-0032		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-06 320301606-0033		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-07 320301606-0034		White/Tan Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected

Analyst(s)

Jeff Krogstad (163)

or other approved signatory

* has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by LA Testing, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.
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PLM-1

Page 117

LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9960 Fax: (323) 254-9962 Email: pasadenalab@latesting.com

Attn: Cole & Associates
451 Southwest Tenth St.
Suite 100
Renton, WA 98055
Fax: (425) 792-5555 Phone: (425) 793-5505
Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos %	Asbestos Type
CTC-635-99-08 320301606-0035		White/Tan Fibrous Homogeneous	Teased	40% Glass 40% Cellulose	20% Perlite	None	Detected
CTC-635-99-09 320301606-0036		White/Tan Fibrous Homogeneous	Teased	40% Glass 40% Cellulose	20% Perlite	None	Detected
CTC-635-99-10 320301606-0037		White/Tan Fibrous Homogeneous	Teased	40% Glass 40% Cellulose	20% Perlite	None	Detected
CTC-635-99-11 320301606-0038		White/Gray Fibrous Homogeneous	Teased	40% Glass 40% Cellulose	20% Perlite	None	Detected
CTC-635-99-12 320301606-0039		White/Gray Fibrous Homogeneous	Teased	40% Glass 40% Cellulose	20% Perlite	None	Detected
CTC-635-99-13 320301606-0040		Grayish Non-Fibrous Homogeneous	Teased		100% Non-fibrous (other)	None	Detected
CTC-635-99-13M 320301606-0141		Tan Non-Fibrous Homogeneous	Teased		100% Non-fibrous (other)	None	Detected
CTC-635-99-14 320301606-0041		Beige Non-Fibrous Homogeneous	Crushed Dissolved		100% Non-fibrous (other)	None	Detected
CTC-635-99-14 GROUT 320301606-0142		Gray Non-Fibrous Heterogeneous	Crushed Dissolved		100% Non-fibrous (other)	None	Detected

Analyst(s)

Jeff Krogstad (163)

or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by LA Testing, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.
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1 104of 117

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LA TESTING

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Suite 100
Renton, WA 98055
Fax: (425) 792-5555 Phone: (425) 793-5505
Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
CTC-635-99-15 320301606-0042		Pink Non-Fibrous Heterogeneous	Crushed Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-635-99-16 320301606-0043		White/Gray Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-17 320301606-0044		White/Gray Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None	Detected
CTC-635-99-18 320301606-0045		Brown Non-Fibrous Homogeneous	Teased			85%	Non-fibrous (other)	15%	Chrysotile
CTC-635-99-18M 320301606-0143		Black Non-Fibrous Homogeneous	Teased	5%	Cellulose	95%	Non-fibrous (other)	<1%	Chrysotile
CTC-635-99-19 320301606-0046								Not Submitted	
CTC-635-99-20 320301606-0047								Not Submitted	
CTC-635-99-21 320301606-0048		Black Fibrous Heterogeneous	Teased	40%	Glass	60%	Non-fibrous (other)	None	Detected
CTC-635-99-22 320301606-0049		Yellow Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None	Detected
CTC-635-99-23 320301606-0050		Cream Fibrous Homogeneous	Teased	80% 5%	Glass Cellulose	15%	Non-fibrous (other)	None	Detected

Analyst(s)

Jeff Krogstad (163)

or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by LA Testing, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.
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Phone: (323) 254-9960 Fax: (323) 254-9982 Email: pasadenalab@latesting.com

Attn: Cole & Associates
451 Southwest Tenth St.
Suite 100
Renton, WA 98055
Fax: (425) 792-5555 Phone: (425) 793-5505
Project: CTL-03+635-03

Customer ID: 32COLE21
Customer PO:
Received: 07/02/03 9:00 AM
EMSL Order: 320301606
EMSL Project ID:
Analysis Date: 7/2/2003

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
CTC-635-99-24 320301606-0051		Cream Fibrous Homogeneous	Teased	85%	Glass	15%	Non-fibrous (other)	None	Detected
CTC-635-99-25 320301606-0052		Cream Fibrous Homogeneous	Teased	85%	Glass	15%	Non-fibrous (other)	None	Detected
CTC-635-99-26 320301606-0053		White Non-Fibrous Heterogeneous	Teased Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-635-99-27 320301606-0054		White Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-635-99-28 320301606-0056		White Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-635-99-29 320301606-0056		White Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-635-99-30 320301606-0057		White Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-635-99-31 320301606-0058		Beige/Tan/White Fibrous Heterogeneous	Teased Dissolved	<1% 10%	Glass Cellulose	90%	Non-fibrous (other)	None	Detected
CTC-635-99-32 320301606-0059		White Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-635-A-01 320301606-0060		White/Tan Fibrous Heterogeneous	Teased Dissolved	60%	Cellulose	40%	Non-fibrous (other)	None	Detected

Analyst(s)

Jeff Krogstad (163)

or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by LA Testing, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.
Analysis performed by LA Testing (NVLAP #200232-0)

PLM-1

Appendix C

OHIO DEPARTMENT OF HEALTH

ASBESTOS HAZARD

EVALUATION SPECIALIST

CERTIFICATION

110706 117

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1 10806 117

OHIO DEPARTMENT OF HEALTH

246 North High Street
Post Office Box 118
Columbus, Ohio 43216-0118

Telephone: (614) 466-3543
www.odh.state.oh.us

BOB TAFT
Governor

J. NICK BAIRD, M.D.
Director of Health

May 29, 2003

Cole & Associates
451 SW 10th Street, #100
Renton, WA 98055

ATTN: Robert Parsons

RE: Evaluation Specialist Certification # 34302

Dear Robert Parsons:

This letter is to inform you that you have been certified by this department as an Asbestos Hazard Evaluation Specialist.

Included with this letter is your identification card. Proof of certification must be available for review at any relevant project.

This certification may be revoked by the Director of Health for violation of any of the requirements of 3701-34 of the Ohio Administrative Code.

This certification will expire on MAY-27-2004.

If you have any questions regarding your identification card please call and speak with the asbestos licensing staff at (614)644-0226.

Sincerely,

Bridgette C. Smith
Licensure Administrator
Asbestos Program
Division of Quality Assurance

1 109 of 117

An Equal Opportunity Employer/Provider

OHIO DEPARTMENT OF HEALTH

246 North High Street
Post Office Box 118
Columbus, Ohio 43216-0118

Telephone: (614) 466-3543
www.odh.state.oh.us

BOB TAFT
Governor

J. NICK BAIRD, M.D.
Director of Health

June 20, 2003

Cole & Associates, Training & Consulting
451 SW 10th St, Suite 100
Renton, WA 98055

ATTN: Trent Slemmons

RE: Evaluation Specialist Certification # 34309

Dear Trent Slemmons:

This letter is to inform you that you have been certified by this department as an Asbestos Hazard Evaluation Specialist.

Included with this letter is your identification card. Proof of certification must be available for review at any relevant project

This certification may be revoked by the Director of Health for violation of any of the requirements of 3701-34 of the Ohio Administrative Code.

This certification will expire on JUN-12-2004.

If you have any questions regarding your identification card please call and speak with the asbestos licensing staff at (614)644-0226.

Sincerely,

Bridgette C. Smith
Licensure Administrator
Asbestos Program
Division of Quality Assurance

An Equal Opportunity Employer/Provider

Appendix D

LABORATORY

CERTIFICATE

OF

ACCREDITATION

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

11327 LTI

LA TESTING
S. PASADENA, CA

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

June 30, 2004
Effective through

C D Fason
For the National Institute of Standards and Technology

NVLAP Lab Code: 200232-0

NVLAP-01C (06-01)

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

BULK ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200232-0

LA TESTING
159 Pasadena Avenue
S. Pasadena, CA 91030
Mr. Derrick Tanner
Phone: 323-254-9960 Fax: 323-254-9982
E-Mail: dtanner@latesting.com

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

June 30, 2004

Effective through

For the National Institute of Standards and Technology

11 May 117

Appendix E

ASBESTOS

BUILDING

SURVEY

SUMMARY

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"Asbestos Building Survey" Summary

Project Number: CTC-03-365-99

Inspectors: Robert Parsons and Trent R. Slemmons

Survey Date: 06/28/03

Project Name/Location: Building 99, Miamisburg Closure Project, Miamisburg, OH

Asbestos Containing Building Materials were identified as a result of this survey.

Robert Parsons
Senior Project Manager
Asbestos Building Inspector
Certification # 34302

1 117 of 117

Appendix J

Lead Information

Lead

No previous lead surveys or sampling data could be found for Buildings 40 and 99. Observed paint coatings were largely intact.

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

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

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

Appendix K

Chemical Information

Lists of chemicals known to have been in Buildings 40 & 99 are provided.

Chemicals and Products Previously Used or Stored in Building 40

4-1200 Saffety Zone Cleaner
4-isopropenyl-1-methyl-cyclohexane
Anti-Static Fluid
Arsenic (trace amounts-photo development)
Automatic Blanket Wash
Black Opaque
Blanket Fix
Blankrola
Bldg 40 Photofixer
Cleaning Solvent
Clean-N-Easy
Cronalar Fixer Part A
Cronalar Fixer Part B
Cronalith Liquid Developer (A)
Cronalith Liquid Developer (B)
Cylinder Cleaner
Deglazing Solvent
Developer
Developer II Concentrate
Dichlorodifluoromethane
Diethanolamine
Dry Ink
Epoxy Resin
Fixer II Concentrate
Formaldehyde
Fountain Concentrate
Furnature Polish
Fuser Agent
Ink Paste
Ink Roller Conditioner
Ink Roller Desensitizer
Kodak PMT Activator
Kodak PMT II Activator
Lead (trace amounts-photo development)
Mercury
Mercury Thermometer
Multigraphics Hydrogen Cyanide Ferrocyanide
Naphtha
Non-Oxidizing Ink Black
Non-Oxidizing Ink Color
Offset Spray Powder
Oxidizing Ink Black
Oxidizing Ink Color
Pak Refill
Photo Fixer
Photo Fixer, Sample 94-004
Photo Fixer, Sample LP94-875
Photo Waste
PMT Activator
Propanol
Silicone Oil
Silver
Sodium hydroxide
Sodium sulfite
Starter
Tack Reducer
TC metals
Tetrachloroethylene
Toner (Black)
Toner (Cyan)
Toner (Magenta)
Toner (Yellow)
Toner High Yield
Trichloroethane
Viking 2-in-1 Developer-Gum
Viking Negative Make-Up Solution
Western A. G. E.

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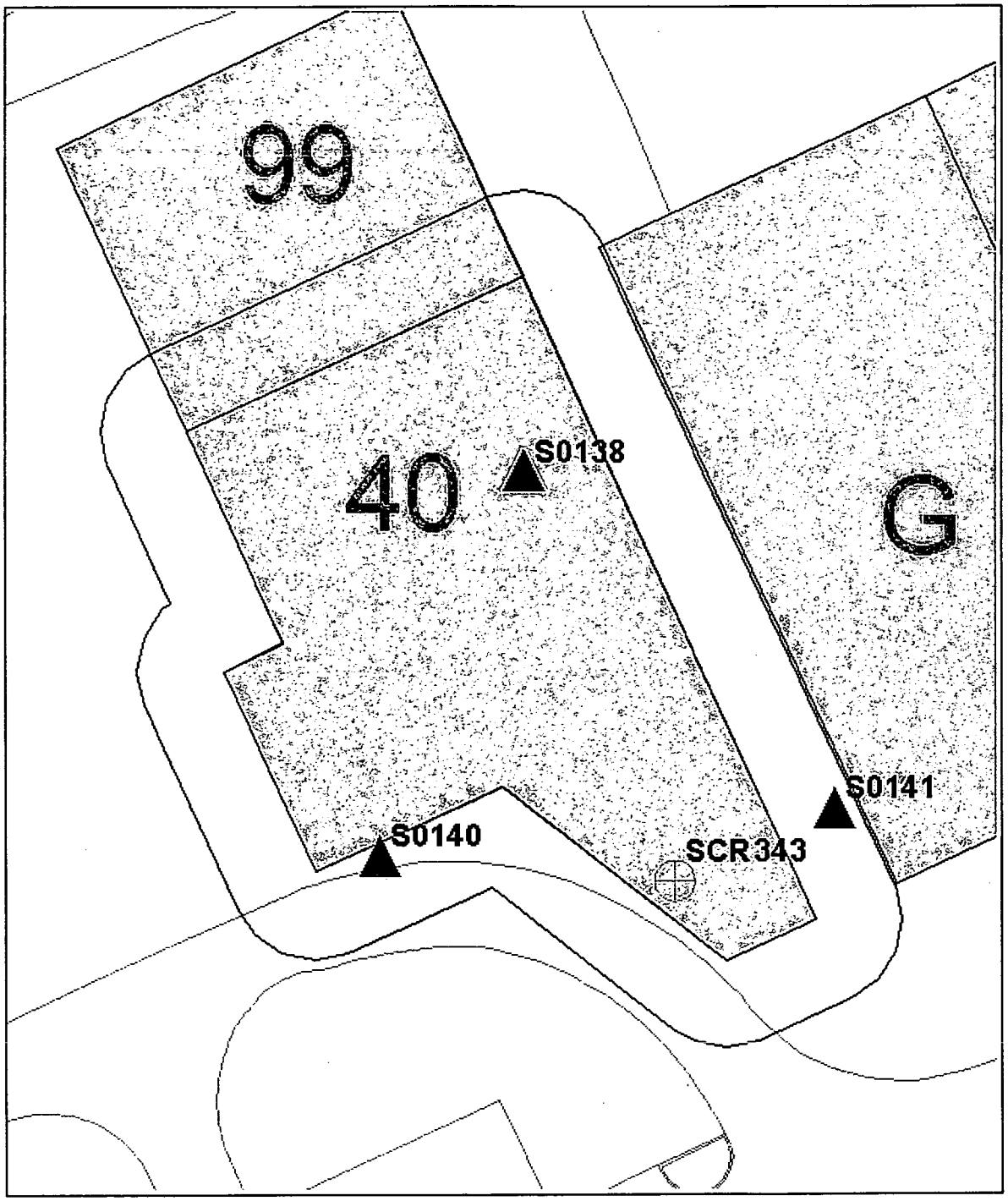
Chemicals and Products Previously Used or Stored in Building 99

Cherry Insecticide
chlorodifluoromethane
dichlorodifluoromethane
disinfectant bathroom cleaner
disinfectant carpet cleaner
glass cleaner
Loctite
WD-40

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 feet of Building 40



25 0 25 50 75 100 Feet

■ Sample Detect
— Sample Nondetect

△ Surface
⊕ borehole

MOUND

Environmental Restoration Geographic Information System

e:\cad_proj\bldg_40\eri\bldg40_15ft_012903.apr

01/29/03

Building 40 Detects

Location _name	Sample _id	Collection _date	Value_name	Measured _value	Value _units	Detection _limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project _code	Media	Comments
S0141	6179	19840801	Plutonium-238	0.6800	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0140	3037	19831001	Plutonium-238	0.3600	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0138	6178	19840801	Plutonium-238	0.1200	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	

*Comments

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

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.

L3 of 23

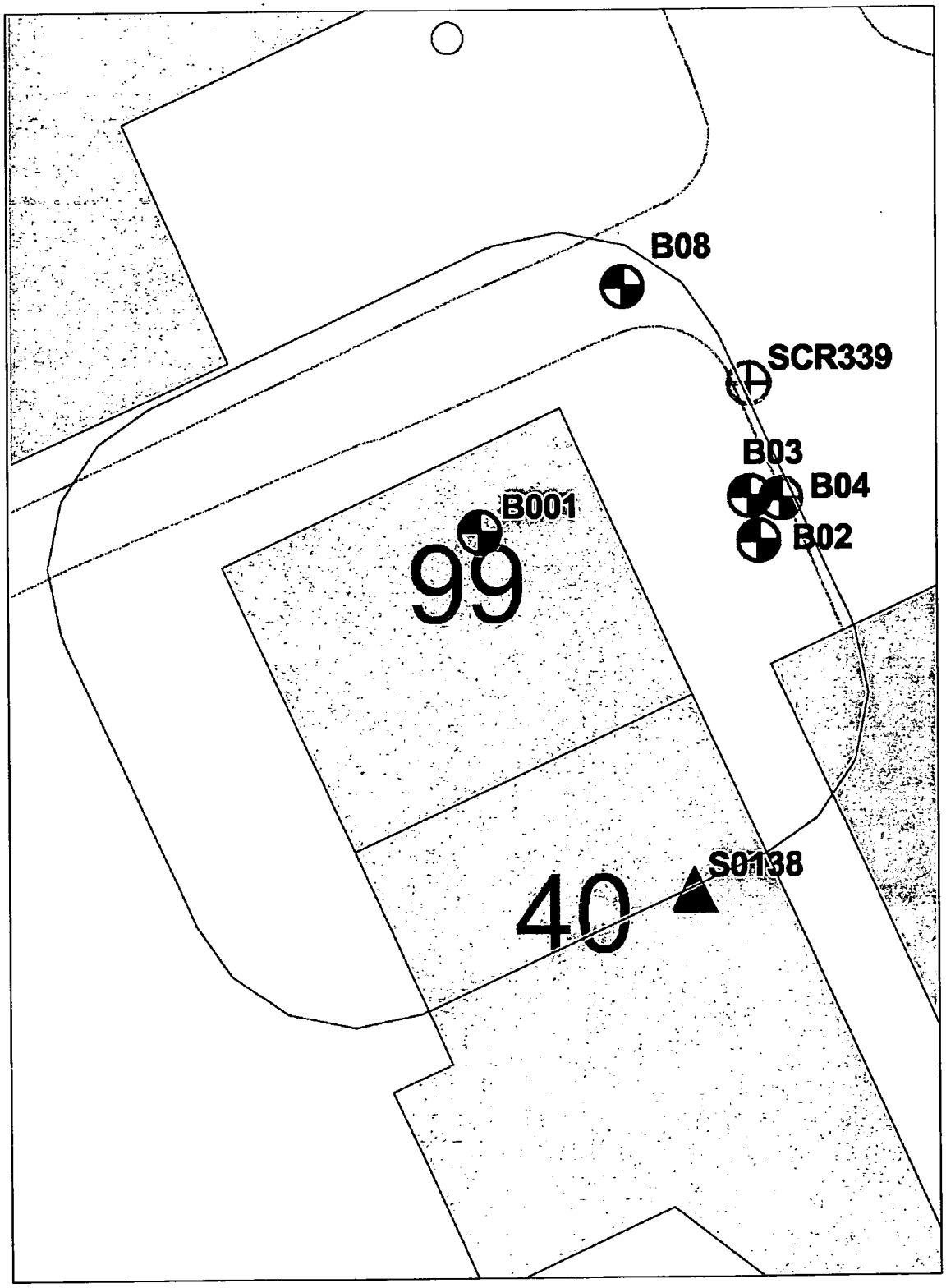
Building 40 Non-Detects

Location _name	Sample_ id	Collection_ date	Value_name	Measured _value	Value _units	Detection _limit	Chem _class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR343	9010122	19901011	Plutonium-238	0.0000	PCI/G		RAD	0.0	1.0	U		SCRDATA	Soil
S0141	6179	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0140	3037	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0138	6178	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
SCR343	9010122	19901011	Thorium-232	0.5000	PCI/G		RAD	0.0	1.0	U		SCRDATA	Soil

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

L 4 of 23

Historic Sample Locations within 30 feet of Building 99



10 0 10 20 30 40 50 Feet

N
W E
S

MOUND

Environmental Restoration Geographic Information System

Sample Detect
Sample Nondetect

△ Surface
⊕ borehole

04/30/03

L 5 of 23

Building 99 Detects

Location_name	Sample_id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab	Data	Project_code	Media	Comments
B03	000010	19961004	Ethylbenzene	9.2000	UG/KG	1.1000	ORVO	6.0	8.0			PRS107	Soil	*
B03	000010	19961004	Ethylbenzene	6.5000	UG/KG	1.1000	ORVO	6.0	8.0			PRS107	Soil	
B02	000004	19961003	Gasoline	43.0000	MG/KG	4.4000	ORGR	7.0	9.0			PRS107	Soil	**
B04	000007	19961004	Gasoline	19.0000	MG/KG	4.4000	ORGR	0.0	2.0			PRS107	Soil	
B08	000011	19961004	Gasoline	7.4000	MG/KG	2.2000	ORGR	6.0	8.0			PRS107	Soil	
B03	000010	19961004	Gasoline	1.1000	MG/KG	0.0440	ORGR	6.0	8.0			PRS107	Soil	
B02	000003	19961003	Gasoline	0.0490	MG/KG	0.0440	ORGR	5.0	7.0			PRS107	Soil	
B04	000007	19961004	Lead	15.8000	MG/KG	0.5500	INORG	0.0	2.0			PRS107	Soil	
B02	000004	19961003	Lead	8.8000	MG/KG	0.1800	INORG	7.0	9.0			PRS107	Soil	
B03	000010	19961004	Lead	8.3000	MG/KG	0.1700	INORG	6.0	8.0			PRS107	Soil	
B02	000003	19961003	Lead	8.3000	MG/KG	0.1800	INORG	5.0	7.0			PRS107	Soil	
B03	000009	19961004	Lead	7.9000	MG/KG	0.1700	INORG	4.0	6.0			PRS107	Soil	
B08	000011	19961004	Lead	7.8000	MG/KG	0.1800	INORG	6.0	8.0			PRS107	Soil	
B03	000009	19961004	Percent Solids	92.2000	%	0.1000	GENE	4.0	6.0			PRS107	Soil	***
B03	000010	19961004	Percent Solids	91.8000	%	0.1000	GENE	6.0	8.0			PRS107	Soil	
B08	000011	19961004	Percent Solids	91.4000	%	0.1000	GENE	6.0	8.0			PRS107	Soil	
B02	000003	19961003	Percent Solids	90.9000	%	0.1000	GENE	5.0	7.0			PRS107	Soil	
B02	000004	19961003	Percent Solids	90.7000	%	0.1000	GENE	7.0	9.0			PRS107	Soil	
B04	000007	19961004	Percent Solids	87.9000	%	0.1000	GENE	0.0	2.0			PRS107	Soil	
S0138	6178	19840801	Plutonium-238	0.1200	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	
B03	000010	19961004	Toluene	4.9000	UG/KG	1.1000	ORVO	6.0	8.0			PRS107	Soil	
B03	000010	19961004	Toluene	4.6000	UG/KG	1.1000	ORVO	6.0	8.0			PRS107	Soil	
B03	000010	19961004	Xylenes, Total	61.0000	UG/KG	1.1000	ORVO	6.0	8.0			PRS107	Soil	
B03	000010	19961004	Xylenes, Total	59.0000	UG/KG	1.1000	ORVO	6.0	8.0			PRS107	Soil	

Comments

* PRS 107 was binned No Further Assessment (Table 2).

** Data to determine risk-based guideline values for gasoline does not exist, however, the risks from gasoline are addressed by its constituents; benzene, toluene, ethylbenzene, and xylene.

*** Percent solids are not considered in Mound Closure Plan risk assessments and therefore not evaluated further herein.

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.

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Building 99 Non-Detects

Location _name	Sample_id	Collection_ date	Value_name	Measured_ value	Value_units	Detection _limit	Chem_class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
B04	000007	19961004	Actinium	1.2000	PCI/G	1.2000	RAD	0.0	2.0	U		PRS107	Soil
B02	000001	19961003	Actinium	1.1400	PCI/G	1.1400	RAD	0.0	3.0	U		PRS107	Soil
B03	000008	19961004	Actinium	0.8400	PCI/G	0.8400	RAD	0.0	0.0	U		PRS107	Soil
B02	000002	19961003	Actinium	0.8200	PCI/G	0.8200	RAD	0.0	0.0	U		PRS107	Soil
B02	000003	19961003	Actinium	0.6800	PCI/G	0.6800	RAD	5.0	7.0	U		PRS107	Soil
B03	000010	19961004	Actinium	0.6600	PCI/G	0.6600	RAD	6.0	8.0	U		PRS107	Soil
B02	000004	19961003	Actinium	0.5800	PCI/G	0.5800	RAD	7.0	9.0	U		PRS107	Soil
B04	000007	19961004	Americium-241	0.4000	PCI/G	0.4000	RAD	0.0	2.0	U		PRS107	Soil
B02	000001	19961003	Americium-241	0.3500	PCI/G	0.3500	RAD	0.0	3.0	U		PRS107	Soil
B03	000008	19961004	Americium-241	0.3100	PCI/G	0.3100	RAD	0.0	0.0	U		PRS107	Soil
B02	000002	19961003	Americium-241	0.2700	PCI/G	0.2700	RAD	0.0	0.0	U		PRS107	Soil
B03	000010	19961004	Americium-241	0.2300	PCI/G	0.2300	RAD	6.0	8.0	U		PRS107	Soil
B02	000004	19961003	Americium-241	0.2200	PCI/G	0.2200	RAD	7.0	9.0	U		PRS107	Soil
B02	000003	19961003	Americium-241	0.2100	PCI/G	0.2100	RAD	5.0	7.0	U		PRS107	Soil
B04	000007	19961004	Benzene	110.0000	UG/KG	110.0000	ORVOA	0.0	2.0	U	U	PRS107	Soil
B02	000004	19961003	Benzene	110.0000	UG/KG	110.0000	ORVOA	7.0	9.0	U		PRS107	Soil
B08	000011	19961004	Benzene	55.0000	UG/KG	55.0000	ORVOA	6.0	8.0	U		PRS107	Soil
B08	000011	19961004	Benzene	2.5000	UG/KG	2.5000	ORVOA	6.0	8.0	U		PRS107	Soil
B03	000009	19961004	Benzene	1.1000	UG/KG	1.1000	ORVOA	4.0	6.0	U		PRS107	Soil
B03	000010	19961004	Benzene	1.1000	UG/KG	1.1000	ORVOA	6.0	8.0	U		PRS107	Soil
B02	000003	19961003	Benzene	1.1000	UG/KG	1.1000	ORVOA	5.0	7.0	U		PRS107	Soil
B04	000007	19961004	Cesium-137	0.2000	PCI/G	0.2000	RAD	0.0	2.0	U		PRS107	Soil
B02	000001	19961003	Cesium-137	0.1400	PCI/G	0.1400	RAD	0.0	3.0	U		PRS107	Soil
B03	000008	19961004	Cesium-137	0.1300	PCI/G	0.1300	RAD	0.0	0.0	U		PRS107	Soil
B02	000002	19961003	Cesium-137	0.1300	PCI/G	0.1300	RAD	0.0	0.0	U		PRS107	Soil
B02	000003	19961003	Cesium-137	0.1200	PCI/G	0.1200	RAD	5.0	7.0	U		PRS107	Soil
B02	000004	19961003	Cesium-137	0.0900	PCI/G	0.0900	RAD	7.0	9.0	U		PRS107	Soil
B03	000010	19961004	Cesium-137	0.0600	PCI/G	0.0600	RAD	6.0	8.0	U		PRS107	Soil
B02	000001	19961003	Cobalt-60	0.2400	PCI/G	0.2400	RAD	0.0	3.0	U		PRS107	Soil
B03	000010	19961004	Cobalt-60	0.1400	PCI/G	0.1400	RAD	6.0	8.0	U		PRS107	Soil
B02	000003	19961003	Cobalt-60	0.1200	PCI/G	0.1200	RAD	5.0	7.0	U		PRS107	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_ value	Value_units	Detection _limit	Chem_class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
B02	000004	19961003	Cobalt-60	0.1100	PCI/G	0.1100	RAD	7.0	9.0	U		PRS107	Soil
B03	000008	19961004	Cobalt-60	0.1000	PCI/G	0.1000	RAD	0.0	0.0	U		PRS107	Soil
B02	000002	19961003	Cobalt-60	0.1000	PCI/G	0.1000	RAD	0.0	0.0	U		PRS107	Soil
B04	000007	19961004	Cobalt-60	0.0700	PCI/G	0.0700	RAD	0.0	2.0	U		PRS107	Soil
B04	000007	19961004	Ethylbenzene	110.0000	UG/KG	110.0000	ORVOA	0.0	2.0	U	U	PRS107	Soil
B02	000004	19961003	Ethylbenzene	110.0000	UG/KG	110.0000	ORVOA	7.0	9.0	U		PRS107	Soil
B08	000011	19961004	Ethylbenzene	55.0000	UG/KG	55.0000	ORVOA	6.0	8.0	U		PRS107	Soil
B08	000011	19961004	Ethylbenzene	2.5000	UG/KG	2.5000	ORVOA	6.0	8.0	U		PRS107	Soil
B03	000009	19961004	Ethylbenzene	1.1000	UG/KG	1.1000	ORVOA	4.0	6.0	U		PRS107	Soil
B02	000003	19961003	Ethylbenzene	1.1000	UG/KG	1.1000	ORVOA	5.0	7.0	U		PRS107	Soil
B03	000009	19961004	Gasoline	0.0440	MG/KG	0.0440	ORGRO	4.0	6.0	U		PRS107	Soil
B02	000001	19961003	Lead-210	3.1700	PCI/G	3.1700	RAD	0.0	3.0	U		PRS107	Soil
B03	000010	19961004	Lead-210	2.8800	PCI/G	2.8800	RAD	6.0	8.0	U		PRS107	Soil
B02	000003	19961003	Lead-210	2.6200	PCI/G	2.6200	RAD	5.0	7.0	U		PRS107	Soil
B02	000002	19961003	Lead-210	2.6200	PCI/G	2.6200	RAD	0.0	0.0	U		PRS107	Soil
B02	000004	19961003	Lead-210	2.4000	PCI/G	2.4000	RAD	7.0	9.0	U		PRS107	Soil
B03	000008	19961004	Lead-210	2.3500	PCI/G	2.3500	RAD	0.0	0.0	U		PRS107	Soil
B04	000007	19961004	Lead-210	2.1000	PCI/G	2.1000	RAD	0.0	2.0	U		PRS107	Soil
B03	000008	19961004	Plutonium-238	411.0000	PCI/G	411.0000	RAD	0.0	0.0	U		PRS107	Soil
B02	000001	19961003	Plutonium-238	340.0000	PCI/G	340.0000	RAD	0.0	3.0	U		PRS107	Soil
B02	000003	19961003	Plutonium-238	337.0000	PCI/G	337.0000	RAD	5.0	7.0	U		PRS107	Soil
B02	000002	19961003	Plutonium-238	317.0000	PCI/G	317.0000	RAD	0.0	0.0	U		PRS107	Soil
B04	000007	19961004	Plutonium-238	303.0000	PCI/G	303.0000	RAD	0.0	2.0	U		PRS107	Soil
B02	000004	19961003	Plutonium-238	215.0000	PCI/G	215.0000	RAD	7.0	9.0	U		PRS107	Soil
B03	000010	19961004	Plutonium-238	167.0000	PCI/G	167.0000	RAD	6.0	8.0	U		PRS107	Soil
SCR339	8801138	19880113	Plutonium-238	20.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	88011226	19880112	Plutonium-238	20.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	8802036	19880203	Plutonium-238	20.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	88011312	19880113	Plutonium-238	15.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	88011311	19880113	Plutonium-238	11.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	8801075	19880107	Plutonium-238	10.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	8802035	19880203	Plutonium-238	9.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	8801298	19880129	Plutonium-238	9.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil

Location _name	Sample_id	Collection_ date	Value_name	Measured_ value	Value_units	Detection _limit	Chem_class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR339	88011225	19880112	Plutonium-238	8.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	88011310	19880113	Plutonium-238	8.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	8802037	19880203	Plutonium-238	8.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	8801295	19880129	Plutonium-238	6.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	8801297	19880129	Plutonium-238	4.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	8802034	19880203	Plutonium-238	2.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	8801139	19880113	Plutonium-238	0.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	88011227	19880112	Plutonium-238	0.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	8801296	19880129	Plutonium-238	0.0000	PCI/G		RAD	1.5	1.5	U		SCRDATA	Soil
B04	000007	19961004	Protactinium-231	6.7000	PCI/G	6.7000	RAD	0.0	2.0	U		PRS107	Soil
B03	000008	19961004	Protactinium-231	6.3000	PCI/G	6.3000	RAD	0.0	0.0	U		PRS107	Soil
B02	000001	19961003	Protactinium-231	6.0700	PCI/G	6.0700	RAD	0.0	3.0	U		PRS107	Soil
B02	000002	19961003	Protactinium-231	5.1800	PCI/G	5.1800	RAD	0.0	0.0	U		PRS107	Soil
B03	000010	19961004	Protactinium-231	3.9600	PCI/G	3.9600	RAD	6.0	8.0	U		PRS107	Soil
B02	000004	19961003	Protactinium-231	3.9000	PCI/G	3.9000	RAD	7.0	9.0	U		PRS107	Soil
B02	000003	19961003	Protactinium-231	2.6000	PCI/G	2.6000	RAD	5.0	7.0	U		PRS107	Soil
B03	000008	19961004	Radium-226	2.7000	PCI/G	2.7000	RAD	0.0	0.0	U		PRS107	Soil
B02	000004	19961003	Radium-226	2.6700	PCI/G	2.6700	RAD	7.0	9.0	U		PRS107	Soil
B02	000001	19961003	Radium-226	2.6700	PCI/G	2.6700	RAD	0.0	3.0	U		PRS107	Soil
B02	000003	19961003	Radium-226	2.3300	PCI/G	2.3300	RAD	5.0	7.0	U		PRS107	Soil
B03	000010	19961004	Radium-226	2.2000	PCI/G	2.2000	RAD	6.0	8.0	U		PRS107	Soil
B04	000007	19961004	Radium-226	2.1000	PCI/G	2.1000	RAD	0.0	2.0	U		PRS107	Soil
B02	000002	19961003	Radium-226	1.6400	PCI/G	1.6400	RAD	0.0	0.0	U		PRS107	Soil
B02	000004	19961003	Thorium-228	71.0000	PCI/G	71.0000	RAD	7.0	9.0	U		PRS107	Soil
B03	000008	19961004	Thorium-228	68.0000	PCI/G	68.0000	RAD	0.0	0.0	U		PRS107	Soil
B04	000007	19961004	Thorium-228	58.0000	PCI/G	58.0000	RAD	0.0	2.0	U		PRS107	Soil
B02	000002	19961003	Thorium-228	47.0000	PCI/G	47.0000	RAD	0.0	0.0	U		PRS107	Soil
B02	000001	19961003	Thorium-228	41.0000	PCI/G	41.0000	RAD	0.0	3.0	U		PRS107	Soil
B02	000003	19961003	Thorium-228	38.6000	PCI/G	38.6000	RAD	5.0	7.0	U		PRS107	Soil
B03	000010	19961004	Thorium-228	38.0000	PCI/G	38.0000	RAD	6.0	8.0	U		PRS107	Soil
B02	000001	19961003	Thorium-229	3.0300	PCI/G	3.0300	RAD	0.0	3.0	U		PRS107	Soil
B04	000007	19961004	Thorium-229	2.4100	PCI/G	2.4100	RAD	0.0	2.0	U		PRS107	Soil
B02	000002	19961003	Thorium-229	1.8000	PCI/G	1.8000	RAD	0.0	0.0	U		PRS107	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_ value	Value_units	Detection _limit	Chem_class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
B02	000004	19961003	Thorium-229	1.4800	PCI/G	1.4800	RAD	7.0	9.0	U		PRS107	Soil
B02	000003	19961003	Thorium-229	1.3800	PCI/G	1.3800	RAD	5.0	7.0	U		PRS107	Soil
B03	000010	19961004	Thorium-229	1.3600	PCI/G	1.3600	RAD	6.0	8.0	U		PRS107	Soil
B03	000008	19961004	Thorium-229	1.3000	PCI/G	1.3000	RAD	0.0	0.0	U		PRS107	Soil
B02	000001	19961003	Thorium-230	32.0000	PCI/G	32.0000	RAD	0.0	3.0	U		PRS107	Soil
B02	000002	19961003	Thorium-230	25.0000	PCI/G	25.0000	RAD	0.0	0.0	U		PRS107	Soil
B04	000007	19961004	Thorium-230	22.5000	PCI/G	22.5000	RAD	0.0	2.0	U		PRS107	Soil
B03	000008	19961004	Thorium-230	21.0000	PCI/G	21.0000	RAD	0.0	0.0	U		PRS107	Soil
B02	000003	19961003	Thorium-230	21.0000	PCI/G	21.0000	RAD	5.0	7.0	U		PRS107	Soil
B02	000004	19961003	Thorium-230	19.0000	PCI/G	19.0000	RAD	7.0	9.0	U		PRS107	Soil
B03	000010	19961004	Thorium-230	18.7000	PCI/G	18.7000	RAD	6.0	8.0	U		PRS107	Soil
S0138	6178	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
SCR339	8802037	19880203	Thorium-232	1.3000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	8802034	19880203	Thorium-232	1.3000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	8802035	19880203	Thorium-232	1.3000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	8801138	19880113	Thorium-232	1.2000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	88011226	19880112	Thorium-232	1.2000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	8802036	19880203	Thorium-232	1.2000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	88011312	19880113	Thorium-232	1.1000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	88011310	19880113	Thorium-232	1.1000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	8801297	19880129	Thorium-232	1.1000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	88011225	19880112	Thorium-232	1.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	8801295	19880129	Thorium-232	1.0000	PCI/G		RAD	3.0	3.0	U		SCRDATA	Soil
SCR339	8801298	19880129	Thorium-232	1.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	8801139	19880113	Thorium-232	0.8000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	88011227	19880112	Thorium-232	0.8000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR339	8801296	19880129	Thorium-232	0.8000	PCI/G		RAD	1.5	1.5	U		SCRDATA	Soil
SCR339	8801075	19880107	Thorium-232	0.7000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR339	88011311	19880113	Thorium-232	0.7000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
B02	000001	19961003	Thorium-232	0.5200	PCI/G	0.5200	RAD	0.0	3.0	U		PRS107	Soil
B04	000007	19961004	Thorium-232	0.4600	PCI/G	0.4600	RAD	0.0	2.0	U		PRS107	Soil
B03	000008	19961004	Thorium-232	0.4300	PCI/G	0.4300	RAD	0.0	0.0	U		PRS107	Soil
B02	000004	19961003	Thorium-232	0.3300	PCI/G	0.3300	RAD	7.0	9.0	U		PRS107	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_ value	Value_units	Detection _limit	Chem_class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
B03	000010	19961004	Thorium-232	0.3000	PCI/G	0.3000	RAD	6.0	8.0	U		PRS107	Soil
B02	000002	19961003	Thorium-232	0.2800	PCI/G	0.2800	RAD	0.0	0.0	U		PRS107	Soil
B02	000003	19961003	Thorium-232	0.0900	PCI/G	0.0900	RAD	5.0	7.0	U		PRS107	Soil
B04	000007	19961004	Toluene	110.0000	UG/KG	110.0000	ORVOA	0.0	2.0	U	U	PRS107	Soil
B02	000004	19961003	Toluene	110.0000	UG/KG	110.0000	ORVOA	7.0	9.0	U		PRS107	Soil
B08	000011	19961004	Toluene	55.0000	UG/KG	55.0000	ORVOA	6.0	8.0	U		PRS107	Soil
B08	000011	19961004	Toluene	2.5000	UG/KG	2.5000	ORVOA	6.0	8.0	U		PRS107	Soil
B03	000009	19961004	Toluene	1.1000	UG/KG	1.1000	ORVOA	4.0	6.0	U		PRS107	Soil
B02	000003	19961003	Toluene	1.1000	UG/KG	1.1000	ORVOA	5.0	7.0	U		PRS107	Soil
B02	000001	19961003	Uranium-235	2.3500	PCI/G	2.3500	RAD	0.0	3.0	U		PRS107	Soil
B04	000007	19961004	Uranium-235	2.1000	PCI/G	2.1000	RAD	0.0	2.0	U		PRS107	Soil
B03	000008	19961004	Uranium-235	1.7000	PCI/G	1.7000	RAD	0.0	0.0	U		PRS107	Soil
B02	000004	19961003	Uranium-235	1.7000	PCI/G	1.7000	RAD	7.0	9.0	U		PRS107	Soil
B02	000002	19961003	Uranium-235	1.7000	PCI/G	1.7000	RAD	0.0	0.0	U		PRS107	Soil
B03	000010	19961004	Uranium-235	1.6300	PCI/G	1.6300	RAD	6.0	8.0	U		PRS107	Soil
B02	000003	19961003	Uranium-235	1.4300	PCI/G	1.4300	RAD	5.0	7.0	U		PRS107	Soil
B03	000008	19961004	Uranium-238	23.5000	PCI/G	23.5000	RAD	0.0	0.0	U		PRS107	Soil
B03	000010	19961004	Uranium-238	19.8600	PCI/G	19.8600	RAD	6.0	8.0	U		PRS107	Soil
B02	000001	19961003	Uranium-238	19.0000	PCI/G	19.0000	RAD	0.0	3.0	U		PRS107	Soil
B04	000007	19961004	Uranium-238	17.0000	PCI/G	17.0000	RAD	0.0	2.0	U		PRS107	Soil
B02	000003	19961003	Uranium-238	15.7500	PCI/G	15.7500	RAD	5.0	7.0	U		PRS107	Soil
B02	000004	19961003	Uranium-238	15.4000	PCI/G	15.4000	RAD	7.0	9.0	U		PRS107	Soil
B02	000002	19961003	Uranium-238	4.8000	PCI/G	4.8000	RAD	0.0	0.0	U		PRS107	Soil
B04	000007	19961004	Xylenes, Total	110.0000	UG/KG	110.0000	ORVOA	0.0	2.0	U	U	PRS107	Soil
B02	000004	19961003	Xylenes, Total	110.0000	UG/KG	110.0000	ORVOA	7.0	9.0	U		PRS107	Soil
B08	000011	19961004	Xylenes, Total	55.0000	UG/KG	55.0000	ORVOA	6.0	8.0	U		PRS107	Soil
B08	000011	19961004	Xylenes, Total	2.5000	UG/KG	2.5000	ORVOA	6.0	8.0	U		PRS107	Soil
B03	000009	19961004	Xylenes, Total	1.1000	UG/KG	1.1000	ORVOA	4.0	6.0	U		PRS107	Soil
B02	000003	19961003	Xylenes, Total	1.1000	UG/KG	1.1000	ORVOA	5.0	7.0	U		PRS107	Soil

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

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LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

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DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

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

SUB-QUALIFIER CODES

ORGANICS

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

INORGANICS

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

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

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

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

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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
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

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Core Team Determined Screening Level			
7439-92-1	Lead	400	MG/KG
14952-40-0	Actinium-227	5.60E-01	PCI/G
14596-10-2	Americium-241	6.3	PCI/G
13982-38-2	Bismuth-207	1.75E-01	PCI/G
10045-97-3	Cesium-137	0.76	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	1.80E+00	PCI/G
13981-16-3	Plutonium-238	55	PCI/G
14331-85-2	Protactinium-231	4.00E+00	PCI/G
13982-63-3	Radium-226	2.1	PCI/G
14274-82-9	Thorium-228	1.61	PCI/G
14269-63-7	Thorium-230	2	PCI/G
7440-29-1	Thorium-232	1.47	PCI/G
15117-96-1	Uranium-235	1.7	PCI/G
7440-61-1	Uranium-238+D	1.3	PCI/G
Maximum Contaminant Level for Drinking Water			
71-55-6	1,1,1-Trichloroethane	0.2	MG/L
79-00-5	1,1,2-Trichloroethane	0.005	MG/L
75-35-4	1,1-Dichloroethene	0.007	MG/L
120-82-1	1,2,4-Trichlorobenzene	0.07	MG/L
156-59-2	1,2-cis-Dichloroethene	0.07	MG/L
106-93-4	1,2-Dibromoethane	0.00005	MG/L
95-50-1	1,2-Dichlorobenzene	0.6	MG/L
107-06-2	1,2-Dichloroethane	0.005	MG/L
78-87-5	1,2-Dichloropropane	0.005	MG/L
156-60-5	1,2-trans-Dichloroethene	0.01	MG/L
106-46-7	1,4-Dichlorobenzene	0.075	MG/L
95-95-4	2,4,5-Trichlorophenol	0.05	MG/L
94-75-7	2,4-D	0.07	MG/L
7440-36-0	Antimony	0.0006	MG/L
7440-38-2	Arsenic	0.05	MG/L
7440-39-3	Barium	2	MG/L
71-43-2	Benzene	0.005	MG/L
50-32-8	Benzo(a)pyrene	0.002	MG/L
7440-41-7	Beryllium	0.004	MG/L
117-81-7	bis(2-ethylhexyl)phthalate	0.006	MG/L
75-27-4	Bromodichloromethane	0.008	MG/L
75-25-2	Bromoform	0.008	MG/L
7440-43-9	Cadmium	0.005	MG/L
56-23-5	Carbon Tetrachloride	0.005	MG/L
57-74-9	Chlordane	0.002	MG/L
108-90-7	Chlorobenzene	0.1	MG/L
67-66-3	Chloroform	0.008	MG/L
7440-47-3	Chromium	0.1	MG/L
7440-50-8	Copper	1.3	MG/L
57-12-5	Cyanide	0.2	MG/L
96-12-8	Dibromochloropropane	0.0002	MG/L

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75-09-2	Dichloromethane (Methylene Chloride)	0.005	MG/L
88-85-7	Dinoseb	0.007	MG/L
1746-01-6	Dioxin	0.00000003	MG/L
72-20-8	Endrin	0.002	MG/L
100-41-4	Ethylbenzene	0.07	MG/L
16984-48-8	Flouride	4	MG/L
58-89-9	Gamma-BHC (Lindane)	0.0002	MG/L
76-44-8	Heptachlor	0.0004	MG/L
1024-57-3	Heptachlor Epoxide	0.0002	MG/L
118-74-1	Hexachlorobenzene	0.001	MG/L
77-47-4	Hexachlorocyclopentadiene	0.05	MG/L
7439-92-1	Lead	0.015	MG/L
7439-97-6	Mercury	0.002	MG/L
72-43-5	Methoxychlor	0.04	MG/L
7440-02-0	Nickel	0.1	MG/L
NO3	Nitrate	10	MG/L
14797-65-0	Nitrite	1	MG/L
87-86-5	Pentachlorophenol	0.001	MG/L
7782-49-2	Selenium	0.05	MG/L
100-42-5	Styrene	0.1	MG/L
127-18-4	Tetrachloroethene	0.005	MG/L
7440-28-0	Thallium	0.002	MG/L
108-88-3	Toluene	1	MG/L
8001-35-2	Toxaphene	0.003	MG/L
79-01-6	Trichloroethene	0.005	MG/L
75-01-4	Vinyl Chloride	0.002	MG/L
1330-20-7	Xylenes, Total	10	MG/L
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			
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	7.00E+04	MG/KG
75-34-3	1,1-Dichloroethane	7.80E+00	MG/KG
120-82-1	1,2,4-Trichlorobenzene	2.04E+04	MG/KG
156-59-2	1,2-cis-Dichloroethene	2.13E+03	MG/KG

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156-60-5	1,2-trans-Dichloroethene	4.30E+03	MG/KG
99-65-0	1,3-Dinitrobenzene	2.00E+02	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.00E+03	MG/KG
78-93-3	2-Butanone	9.30E+03	MG/KG
95-57-8	2-Chlorophenol	1.06E+03	MG/KG
108-10-1	2-Methyl-4-pentanone	7.00E+02	MG/KG
50-29-3	4,4'-DDT	1.10E+02	MG/KG
106-44-5	4-Methylphenol	1.10E+03	MG/KG
67-64-1	Acetone	2.10E+04	MG/KG
309-00-2	Aldrin	6.4	MG/KG
5103-71-9	Alpha Chlordane	110	MG/KG
7429-90-5	Aluminum	210000	MG/KG
120-12-7	Anthracene	6.40E+04	MG/KG
7440-36-0	Antimony	8.50E+01	MG/KG
11097-69-1	Aroclor-1254	4.30E+00	MG/KG
7440-38-2	Arsenic	6.40E+01	MG/KG
7440-39-3	Barium	1.50E+04	MG/KG
65-85-0	Benzoic Acid	8.50E+05	MG/KG
7440-41-7	Beryllium	1.10E+03	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	4.30E+03	MG/KG
75-27-4	Bromodichloromethane	4.30E+03	MG/KG
75-25-2	Bromoform	4.30E+03	MG/KG
85-68-7	Butyl Benzyl Phthalate	4.30E+04	MG/KG
7440-43-9	Cadmium	2.10E+02	MG/KG
75-15-0	Carbon Disulfide	2.80E+02	MG/KG
56-23-5	Carbon Tetrachloride	1.50E+02	MG/KG
75-00-3	Chloroethane	1.60E+02	MG/KG
67-66-3	Chloroform	2.10E+03	MG/KG
7440-47-3	Chromium	1.10E+03	MG/KG
18540-29-9	Chromium-VI	6.39E+02	MG/KG
7440-50-8	Copper	7.90E+03	MG/KG
57-12-5	Cyanide	4.30E+03	MG/KG
124-48-1	Dibromochloromethane	4.30E+03	MG/KG
75-09-2	Dichloromethane	1.00E+03	MG/KG
60-57-1	Dieldrin	1.10E+01	MG/KG
84-74-2	Di-n-butyl Phthalate	2.10E+04	MG/KG
117-84-0	Di-n-octyl Phthalate	4.30E+03	MG/KG
959-98-8	Endosulfan I	1300	MG/KG
33213-65-9	Endosulfan II	1300	MG/KG
100-41-4	Ethylbenzene	4.80E-01	MG/KG
86-73-7	Flourene	8.50E+03	MG/KG
206-44-0	Fluoranthene	8.50E+03	MG/KG
5103-74-2	Gamma Chlordane	110	MG/KG
58-89-9	Gamma-BHC (Lindane)	64	MG/KG
76-44-8	Heptachlor	110	MG/KG
1024-57-3	Heptachlor Epoxide	2.8	MG/KG
110-54-3	Hexane	9.10E+01	MG/KG
78-59-1	Isophorone	4.30E+04	MG/KG
7439-96-5	Manganese	2.70E+04	MG/KG

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

Appendix M

Occurrence Reports

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

Building 40

- No occurrence reports for Building 40 have been reported to DOE since the reporting system was initiated at MCP in 1991.

Building 99

- Smoke detector alarm, false alarm (2).

ALO-DA-EGGM-EGGMAT04-1994-0009 Final Report

Occurrence Report

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

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

(Facility Manager/Designee)

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

(Originator/Transmitter)

Name: J. D. Yonko **Date:** 08/24/1994

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT04-1994-0009

Smoke Detector Alarm, Building 99

2. Report Type and Date: Final

	Date	Time
Notification:	08/12/1994	14:44 (MTZ)
Initial Update:	08/25/1994	11:05 (MTZ)
Latest Update:	08/25/1994	11:05 (MTZ)
Final:	09/07/1994	06:21 (MTZ)

3. Occurrence Category: Off-Normal

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

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

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Smoke Detector, Bldg. 99

8. UCNI?: No

9. Plant Area: Main Hill

10. Date and Time Discovered: 08/11/1994 23:58 (ETZ)

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11. Date and Time Categorized: 08/12/1994 11:00 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
08/12/1994	11:10 (ETZ)	Fred B. Holbrook	MBAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Smoke Detector Alarm, Building 99

15. Nature of Occurrence:

01) Facility Condition
H. Operations

16. Description of Occurrence:

On 8/11/94 at 2358 hours (ETZ), the Fire Department received a smoke detector alarm from Building 99, Room 109. The Fire Department immediately responded and discovered that the smoke detector had malfunctioned. The malfunctioning smoke detector was taken out of service and the head was replaced on 8/12/94 at 1230 hours (ETZ)

This Occurrence Report was reviewed by an Authorized Derivative Classifier (J. D. Yonko, Manager Facility Maintenance and Utilities) on 8/24/94 at 1230 hours (ETZ) and contains no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Weekend Shutdown

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

After the Fire Department responded and discovered the smoke detector alarm was a false alarm, the malfunctioning smoke detector was taken out of service. The smoke detector was replaced by 1230 hours (ETZ) on 8/12/94.

20. Direct Cause:

1) Equipment/Material Problem
F. Contaminant

21. Contributing Cause(s):

22. Root Cause:

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6) Management Problem
F. Other Management Problem

23. Description of Cause:

The direct cause of the occurrence is due to contamination (dirt) in the smoke detector head.

The root cause was due to a management problem, insufficient preventative maintenance. Cleaning of the area below the Building 99 computer room floor was never done since the building's construction.

24. Evaluation (by Facility Manager/Designee):

It is not uncommon for an ionizing smoke detector to malfunction as a result of dirt contamination. Areas below computer room floors are areas which readily collect dust. Due to budgeting restraints, downsizing, and priorities, sufficient resources are not available to increase annual plant wide preventative maintenance. The Building 99, Room 109 computer room subfloor will be cleaned on an "as needed" basis.

25. Is Further Evaluation Required?: No

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

1.

Clean area below computer floor, Building 99, Room 109.	
Target Completion Date: 10/30/1994	**Completion Date:** 08/31/1994

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Areas below computer room floors accumulate dust. If dust sensitive smoke detectors are located in these areas, the subfloor area should be cleaned whenever malfunctions of ionizing smoke detectors begin to occur.

31. Similar Occurrence Report Numbers:

1. None

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32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Koehler, Kathy G., Facility Manager/Designee
Date: 08/29/1994
Telephone No.: (513) 865-4886

Approved by: HOLBROOK, FRED B., Facility Representative/Designee
Date: 09/03/1994
Telephone No.:

Approved by: KUMAR, RAMENDRA, Program Manager/Designee
Date: 09/07/1994
Telephone No.: (301) 903-2865

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OH-MB-EGGM-EGGMAT04-1994-0014 Final Report

Occurrence Report

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

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

(Facility Manager/Designee)

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

(Originator/Transmitter)

Name: H. A. Robinson **Date:** 12/13/1994

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-EGGM-EGGMAT04-1994-0014

Smoke Detector Alarm - Building 99

2. Report Type and Date: Final

	Date	Time
Notification:	11/30/1994	12:20 (MTZ)
Initial Update:	12/13/1994	15:46 (MTZ)
Latest Update:	12/13/1994	15:46 (MTZ)
Final:	12/22/1994	07:02 (MTZ)

3. Occurrence Category: Off-Normal

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

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

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Building 99 - Smoke Detector Alarm

8. UCNI?: No

9. Plant Area: Main Hill

10. Date and Time Discovered: 11/29/1994 12:57 (ETZ)

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11. Date and Time Categorized: 11/29/1994 17:05 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
11/29/1994	17:05 (ETZ)	Fred B. Holbrook	DOE/MB

13. Other Notifications:

14. Subject or Title of Occurrence:

Smoke Detector Alarm - Building 99

15. Nature of Occurrence:

01) Facility Condition
H. Operations

16. Description of Occurrence:

On November 29, 1994, at 1257 hours (ETZ), the Communication Center received a smoke detector alarm for Building 99, Room 104, the ABLE Communications Center. Fire Department personnel immediately responded to the alarm. The smoke detector was located under a computer room floor in the vicinity of a Air Humidifying system, a sub-system of the Liebert Air Handling unit. Further investigation revealed that the water supply line to the humidifier pan had split and had allowed water to contact the smoke detector head. Maintenance personnel closed the valve supporting the water supply line. Fire Department personnel removed the water from the smoke detector head and reset the alarm. Fire alarm technicians were not immediately available to assess the potential damage to the smoke detector head.

At 1555 hours (ETZ), the same smoke detector alarmed a second time due to the presence of residual moisture. Fire Department personnel immediately responded. Fire alarm technicians were contacted and replaced the malfunctioning smoke detector head before close of business.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (H. A. Robinson, Classification Officer) on 12/13/94 at 1630 hours (ETZ) and contains no Classified or UCNI Information.

Mapped from ALO-DA-EGGM-EGGMAT04-1994-0014 on 02/17/1995.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Plant Operations

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

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Fire Department personnel immediately responded to the smoke detector alarms. Maintenance personnel closed the valve to the leaking water supply. Fire department personnel removed the water from the smoke detector head and reset the alarm. Fire alarm technicians replaced the malfunctioning smoke detector head after the second alarm.

20. Direct Cause:

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

21. Contributing Cause(s):

22. Root Cause:

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

23. Description of Cause:

The direct cause and the root cause of the occurrence was due to the failure of a water supply line. Water contacted the smoke detector head which caused the smoke detector to alarm.

24. Evaluation (by Facility Manager/Designee):

Preventative maintenance is performed on the Liebert Air Handling unit which supports Building 99, Room 109, on a biweekly frequency. Preventative maintenance tasks include inspection of the humidifier pan, drain and flush precipitates from the pan, and check the condition of the quartz light. There was no evidence of water leakage from the supply line at the inspection prior to the supply line malfunction.

25. Is Further Evaluation Required?: No

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

1.	Maintenance instructions for the preventative maintenance at Building 99 will be modified to specifically instruct the trades to visually inspect the copper water supply lines for leakage and/or swelling.	
	Target Completion Date: 01/30/1995	**Completion Date:** 12/19/1994
2.	Verify vibration design for the Liebert unit installation was sufficient and that appropriate type of copper tubing is used for the water supply line.	
	Target Completion Date: 02/28/1995	***Completion Date:** 03/09/1995

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

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None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Equipment failures will be minimized when proper preventative maintenance is performed.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Koehler, Kathy G., Facility Manager/Designee
Date: 12/13/1994
Telephone No.: (513) 865-4886

Approved by: HOLBROOK, FRED B., Facility Representative/Designee
Date: 12/19/1994
Telephone No.:

Approved by: KUMAR, RAMENDRA, Program Manager/Designee
Date: 12/22/1994
Telephone No.: (301) 903-2865

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Appendix N

PRS Information

Recommendation pages are not generated for PRSs that require Further Assessment (FA) or that are unbinned. Accordingly, there are no recommendation pages included for PRSs 106, 211, and 212.

MOUND PLANT
PRS 107, 108, 109
Former Tank Sites

RECOMMENDATION:

PRSs 107, 108, and 109 are the location of three historical underground gasoline storage tanks. In December 1986 a truck wheel punctured one of the tanks. All three tanks were removed. Soil around the tanks was excavated, spread out at a stockpile location to volatilize the gasoline, and disposed at the Mound construction spoils area.

In 1996, an investigation was designed and implemented to determine if gasoline-related contaminants remained in or around the tank cavities. Three out of the five sample results indicate that both Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) are below State Fire Marshal action levels implemented under Bureau of Underground Storage Tanks Regulations (BUSTR). The other two samples had laboratory detection limits above the action level for Benzene. However, since the other constituents of gasoline are below their action levels in these two samples, it is expected that the actual Benzene level is also below its action level. In addition, Benzene was not detected in a water sample collected within a telecommunications pit adjacent to soil boring 02.

Therefore, NO FURTHER ASSESSMENT is recommended for PRSs 107, 108, and 109.

CONCURRENCE:

DOE/MEMP: Arthur W. Kleinrath, Remedial Project Manager — 12/17/97 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 12/17/97 (date)

OEPA: Brian K. Nickel, Project Manager — 12/17/97 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 2/12/98 to 3/16/98

☒ No comments were received during the comment period.

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

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MOUND PLANT
PRS 332
WASTE OIL TANK - BUILDING G (Used engine oil)

RECOMMENDATION:

Potential Release Site (PRS) 332 was identified because of it being described as the Building G (garage) waste oil tank (tank 261). The tank was installed in 1947 as part of the Building G construction. It was installed approximately two feet below grade and had a capacity of 550 gallons. The purpose of the tank was to contain used oil from routine oil change maintenance of government vehicles. In 1965, the area between Building G and Building W (warehouse) was enclosed. Based on historical accounts, from personnel present during construction, it was indicated the tank was removed.

There is no history of radioactive processes being performed near the tank location or in adjacent buildings and the 1983 Radiological Site Survey resulted in no detections in excess of the guideline criteria for plutonium (25 pCi/g) or thorium (5 pCi/g).

Soil gas sampling was conducted in 1994 with two samples taken to the north of Building G. The maximum concentration of Volatile Organic Compounds (VOCs) detected was 1,1,1 TCA at 2,983 ppb as compared to the calculated guideline criteria of 173,400 ppb.

Therefore, NO FURTHER ASSESSMENT is recommended for PRS 332.

CONCURRENCE:

DOE/MB: Arthur W Kleinrath 11/27/96
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 12/3/96
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 12/7/96
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 1/30/97 to 3/6/97

☒ No comments were received during the comment period.

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

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P

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: **Buildings 40 & 99 Demolition**

2. WORK PACKAGE NUMBER: SMPP/TFV-36035-00 | **REQUESTOR:** Steve Davis

3. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Buildings 40 and 99. Using heavy equipment to demolish the facilities (including concrete structure, slab, foundation, exterior stairwells, and sidewalks), 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.

Asbestos abatement, safe shutdown, and utility isolation activities will have already been completed prior to demolition.

4. WORK LOCATION: **Buildings 40 & 99 Demolition**

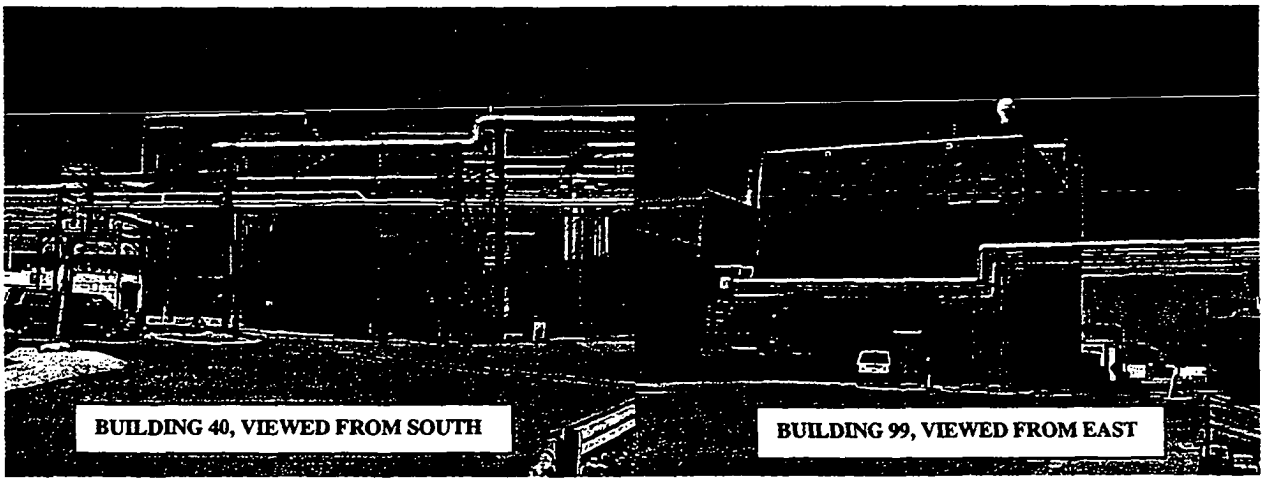
5. WORK PACKAGE PHASES:	LIST OF APPENDICES:
1. Site Information	A – PHA/JSHA
2. Site Preparation	B – Pre-job Briefings/Job Status Log
3. Building Demolition Sequence of Work	C – Drawings/Sketches
4. Site Remediation & Demobilization	D – Miscellaneous (RWP, USQ, etc.)
	E – Post-job Conference/Lessons 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
7. Crane
8. Larger capacity Jaw Set/Shear/Pulverizer
9. 3rd member for excavator arm/larger class of excavator

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



7. DETAILED WORK STEPS:

7.1 SITE INFORMATION

7.1.1 Building 40

Building 40 was constructed in 1968, as a one-story building containing 2,560-ft^2. The building was constructed to be the "Printing Services Facility." In the mid-1980s an addition on the southern side of this building increased the square footage of the Building by over 9,500 ft^2, increasing the total square footage to 12,227-ft^2. The addition, unlike the original one story building, is a three story (including a utility penthouse room) structure.

The original 40' by 64' building is set on footers that extend approximately 2'-8" below the base of the 6" floor slab. There is also a 2'-8" footer underlying the eastern interior wall that separates the restrooms and labs along the eastern wall from the rest of the former print shop area. The footers are reinforced with 2 - #6 rebar, continuous, horizontally, top and bottom and #4 x 2' 0" steel dowels, 24" O.C., vertically.

The exterior walls are 8" reinforced block (#5 rebar at 48" O.C.), with a brick veneer. Two-inch foam insulation is used along the insides of the footers, as a vapor barrier. The slab rests upon 5" of gravel fill. The roof structure is steel I-beam joist type, with standing-seam steel decking, and a built-up membrane.

Where the new addition adjoins the original section of Building 40, a 2'-6" footer was set, and a new block wall was constructed against the existing wall. New structural columns were placed in front of the new block wall. In the addition, #5 dowels, at 32" O.C. hold the block wall to the footer.

The first floor slab is 6" reinforced concrete (#4 rebar 12" spacing). Footers for the addition are typically 3'-6" deep, with varying horizontal and vertical reinforcing bar, as well as rebar that is tied into the walls above.

Building 40 abuts the South end of Building 99 and located to the West of G Building.

7.1.2 Building 99

Building 99 was constructed in 1989, as the "Security Operations Facility." The total floor space of Building 99 is 11,412-ft^2 and consists of four stories with the fourth story being a penthouse. The "as-constructed" square footage of Building 99 has remained unchanged since construction (no major alterations or additions have been constructed on Building 99).

The slab for the ground or first floor of Building 99 is a 5" thick reinforced concrete slab, with 6 x 6 - W2.9 x W2.9 welded wire fabric reinforcing set 2" from the top. The slab is "thickened" by 1", extending between 1'-6" to 2' out from the footer, under what appear to be load bearing walls. The fill under the slab is described as"4 inches minimum compacted granular fill."

The upper floor slabs are reinforced with #5 and #6 rebar at 8" O. C., in most locations. The floor reinforcement rebar is at the top and the bottom of the slabs.

The exterior walls are constructed of 8" thick, rebar reinforced, concrete, using #4 rebar at 10" spacing (E.W.) in a horizontal and vertical configuration. The rebar matrix overlaps approximately 18 inches at the point where two pieces of bar section meet. The base of the wall is anchored by #4 rebar at 10" O.C.

The base of the exterior walls includes a 6" brick ledge that holds the 6" brick veneer that covers the exterior of the building.

The floor slabs for the upper floors are anchored into the reinforced walls with #4 rebar at 12" O.C., often shaped in an "L" set into the wall.

Concrete beams and footers, reinforced with #4, #6, and/or #8 rebar at varying spacings, are used to support the structure. See sheet 03006 (S6), *Beam Column & Footing Details* of AYE 309900, facility/construction drawing for Building 99, provided in Appendix C.

Building 99 is sited South of the "A" Building medical wing and to the Northwest of G Building.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Neither Building 99 or 40 is listed as a historic structure with the Ohio of Historic Preservation Office (OHPO). No mitigative documentation package is required.

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

7.3 SPECIAL EQUIPMENT PROCUREMENT

Due to the height and manner of construction of the structures to be demolished in this workpackage, special/additional equipment may need to be procured through purchase or lease. As needed, generation of equipment specifications and the procurement of equipment should be coordinated between the Project Foreman, Project Manager, and Purchasing personnel.

7.4 SITE PREPARATION & MOBILIZATION

7.4.1 Site Access Control

Access to the work zone boundary will be controlled using fencing and/or with barricade tape as directed by the Project Foreman. Proper signage will be placed at all access points to the 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 Buildings OSE and A occupants shall be maintained, if personnel are still occupying these Buildings.

IMPORTANT NOTE: **During demolition activities, when Building 99 and 40 structures are being collapsed, access to C-Lot trailers will be restricted. C-Lot trailers are NOT to be occupied during these demolition activities.**

7.4.2 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.

7.4.3 Clear Area and Mark/Protect Utility Equipment

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

Using a GPS unit, obtain and record the coordinates for field grates and manhole covers.

Mark and protect fire hydrant south of Building 40. Mark and/or protect utility equipment with visible stakes. Cover field grates with covers/sheeting for silt protection. Protect Sanitary Sewer and utility access manholes with steel plates, as needed.

Construct/assemble a protection barrier between the south side of Building 40 and the east-west running utility stanchion line (stanchion line is located to the south of building 40). See sketch depicting stanchion barrier location in Appendix C.

Construct/assemble a protection barrier between the north side of Building 99 and Building A Medical wing (Medical wing is located to the north of building 99). See sketch depicting Building A barrier location in Appendix C.

Utilizing Interlock Box Connectors, stack one additional layer of Sea-Land Containers on top of the existing Sea-Land Containers located on the west side of Buildings 99 and 40. This will serve to protect the trailers, located in C-Lot, from falling debris during demolition activities. See sketch depicting Sea-Land Container barrier location for C-Lot trailers in Appendix C.

7.4.4 Temporary Utilities

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

7.4.5 Temporary Facilities

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

7.4.6 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.

7.4.7 Staging Areas

The project site is of sufficient size to be used as a staging area for materials needed/generated. In preparation for the demolition of Buildings 99 and 40, rubble from other site demolition areas may be staged at the present sites of Buildings W, GW, and G to facilitate erection of a debris ramp and platform around Buildings 99 and 40.

7.5 PRELIMINARY ACTIVITIES AND VERIFICATIONS

IMPORTANT

7.5.1 Verify all Building Safe Shutdown Activities have been completed per SMPP/TFV-36033

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

7.5.2 Verify all Building Utility Isolation Activities have been completed per UA-36036, FTS - 36036-00

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

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

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

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

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

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

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

7.5.6 Notify Gary Weidenbach X 3241 - PoC Building A occupants of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

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

7.5.7 Notify Allen Upshaw X 4894 - PoC Powerhouse occupants of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

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

7.5.8 Notify Mark Tibbs X 4734 - PoC Building OSE occupants of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

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

7.6 BUILDING DEMOLITION SEQUENCE OF WORK

7.6.1 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.

IMPORTANT NOTE: During demolition activities, ensure structure collapse is directed away from Building A, the utility stanchions south of Building 40, and the C-Lot trailers.

7.6.1.1 To facilitate demolition activities, a third member excavator with attachments such as a shear/concrete pulverizer, will be utilized.

7.6.1.2 Using heavy equipment, demolish the brick face of the original one-story section of Building 40. Demolish the concrete block walls of the one-story section of Building 40, leaving debris in-place as part of the ramp to allow equipment to reach the higher levels of Building 99.

7.6.1.3 Using heavy equipment, obtain demolition debris, staged from the demolition of Buildings W, GW, and G, and place debris along the east face of the multi-story section of Building 40 until the debris ramp (see sketch, Appendix C) is of sufficient height that the excavating equipment/shear can safely reach the penthouse level of Building 40.

7.6.1.4 Using heavy equipment, demolish the exposed brick face and concrete block walls of the multi-story section to expose the superstructure of Building 40. Continue demolition of Building 40 to weaken the upper structure to allow upper section to collapse onto lower levels for demolition. Remove and stage debris from Building 40, as needed, to facilitate construction of a ramp for demolition of Building 99 and to allow further demolition of Building 40, down to the slab.

7.6.1.5 Using the staged debris and debris from Building 40, construct a ramp on the south and east faces of Building 99, allowing Heavy-Duty equipment to reach the top stories of Building 99. Demolish the exposed brick face

and concrete walls as necessary to expose superstructure column lines of Building 99. In areas where concrete structure walls support building floors, concrete walls will be removed, leaving sufficient wall sections at column lines to support floors. Collapse each succeeding bay of Building 99, weakening and collapsing the structure, until demolition of the structure is complete.

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

Note: The progression of the building demolition 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), 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, perform LOTO to de-energize electrical power source. This circuit must be re-energized each evening when demolition is complete for that day.

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

CAUTION HAZARD: Struck by moving equipment.

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

WARNING NOISE HAZARD: Wear hearing protection while running 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

7.6.2 Slab and Foundation Demolition

IMPORTANT: Exercise caution when demolishing and removing slab and foundation/footers 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 99 and 40:

- Sanitary System Line running under and along the west east and north sides of the foundation of Buildings 99 and 40.
- Storm Sewer System lines running under and along the south and east sides of the foundation of Building40 and the north side of Building 99.
- Domestic/potable water line running along the south and east sides of and under Building 40's foundation/slab.

- Fire Protection System lines running along the south end of Building 40 and along the east side of Building 99 and 40.
- Power Supply lines on the north and east sides of Building 99 and the south and east sides of Building 40.
- Communications lines running under south end of Building 40's slab.
- Signal lines running along the east side foundation of Buildings 40 and 99.

IMPORTANT: The northeast corner of the Building 99 sidewalk is located over several point PRSs. Several petroleum storage tanks were located at these locations. If soil staining or petroleum-like fumes/odors are noted during foundation/footer excavation, contact IH (Chris Ahlquist X3737 or 608-8203) or Safety (Doug Hanson X3769 or 608-8008) and Environmental Compliance (Ron Paulick X4080).

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

7.6.2.2 Isolate/plug/cap Sanitary and Storm Sewer lines as depicted in Sketches 1 and 2, respectively. Methods of Isolation/plugging of lines and isolation points will ultimately be determined in the field as conditions dictate.

7.6.2.3 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.

7.6.2.4 Remove and transport to Mound's spoils area, offsite disposal, or rail spur as directed by Waste Management PoC, any remaining debris that was staged to support demolition of Building 99 and 40.

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: Confined Space Entry; asphyxiation hazard. Obtain & follow Confined Space Entry Permit (ML-6311); follow requirements of MD-10286, Op M11. Use trained, authorized personnel; coordinate entry with Safety/IH.

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

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

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

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

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

CAUTION HAZARD: Struck by moving equipment.

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

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

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

7.7 Site Remediation & demobilization

7.7.1 Remove Temporary Protection Structures

7.7.1.1 Remove protection from fire hydrant south of Building 40 and fire prevention water lines. Remove covers/sheeting from field grates.

7.7.1.2 Disassemble protection barrier that was erected between the south side of Building 40 and the east-west running utility stanchion line.

7.7.1.3 Disassemble protection barrier that was erected between the north side of Building 99 and Building A Medical wing.

7.7.1.4 Unstack and remove the additional layer of Sea-Land Containers on top of the existing Sea-Land Containers, located on the west side of Buildings 99 and 40.

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

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

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

7.7.2 Grading, Seeding, & Mulching

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

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

7.7.2.3 Remove any unnecessary remaining sediment/storm water control fences/grate covers, straw bales and sandbags.

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

7.7.2.5 Fabricate/install new storm sewer grating/access covers due to topography changes made during demolition/restoration activities (Ex.:. the open Storm Sewer System grating that was part of the sidewalk north of Building 99).

7.7.3 Demobilize Construction Equipment

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

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: 7/17/03	Phone: 4436	
Superintendent: M.M. [illegible]	Date: 08/04/03	Phone: 3866	
Foreman: Jim Harris	Date: 8/04/03 / /	Phone: 3880	
Project Eng. Mgr: R.C. Rawlinson	Date: 7/23/03	Phone: 4220	
Industrial Safety & Hygiene: [illegible]	Date: 8-7-03 8/28/03	Phone: 3769 3737	
Rad. Controls: [illegible]	Date: 7/24/03	Phone: 3714	
ES&C: Ronald [illegible]	Date: 8/28/03	Phone: 4080	
Waste Mgmt: [illegible] for Carol Anderson	Date: 8/28/03	Phone:	
Bldg. Mgmt: Gary L. Weidenbach	Date: 9/03/03	Phone: 3241	
Classification: N/A	Date: / /	Phone:	
Other:	Date: / /	Phone	

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

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

Brief Explaination This work effort will have no effect upon a Nuclear or Radiological facility.

USQ Trained Person: Gary L. Weidenbach Date: 09/03/03 Phone: 608-8207

11. AUTHORIZATION SIGNATURE:

Project Manager: [illegible] Date: 9/3/02 Phone: 608-8236

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 304000 – Bldg. 40 construction drawing (original one-story building section)	5		
AYC 304001 – Bldg. 40 Addition construction drawings	1		
AYE 309900 – Bldg. 99 construction drawing	A		

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 A & Powerhouse needs to be protected and alternative access provided for A, Powerhouse, and OSE.
Blockages/obstructions (Identify)	YES	2	Roadway around bldgs. 99 & 40
Confined space entry (permit)	Yes	1,2,3	[CONFINE] Obtain & follow Confined Space Entry Permit (ML-6311); follow requirements of MD-10286, Op M11. Use trained authorized personnel; coordinate entry with Safety/IH.
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	2	Fire hydrant 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	YES	2, 4	Setting Sea-Land Container in place/removing – only as needed.
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	Setting Sea-Land Container in place/removing
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	YES	2,4	Erect barriers to protect A Bldg. Med. Wing & stanchions south of Bldg. 40
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 A & Powerhouse needs to be protected and 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 electric/steam/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	2	[ASBEST] Asbestos remediated as part of Safe Shutdown Package or separately as a sub-contract.
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 99 & 40
Notifications:	RAPCA Notification for Asbestos	N/A	N/A	Asbestos abatement completed prior to demolition.
	RAPCA Notification for Demolition	Yes	3	Required 10 business before beginning demolition activity
	Emergency Spill Response Notification	Yes	3	Call 911 or 854-4040, have spill kit at job site.
	Other			

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 6,200 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 northwest of Buildings 99/40 & south of A Building. 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 A Building first floor hallway and/or basement. See map per Appendix C.

APPLICABLE LESSONS LEARNED – See Appendix E

Table 1 Airborne Contaminant Protection Methods

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Building Demolition	• Applying dust control materials such as water and surfactants
Hauling Material and Equipment	• Reducing vehicle speeds (<20 mph) • 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

Project/Activity: **DEMOLITION OF BUILDINGS 99 AND 40.**

Name: **Stephen Davis, X4436**

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

JOB SAFETY AND HEALTH ANALYSIS FORM

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV – 40/99- 36035

DATE: 07/17/03	_X_ NEW ___ REV	BUILDING: 40 & 99	JOB: Demolish Building 40 & 99
DEPARTMENT/COMPANY: SMPP-TFV Project/CH2M Hill Mound, Inc.			SECTION: N/A

OCCUPATIONS: Heavy Duty Operators, Demolition Tech's, Demolition Crafts, & Electricians.
Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety

SIGNATURES

ORIGINATOR: Steve Davis	Stephen Davis 7/17/03
REVIEW/REV: Safety IH	8/28/03
REVIEW/REV: Foreman	M. M. Lowenberg 08/04/03
REVIEW/REV: Bldg Mgr	Gary S. Weidenbach 09/22/03
APPROVED: Project Manager	9/3/03

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 - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on 1B - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given 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.	-Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel.
1a. Site Access Control	Struck by equipment, debris	-Once the work area is defined, only authorized personnel are permitted in the construction perimeter. -Unescorted, non-project and non-emergency personnel must have acceptance of the SMPP/TFV Project Manager for entry.
1b. Emergency egress/access	Blocked access	-Emergency access to the work zone will be maintained to the extent possible. Bldgs A, OSE, & Powerhouse emergency egress will be maintained for occupants.

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
1c Install Temporary Protection Structures for hydrant, potable, firewater line penetrations, A Bldg. area & stanchions south of Bldg. 40.	Lifting /twisting strain. Cuts and abrasions. Slip trips and falls. Running into fire hydrants, manhole covers, or grates over field drains	-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. -Mark/protect fire hydrant south of bldg. 40, fire and potable water lines and other utility equipment with wooden boxes, visible stakes, and/or colored flags. -Cover field grates to protect.
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 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. -Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9
2b. Stacking/removing Sea-Land containers: overhead lifting using crane/hoisting, manlift, forklift, and other rigging equipment	Struck by moving equipment. Struck by dropped equipment. Potential for pinching/crushing of hands, etc. Falling from elevated work area.	-Initiate Hoisting/Rigging permit. Implement applicable sections of M10508 -Wear hard hat, safety glasses, safety shoes, gloves, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Utilize fall protection, as necessary, per Op M8 of MD 10286. Use properly trained personnel for manlift & hoisting & rigging operations.
2c. 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).

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Rev. 0
07/17/03

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2d. *Working in excessive heat/cold*	*Heat Stress/Cold Stress*	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings.
2e. 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.
2f. Slab removal	Strike underground utilities Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5. -Coordinate in-process Rad Surveys with Rad Techs.
2g. Sanitary & Storm Sewer Isolation	Asphyxiation, Confined space	- Obtain & follow Confined Space Entry Permit (ML-6311); follow requirements of MD-10286, Op M11. Use trained authorized personnel; coordinate entry with Safety/IH.
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 from A Bldg. Area & stanchions south of Bldg. 40. Remove protective barriers from hydrant, potable, and firewater lines penetrations.	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.

02498 60

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: **Buildings 40 & 99 Demolition**

2. WORK PACKAGE NUMBER: SMPP/TFV-36035-00

[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: Buildings 40 & 99 Demolition

2. WORK PACKAGE NUMBER: SMPP/TFV-36035-00

Revision	Reason	By	Date

Appendix B

JOB STATUS LOG

JOB STATUS LOG

1. WORK PACKAGE TITLE: **Buildings 40 & 99 Demolition**

2. WORK PACKAGE NUMBER: SMPP/TFV-36035-00

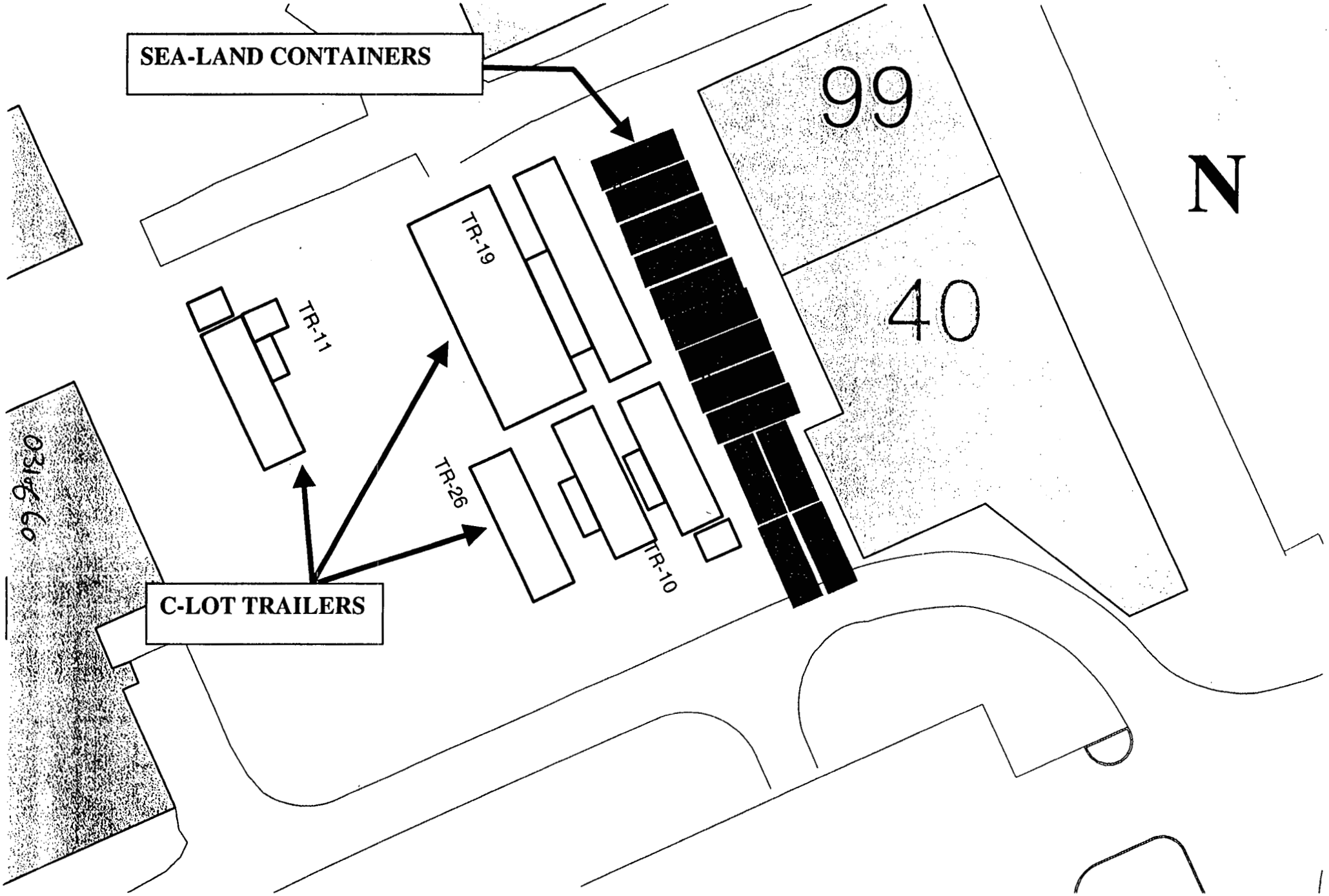
DATE	TIME	WORK PKG. SECTION	% Complete	BY	STATUS

0296 60

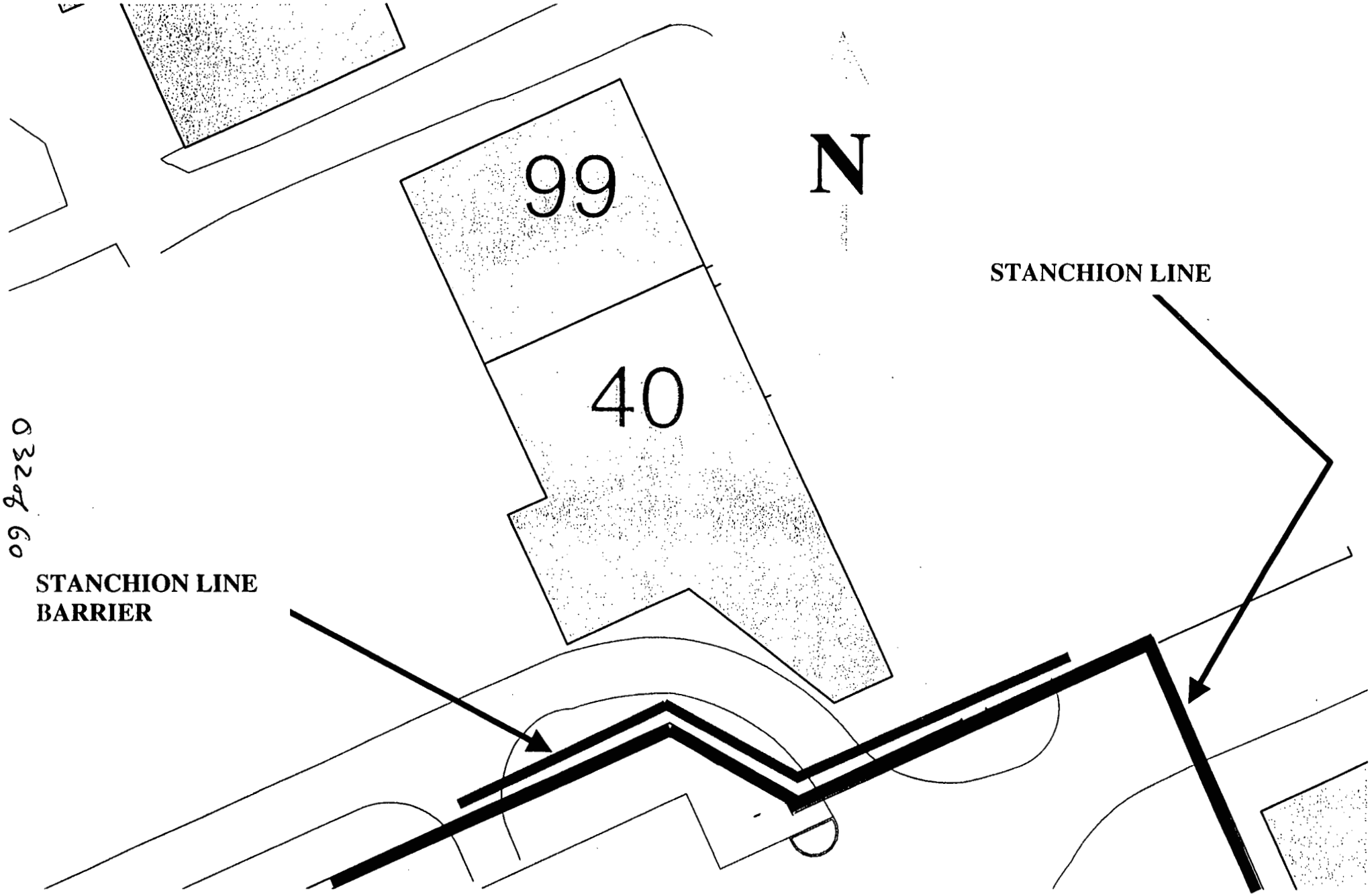
Appendix C

DRAWINGS/SKETCHES

- Structural and Mechanical Drawings -Foundation Plan, Wall Sections, Floor Plans, and Mechanical Deta
    - AYC 304000 – Bldg. 40 construction drawing (original one-story building section)
    - AYC 304001 – Bldg. 40 Addition construction drawings
    - AYE 309900 – Bldg. 99 construction drawing
- Buildings 40 & 99 Surrounding Underground Utilities Vista Map
- Evacuation Assembly Area/Take Shelter Area Sketch
- Other Vista Maps
    - Demolition Barriers for Building A, C-Lot Trailers, Stanchion South of Building 40
    - Sanitary Sewer System Lines
    - Sketch 1 - Sanitary Sewer Isolation
    - Storm Sewer System Lines
    - Sketch 2 – Storm Sewer Isolation
    - Domestic Water Lines
    - Underground Fire Protection Lines
    - Underground Power Supply Lines
    - Underground Signal & Communications Lines
    - PRS Point Sites
    - Historic Tanks
    - URMAs
    - Monitoring Wells
    - Demolition Ramp
    - Aerial View

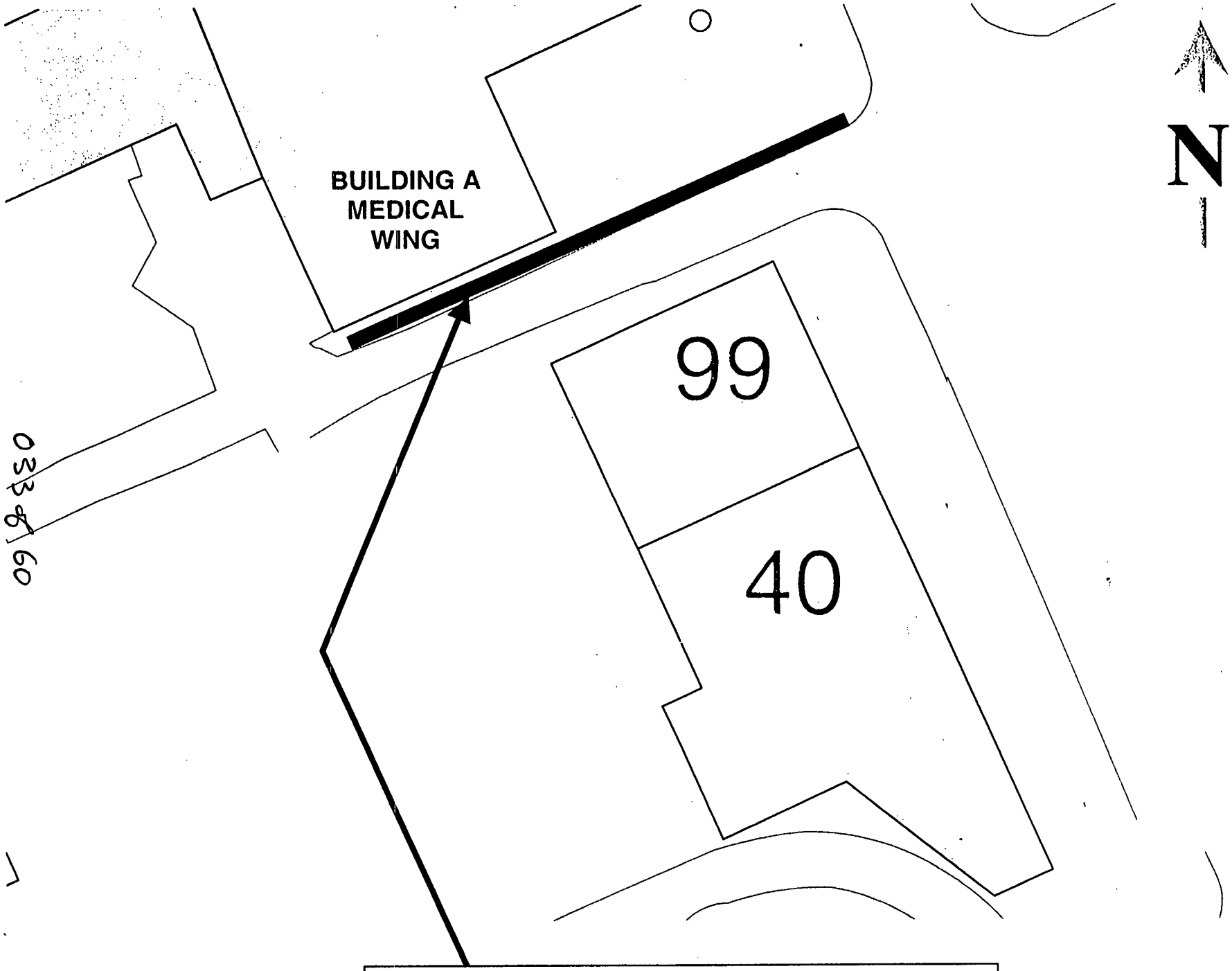


SEA-LAND CONTAINER DEMOLITION DEBRIS BARRIER FOR C-LOT TRAILERS

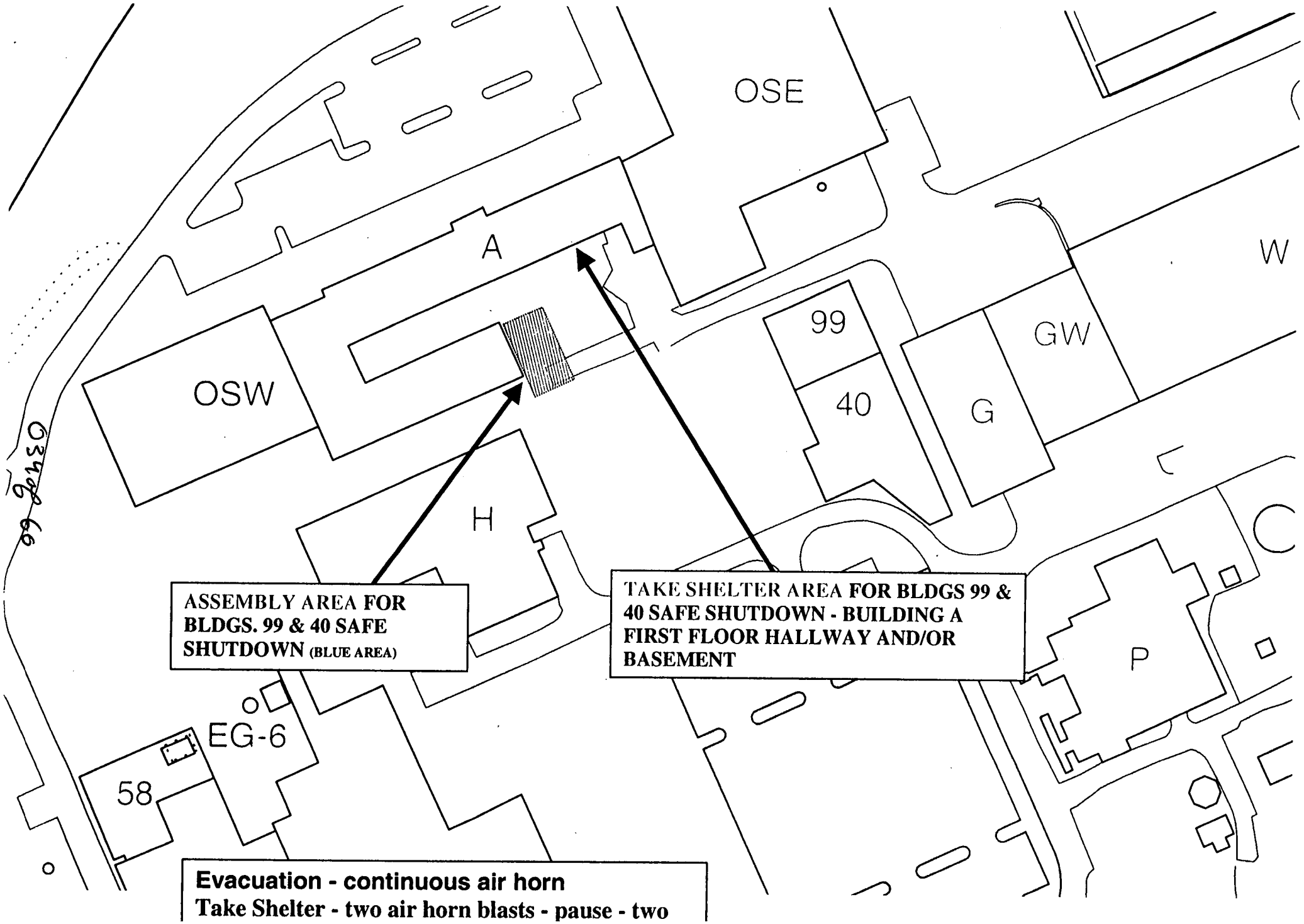


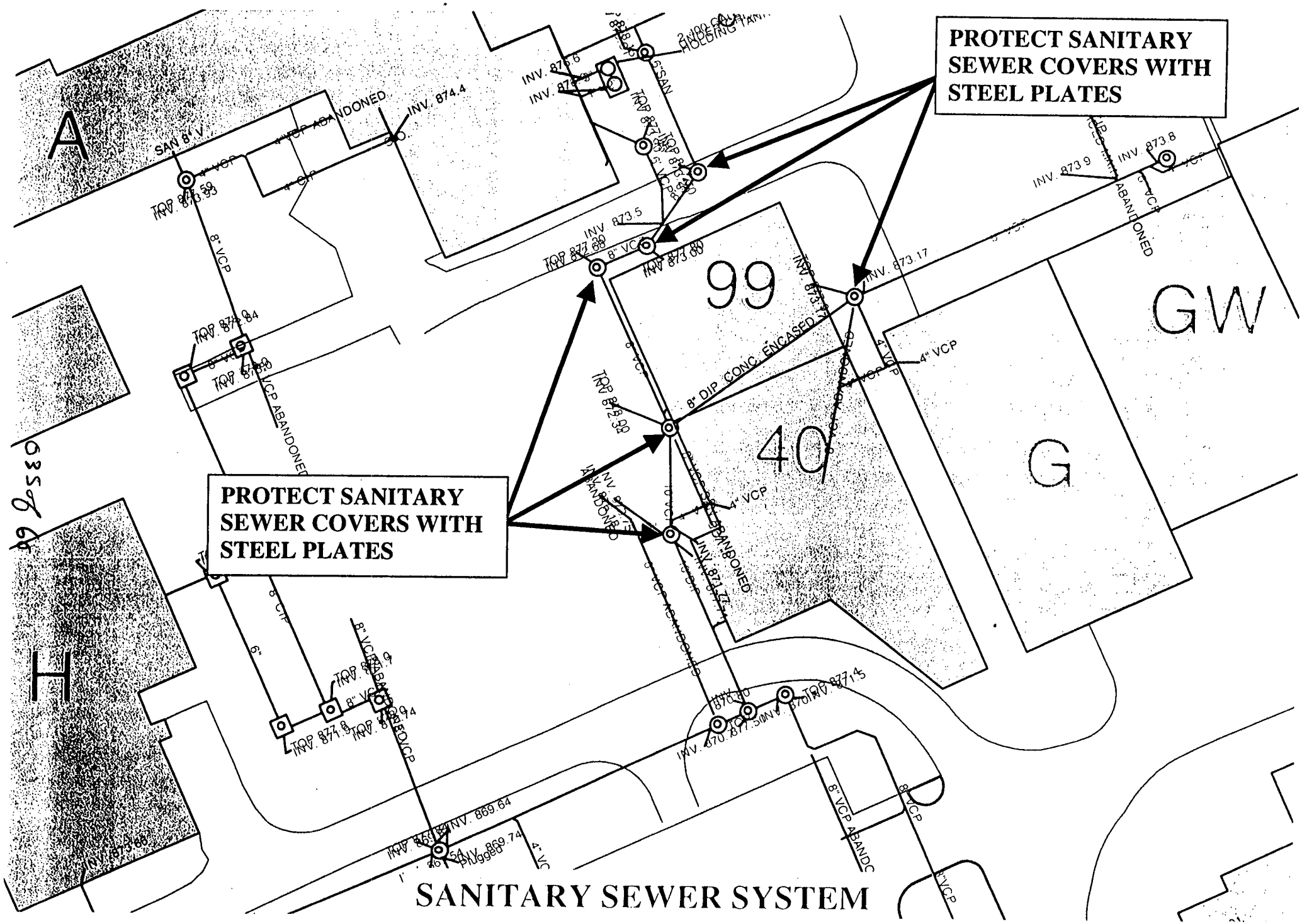
SOUTH STANCHION LINE DEMO BARRIER

032 of 60



BUILDING A DEMOLITION DEBRIS BARRIER

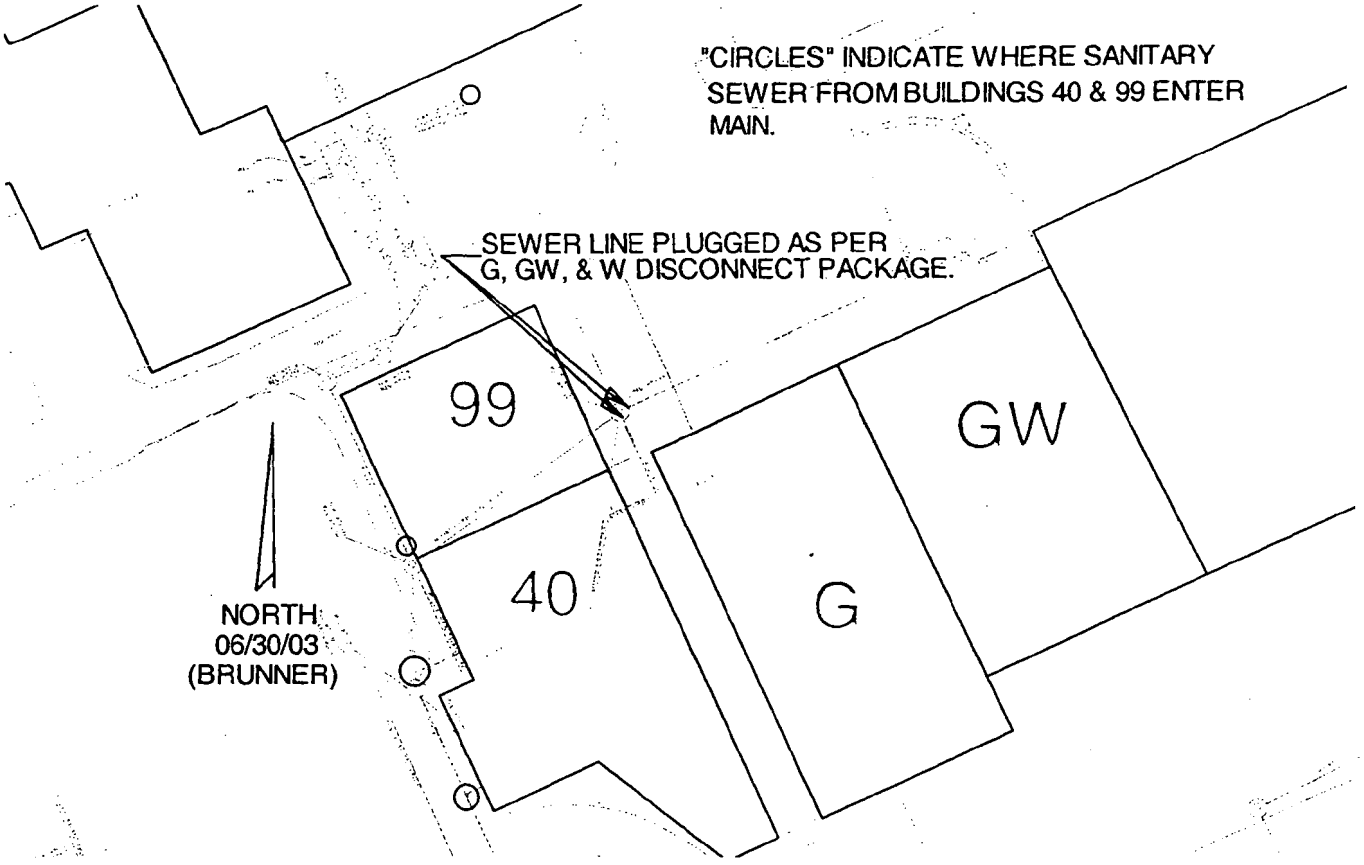

OSE
A
W
99
GW
OSW
40
G
H
C
P
EG-6
58
ASSEMBLY AREA FOR BLDGS. 99 & 40 SAFE SHUTDOWN (BLUE AREA)
TAKE SHELTER AREA FOR BLDGS 99 & 40 SAFE SHUTDOWN - BUILDING A FIRST FLOOR HALLWAY AND/OR BASEMENT
Evacuation - continuous air horn
Take Shelter - two air horn blasts - pause - two



SANITARY SEWER SYSTEM

SANITARY SEWER ISOLATION:

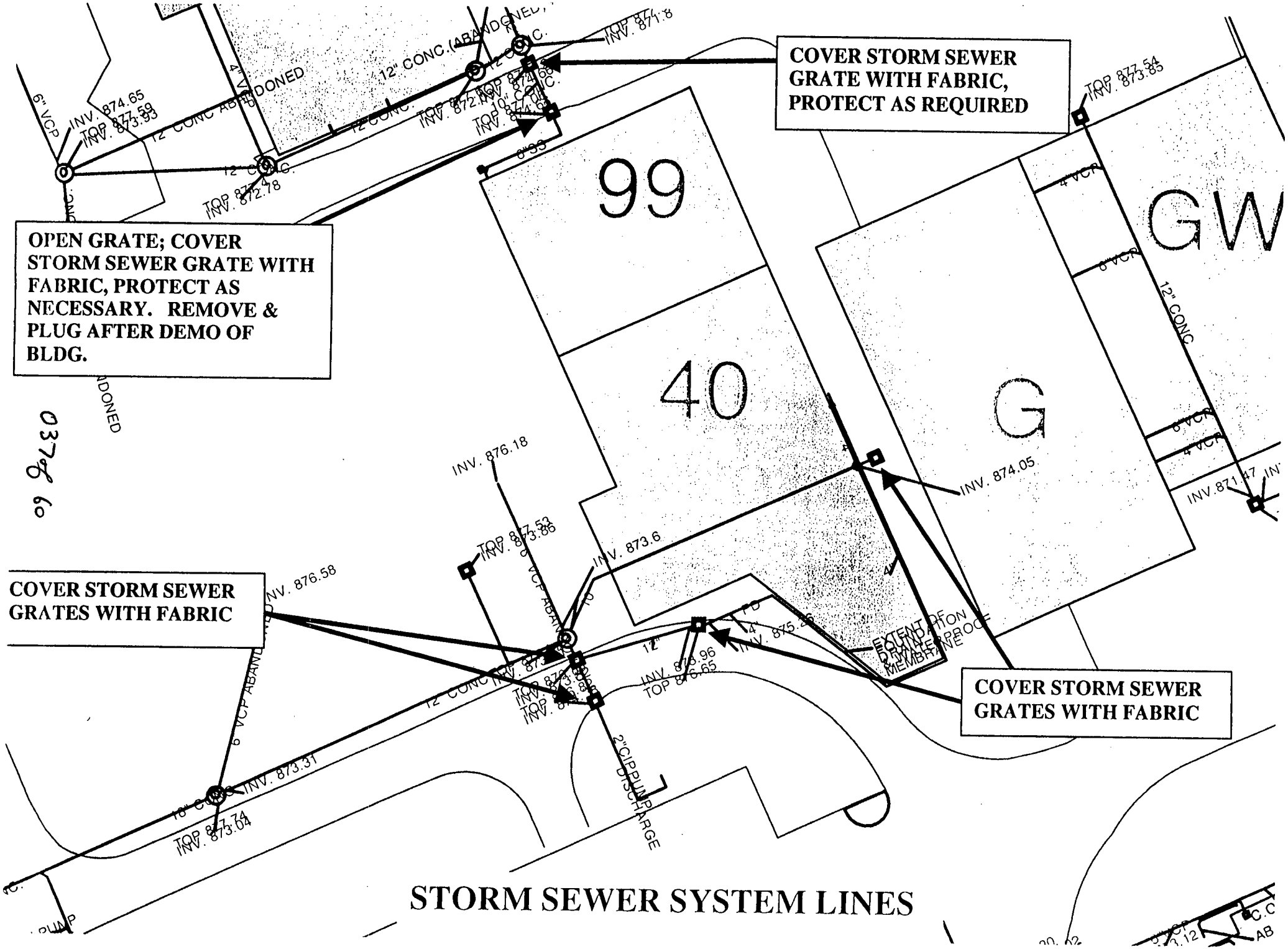
This section provides information to isolate the sanitary sewers from Buildings 40 and 99.



SKETCH 1: SANITARY SEWER LINES FROM BLDGS 40 & 99

Note that sanitary sewer lines exiting Buildings 40 & 99 do not enter the main sewer line via a manhole. Also, the main sewer line that travels north and south is extremely close to the footprint of the respective buildings. Because of the sewer lines location, seal the sewer lines after the buildings are demolished.

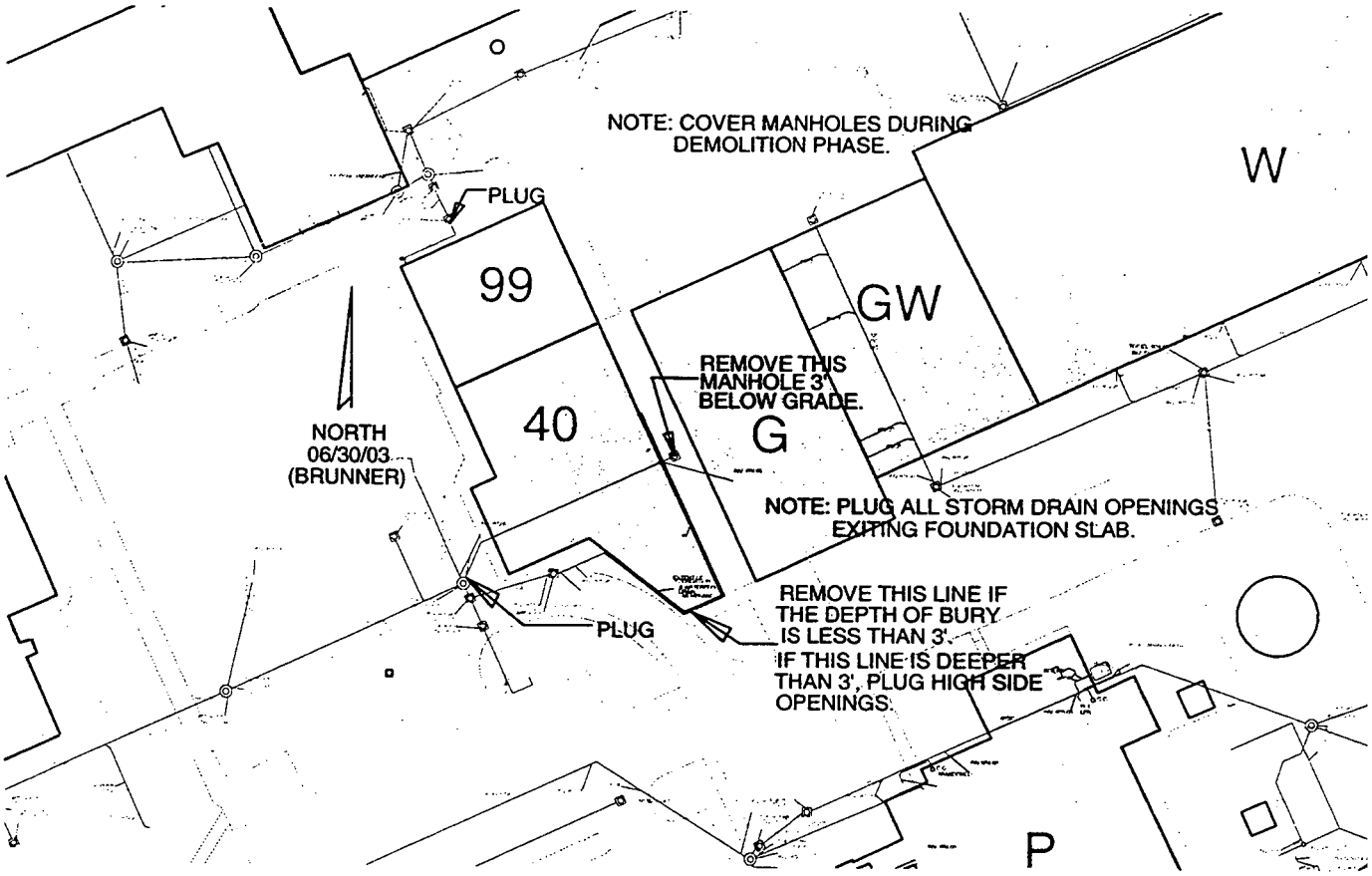
The depth of the lines leaving the buildings will determine how the lines are plugged. If any sewer line is deeper than 3-feet, excavate on the inside of the foundation wall and cap the lines. If the sewer lines are less than 3-feet, remove the lines as part of the foundation footer. Cap the lines on the exterior side of the removed foundation wall.



STORM SEWER SYSTEM LINES

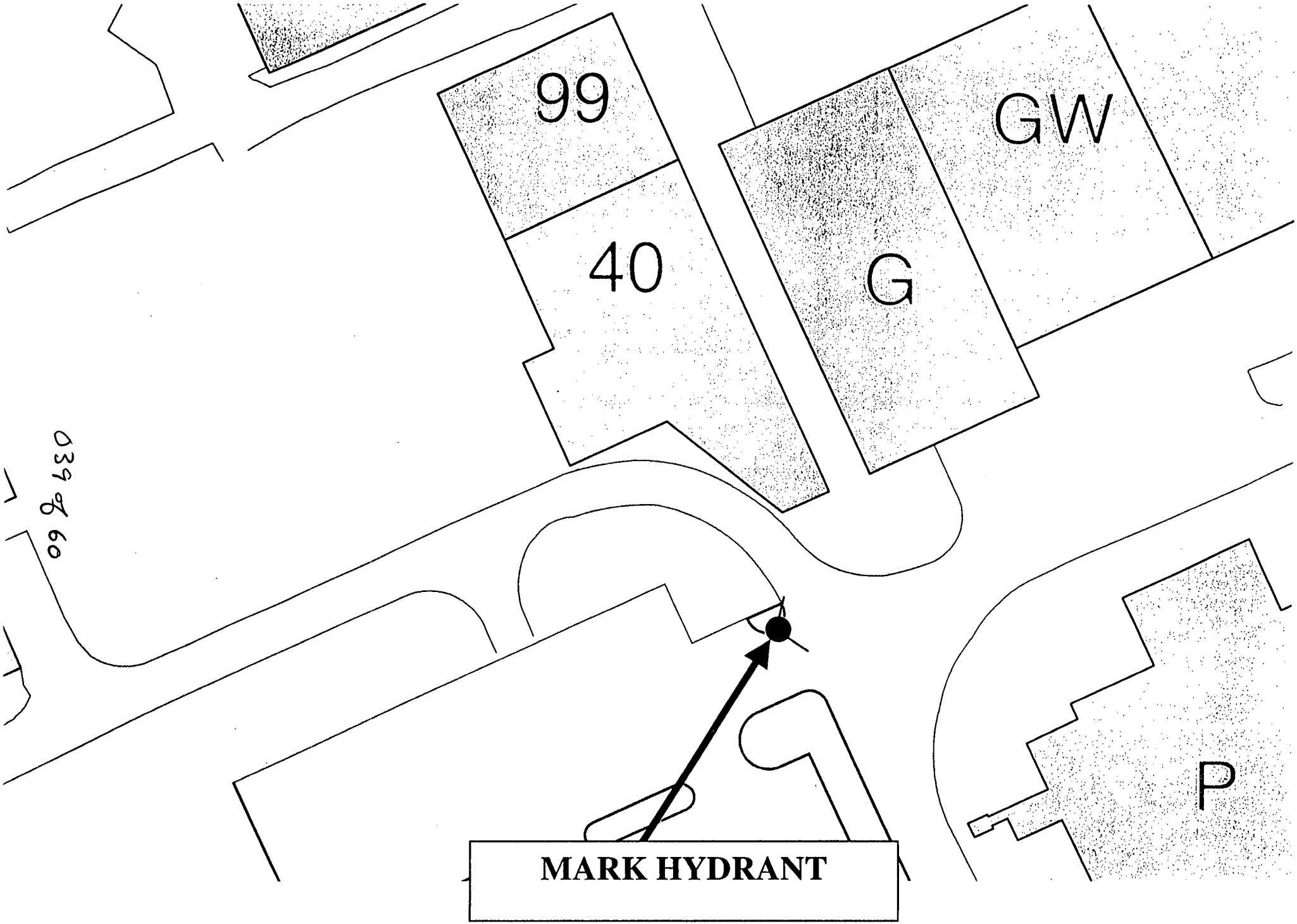
STORM SEWER ISOLATION:

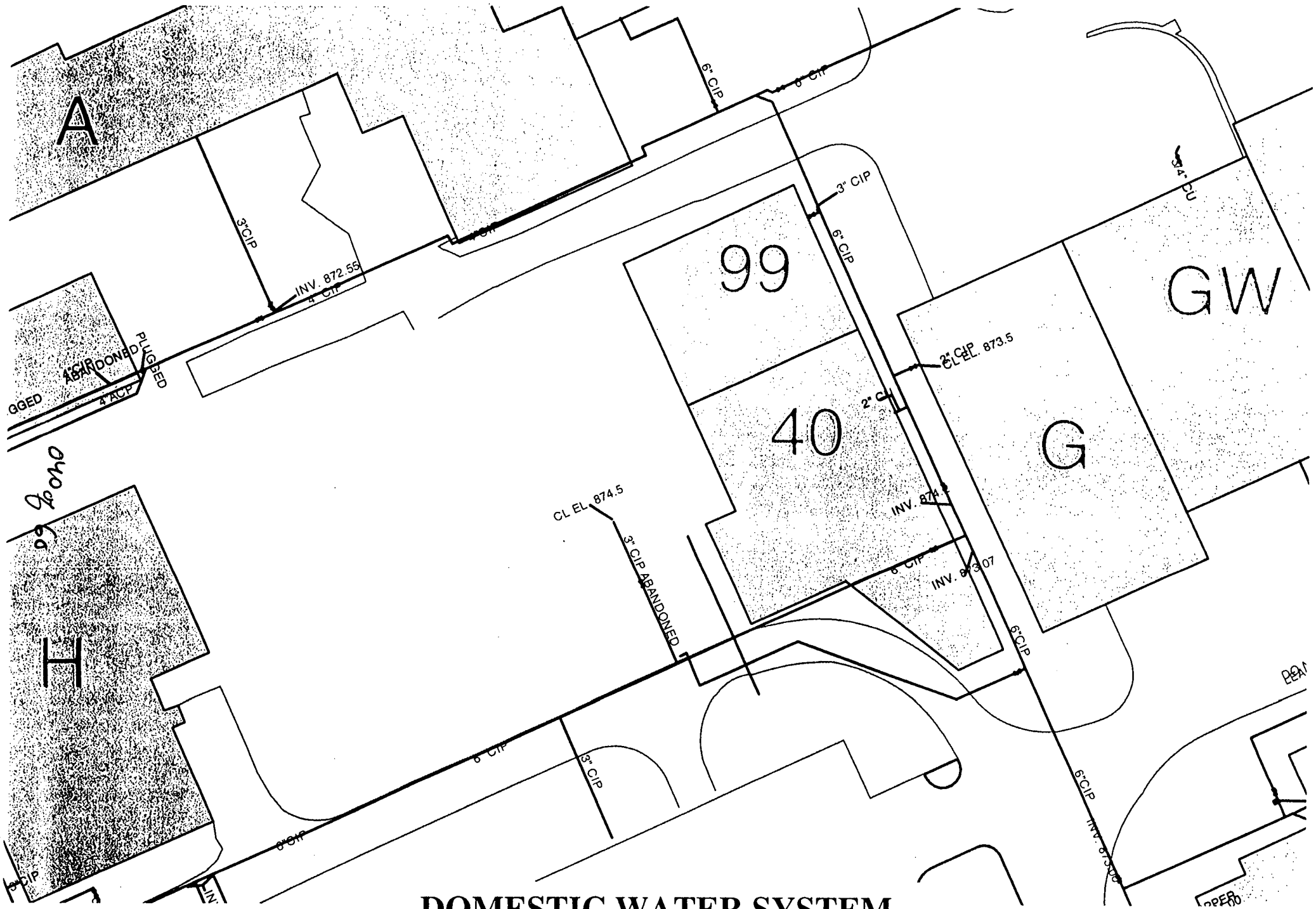
This section provides information to isolate the storm sewers from Buildings 40 and 99.



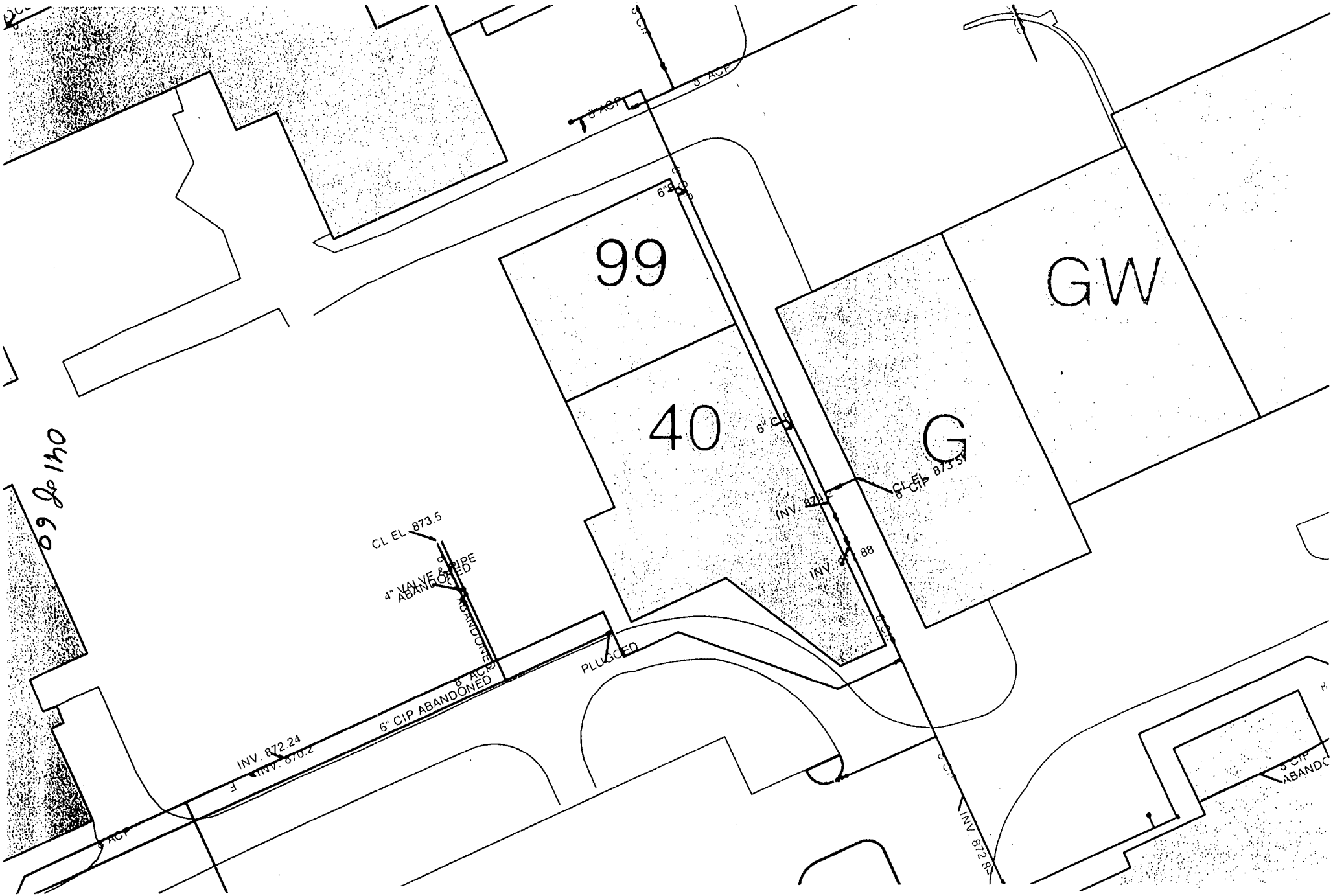
SKETCH 2: STORM SEWERS – BLDGS. 40 & 99

The instructions noted on Sketch 2 details the storm sewer isolations.

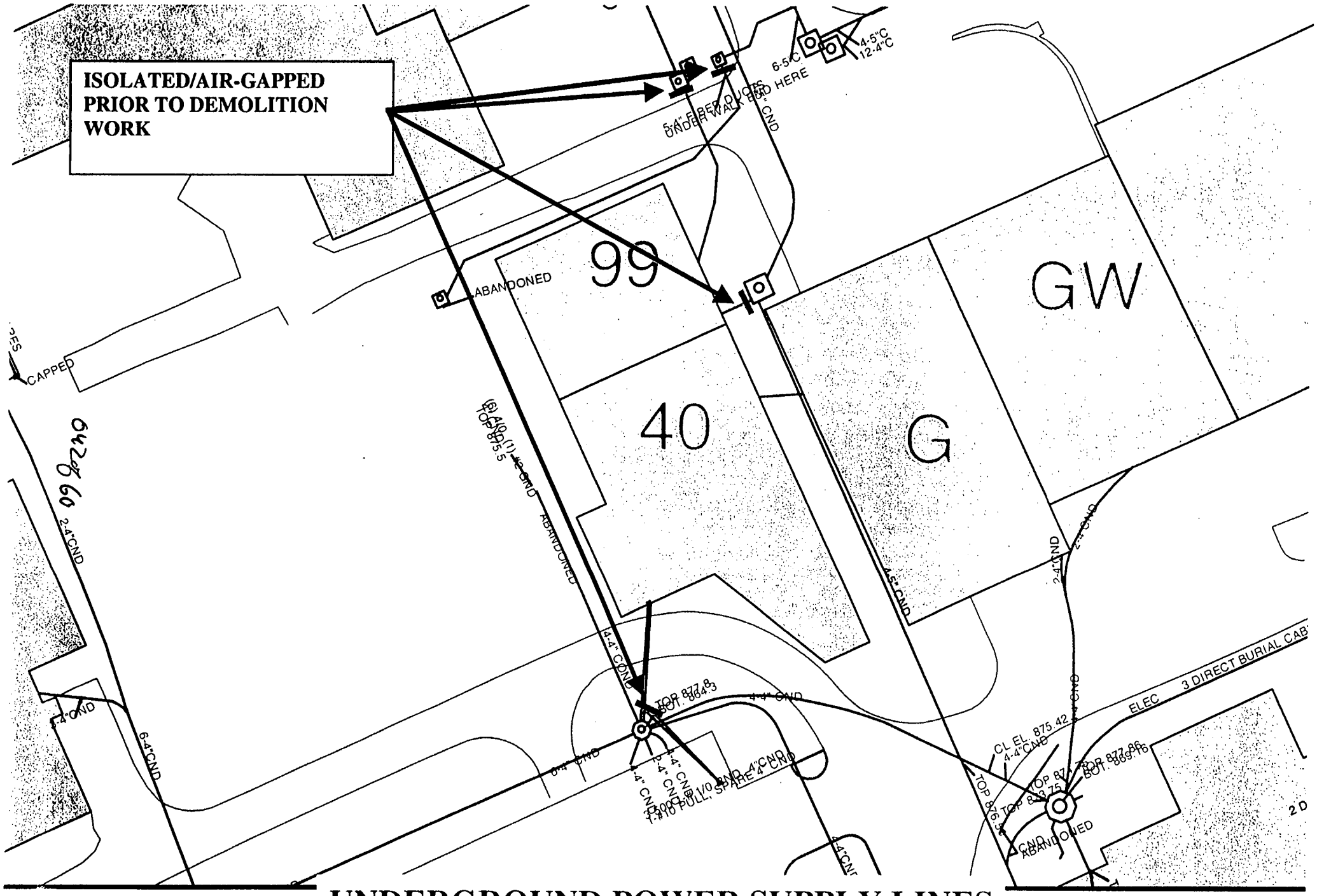

99
40
GW
G
P
039 8 60
MARK HYDRANT



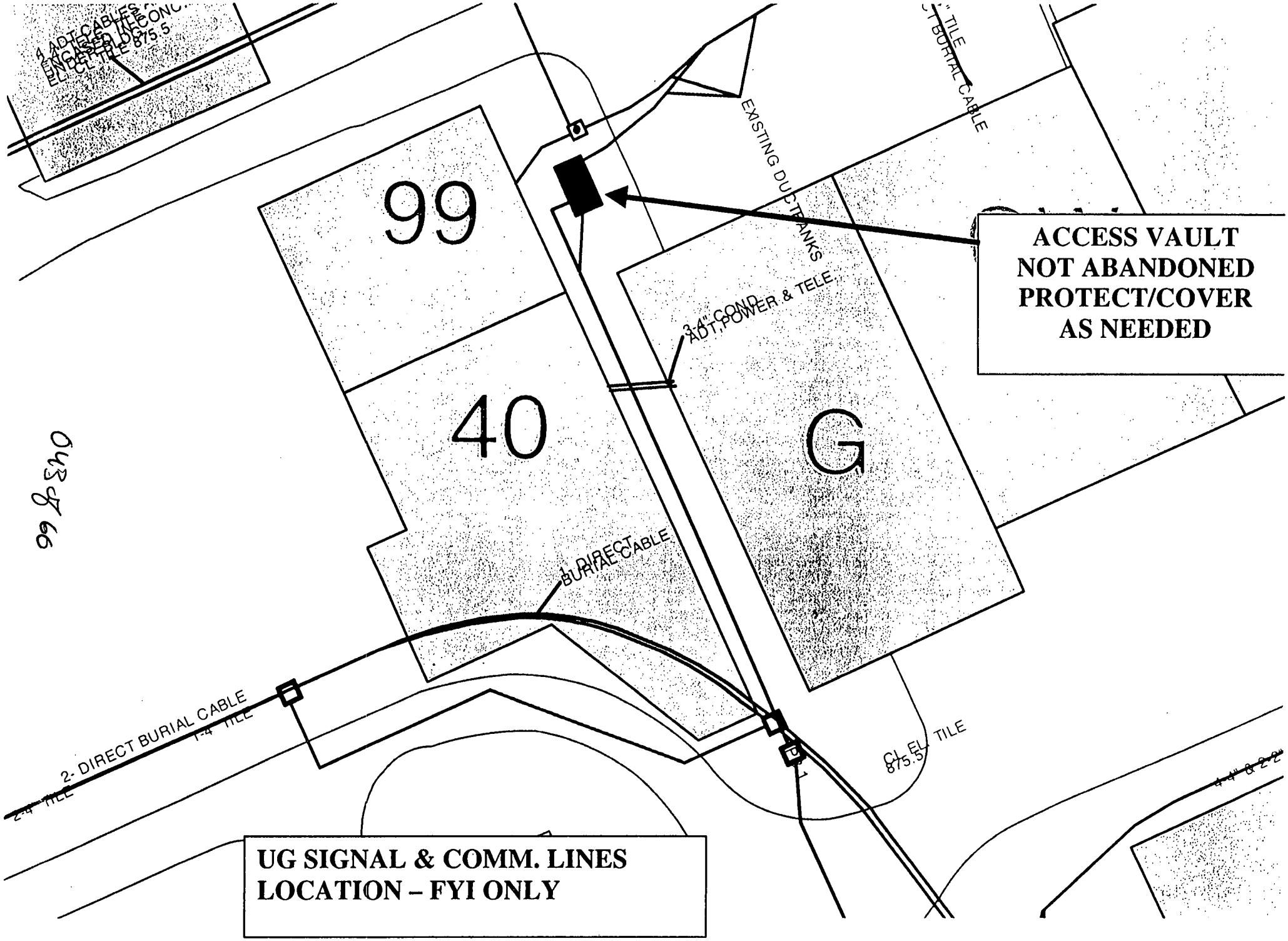
DOMESTIC WATER SYSTEM

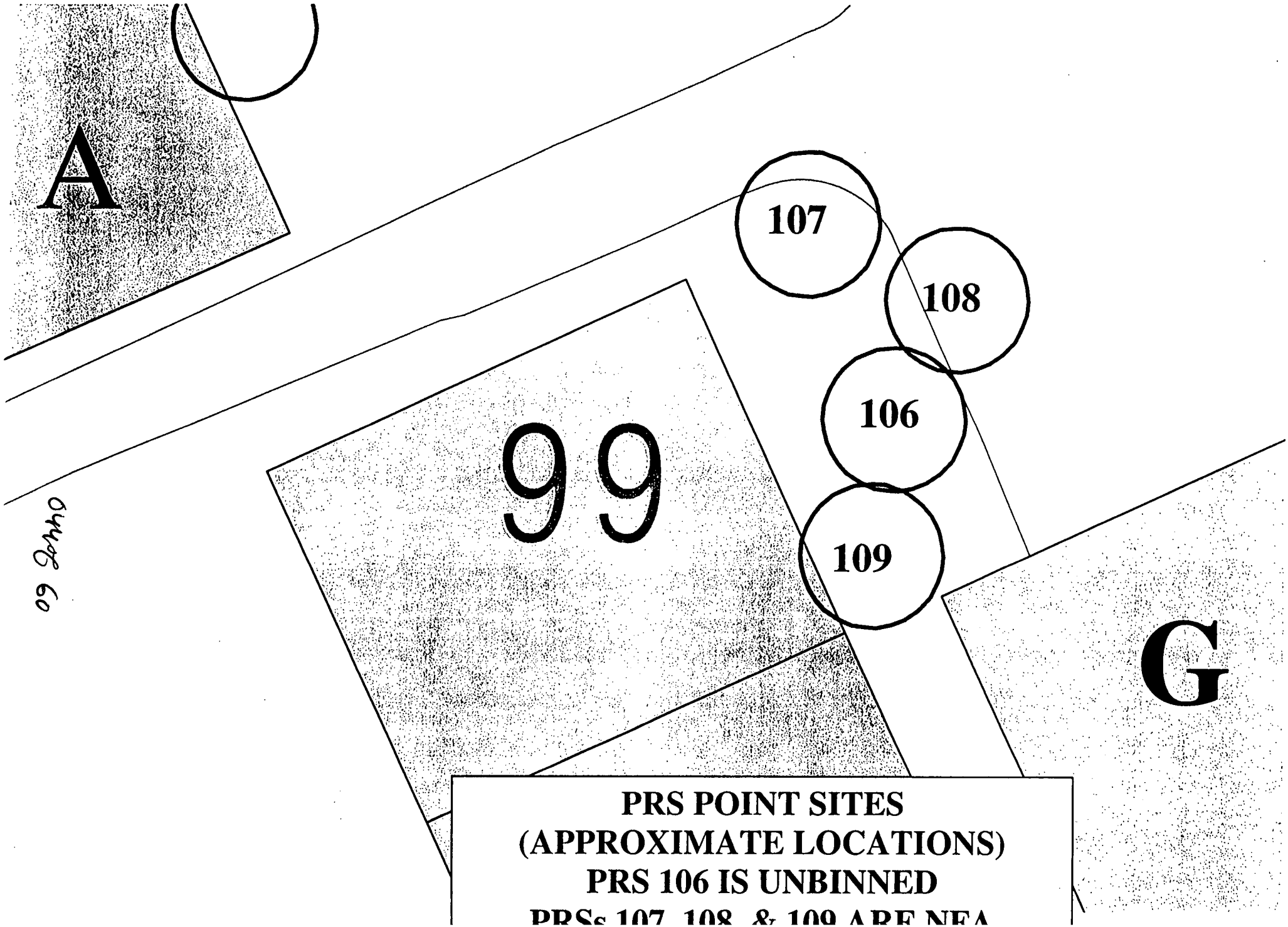


UNDERGROUND FIRE PROTECTION LINES



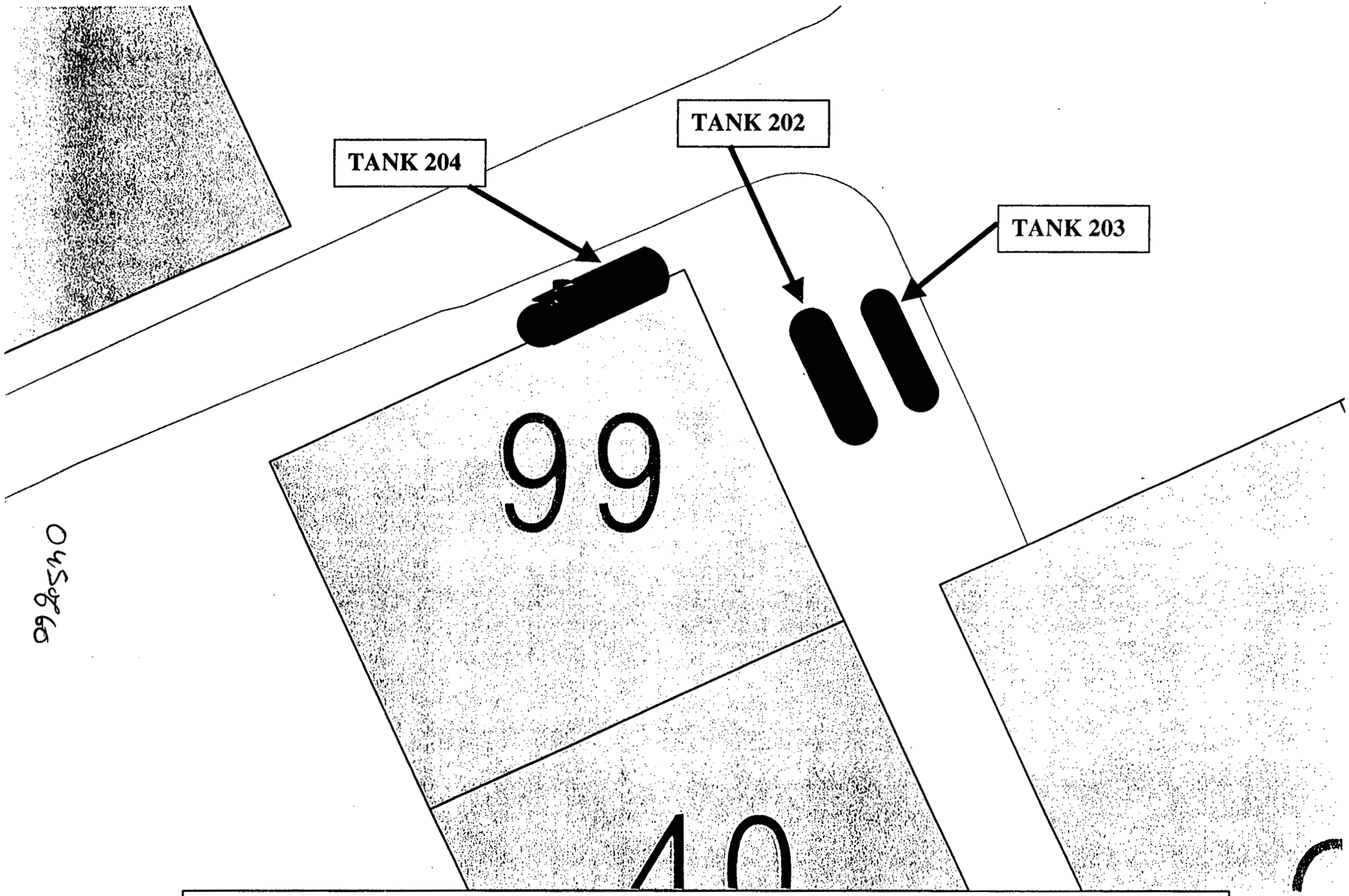
UNDERGROUND POWER SUPPLY LINES


99
40
G
EXISTING DUCTBANKS
3-4" COND.
ADT, POWER & TELE.
1-DIRECT
BURIAL CABLE
2- DIRECT BURIAL CABLE
1-4" TILE
2-4" TILE
CL EL TILE
875.5
ACCESS VAULT
NOT ABANDONED
PROTECT/COVER
AS NEEDED
UG SIGNAL & COMM. LINES
LOCATION – FYI ONLY

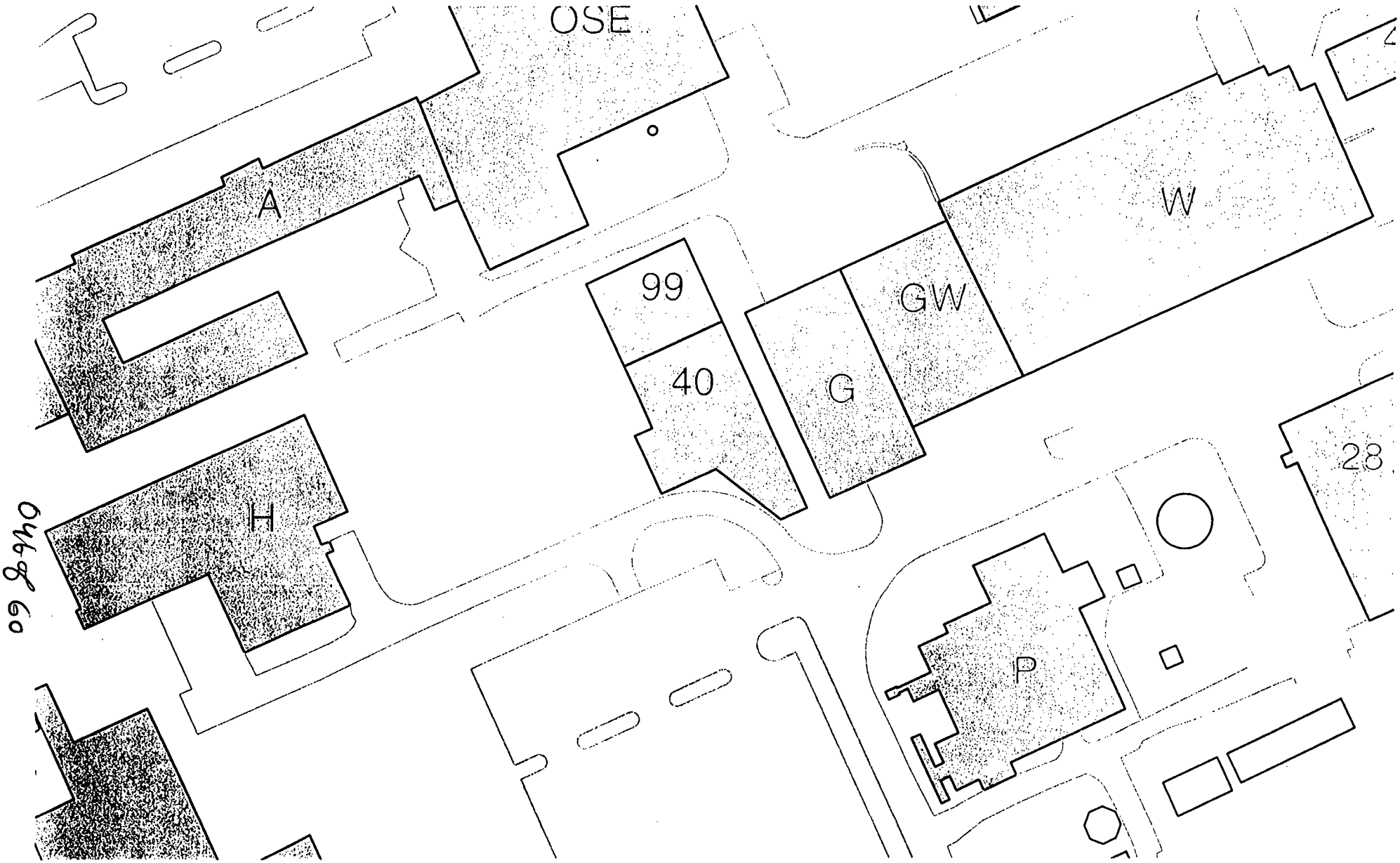


PRS POINT SITES
(APPROXIMATE LOCATIONS)
PRS 106 IS UNBINNED
PRSs 107, 108, & 109 ARE NFA

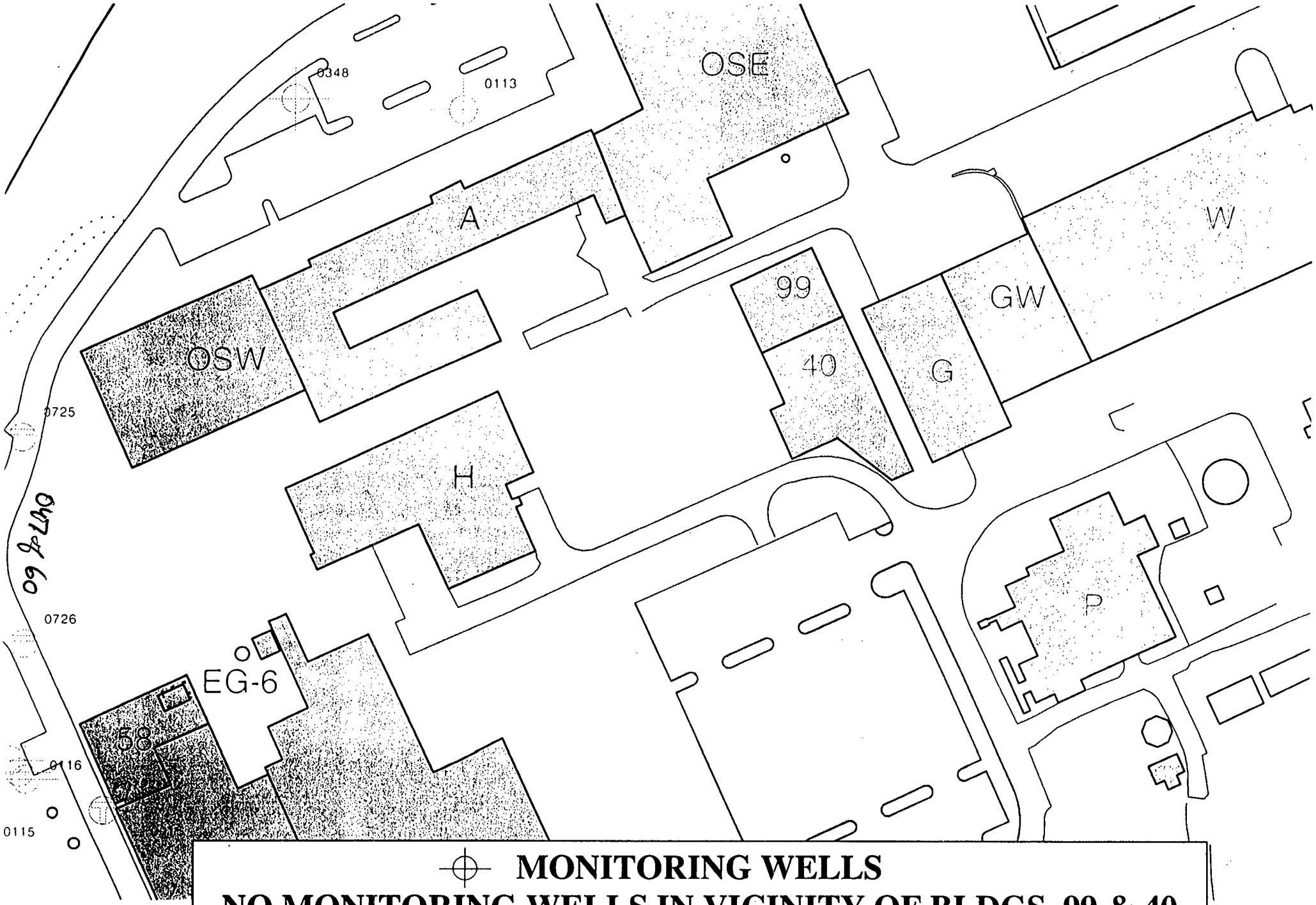
Page 60



HISTORIC TANK LOCATIONS
(REMOVED – ASSOCIATED WITH PRS 106, 107, 108, & 109)
FOR YOUR INFORMATION ONLY

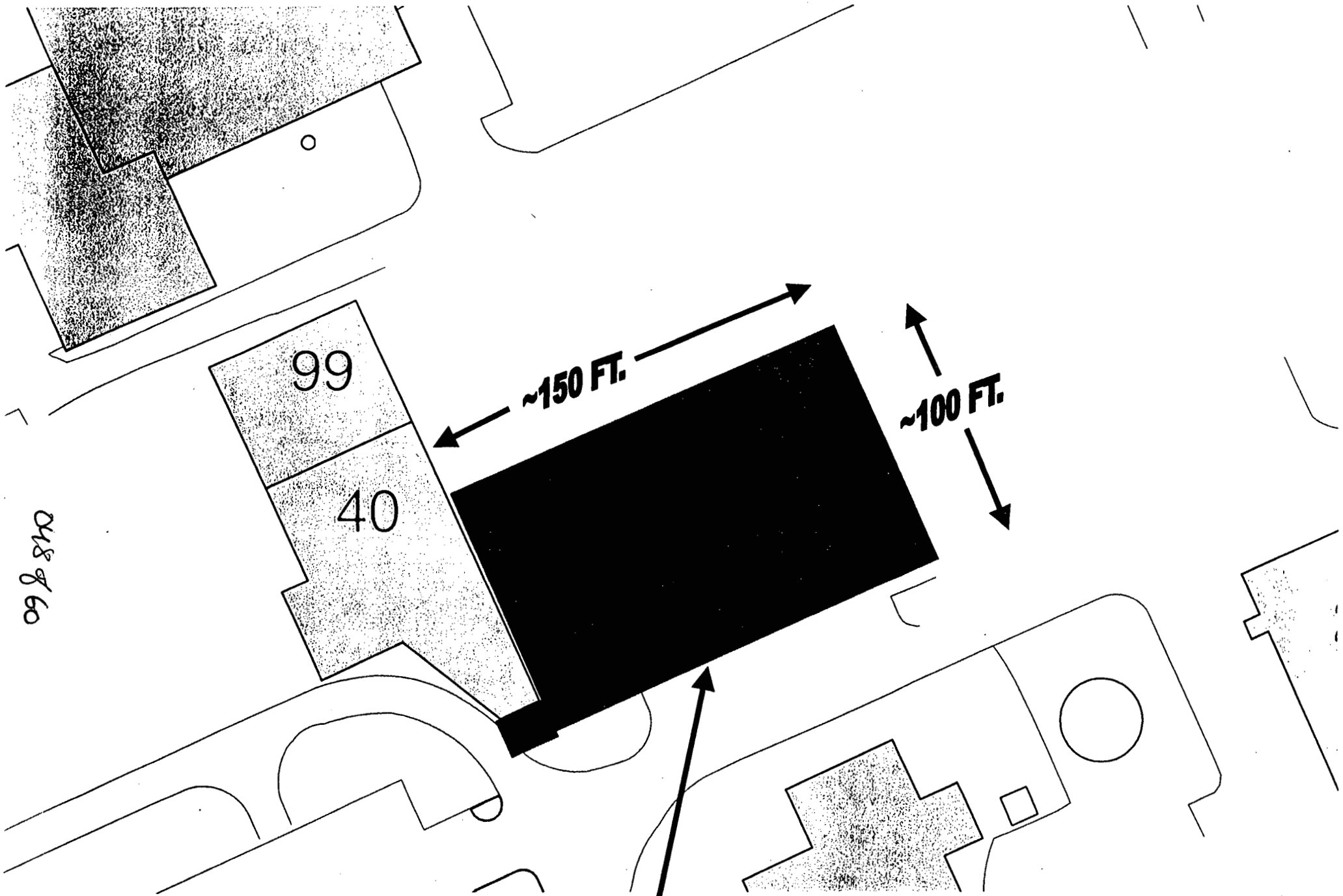


URMAs (none in area)

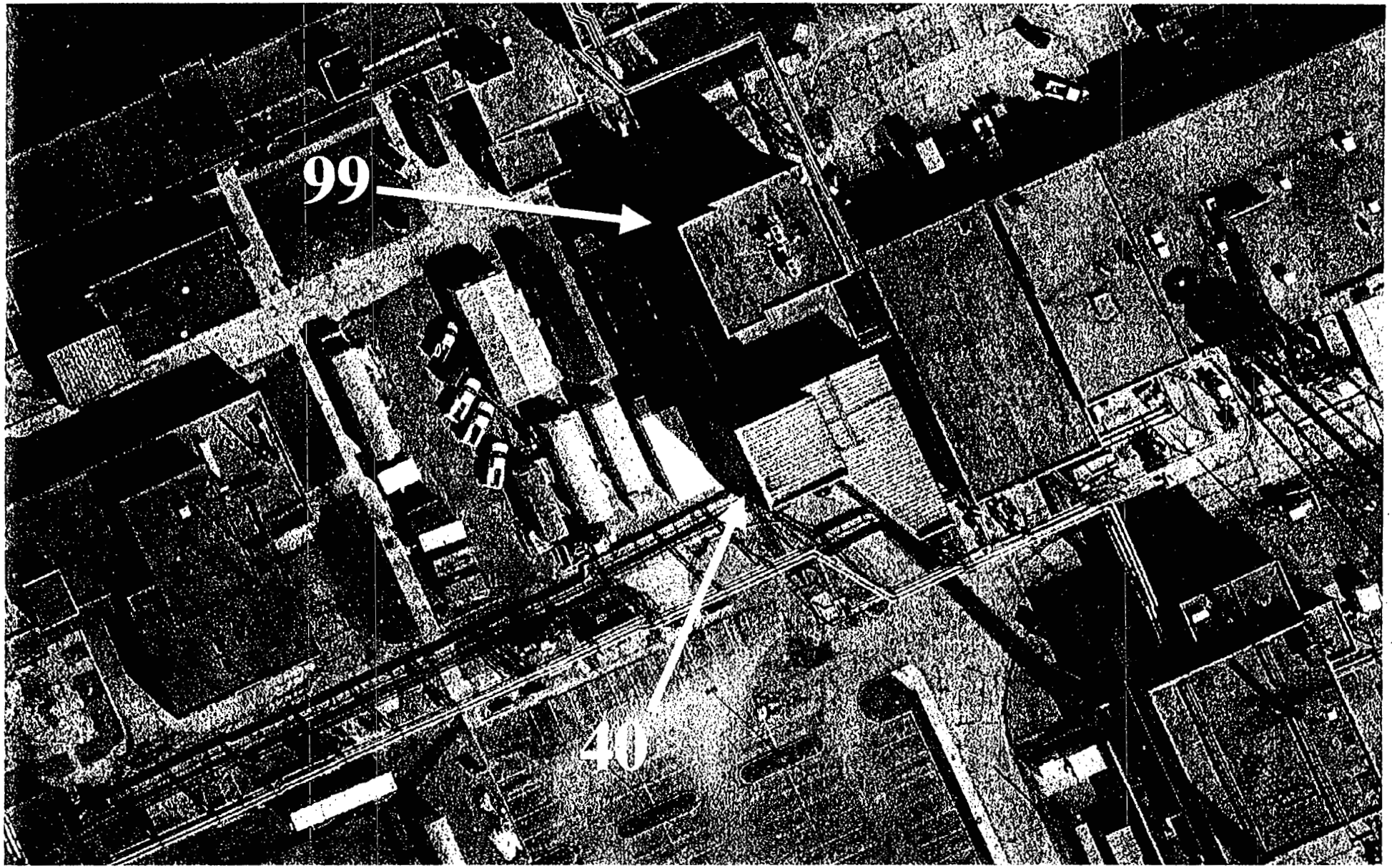


MONITORING WELLS

NO MONITORING WELLS IN VICINITY OF BLDGS. 99 & 40



PROPOSED RAMP FOR DEMOLITION OF BLDGS 40 & 99



Aerial Photo

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, dated July 1, 2003
- Waste Disposition Plan

INTER OFFICE MEMO CH2MHILL MOUND, INC.

Date: July 1, 2003 cc. S. Davis

From: W. L. Johanan – Bldg. 61-220 B

Subject: Structural Survey of Buildings 40 and 99, 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(s) 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 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/ Bldgs. 40 & 99 Approximate Volume 6200 cu. Yds.
Source of material
Requestor Project Group SMPP/TFV Project Point of Contact Steve Davis

Name/Phone Ext Steve Davis ext. 4436

MSR # SMPP/TFV-36035-00 Charge # EE099J

Process Knowledge (attach documentation, if more space needed):
BUILDING 40 WAS A NON-RAD AREA USED AS PHOTOSHOP
BUILDING 99 WAS A NON-RAD AREA USED AS THE SITE SECURITY FACILITY

PRS # 107, 108, 109 PRS Binning Status: [NFA] RA FA NFA Pending Stakeholder Review
PRS # 106 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) 99 & 40 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

053860

Appendix E

POST-JOB CONFERENCE/ LESSONS LEARNED

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

Lessons Learned Statement:

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

Discussion:

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

Analysis:

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

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

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

Recommended Actions:

1) Following changes to the work package, numbering and sequencing should be reviewed and verified by a peer reviewer.

2) A formal revision to the work package is triggered by changes other than minor editorial revisions. Based on the type of change, further reviews must be performed.

3) Editorial changes, comments, and other suggested changes should be documented during the LMSA and discussed at closing to assure that they have been incorporated.

Excavator Damaged During Demolition Work

Lesson Learned Statement:

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

Discussion of Activities:

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

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

Analysis

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

Heat Stress and Work Lessons Learned

Project Type: *General* Maintenance/Operations
Date: June 21, *2001*
Document Type: *Lessons Learned*
Functional Area: *Health* & Safety
Operations Office: *Rocky* Flats

Lesson Learned Statement

High temperatures and working in PPE can add up to a dangerous situation if you don't take care to avoid overheating.

Discussion of Activities

Two process pipe removal crew members in *B771* at Rocky Flats recently experienced signs of heat stress while performing routi D&D inside a High Contamination Area (HCA). After working for approximately 1.5 hours, the workers were sweating excessiv and feeling light headed and nauseous. They were taken to Occupational Medicine and checked for heat illness.

The temperature in the area would normally not be considered a hazard, according to the formula used to determine the "effective load" a person bears. But in this case the workers were wearing layered PPE that increased the heat load above what was predicte using the formula.

At Rocky Flats always report heat stress symptoms immediately to get medical/EMT assistance. You can then begin to cool off tl sufferer while waiting for help to arrive.

Recommended Actions

Protect yourself and others by:

learning the signs and symptoms of heat-caused illnesses and how to help others perform heaviest work in the coolest part of the slowly build up tolerance to the heat and work activity try to use the buddy system and work in pairs to watch out for each other c plenty of cool water wear light, loose-fitting and breathable clothing when possible take frequent, short breaks in cool, shaded are allow your body to cool down, particularly when working in heavy or hot PPE avoid eating large meals before working in the hea

The project is taking the following corrective actions to reduce the heat load on workers in PPE:

adding additional personnel to the crew and pre-planning "stay times" to allow workers to rotate in and out of the work area when double anti-Cs re-surveying HCA areas and reducing the size of the HCA when possible so double anti-Cs are used only where necessary trying out a new circulating cooling system borrowed from the B776/777 project removing the requirement for wearing chemical apron after reviewing the hazard potential

While it is important to continue to monitor temperature conditions, it is critical that everyone recognizes the signs and symptoms heat stress and knows the right responses.

The most common forms of heat stress, heat exhaustion and heat stroke, occur when your body can't cool enough by sweating. He exhaustion is the most common and if it is not treated it can lead to heat stroke, which can be fatal.

Symptoms of heat exhaustion are:

pale, clammy skin dizziness or light headedness headaches weakness irritability, confusion, not making sensesick to your stomacl nausea, vomiting decreased and dark colored urine fainting or passing out

If you or another person experience any of these symptoms:

move to a cool, shaded area loosen and remove heavy clothing if dizzy or light headed, lay down and elevate the feet 6 to 8 inche on side if nauseous) drink a small cup of cool water every fifteen minutes cool off by fanning and applying a spray mist or wet cl call for emergency help if not feeling better in a few minutes

Symptoms of heat stroke are:

dry, pale skin (no sweating) or hot, dry, red skin collapse or pass out and don't respond seizures or fits irritability, confusion, not making sense

If you suspect heat stroke:call for emergency help move to a cool, shaded area lay down on the back or side and remove any close objects if having seizures or first remove any heavy and outer clothing drink a small glass of cool water every 15 minutes if able c off by fanning and spraying cool mist or using wet cloth or sheet if ice is available, place ice packs under the arm pits and groin a

Contact Information

Russ Bittinger
Phone: (303) 966-2563
Authorized Derivative Classifier: Rod Hoffman
Phone: (303) 966-4398

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: **Buildings 40 & 99 Demolition**
2. WORK PACKAGE NUMBER: SMPP/TFV-36035-00

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)
Buildings 40 & 99 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

Appendix P

Mound Plant Recommendation

MOUND PLANT RECOMMENDATION

BUILDING 40

Background:

Building 40 is a three-story, 12,200 square-foot concrete block slab-on-grade structure with brick facing. The roof is asphalt and metal built-up membrane. The building was constructed in 1968 and the annex was added in 1985. On the first floor of the structure (approximately 6,150 square feet) are printing and microfilming shops and a vault for document storage. Offices are located on the second floor (approximately 3,880 square feet). The third floor (approximately 2,170 square feet) houses utility services with interstitial space between the ceiling and roof for duct work. The building has been used for the same purpose since construction. No research, development, or production activities using radioactive or energetic materials have occurred in the building.

Recommendation:

After thorough review of the environmental data and the Building Data Package, the Core Team agrees that all existing environmental issues associated with Building 40 have been resolved. Future use of Building 40 will be restricted to commercial/industrial use. The Core Team hereby recommends that the U.S. Department of Energy submit a letter to the Administrator of the U.S. EPA for final approval of the lease or sale of this property, as required by Section 120(h) of CERCLA.

Concurrence:

DOE/MEMP: Art Kleinrath 7/28/1999
Art Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 7/28/99
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 7/30/99
Brian K. Nickel, Project Manager (date)

Appendix Q

Drain Survey Analytical and Quality Control Results

ANALYTICAL AND QUALITY CONTROL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Dayton Division of TestAmerica, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Date Received
533843	BLDG 40-0-000001	05/04/1999	05/04/1999
533844	BLDG 40-0-000002	05/04/1999	05/04/1999

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TestAmerica, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Reproduction of this analytical report is permitted only in its entirety.

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533843	**SAMPLE DESCRIPTION** BLDG 40-0-000001							**DATE/TIME TAKEN** 05/04/1999
Cyanide Prep	Complete		05/05/1999	1247		Complete	kkh	SW 9012
Cyanide, Total, Non-aqueous	2.81	mg/Kg	05/06/1999	1247	351	<0.125	kkh	SW 9012
ICP NONAQUEOUS METALS	Complete		05/06/1999		573	Complete	jrw	SW 6010A
Aluminum, ICP	567	mg/Kg	05/06/1999	437	1383	<33	jrw	SW 6010A
Antimony, ICP	159	mg/Kg	05/06/1999	437	1386	<33	jrw	SW 6010A
Arsenic, ICP	<33	mg/Kg	05/06/1999	437	1381	<33	jrw	SW 6010A
Barium, ICP	41.7	mg/Kg	05/06/1999	437	1356	<6.6	jrw	SW 6010A
Beryllium, ICP	<2	mg/Kg	05/06/1999	437	1383	<2	jrw	SW 6010A
Cadmium, ICP	<9.8	mg/Kg	05/06/1999	437	1345	<9.8	jrw	SW 6010A
Calcium, ICP	3,870	mg/Kg	05/06/1999	437	1307	<330	jrw	SW 6010A
Chromium, ICP	61	mg/Kg	05/06/1999	437	1338	<13	jrw	SW 6010A
Cobalt, ICP	<6.6	mg/Kg	05/06/1999	437	1382	<6.6	jrw	SW 6010A
Copper, ICP	850	mg/Kg	05/06/1999	437	1351	<6.6	jrw	SW 6010A
Iron, ICP	164,000	mg/Kg	05/06/1999	437	1377	<33	jrw	SW 6010A
Lead, ICP	257	mg/Kg	05/06/1999	437	1342	<26	jrw	SW 6010A
Magnesium, ICP	561	mg/Kg	05/06/1999	437	1375	<330	jrw	SW 6010A
Manganese, ICP	876	mg/Kg	05/06/1999	437	1300	<3.3	jrw	SW 6010A
Mercury, CVAA	0.611	mg/Kg	05/06/1999	351	359	<0.010	sah	SW 7471A
Nickel, ICP	73.1	mg/Kg	05/06/1999	437	1344	<3.3	jrw	SW 6010A
Potassium, ICP	1,970	mg/Kg	05/06/1999	437	1368	<330	jrw	SW 6010A
Selenium, ICP	<33	mg/Kg	05/06/1999	437	1382	<33	jrw	SW 6010A
Silver, ICP	83	mg/Kg	05/06/1999	437	1359	<13	jrw	SW 6010A
Sodium, ICP	1,720	mg/Kg	05/06/1999	437	1369	<330	jrw	SW 6010A
Thallium, ICP	<160	mg/Kg	05/06/1999	437	1409	<160	jrw	SW 6010A
Vanadium, ICP	<16	mg/Kg	05/06/1999	437	1377	<16	jrw	SW 6010A

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05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533843	**SAMPLE DESCRIPTION** BLDG 40-0-000001							**DATE/TIME TAKEN** 05/04/1999
Zinc, ICP	1.300	mg/Kg	05/06/1999	437	1332	<16	jrw	SW 6010A
ICP Digestion, NONAQUEOUS	Complete		05/04/1999	437		Complete	jpp	SW 3050A
Mercury Digestion, NONAQUEOUS	Complete		05/04/1999	351		Complete	jpp	SW 7471A
Prep, BNA Non-Aq	Complete		05/04/1999	656		Complete	lgh	EPA 625 : SW 3540

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05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533843	**SAMPLE DESCRIPTION** BLDG 40-0-000001							**DATE/TIME TAKEN** 05/04/1999
BASE NEUT. COMPS.-8270 Non-aq								
Acenaphthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Acenaphthylene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Anthracene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(a)anthracene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(b)fluoranthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(k)fluoranthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(a)pyrene	<24.800	ug/Kg	05/05/1999	656	750	<24.800	jwr	SW 8270B
Benzo(ghi)perylene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzyl alcohol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzyl butyl phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Bis(2-chloroethyl)ether	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Bis(2-chloroethoxy)methane	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Bis(2-ethylhexyl)phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,2'-oxybis(1-Chloropropane)	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Bromophenyl phenyl ether	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Chloroaniline	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Chloronaphthalene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Chlorophenylphenyl ether	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Chrysene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Dibenzo(a,h)anthracene	<24.800	ug/Kg	05/05/1999	656	750	<24.800	jwr	SW 8270B
Dibenzofuran	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Di-n-butylphthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
1,2-Dichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
1,3-Dichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

SAMPLE NO.	SAMPLE DESCRIPTION	DATE/TIME TAKEN
533843	BLDG 40-0-000001	05/04/1999

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
ACID COMPOUNDS - 8270 Non-aq								
Benzoic Acid	<247.500	ug/Kg	05/05/1999	656	750	<247.500	jwr	SW 8270B
4-Chloro-3-methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Chlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dimethylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dinitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Methyl-4,6-dinitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
meta & para-Methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Nitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Nitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Pentachlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Phenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4,5-Trichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4,6-Trichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Surrogate: d6-Phenol	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: 2-Fluorophenol	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: Tribromophenol	DL	%	05/05/1999	656	750		jwr	SW 8270B

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SAMPLE NO.	SAMPLE DESCRIPTION							DATE/TIME TAKEN
533843	BLDG 40-0-000001							05/04/1999
	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
1.4-Dichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
3.3'-Dichlorobenzidine	<99.000	ug/Kg	05/05/1999	656	750	<99.000	jwr	SW 8270B
Diethyl phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Dimethyl phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2.4-Dinitrotoluene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2.6-Dinitrotoluene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Di-n-octylphthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Fluoranthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Fluorene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Hexachlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Hexachloro-1.3-butadiene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Hexachlorocyclopentadiene	<99.000	ug/Kg	05/05/1999	656	750	<99.000	jwr	SW 8270B
Hexachloroethane	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Indeno(1.2.3-cd)pyrene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Isophorone	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Naphthalene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Nitrobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
N-Nitrosodi-n-propylamine	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Phenanthrene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Pyrene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
1.2.4-Trichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Surrogate: d5-Nitrobenzene	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: 2-Fluorobiphenyl	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: d14-Terphenyl	DL	%	05/05/1999	656	750		jwr	SW 8270B

ANALYTICAL REPORT

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05/10/1999

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SAMPLE NO.	SAMPLE DESCRIPTION	DATE/TIME TAKEN
533843	BLDG 40-0-000001	05/04/1999

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
ACID COMPOUNDS - 8270 Non-aq								
Benzoic Acid	<247.500	ug/Kg	05/05/1999	656	750	<247.500	jwr	SW 8270B
4-Chloro-3-methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Chlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dimethylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dinitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Methyl-4,6-dinitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
meta & para-Methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Nitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Nitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Pentachlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Phenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4,5-Trichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4,6-Trichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Surrogate: d6-Phenol	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: 2-Fluorophenol	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: Tribromophenol	DL	%	05/05/1999	656	750		jwr	SW 8270B

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533843	**SAMPLE DESCRIPTION** BLDG 40-0-000001							**DATE/TIME TAKEN** 05/04/1999
Library Search	See Text		05/07/1999		1	See Text	dmg	SW 8270B
SAMPLE NO. 533844	**SAMPLE DESCRIPTION** BLDG 40-0-000002							**DATE/TIME TAKEN** 05/04/1999
Cyanide Prep	Complete		05/05/1999	1247		Complete	kkh	SW 9012
Cyanide, Total, Non-aqueous	80.2	mg/Kg	05/05/1999	1247	350	<0.125	kkh	SW 9012
ICP NONAQUEOUS METALS	Complete		05/06/1999		573	Complete	jrw	SW 6010A
Aluminum, ICP	505	mg/Kg	05/06/1999	437	1383	<33	jrw	SW 6010A
Antimony, ICP	46	mg/Kg	05/06/1999	437	1386	<33	jrw	SW 6010A
Arsenic, ICP	<33	mg/Kg	05/06/1999	437	1381	<33	jrw	SW 6010A
Barium, ICP	40.8	mg/Kg	05/06/1999	437	1356	<6.6	jrw	SW 6010A
Beryllium, ICP	<2	mg/Kg	05/06/1999	437	1383	<2	jrw	SW 6010A
Cadmium, ICP	<10	mg/Kg	05/06/1999	437	1345	<10	jrw	SW 6010A
Calcium, ICP	1,800	mg/Kg	05/06/1999	437	1307	<330	jrw	SW 6010A
Chromium, ICP	375	mg/Kg	05/06/1999	437	1338	<13	jrw	SW 6010A
Cobalt, ICP	<6.6	mg/Kg	05/06/1999	437	1382	<6.6	jrw	SW 6010A
Copper, ICP	16,500	mg/Kg	05/06/1999	437	1351	<6.6	jrw	SW 6010A
Iron, ICP	21,100	mg/Kg	05/06/1999	437	1377	<33	jrw	SW 6010A
Lead, ICP	370	mg/Kg	05/06/1999	437	1342	<27	jrw	SW 6010A
Magnesium, ICP	654	mg/Kg	05/06/1999	437	1375	<330	jrw	SW 6010A
Manganese, ICP	31	mg/Kg	05/06/1999	437	1300	<3.3	jrw	SW 6010A

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533844	**SAMPLE DESCRIPTION** BLDG 40-0-000002							**DATE/TIME TAKEN** 05/04/1999
Mercury, CVAA	15.2	mg/Kg	05/06/1999	351	359	<0.010	sah	SW 7471A
Nickel, ICP	402	mg/Kg	05/06/1999	437	1344	<3.3	jrw	SW 6010A
Potassium, ICP	<330	mg/Kg	05/06/1999	437	1368	<330	jrw	SW 6010A
Selenium, ICP	<33	mg/Kg	05/06/1999	437	1382	<33	jrw	SW 6010A
Silver, ICP	87	mg/Kg	05/06/1999	437	1359	<13	jrw	SW 6010A
Sodium, ICP	<330	mg/Kg	05/06/1999	437	1369	<330	jrw	SW 6010A
Thallium, ICP	<170	mg/Kg	05/06/1999	437	1409	<170	jrw	SW 6010A
Vanadium, ICP	<17	mg/Kg	05/06/1999	437	1377	<17	jrw	SW 6010A
Zinc, ICP	7,270	mg/Kg	05/06/1999	437	1392	<17	jrw	SW 6010A
ICP Digestion, NONAQUEOUS	Complete		05/04/1999	437		Complete	jpp	SW 3050A
Mercury Digestion, NONAQUEOUS	Complete		05/04/1999	351		Complete	jpp	SW 7471A
Prep. BNA Non-Aq	Complete		05/04/1999	656		Complete	lgh	EPA 625 : SW 3540

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533844	**SAMPLE DESCRIPTION** BLDG 40-0-000002							**DATE/TIME TAKEN** 05/04/1999
BASE NEUT. COMPS.-8270 Non-aq								
Acenaphthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Acenaphthylene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Anthracene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(a)anthracene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(b)fluoranthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(k)fluoranthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzo(a)pyrene	<24.800	ug/Kg	05/05/1999	656	750	<24.800	jwr	SW 8270B
Benzo(ghi)perylene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzyl alcohol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Benzyl butyl phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Bis(2-chloroethyl)ether	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Bis(2-chloroethoxy)methane	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Bis(2-ethylhexyl)phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,2'-oxybis(1-Chloropropane)	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Bromophenyl phenyl ether	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Chloroaniline	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Chloronaphthalene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Chlorophenylphenyl ether	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Chrysene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Dibenzo(a,h)anthracene	<24.800	ug/Kg	05/05/1999	656	750	<24.800	jwr	SW 8270B
Dibenzofuran	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Di-n-butylphthalate	283000	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
1,2-Dichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
1,3-Dichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533844	**SAMPLE DESCRIPTION** BLDG 40-0-000002							**DATE/TIME TAKEN** 05/04/1999
1,4-Dichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
3,3'-Dichlorobenzidine	<99.000	ug/Kg	05/05/1999	656	750	<99.000	jwr	SW 8270B
Diethyl phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Dimethyl phthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dinitrotoluene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,6-Dinitrotoluene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Di-n-octylphthalate	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Fluoranthene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Fluorene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Hexachlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Hexachloro-1,3-butadiene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Hexachlorocyclopentadiene	<99.000	ug/Kg	05/05/1999	656	750	<99.000	jwr	SW 8270B
Hexachloroethane	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Indeno(1,2,3-cd)pyrene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Isophorone	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Naphthalene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Nitrobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
N-Nitrosodi-n-propylamine	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Phenanthrene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Pyrene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
1,2,4-Trichlorobenzene	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Surrogate: d5-Nitrobenzene	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: 2-Fluorobiphenyl	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: d14-Terphenyl	DL	%	05/05/1999	656	750		jwr	SW 8270B

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO. 533844	**SAMPLE DESCRIPTION** BLDG 40-0-000002							**DATE/TIME TAKEN** 05/04/1999
ACID COMPOUNDS - 8270 Non-aq								
Benzoic Acid	<247.500	ug/Kg	05/05/1999	656	750	<247.500	jwr	SW 8270B
4-Chloro-3-methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Chlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dimethylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4-Dinitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Methyl-4,6-dinitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
meta & para-Methylphenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2-Nitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
4-Nitrophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Pentachlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Phenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4,5-Trichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
2,4,6-Trichlorophenol	<49.500	ug/Kg	05/05/1999	656	750	<49.500	jwr	SW 8270B
Surrogate: d6-Phenol	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: 2-Fluorophenol	DL	%	05/05/1999	656	750		jwr	SW 8270B
Surrogate: Tribromophenol	DL	%	05/05/1999	656	750		jwr	SW 8270B

ANALYTICAL REPORT

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Client Project ID: Project # 01011.032.022.0100

		Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit	Analyst Initials	Method Reference
SAMPLE NO.	**SAMPLE DESCRIPTION**								**DATE/TIME TAKEN**
533844	BLDG 40-0-000002								05/04/1999
Library Search		See Text		05/07/1999		1	See Text	dmg	SW 8270B

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	CCV True Concentration	CCV Concentration Observed	Units	Percent Recovery
Cyanide, Total, Non-aqueous		350	0.10	0.097	mg/L	97
Cyanide, Total, Non-aqueous		351	0.1	0.094	mg/L	94
Aluminum, ICP		1383	1.00	1.04	mg/Kg	104
Antimony, ICP		1386	1.00	1.01	mg/Kg	101
Arsenic, ICP		1381	1.00	1	mg/Kg	100
Barium, ICP		1356	1.00	1.01	mg/Kg	101
Beryllium, ICP		1383	1.00	1.00	mg/Kg	100
Cadmium, ICP		1345	1.00	1.00	mg/Kg	100
Calcium, ICP		1307	11.0	11.1	mg/Kg	101
Chromium, ICP		1338	1.00	0.97	mg/Kg	97
Cobalt, ICP		1382	1.00	0.99	mg/Kg	99
Copper, ICP		1351	1.00	1.00	mg/Kg	100
Iron, ICP		1377	1.00	0.99	mg/Kg	99
Lead, ICP		1342	1.00	0.99	mg/Kg	99
Magnesium, ICP		1375	3.00	2.97	mg/Kg	99
Manganese, ICP		1300	1.00	0.99	mg/Kg	99
Mercury, CVAA	351	359	0.0020	0.00204	mg/Kg	102
Nickel, ICP		1344	1.00	1	mg/Kg	100
Potassium, ICP		1368	12.0	11.8	mg/Kg	98
Selenium, ICP		1382	1.00	0.99	mg/Kg	99
Silver, ICP		1359	1.00	1	mg/Kg	100
Sodium, ICP		1369	11.0	10.9	mg/Kg	99
Thallium, ICP		1400	6.00	5.95	mg/Kg	99
Vanadium, ICP		1377	1.00	1.00	mg/Kg	100
Zinc, ICP		1332	1.00	0.98	mg/Kg	98
BASE NEUT. COMPS.-8270 Non-aq						
Acenaphthene		750	50.0	48.8	ug/Kg	98
Benzo(a)pyrene		750	50.0	49.9	ug/Kg	100
1,4-Dichlorobenzene		750	50.0	51.6	ug/Kg	103
Di-n-octylphthalate		750	50.0	54.9	ug/Kg	110

CCV - Continuing Calibration Verification

Q13of27

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	CCV True Concentration	CCV Concentration Observed	Units	Percent Recovery
Fluoranthene		750	50.0	51.0	ug/Kg	102
Hexachloro-1,3-butadiene		750	50.0	47.8	ug/Kg	96
Hexachlorocyclopentadiene		750	50.0	47.2	ug/Kg	94
N-Nitrosodi-n-propylamine		750	50.0	47.3	ug/Kg	95
Surrogate: d5-Nitrobenzene		750	50.0	46.2	%	92
Surrogate: 2-Fluorobiphenyl		750	50.0	50.6	%	101
Surrogate: d14-Terphenyl		750	50.0	49.1	%	98

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	CCV True Concentration	CCV Concentration Observed	Units	Percent Recovery
ACID COMPOUNDS - 8270 Non-aq						
4-Chloro-3-methylphenol		750	50.0	48.2	ug/Kg	96
2,4-Dichlorophenol		750	50.0	50.3	ug/Kg	101
2,4-Dinitrophenol		750	50.0	45.0	ug/Kg	90
2-Nitrophenol		750	50.0	52.1	ug/Kg	104
4-Nitrophenol		750	50.0	42.5	ug/Kg	85
Pentachlorophenol		750	50.0	48.0	ug/Kg	96
Phenol		750	50.0	52.4	ug/Kg	105
2,4,6-Trichlorophenol		750	50.0	49.2	ug/Kg	98
Surrogate: d6-Phenol		750	100	102.2	%	102
Surrogate: 2-Fluorophenol		750	100	104.6	%	105
Surrogate: Tribromophenol		750	100	95.0	%	95

QUALITY CONTROL REPORT
BLANKS

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units	Date Prepped
Cyanide, Total, Non-aqueous	1247	350	<0.005	mg/L	05/05/1999
Aluminum, ICP	437	1383	<0.10	mg/Kg	05/04/1999
Aluminum, ICP		1383	<0.10	mg/Kg	
Antimony, ICP	437	1386	<0.10	mg/Kg	05/04/1999
Antimony, ICP		1386	<0.10	mg/Kg	
Arsenic, ICP	437	1381	<0.10	mg/Kg	05/04/1999
Arsenic, ICP		1381	<0.10	mg/Kg	
Barium, ICP	437	1356	<0.020	mg/Kg	05/04/1999
Barium, ICP		1356	<0.020	mg/Kg	
Beryllium, ICP	437	1383	<0.005	mg/Kg	05/04/1999
Beryllium, ICP		1383	<0.005	mg/Kg	
Cadmium, ICP	437	1345	<0.030	mg/Kg	05/04/1999
Cadmium, ICP		1345	<0.030	mg/Kg	
Calcium, ICP	437	1307	<1.0	mg/Kg	05/04/1999
Calcium, ICP		1307	<1.0	mg/Kg	
Chromium, ICP	437	1338	<0.040	mg/Kg	05/04/1999
Chromium, ICP		1338	<0.040	mg/Kg	
Cobalt, ICP	437	1382	<0.020	mg/Kg	05/04/1999
Cobalt, ICP		1382	<0.020	mg/Kg	
Copper, ICP	437	1351	<0.020	mg/Kg	05/04/1999
Copper, ICP		1351	<0.020	mg/Kg	
Iron, ICP	437	1377	<0.10	mg/Kg	05/04/1999
Iron, ICP		1377	<0.10	mg/Kg	
Lead, ICP	437	1342	<0.080	mg/Kg	05/04/1999
Lead, ICP		1342	<0.080	mg/Kg	
Magnesium, ICP	437	1375	<1.0	mg/Kg	05/04/1999

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
BLANKS

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units	Date Prepped
Magnesium, ICP		1375	<1.0	mg/Kg	
Manganese, ICP	437	1300	<0.010	mg/Kg	05/04/1999
Manganese, ICP		1300	<0.010	mg/Kg	
Mercury, CVAA	351	359	<0.0002	mg/Kg	05/04/1999
Nickel, ICP	437	1344	<0.010	mg/Kg	05/04/1999
Nickel, ICP		1344	<0.010	mg/Kg	
Potassium, ICP	437	1368	<1.0	mg/Kg	05/04/1999
Potassium, ICP		1368	<1.0	mg/Kg	
Selenium, ICP	437	1382	<0.10	mg/Kg	05/04/1999
Selenium, ICP		1382	<0.10	mg/Kg	
Silver, ICP	437	1359	<0.040	mg/Kg	05/04/1999
Silver, ICP		1359	<0.040	mg/Kg	
Sodium, ICP	437	1369	<1.0	mg/Kg	05/04/1999
Sodium, ICP		1369	<1.0	mg/Kg	
Thallium, ICP	437	1409	<0.50	mg/Kg	05/04/1999
Thallium, ICP		1409	<0.50	mg/Kg	
Vanadium, ICP	437	1377	<0.050	mg/Kg	05/04/1999
Vanadium, ICP		1377	<0.050	mg/Kg	
Zinc, ICP	437	1332	<0.050	mg/Kg	05/04/1999
Zinc, ICP		1332	<0.050	mg/Kg	
BASE NEUT. COMPS.-8270 Non-aq					
Acenaphthene	656	750	<165	ug/Kg	05/04/1999
Acenaphthylene	656	750	<165	ug/Kg	05/04/1999
Anthracene	656	750	<165	ug/Kg	05/04/1999
Benzo(a)anthracene	656	750	<165	ug/Kg	05/04/1999
Benzo(b)fluoranthene	656	750	<165	ug/Kg	05/04/1999

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

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QUALITY CONTROL REPORT
BLANKS

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units	Date Prepped
Benzo(k)fluoranthene	656	750	<165	ug/Kg	05/04/1999
Benzo(ghi)perylene	656	750	<165	ug/Kg	05/04/1999
Benzo(a)pyrene	656	750	<165	ug/Kg	05/04/1999
Benzyl alcohol	656	750	<330	ug/Kg	05/04/1999
Bis(2-chloroethoxy)methane	656	750	<165	ug/Kg	05/04/1999
Bis(2-chloroethyl)ether	656	750	<165	ug/Kg	05/04/1999
Bis(2-ethylhexyl)phthalate	656	750	<165	ug/Kg	05/04/1999
4-Bromophenyl phenyl ether	656	750	<165	ug/Kg	05/04/1999
Benzyl butyl phthalate	656	750	<165	ug/Kg	05/04/1999
4-Chloroaniline	656	750	<330	ug/Kg	05/04/1999
2-Chloronaphthalene	656	750	<165	ug/Kg	05/04/1999
4-Chlorophenylphenyl ether	656	750	<165	ug/Kg	05/04/1999
Chrysene	656	750	<165	ug/Kg	05/04/1999
Dibenzo(a,h)anthracene	656	750	<165	ug/Kg	05/04/1999
Dibenzofuran	656	750	<330	ug/Kg	05/04/1999
Di-n-butylphthalate	656	750	<165	ug/Kg	05/04/1999
1,2-Dichlorobenzene	656	750	<165	ug/Kg	05/04/1999
1,3-Dichlorobenzene	656	750	<165	ug/Kg	05/04/1999
1,4-Dichlorobenzene	656	750	<165	ug/Kg	05/04/1999
3,3'-Dichlorobenzidine	656	750	<495	ug/Kg	05/04/1999
Diethyl phthalate	656	750	<165	ug/Kg	05/04/1999
Dimethyl phthalate	656	750	<165	ug/Kg	05/04/1999
2,4-Dinitrotoluene	656	750	<165	ug/Kg	05/04/1999
2,6-Dinitrotoluene	656	750	<165	ug/Kg	05/04/1999
Di-n-octylphthalate	656	750	<165	ug/Kg	05/04/1999
Fluoranthene	656	750	<165	ug/Kg	05/04/1999

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
BLANKS

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units	Date Prepped
Fluorene	656	750	<165	ug/Kg	05/04/1999
Hexachlorobenzene	656	750	<165	ug/Kg	05/04/1999
Hexachloro-1,3-butadiene	656	750	<165	ug/Kg	05/04/1999
Hexachlorocyclopentadiene	656	750	<660	ug/Kg	05/04/1999
Hexachloroethane	656	750	<165	ug/Kg	05/04/1999
Indeno(1.2.3-cd)pyrene	656	750	<165	ug/Kg	05/04/1999
Isophorone	656	750	<165	ug/Kg	05/04/1999
Naphthalene	656	750	<165	ug/Kg	05/04/1999
Nitrobenzene	656	750	<165	ug/Kg	05/04/1999
N-Nitrosodi-n-propylamine	656	750	<165	ug/Kg	05/04/1999
Phenanthrene	656	750	<165	ug/Kg	05/04/1999
Pyrene	656	750	<165	ug/Kg	05/04/1999
1.2.4-Trichlorobenzene	656	750	<165	ug/Kg	05/04/1999
Surrogate: d5-Nitrobenzene	656	750	67	%	05/04/1999
Surrogate: 2-Fluorobiphenyl	656	750	76	%	05/04/1999
Surrogate: d14-Terphenyl	656	750	82	%	05/04/1999

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

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QUALITY CONTROL REPORT
BLANKS

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units	Date Prepped
ACID COMPOUNDS - 8270 Non-aq					
2-Chlorophenol	656	750	<330	ug/Kg	05/04/1999
4-Chloro-3-methylphenol	656	750	<330	ug/Kg	05/04/1999
2-Methylphenol	656	750	<330	ug/Kg	05/04/1999
meta & para-Methylphenol	656	750	<330	ug/Kg	05/04/1999
Benzoic Acid	656	750	<1.650	ug/Kg	05/04/1999
2,4-Dichlorophenol	656	750	<330	ug/Kg	05/04/1999
2,4-Dimethylphenol	656	750	<330	ug/Kg	05/04/1999
2-Methyl-4,6-dinitrophenol	656	750	<330	ug/Kg	05/04/1999
2,4-Dinitrophenol	656	750	<330	ug/Kg	05/04/1999
2-Nitrophenol	656	750	<330	ug/Kg	05/04/1999
4-Nitrophenol	656	750	<330	ug/Kg	05/04/1999
Pentachlorophenol	656	750	<330	ug/Kg	05/04/1999
Phenol	656	750	<330	ug/Kg	05/04/1999
2,4,5-Trichlorophenol	656	750	<330	ug/Kg	05/04/1999
2,4,6-Trichlorophenol	656	750	<330	ug/Kg	05/04/1999
Surrogate: d6-Phenol	656	750	69	%	05/04/1999
Surrogate: 2-Fluorophenol	656	750	69	%	05/04/1999
Surrogate: Tribromophenol	656	750	72	%	05/04/1999

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Observed	Units	LCS % Recovery	Flag
Cyanide, Total, Non-aqueous	1247	350	0.100	0.094	mg/L	94	
Aluminum, ICP	437	1383	1.00	0.96	mg/Kg	96	
Antimony, ICP	437	1386	1.00	0.97	mg/Kg	97	
Arsenic, ICP	437	1381	1.00	0.96	mg/Kg	96	
Barium, ICP	437	1356	1.00	0.99	mg/Kg	99	
Beryllium, ICP	437	1383	1.00	1.00	mg/Kg	100	
Cadmium, ICP	437	1345	1.00	0.94	mg/Kg	94	
Calcium, ICP	437	1307	21.0	20.3	mg/Kg	97	
Chromium, ICP	437	1338	1.00	0.95	mg/Kg	95	
Cobalt, ICP	437	1382	1.00	0.96	mg/Kg	96	
Copper, ICP	437	1351	1.00	0.97	mg/Kg	97	
Iron, ICP	437	1377	1.00	1	mg/Kg	100	
Lead, ICP	437	1342	1.00	0.94	mg/Kg	94	
Magnesium, ICP	437	1375	5.00	4.74	mg/Kg	95	
Manganese, ICP	437	1300	1.00	0.97	mg/Kg	97	
Nickel, ICP	437	1344	1.00	0.97	mg/Kg	97	
Potassium, ICP	437	1368	14.0	13.3	mg/Kg	95	
Selenium, ICP	437	1382	1.00	0.96	mg/Kg	96	
Silver, ICP	437	1359	1.00	0.94	mg/Kg	94	
Sodium, ICP	437	1369	21.0	20.1	mg/Kg	96	
Thallium, ICP	437	1409	1.00	0.98	mg/Kg	98	
Vanadium, ICP	437	1377	1.00	0.97	mg/Kg	97	
Zinc, ICP	437	1332	1.00	0.93	mg/Kg	93	
BASE NEUT. COMPS.-8270 Non-aq							
Acenaphthene	656	750	100	88.7	ug/Kg	89	
1,4-Dichlorobenzene	656	750	100	77.1	ug/Kg	77	
2,4-Dinitrotoluene	656	750	100	84.1	ug/Kg	84	
N-Nitrosodi-n-propylamine	656	750	100	80.9	ug/Kg	81	
Pyrene	656	750	100	87.6	ug/Kg	88	

LCS - Laboratory Control Standard

Advisory Control Limits : Inorganics statistical limits are established at the mean +/- 3 standard deviations.
If statistical limits are not established the LCS should be 80 - 120 % recovery.

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QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Observed	Units	LCS % Recovery	Flag
1,2,4-Trichlorobenzene	656	750	100	83.0	ug/Kg	83	
Surrogate: d5-Nitrobenzene	656	750	100	76.4	%	76	
Surrogate: 2-Fluorobiphenyl	656	750	100	85.3	%	85	
Surrogate: d14-Terphenyl	656	750	100	81.6	%	82	

LCS - Laboratory Control Standard

Advisory Control Limits : Inorganics statistical limits are established at the mean +/- 3 standard deviations.
If statistical limits are not established the LCS should be 80 - 120 % recovery.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Observed	Units	LCS % Recovery	Flag
ACID COMPOUNDS - 8270 Non-aq							
2-Chlorophenol	656	750	100	82.1	ug/Kg	82	
4-Chloro-3-methylphenol	656	750	100	82.3	ug/Kg	82	
4-Nitrophenol	656	750	100	73.3	ug/Kg	73	
Pentachlorophenol	656	750	100	88.3	ug/Kg	88	
Phenol	656	750	100	81.7	ug/Kg	82	
Surrogate: d6-Phenol	656	750	200	154	%	77	
Surrogate: 2-Fluorophenol	656	750	200	139	%	70	
Surrogate: Tribromophenol	656	750	200	162	%	81	

LCS - Laboratory Control Standard

Advisory Control Limits : Inorganics statistical limits are established at the mean +/- 3 standard deviations.
If statistical limits are not established the LCS should be 80 - 120 % recovery.

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	% Rec.	MSD Result	MSD Spike Amount	Units	% Rec.	RPD
Cyanide, Total, Non-aqueous	1247	346	2.82	<0.125	2.50	mg/Kg	113	2.66	2.49	mg/Kg	107	5.5
Aluminum, ICP	437	1383	5,430	4,540	32.0	mg/Kg	2781	5,230	31.4	mg/Kg	2198	24
Antimony, ICP	437	1386	16.8	<6.3	32.0	mg/Kg	53	18	31.4	mg/Kg	57	8.7
Arsenic, ICP	437	1381	48.8	15.5	32.0	mg/Kg	104	48	31.4	mg/Kg	104	0.6
Barium, ICP	437	1356	81.9	33.9	32.0	mg/Kg	150	82	31.4	mg/Kg	153	2.1
Beryllium, ICP	437	1383	32.1	0.4	32.0	mg/Kg	99	31.3	31.4	mg/Kg	98	0.7
Cadmium, ICP	437	1345	30	<1.9	32.0	mg/Kg	94	30.9	31.4	mg/Kg	98	4.8
Calcium, ICP	437	1307	6,980	6,080	672	mg/Kg	134	7,410	659	mg/Kg	202	41
Chromium, ICP	437	1338	42.9	10.3	32.0	mg/Kg	102	41.6	31.4	mg/Kg	100	2.1
Cobalt, ICP	437	1382	35.5	5.1	32.0	mg/Kg	95	34.6	31.4	mg/Kg	94	1.2
Copper, ICP	437	1351	60	35.9	32.0	mg/Kg	75	74.1	31.4	mg/Kg	122	47
Iron, ICP	437	1377	13,600	12,900	32.0	mg/Kg	2188	15,100	31.4	mg/Kg	7006	105
Lead, ICP	437	1342	109	69.0	32.0	mg/Kg	125	128	31.4	mg/Kg	188	40
Magnesium, ICP	437	1375	2,290	2,080	160	mg/Kg	131	2,370	157	mg/Kg	185	34
Manganese, ICP	437	1300	191	174	32.0	mg/Kg	53	208	31.4	mg/Kg	108	68
Mercury, CVAA	351	359	0.054	0.012	0.038	mg/Kg	111	0.085	0.040	mg/Kg	183	49
Nickel, ICP	437	1344	45.9	14.9	32.0	mg/Kg	97	45.6	31.4	mg/Kg	98	0.9
Potassium, ICP	437	1368	954	468	448	mg/Kg	109	923	440	mg/Kg	103	4.8
Selenium, ICP	437	1382	31.7	<6.3	32.0	mg/Kg	99	31.7	31.4	mg/Kg	101	1.8
Silver, ICP	437	1359	29.5	<2.5	32.0	mg/Kg	92	27	31.4	mg/Kg	86	7
Sodium, ICP	437	1369	1,270	622	672	mg/Kg	96	1,240	659	mg/Kg	94	2.7
Thallium, ICP	437	1409	<32	<31	32.0	mg/Kg	0	<31	31.4	mg/Kg	0	0

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Craig Stoll
R. F. WESTON, INC
2566 Kohnle Drive
Miamisburg, OH 45342

05/10/1999

Job Number: 99.06604

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	% Rec.	MSD Result	MSD Spike Amount	Units	% Rec.	RPD	Flag
Vanadium, ICP	437	1377	43.8	10.6	32.0	mg/Kg	104	42.5	31.4	mg/Kg	102	2.1	
Zinc, ICP	437	1332	141	86	32.0	mg/Kg	172	127	31.4	mg/Kg	131	27	ssr
BASE NEUT. COMPS.-8270 Non-aq													
Acenaphthene	656	743	69.3	<330	100	ug/Kg	69	79.3	100	ug/Kg	79	14	
1,4-Dichlorobenzene	656	743	51.0	<330	100	ug/Kg	51	63.7	100	ug/Kg	64	22	
2,4-Dinitrotoluene	656	743	69.2	<330	100	ug/Kg	69	78.7	100	ug/Kg	79	13	
N-Nitrosodi-n-propylamine	656	743	60.6	<330	100	ug/Kg	61	74.4	100	ug/Kg	74	20	
Pyrene	656	743	81.9	<330	100	ug/Kg	82	89.1	100	ug/Kg	89	8.4	
1,2,4-Trichlorobenzene	656	743	60.7	<330	100	ug/Kg	61	68.4	100	ug/Kg	68	12	

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL FLAG DEFINITIONS

Job Number: 99.06604

(*) Indicates an out-of-control QC. The analytical data was reported based on other supporting quality control information.

(MS) Indicates that the Matrix Spike (MS) was out of statistical advisory limits.

(MSD) Indicates that the Matrix Spike Duplicate (MSD) was out of statistical advisory limits.

(RPD) Indicates that the Relative Percent Difference (RPD) for the MS/MSD pair was outside of statistical advisory limits.

(SS) Indicates that the MS and MSD were out of statistical advisory limits.

(SSR) Indicates that the MS, MSD and RPD were out of statistical advisory limits.

(MSR) Indicates that the MS and RPD were out of statistical advisory limits.

(MSDR) Indicates that the MSD and RPD were out of statistical advisory limits.

(DL) Indicates that the MS and MSD were diluted out and the percent recoveries of the spikes could not be calculated.

(LS) Indicates that statistical accuracy and precision data is not available for spike concentrations which are < 1/4 of the sample amount. Care should be used in interpreting this data.

(J) Indicates estimated concentration due to internal standard areas or surrogate recoveries outside of control limits. A sample matrix effect is usually indicated.

(DW) Indicates Dry Weight.

Analytical Reporting Limits

The reporting limits listed for non-aqueous samples in the analytical report section are Practical Quantitation Limits (PQLs). These PQLs are based upon a typical standard weight used for a non-aqueous sample. The reporting limit for a sample may be different from the PQL listed depending upon the actual weight of sample used, the samples moisture content and any dilutions used during the analysis.

NOTES AND COMMENTS

NET Job Number: 99.06604

Sample Number: 533844

Analysis: GCMS Semi-volatiles library search

ADDITIONAL TENTATIVELY IDENTIFIED SEMI-VOLATILES:

COMPOUND	CAS NO.	ESTIMATED CONC.
bis-2-ethylhexyl phthalate	--	32,700 ug/Kg*
Benzenemethanethiol	100538	55,300
Pentan-1,3-Diisobutyrate, 2,2,4		74,300
1-Tetradecanamine, N,N-dimethyl-	112754	181,000
Unknown		57,500
Unknown		42,100

* Detection noted but was below the normal 8270 reporting limit

Sample Number: 533843

ADDITIONAL TENTATIVELY IDENTIFIED SEMI-VOLATILES:

COMPOUND	CAS NO.	ESTIMATED CONC.
bis-2-ethylhexyl phthalate	--	17,700 ug/Kg*
dl-Limonene	138863	71,200

* Detection noted but was below the normal 8270 reporting limit

Sample Number: 533843 & 533844

Analysis: 8270B/Semi-Volatiles

10 grams of sample were used for the extractions, due to limited sample amounts (The "normal" amount is approxiamtely 30 grams). The extract was concentrated to 1 milliliter.

A portion of the extract was diluted 1:50 prior to injection into the instrument, thus elevating the overall reporting from a nominal 330 ug/Kg to 50,000 mg/Kg. Please note that some compounds have baseline reporting limits lower (such as benzo(a)pyrene) or higher (e.g. benzoic acid) than 330 ug/Kg.

A 50X dilution was made on the extract, due to visual observation of a large amount of black sludge-like material in the bottom fourth of the vial.