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

CH2MHILL

SM-065/03
September 11, 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 G-GW-W, BUILDING DATA PACKAGE, FINAL
Bldg G-GFS/I: Planning Documents Approved - Activity ID: EBDEE00WBL
Bldg GW-GFS/I: Planning Documents Approved - Activity ID: EBDEE00WCL
Bldg W-GFS/I: Planning Documents Approved - Activity ID: EBDEE00WDL

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Mr. Provencher:

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

- Buildings G-GW-W, 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 937-865-4220.

Sincerely,

K. L. Kehler
SMPP/TFV Project Manager

KLK/VKD

Enclosures

cc: David Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Mary Wojciechowski, Tetra Tech, (1) w/attchs
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
Val Darnell, CH2M Hill, (1) w/attachments
Kurt Kehler, CH2M Hill, (1) w/attachments
John Fulton, CH2M Hill, w/o attachments
Bob Ransbottom, CH2M Hill, w/o attachments
Dave Rakel, CH2M Hill, w/o attachments
Admin Record (2) w/attachments
DCC (1) w/attachments

Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

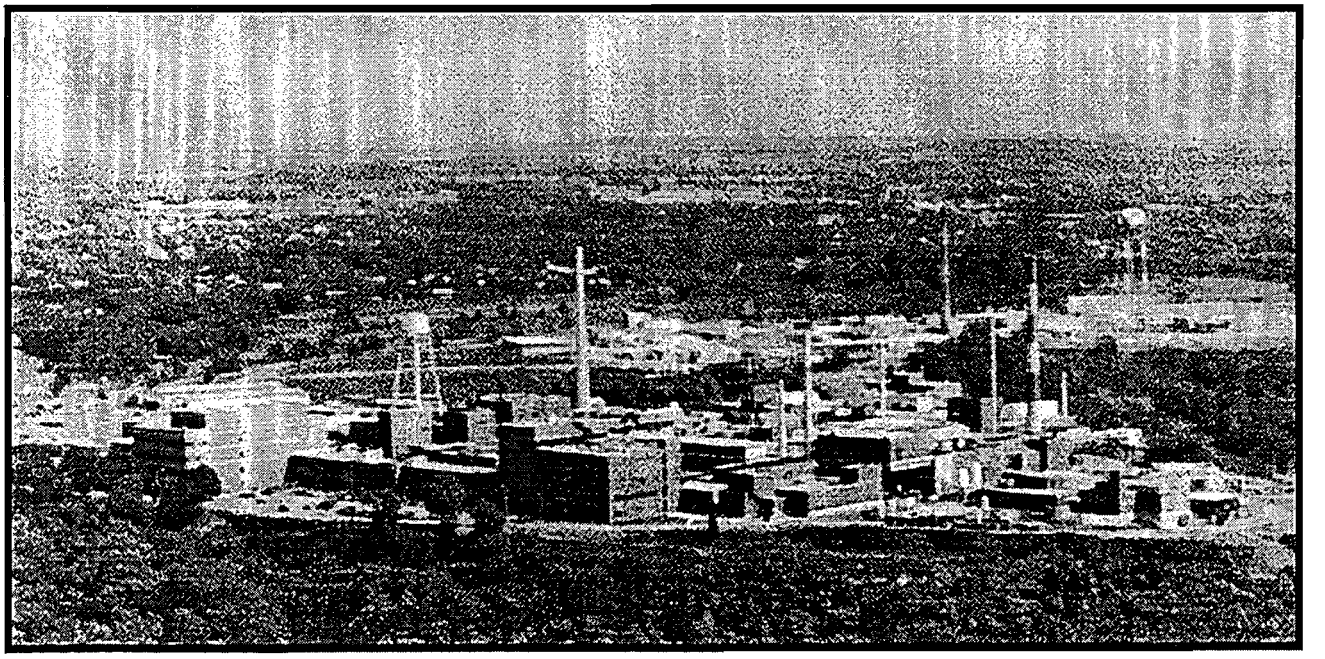
G-GW-W Buildings

(Demolition)

Final

September 2003

Volume 1 of 3 (text through Appendix F)



Due to the document size, the final version of the G-GW-W Buildings BDP is printed in three volumes: Volume 1 of 3 contains the text through Appendix F, Volume 2 of 3 contains Appendix G, and Volume 3 of 3 contains Appendix H through Appendix O.

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The Mound Core Team
500 Capstone Circle
Miamisburg, OH 45342

August 2003

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

Dear Mr. Bird:

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

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

Sincerely,

DOE/MCP: for Paul Lucas, Remedial Project Manager — 8/16/03 date

USEPA: David P. Seely, Remedial Project Manager — 8/20/03 date

OEPA: Brian K. Nickel, Project Manager — 8/20/03 date

Response to MMCIC Comments on the Buildings G-GW-W Building Data Package Public Review Draft July 2003

Substantive Comments

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

Response 1. We appreciate your input and review of the document. The Core Team understands MMCIC's request regarding reuse of the site, and encourages MMCIC to meet with DOE to obtain an agreeable end state.

Comment 2. MMCIC requests to be updated on the demolition action progress. We would appreciate a copy of any of the work plans available that pertain to the decontamination and demolition of these buildings.

Response 2. Keeping project participants informed of progress and changes as projects progress is the primary driver for several activities that MMCIC participates in; monthly Progress Meetings (aka FFA Meeting), monthly Core Team meeting, and weekly status coordination meeting. Demolition of the G-GW-W Building complex commenced on 5 August 2003, and is expected to be complete on 28 August.

Buildings G, GW, and W did not require decontamination, as all three buildings met radiological surface release criteria per the Final Status Reports (included in Appendix G of the Final BDP). The demolition work plan is included in Appendix O of the BDP (Public Review Draft and Final).

Comment 3. 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*. For the G-GW-W Building area, this reuse includes a combination of parking area, landscaped area and open green space.

Response 3. Per an email from Dann Bird (MMCIC) to Kurt Kehler (CH2) on 7/31/03, MMCIC would like the G-GW-W area to be seeded. The work plan (Appendix O of the BDP) includes site restoration as backfilling with gravel/soil, grading to support proper runoff, and seeding the area for erosion control. This plan supports MMCIC's request.

Errata

Comment 1. No comments.

Miamisburg Closure Project

MIAMISBURG CLOSURE PROJECT
BUILDING DATA PACKAGE
Notice of Public Review Period

The following Building Data Package (BDP) will be available on 2 July 2003 for your information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

BDP Buildings G-GW-W: Garage, Receiving/Inspection, and Warehouse

Questions can be referred to Frank Schmaltz at (937) 847-8350, ext. 304.

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BDP G-GW-W Buildings

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**June 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 July 2, 2003 through August 1, 2003. No comments were received from USEPA. Comments were received from Ohio EPA and addressed; however, no text changes to the BDP were indicated based on those comments. Public comments from MMCIC were received and the response is bound into the front of this document; however, no text changes to the BDP were indicated based on those comments.	**July 2003**
FINAL	Changes to the document made since the Public Review Draft include: Sections 2.4.1 through 2.4.3 - radiological summaries; Table 1 – radiological and asbestos information; Appendix G – Final Status Reports; and Appendix I – executive summary from the abatement activities report added to the end of the appendix. Due to the document size, the final version of the document is printed in three volumes: Volume 1 of 3 contains the text through Appendix F, Volume 2 of 3 contains Appendix G, and Volume 3 of 3 contains Appendix H through Appendix O.	**September 2003**

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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 G Building (Garage), GW Building (Receiving/Inspection), and W Building (Warehouse) 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 G, GW, and W Buildings 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 G, GW, and W Buildings, the soil beneath, and a 15-foot wide perimeter border around the buildings. The investigation of G, GW, and W Buildings 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 G-GW-W BUILDING OVERVIEW

G-GW-W Building, a three-building complex, is located near the north central portion of the site (Figure 1). G Building (Garage) and W Building (Warehouse) were two of the site's original structures when they were completed in 1948. GW Building (Receiving/Inspection), constructed in 1968, was built between G Building and W Building, connecting the complex.

G Building

G Building is a one-story steel frame building with brick and masonry block walls and a pre-cast cement tile roof deck. The building has 7,513 square feet of floor space and contains facilities for servicing and repairing motor vehicles.

GW Building

GW Building is a two-story structure constructed of rebar reinforced concrete block covered with brick veneer. In 1980, a second floor was built in the area of the north half of the building (original high bay); this addition brought the total floor area to 9,782 square feet. The floor is a 6" reinforced concrete slab. The foundation footers are set to 4'-4" below the floor surface. A 12" concrete storm sewer pipe is located under the building, 4' to 5' below the ground surface. The building has a built-up membrane asphalt roof.

W Building

W Building is a single-story steel frame building with brick masonry and concrete block walls, a pre-cast cement tile roof, and a reinforced concrete floor. A separate area enclosed by masonry walls with an acid-proof brick floor for the storage of acids was also included in the building. The front (north) dock of W Building was originally open-sided and covered with a canopy. Pre-cast concrete wall panels now totally enclose all but three openings across the front and sides of the original open dock area. Modifications to the building since initial construction, including a second-story office addition, brought the total floor space to 32,484 square feet.

Utilities

Sanitary service is provided by the site wastewater treatment facility (WWTP). The buildings are also serviced by potable water lines, service water (except GW Building), and a fire sprinkler water system. Electrical service to the buildings is 480 volts. The buildings use central steam for heating and central chilled water for cooling (except G Building).

2.1 Past Uses of G-GW-W Buildings

G Building

The function of G Building was to provide a work area for site mechanics to service, repair, and paint site vehicles. G Building has been used to service and repair a variety of vehicles, including motorized lawn equipment, motorized carts, automobiles, trucks, vans, busses, and heavy equipment. For a brief period during 1955, G Building was used for the temporary storage of thorium ore source material (in drums), which was later used in a thorium process in SW Building. Health physics reports published at the time indicate that the floors of G Building were scrubbed and decontaminated, and post cleanup monitoring indicated that the garage floor was clean. No thorium processing or thorium processing-related activities occurred in G Building.

GW Building

Constructed with a large high-bay area, the original function of GW Building was that of a warehouse. The building was remodeled with a second floor mezzanine-like addition that included offices, an equipment room, and a conference room. GW Building was used for receiving inspection and bonded storage of materials, including a small amount of chemicals used in weapons programs. The Records Management Group consolidated their offices in the building and GW Building was then used for long-term records storage including a refrigerated storage area for the massive collection of employee medical related x-rays. No research, development, or production activities using radioactive materials occurred in the building.

W Building

W Building was constructed to provide a building for the general storage of plant supplies and for the storage of maintenance materials. For a brief period during 1955, W Building was used for the temporary storage of thorium ore source material, which was later used in a thorium process in SW Building. Health physics reports published at the time indicate that the floors of W Building were scrubbed and decontaminated. Post cleanup monitoring indicated that the warehouse floor was clean. W Building was used only to temporarily store and manage the drums of thorium ore source material. No thorium processing or thorium processing-related activities occurred in W Building.

From the late 1950s through 1967, the southeastern corner of W Building was used as a Plastic Production Shop, to produce plastic molded headers in support of the site's detonator manufacturing mission. During the 1980s, W Building was transitioned into office space and into an area for the site's craft-related employees to work and to store their equipment and supplies. The trade related employees located in the building included carpenters, sheet metal workers/mechanics, pipefitters/welders, electricians, and heating, ventilation and air conditioning technicians. There was also a tool crib located in W Building.

2.2 Current Uses of G-GW-W Buildings

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

2.3 Summary of Environmental Concerns and Findings – G-GW-W Buildings

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data were found pertaining to the paint coatings in G-GW-W Buildings. Paint coatings were observed to be largely intact. Although untested paint coatings must be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the buildings (Appendix J).	If lead-based paint were present, it would not impact the demolition or disposal of the debris. Close worker disturbance of paint coatings will be avoided during demolition. If close disturbance is necessary, point of contact will be tested for lead and appropriate controls and personal protective equipment (PPE) will be used for disturbance as required.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Chemicals	Appendix K provides a list of chemicals reportedly used or stored in G-GW-W Buildings. Applicable pages from the CY2001 Emergency and Hazardous Chemical Inventory Report (dated March 2002) are also provided.	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.
Air Emissions	Appendix F contains a list of processes for each building that were considered to be air emission sources: G Building, pages F3, F5, and F6; GW Building, pages F25 and F26; W Building pages F56, and F62 through F65.	All processes have been discontinued. 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 survey (Appendix I) was completed in June of 2003 in accordance with EPA NESHAP requirements. Three types of materials were found to contain asbestos that were removed prior to demolition: pipe insulation, table top cement board lining, and exhaust gaskets. Roofing materials and floor tile are assumed to contain asbestos. Being classified as EPA Nonfriable Category I types of materials, the removal of roofing and floor tile is not necessary prior to demolition by normal heavy-duty means.	Asbestos abatement was performed prior to building demolition to remove pipe insulation, tabletop cement board lining, and exhaust gaskets in accordance with current state and federal regulations. The Executive Summary for the asbestos abatement activities is included at the end of Appendix I.
Drainage Sumps	There are no drainage sumps.	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	For a brief period during 1955, G and W Buildings were used for the temporary storage of thorium ore source materials. Health Physics reports published at the time indicate that the floors of the affected buildings were scrubbed and decontaminated. Post cleanup monitoring indicated that the floors of these buildings were clean. No research, development, or production activities using radiological materials occurred in G-GW-W Buildings.	All three buildings meet radiological surface release criteria. The Final Status Reports for each building are included in Appendix G.
Septic System	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Wastewater	Handled by site wastewater facility.	N/A
Stains & Corrosion	The G Building Environmental Appraisal (Appendix F pages 54 and 55) mentions stains observed near the floor drains. The presence of stains near the drains implies a possible previous spill; however, the site occurrence reporting system does not have any record of a spill in G Building. During a 19 June 2003 walk-through of G Building, the stains documented in the 1995/96 Environmental Appraisal were not present.	No further action required.
Storage Tanks	An underground waste oil tank (Tank 262, PRS 332) was installed in 1947 as part of the G Building construction. The tank was located adjacent to the east face of G Building, just south of the northeast corner (in the footprint of the future GW Building). The tank was installed approximately two feet below grade, was made of concrete, and had a capacity of 550 gallons. Based upon historical accounts from personnel present during construction of GW Building, the tank was removed prior to the construction of GW Building. However, site documentation indicates that the tank is inactive, but remains in place. There are no other aboveground or underground storage tanks within 15 feet of the perimeter of G-GW-W Buildings. Appendix F, page 4 refers to two aboveground storage tanks associated with G Building. This reference is to the former Building 110 (fueling station), which was demolished in 2002. The aboveground tanks were not in the immediate vicinity of the buildings covered in this demolition activity.	PRS 332, G Building Waste Oil Tank (Tank 262), was binned No Further Assessment (Table 5) in 1996. The demolition craft will be made aware of the possibility that an underground tank may be present under the GW Building slab. If the tank is found, it will be removed and its removal documented in the Closeout Report.
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Radon	Within acceptable limits for G and W Buildings (Appendix H). GW Building 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 GW Building is located between G and W Buildings, it could be inferred that GW Building 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 G-GW-W Buildings.	N/A
Soil Contamination	Appendix L contains graphics showing all soil sample locations within 15-feet of the perimeter of G-GW-W Buildings, and provides tables for all detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). All soil gas sample results are below the calculated acceptable soil gas concentrations. Unbinned PRS 106 (G Building Soils) addresses possible contamination in the Garage area soils.	All radiological soil 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). The Environmental Restoration (ER) group will perform soil sampling of the Garage area soils (PRS 106) after the G-Building slab is removed and present the sampling data to the Core Team to determine if further action is needed.

N/A: Not applicable

2.4 Radiological Characterization Summary for G-GW-W Buildings

Radiological assessments of G-GW-W Buildings were performed by reviewing operational history and preliminary radiological survey information.

2.4.1 Radiological Characterization of G Building

G Building was constructed to provide a building for servicing, repairing and painting automobiles. Over the years, the Garage has been used to service and repair a variety of vehicles, including motorized lawn equipment, motorized carts, automobiles, trucks, vans, buses, and heavy equipment.

In addition to the Garage's function as a vehicle maintenance area, the Garage was temporarily used in 1955 as an interim storage area for thorium source material. No thorium

processing or thorium processing-related activities occurred in G Building. The area was decontaminated after the drums were removed. No subsequent storage or use of radiological material was indicated.

Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The fixed point, scanning, and smear surveys found no residual activity above the $DCGL_w$. 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 provided in the Final Status Report (Appendix G).

Table 2 - Radiological Summary of G Building

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm²) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm²) (Note 2)
Highest Alpha Smearable Activity	03-TF-0155	Interior Wall	9.24	20
Highest Alpha Fixed Activity	03-TF-0154	Floor	94	100
Highest Beta Smearable Activity	03-TF-0154	Floor	11.98	1,000
Highest Beta Fixed Activity	03-TF-0149	Exterior Walls	1,354	5,000
Highest Tritium Smearable Activity	03-TF-0155	Interior Wall	43.75	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.

2.4.2 Radiological Characterization of GW Building

GW Building was originally built as a warehouse and included offices for various projects and a receiving/inspection area for weapons programs. GW Building 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. Storage activities have included "bonded" chemical storage and records management storage. GW Building has also housed a quality control area containing precision instrumentation that supported advanced device production activities.

Surveys were performed throughout the building in accordance with the MARSSIM. The fixed point, scanning, and smear surveys found no residual activity above the $DCGL_w$. 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 provided in the Final Status Report (Appendix G).

Table 3 - Radiological Summary of GW Building

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm²) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm²) (Note 2)
Highest Alpha Smearable Activity	03-TF-0152	Floor	7.09	20
Highest Alpha Fixed Activity	03-TF-0148	External Wall	77	100
Highest Beta Smearable Activity	03-TF-0152	Floor	14.59	1,000
Highest Beta Fixed Activity	03-TF-0148	External Wall	1,296	5,000
Highest Tritium Smearable Activity	03-TF-0152	Floor	25.22	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.

2.4.3 Radiological Characterization of W Building

W Building was constructed to provide a building for the general storage of plant supplies and for the storage of maintenance materials. The *Plastic Production Shop* was initially located in W Building and was used to manufacture plastic detonator components. W Building housed carpenters, sheet metal workers/mechanics, pipefitters/welders, electricians, and heating, ventilation and air conditioning technicians. In 1955, drums of thorium source material were stored in W Building, but no thorium processing or thorium processing-related activities occurred in W Building. W Building also included office space for various support services.

Surveys were performed throughout the building in accordance with the MARSSIM. The fixed point, scanning, and smear surveys found no residual activity above the $DCGL_w$. 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 provided in the Final Status Report (Appendix G).

Table 4 - Radiological Summary of W Building

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-0145	Floor Room 131	6.56	20
Highest Alpha Fixed Activity	03-TF-0135	South Dock	83	100
Highest Beta Smearable Activity	03-TF-0135	North Dock	17.66	1,000
Highest Beta Fixed Activity	03-TF-0133	Roof	4,300	5,000
Highest Tritium Smearable Activity	03-TF-0139	Interior Wall	88.2	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.

2.5 National Historic Preservation Act (NHPA)

G and W Buildings are two of Mound's original structures built to support the polonium processing and research mission. Consequently, the Ohio Historic Preservation Office (OHPO) has determined G and W Buildings to be historic structures. Consistent with guidelines established by OHPO in a Memorandum of Agreement (MOA) between DOE and the Advisory Council on Historic Preservation, document packages were prepared to mitigate the adverse impacts.

The mitigative document packages have been completed and the demolition of these structures can proceed without the need for any additional evaluations of the activities to affect or impact cultural resources or historic property. 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.

GW has not been identified as a historic structure and therefore does not require a mitigative document package.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

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

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

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

3.2 Description of Structures, Roads, Other Improvements in Proximity to G-GW-W Buildings

As shown in the Appendix C figures, G-GW-W Buildings are bordered by a paved parking area and a roadway on each of the north and south sides of the buildings. Beyond the roadway to the north are OSE Building, GP-1 Building, and an asphalt parking lot. Beyond the roadway to the south are Building 28, P Building, and a water tower. G-GW-W Buildings are bordered by Building 47 (scheduled for demolition prior to demolition of this complex) on the east side and Buildings 40 and 99 on the west side.

3.3 Current and Past Uses of Buildings in Proximity to G-GW-W Buildings

OSE Building, located north of G Building, is a four-story, 90,072 square-foot structure used to provide engineering offices, DOE offices, photographic services, an auditorium, and computer facilities. Building GP-1 (Guard Post 1), located north of W Building, is a one-story, 8,000 square-foot structure which contains a firing range and a communications center and is used for the training of security personnel and for office space. Building 47, located east of W Building, is a single-story, 3,611 square-foot building which more recently served as the Central Fire Station. Previously, Building 47 contained an administrative area, a weapons storage area, and a classified waste storage area when it was used as

the Security Facility for Mound's protective force. Building 28, located south of W Building, is a one-story, 11,329 square-foot building which is currently being leased to a company that is using it as a machine shop. Previously, the building was used for ceramics development and production. P Building (Powerhouse), located south of G and GW Buildings, is a one-story (with mezzanine), 15,143 square-foot building that contains the facilities and equipment necessary to provide the site with centralized process and breathing air, steam and condensate, chilled water supply and return, potable water, and electrical power distribution. Building 40, located west of G Building, is a three-story, 12,200 square-foot building that contains offices and a vault for document storage. Previously the first floor of the building housed the printing and microfilming shops. Building 99, located northwest of G Building, is a four-story, 11,412 square-foot building that provides administrative areas for security personnel, an emergency operations center, a locksmith shop, and a mechanical room. Building 60, demolished in May 2003, was a single-story (with a basement) 3,958 square-foot building that was used for ceramic development and nondestructive testing. Building 60 was located southeast of W Building. Building 91, dismantled and moved offsite in 1998, was a two-story, 8,065 square-foot modular building which provided office space and space for dosimeter evaluation. Building 91 was located north of GW and W Buildings in an area that is now a parking lot. The current and previous buildings in proximity to the G-GW-W Buildings are believed to have had no environmental impact on G-GW-W Buildings.

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 reportable chemicals were stored in G-GW-W Buildings (see 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." The Mound 2000 Process system divided the site into geographical parcels containing over 400 PRSs with approximately equal numbers of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had releases of radioactive and/or hazardous materials. For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach*.

4.2 Specific Record Sources for G-GW-W Buildings

4.2.1 Occurrence Reports

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

G Building

- suspect and counterfeit items (bolts on door of forklift).

GW Building

- smoke detector alarm activation due to exhaust from forklift.

W Building

- boom truck hit a protective barrier at Guard Post 5, then was driven to W Building for an assessment of damages;
- discovery of radioactive contamination outside a radiological area which resulted in a survey of tools in storage in W Building;
- contaminated wrench found in Building 94 and contaminated tools found in W Building, and;
- glycol release at Plant Outfall 601 due to release from an air-purge vent on the W Building penthouse air-handling unit (Section 4.2.2, Spills and Releases).

4.2.2 Spills and Releases

Occurrence Report No. OH-MB-BWO-BWO06-2001-0005 (Appendix M) indicates that in October 2001, a quantity of glycol from the plant cooling system (30% glycol) spilled from an air-purge vent on an air-handling unit located in W-221 penthouse. The spilled glycol went to the W Building floor drain and subsequently to the WWTP for treatment. Before treatment of the glycol-contaminated water was completed, it was inadvertently released at Plant Outfall 601. It was estimated that 52 gallons of 100% glycol was released at the outfall. Although this amount was below the reportable quantity for glycol (5,000 pounds),

the environmental release was reported to DOE/MEMP, OEPA, and to the Surface Water Quality Division of the OEPA Southwest District Office. A flushing process to clean the glycol from the W Building floor drain and the drainline pipes to the WWTP was performed after the release. Since glycol is very water soluble, the flush is assumed to have removed the glycol from the drain lines in W Building and testing to confirm the removal was not warranted. The release of glycol is believed to have had no environmental impact on W Building.

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, eight are at or near G-GW-W Buildings, as identified in Table 5. Additional information is included in Appendix N.

Table 5 - PRSs in Proximity to G-GW-W Buildings

PRS	CERCLA or Bldg. Related	Binning Status	Comments
106*	CERCLA	Unbinned (UB)	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)
113	CERCLA	NFA	Powerhouse Soils
126	CERCLA	NFA	Building 28 Solvent Storage Area
242	CERCLA	NFA	VOC Potential Hot Spot Location 1016
332	CERCLA	NFA	G Building Waste Oil Tank (Tank 262)

**PRS 106, Garage Area Soils, will be sampled after the G-Building slab is removed. The sampling data will be presented to the Core Team to determine if further action is needed. The Core Team's recommendation will be included in the G-GW-W Buildings Closeout Report.*

4.3 Review of Building Prints

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

4.4 Aerial Photographs

Aerial photographs from 1949 (following construction of G and W Buildings), 1965 (prior to construction of GW Building), 1968 (following construction of GW Building) and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

Past Building Manager, J. L. Boston, was interviewed via the building manager questionnaires (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 buildings were identified based on the questionnaires or interviews.

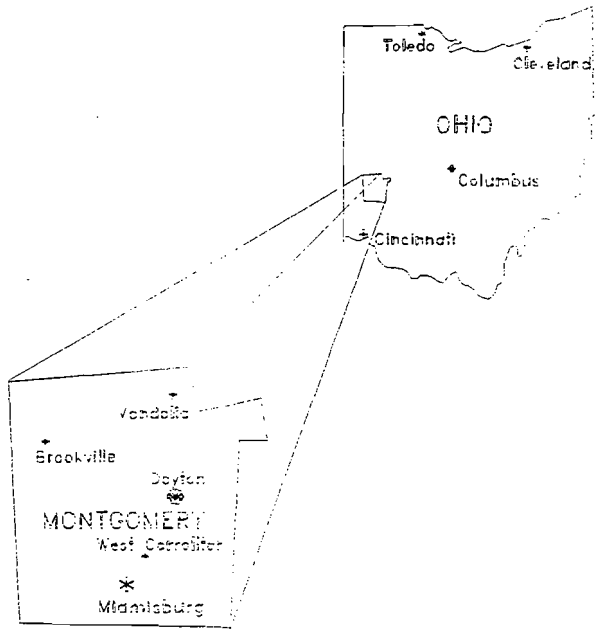
Appendix A

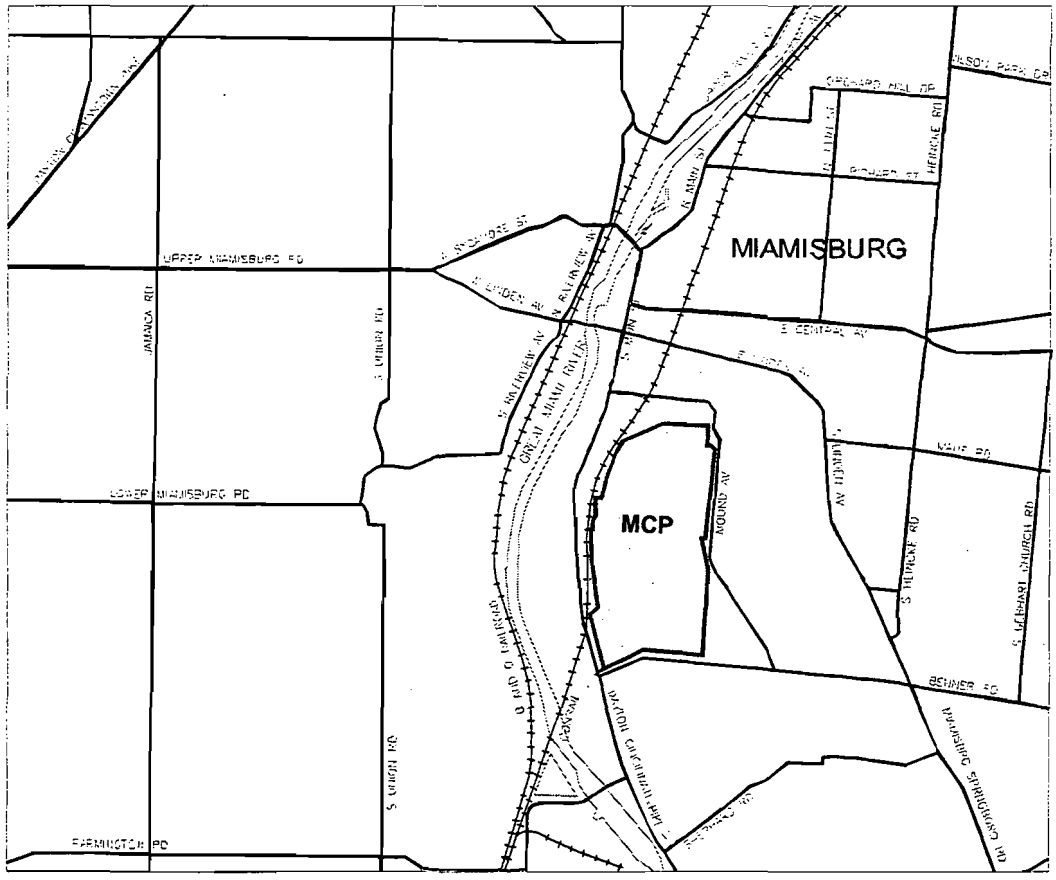
General Listing of Acronyms

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

Appendix B

Map of Montgomery County


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


MIAMISBURG
MCP
UPPER MIAMISBURG RD
LOWER MIAMISBURG RD
FARMINGTON RD
JAMAICA RD
S VERNER RD
S GROVE RD
S RIVERVIEW AV
S MAIN ST
S MOUND AV
S CENTRAL AV
S HERTZLER RD
S LEBANON CHURCH RD
BEHNER RD
MAIN RD
GREAT MIAMI RIVER
DAYTON CINCINNATI
CSX CINCINNATI SPRINGFIELD

Appendix C

Figures

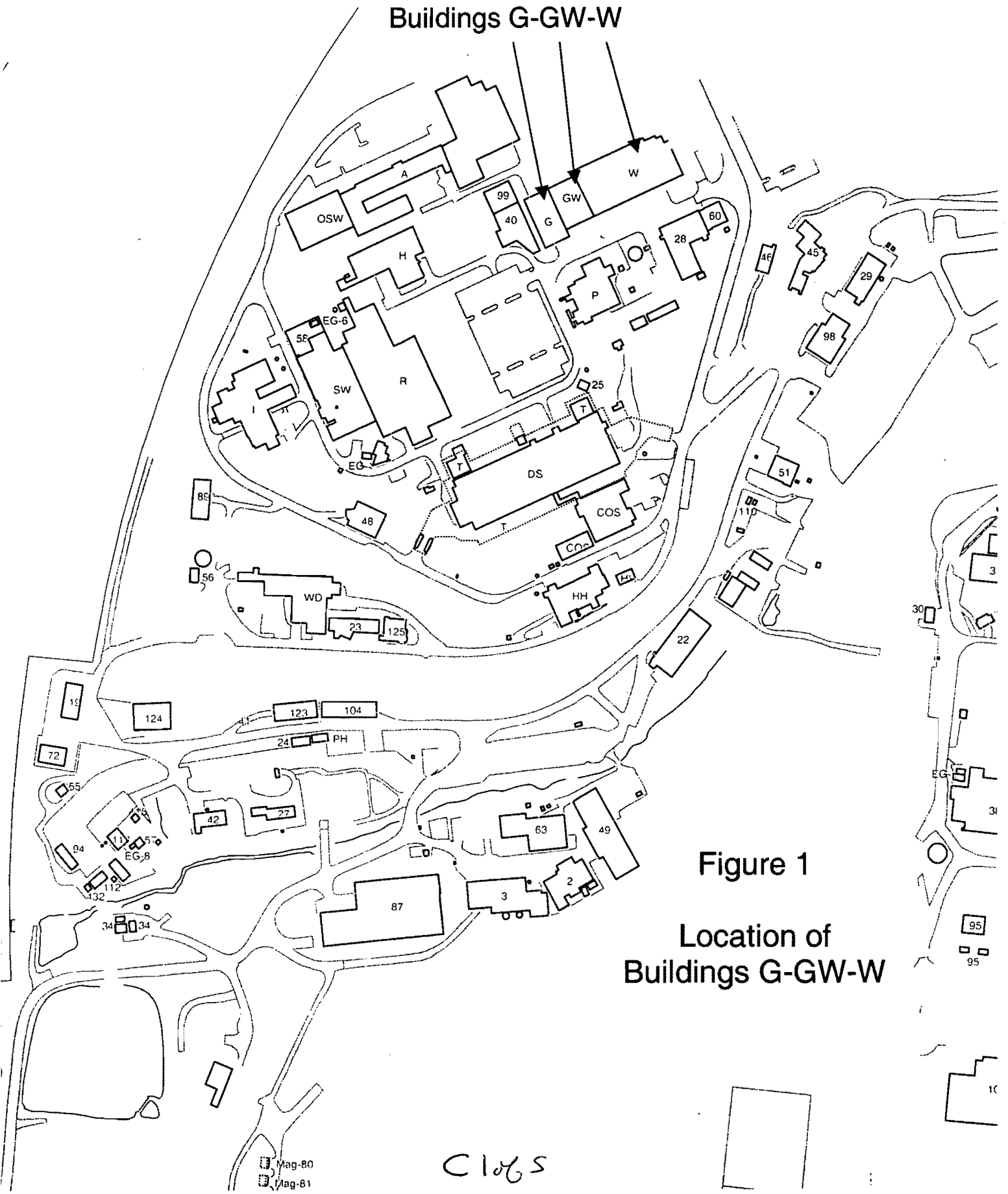


Figure 1

Location of Buildings G-GW-W

C1065

- PRS Point
- PRS Area
- PRS Line

20 10 0 20 40FT
GRAPHIC SCALE

MOUND
Environmental Restoration Geographic Information System

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

SHEET	1	2	3	4	5	6
ISSUE						

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER | JOB NUMBER

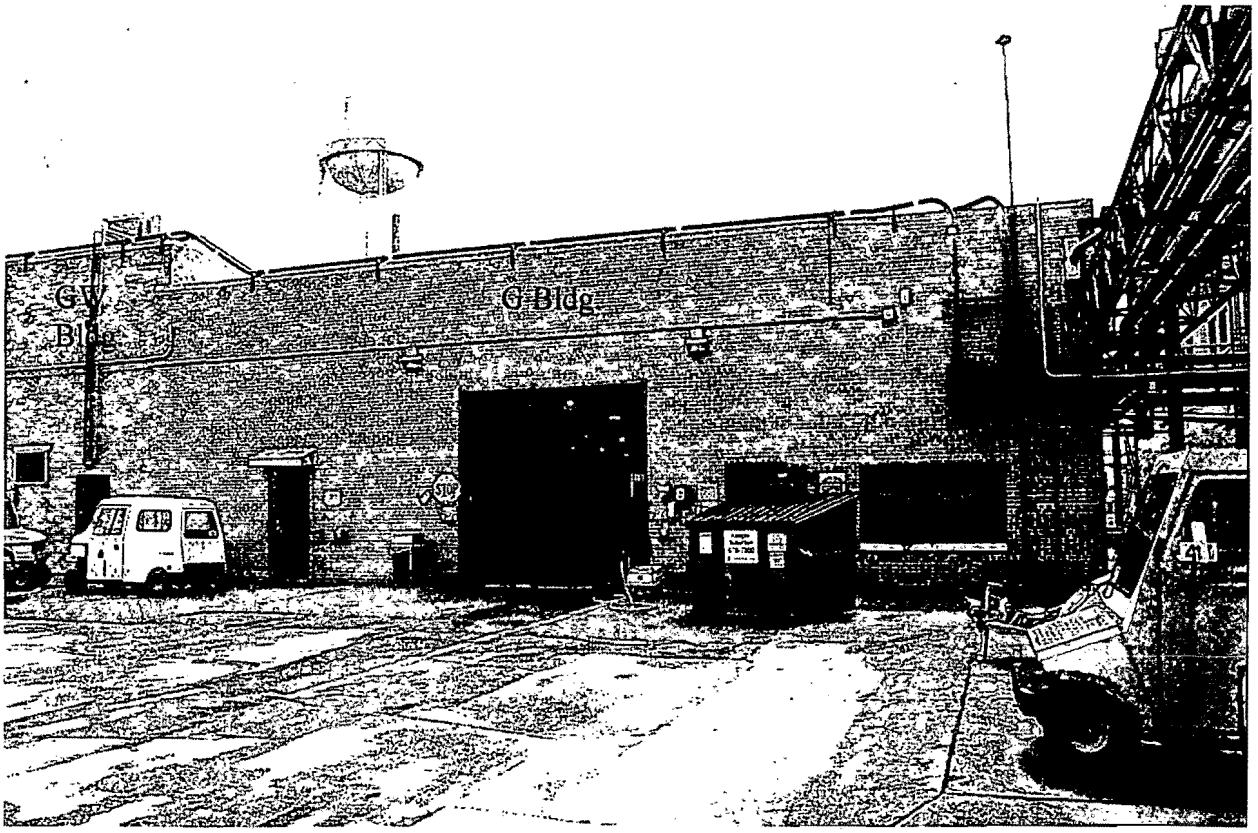
DWG TYPE STE | PRNG ER-GIS | CAGE | SCALE # | SHEET 1 OF 1

STATUS MD-REL-05/12/03 | ORIGIN MSTATION / J

Figure 2: Buildings G, GW, W and Vicinity

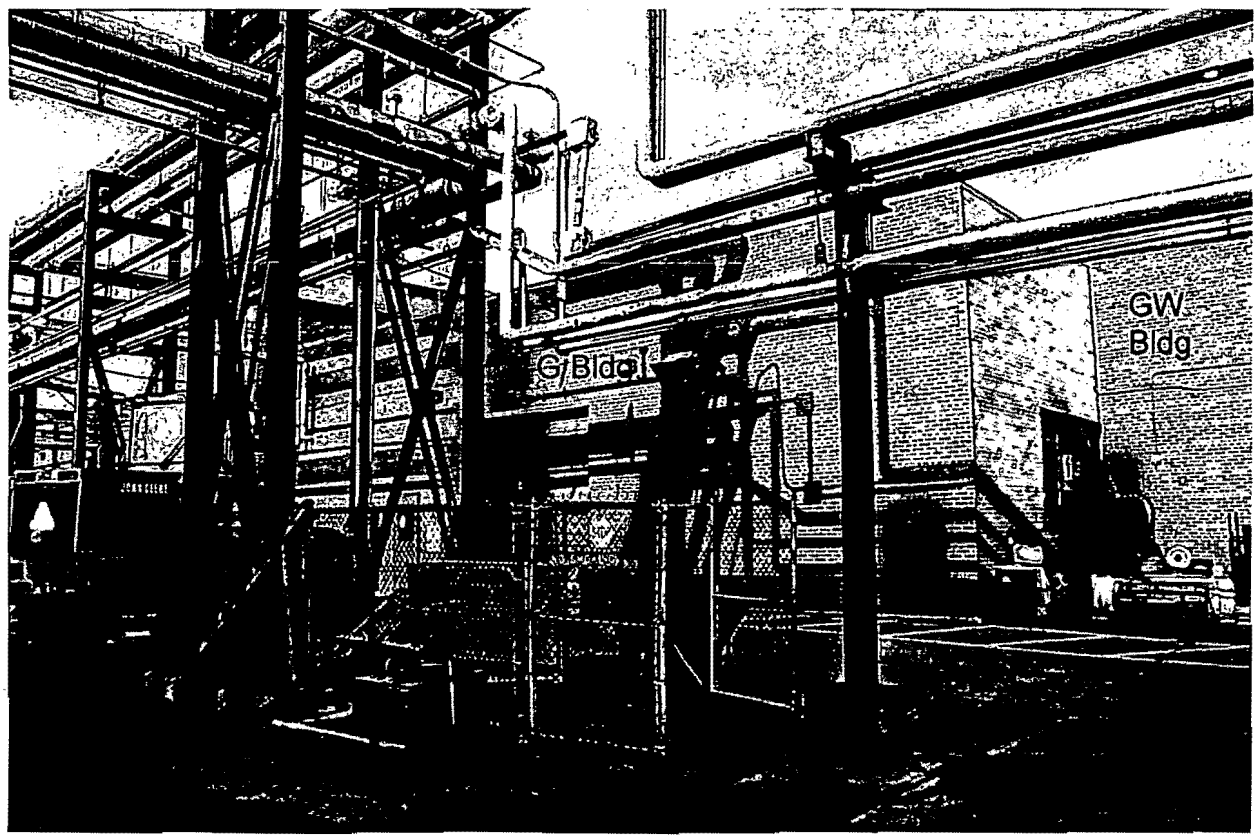
ISS	DATE	REVISION	BY	CHKR	ENG	LPMCC	APVD	#
	05/12/03		SSF					

C2of5



North Face

Figure 3
G Building



South Face C306 S

North Face

Figure 3
GW Building

South Face C4 of 5

South and East Face

North Face

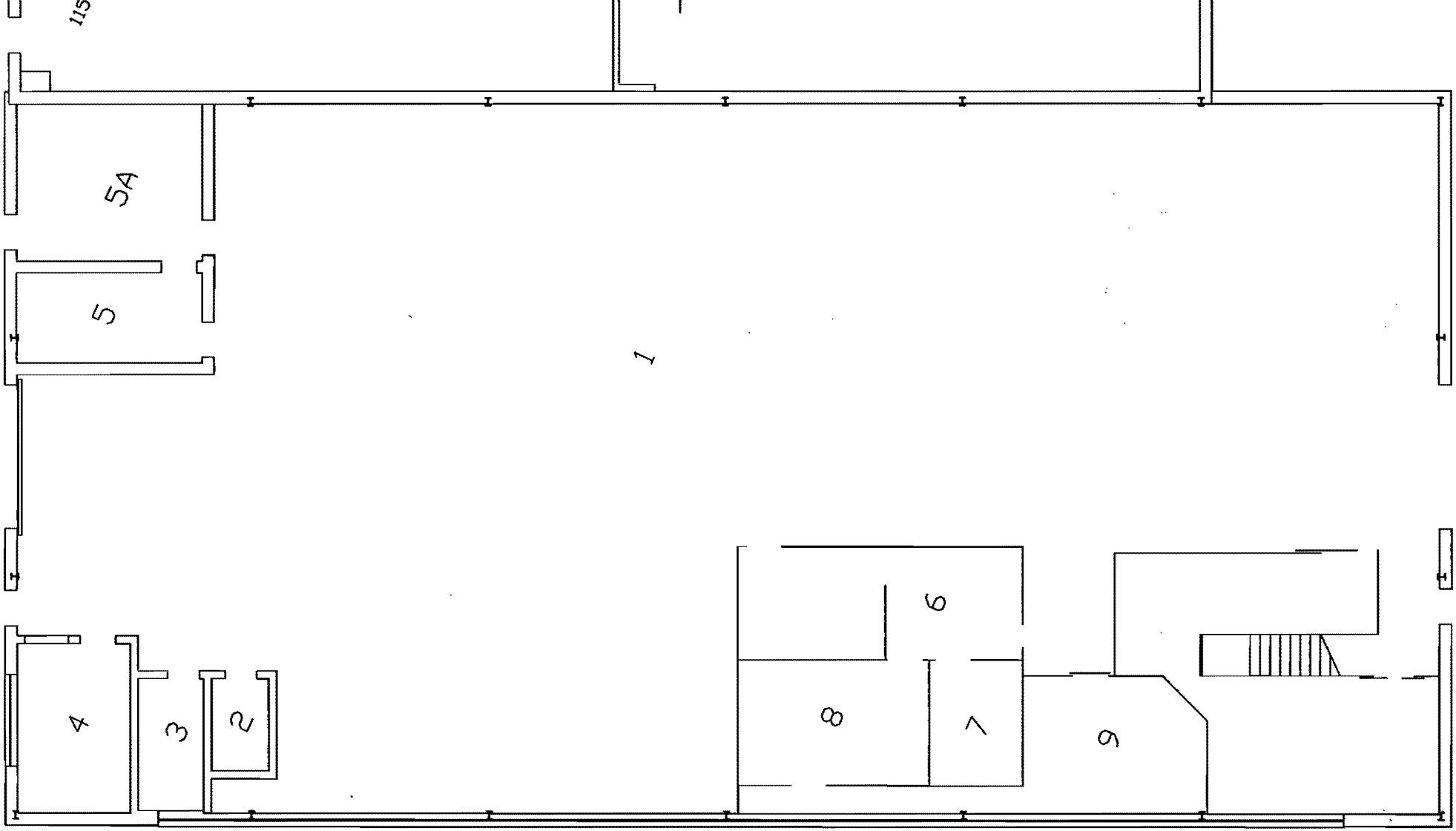
Figure 3
W Building

South Face

CS06S

Appendix D

Floor Plans



D 1 of 5

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	*					

PART CLASSIFICATION

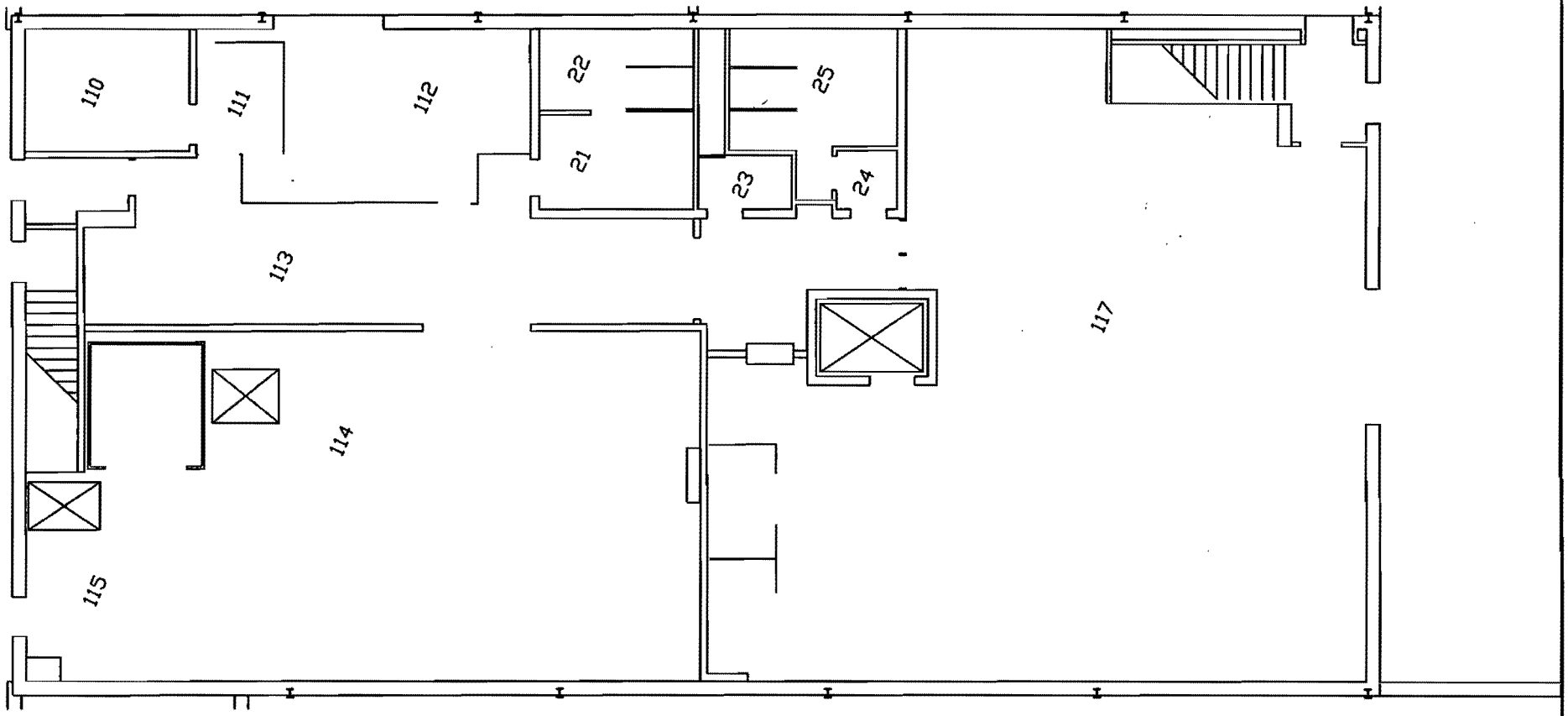
DRAWING CLASSIFICATION: UNCLASSIFIED

Building G
Floor Plans
First Floor

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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



D2 of 5

MOUND

Environmental Restoration Corporation

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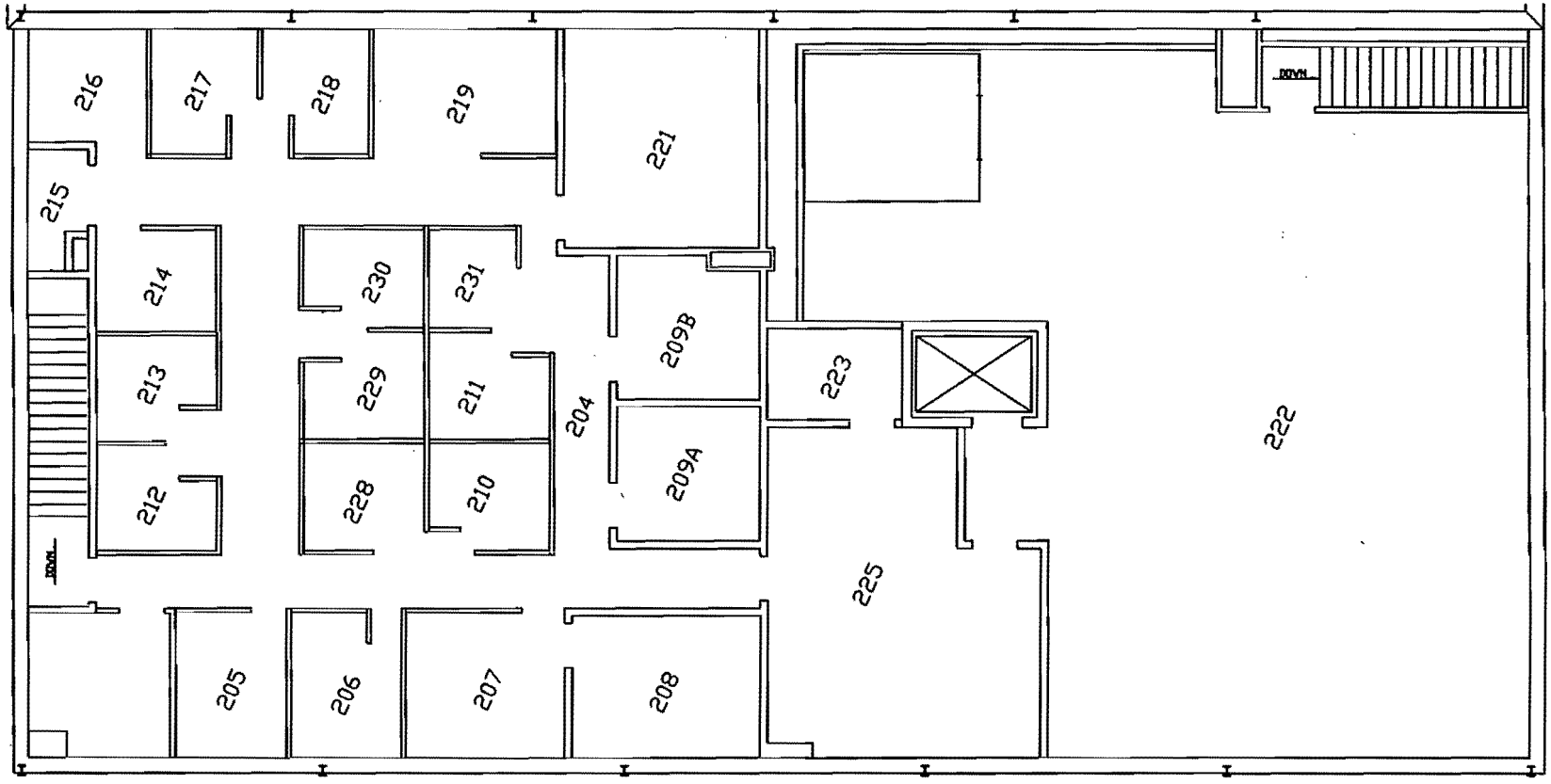
ISSUE																					
SHEET	1	2	3	4	5	6															
ISSUE	•																				

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

Building GW
Floor Plans
First Floor



D3 of 5

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	•					

PART CLASSIFICATION

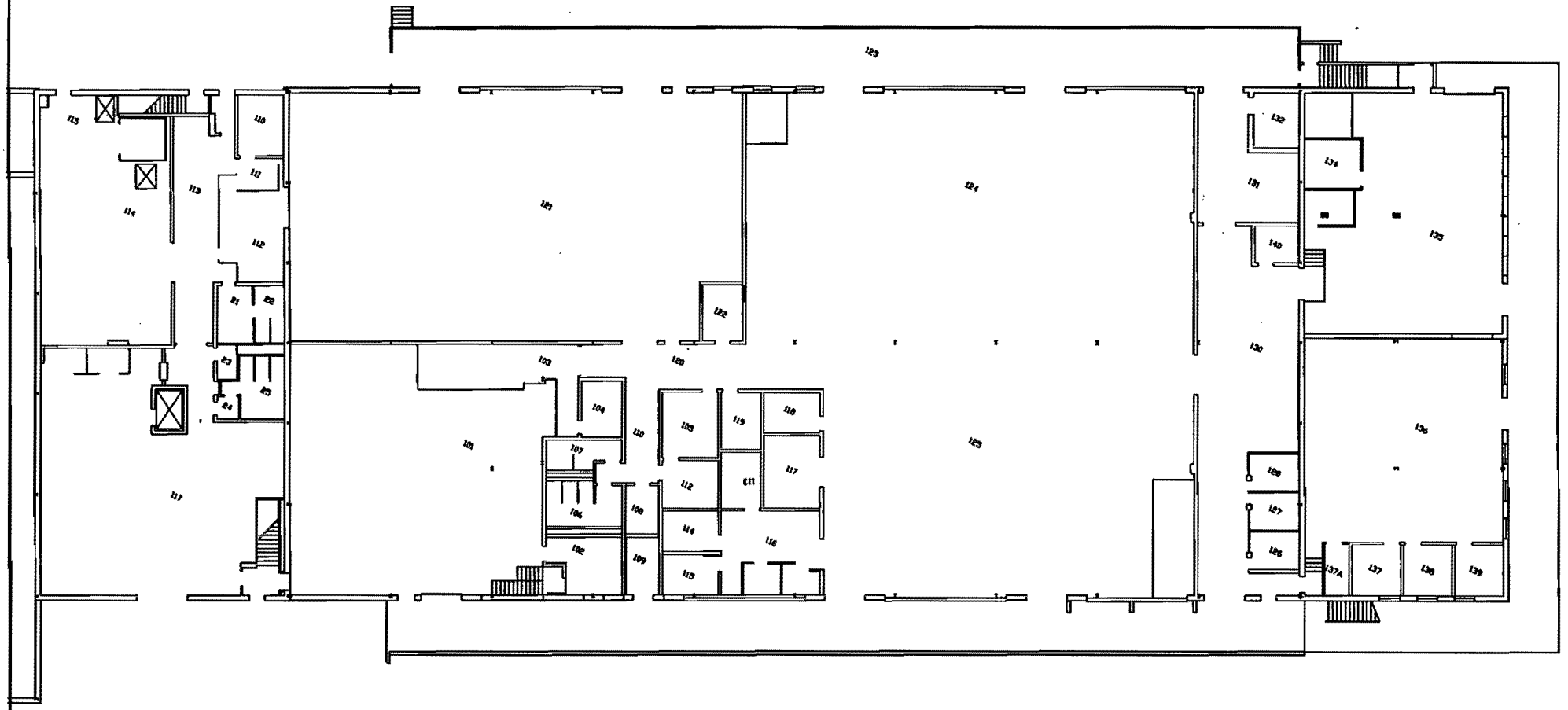
DRAWING CLASSIFICATION: UNCLASSIFIED

Building GW Floor Plans Second Floor

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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



D4 of 5

MOUND

Environmental Restoration

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ISSUE																					

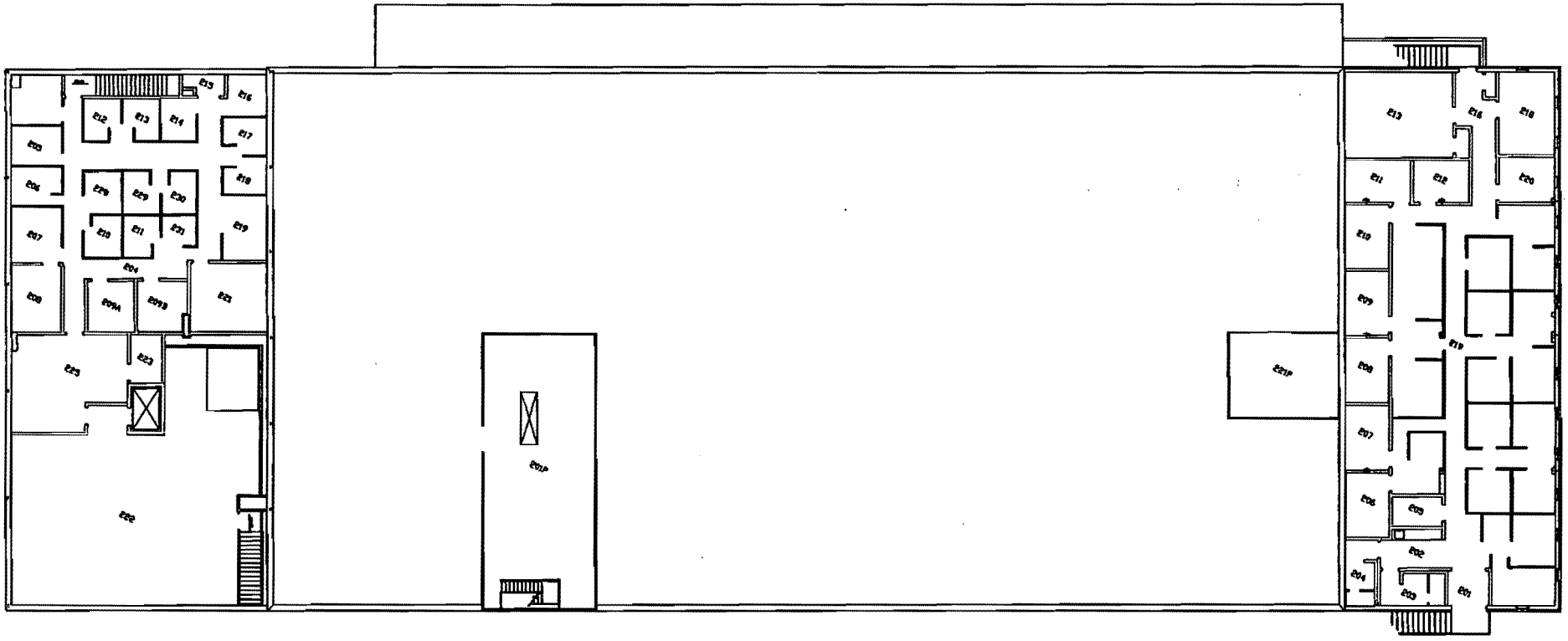
SHEET	1	2	3	4	5	6
ISSUE	•					

PART CLASSIFICATION

DRAWING CLASSIFICATION
UNCLASSIFIED

Building W
Floor Plans
First Floor

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER



05 of 5

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	•					

PART CLASSIFICATION

DRAWING CLASSIFICATION UNCLASSIFIED

Building W Floor Plans Second Floor

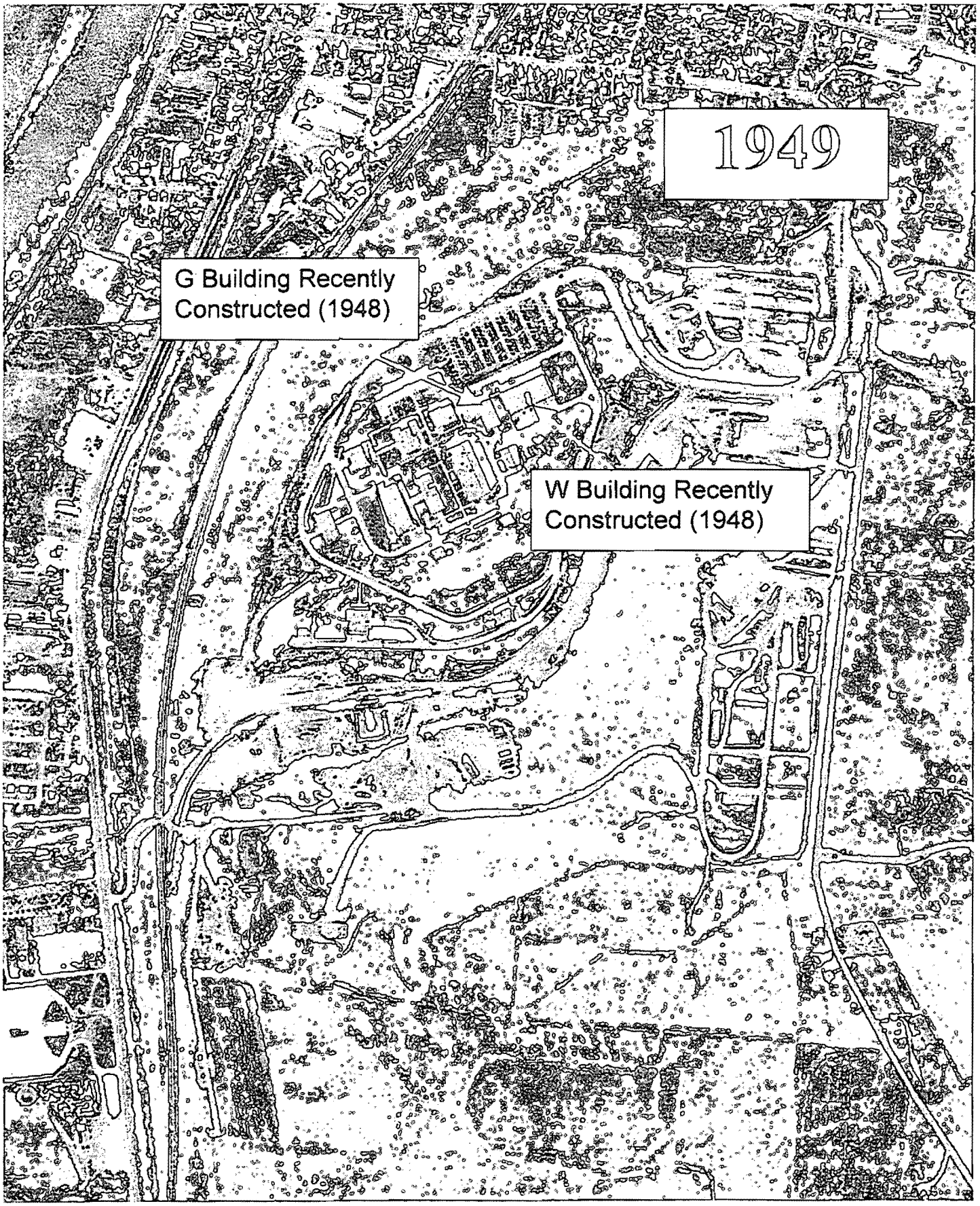
SIZE | DRAWING NUMBER MAPS.DWG | JOB NUMBER

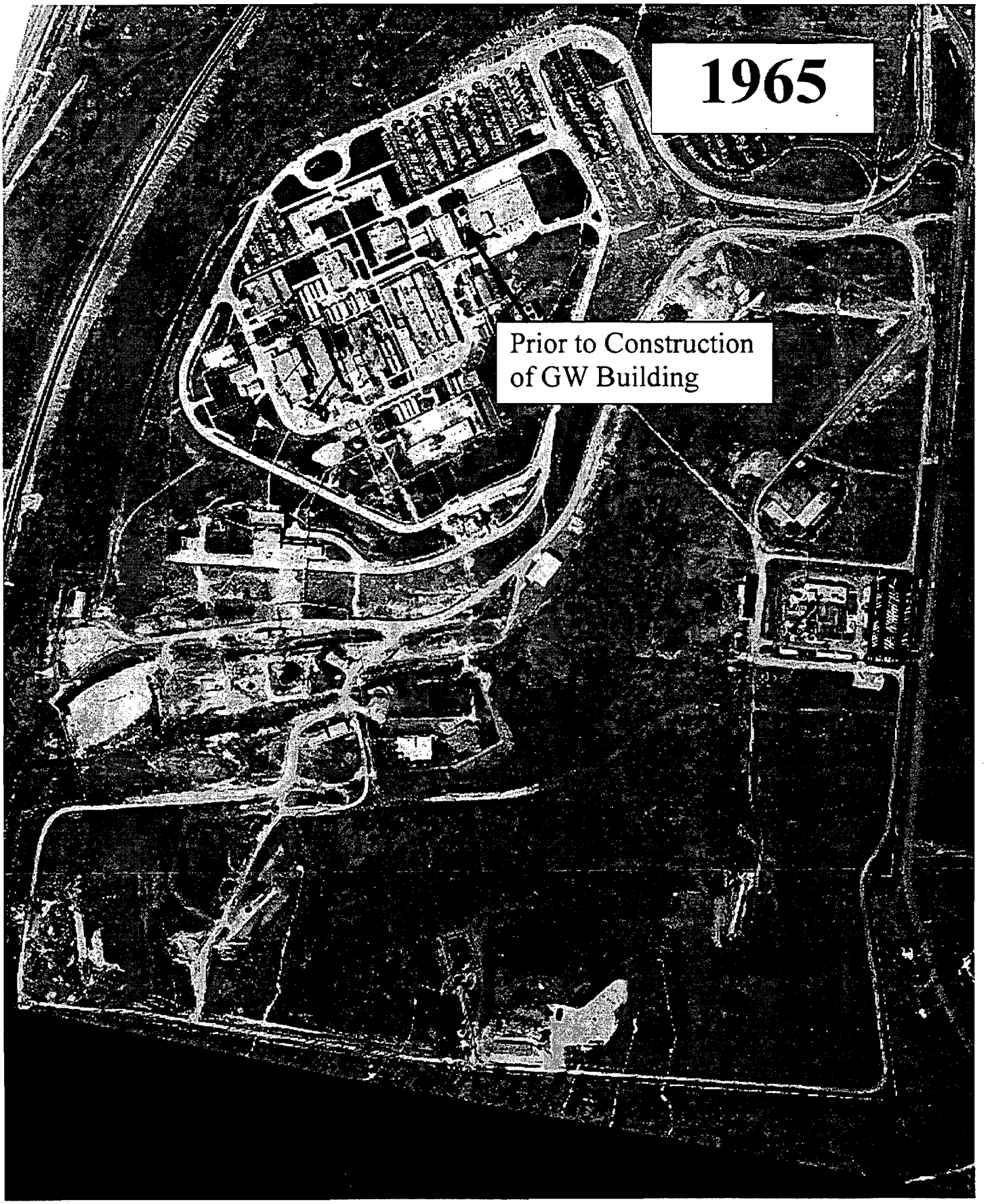
DWG TYPE STE | PRMG ER-GIS | CAGEC | SCALE | SHEET 1 OF

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

Appendix E

Aerial Photographs


1949
G Building Recently Constructed (1948)
W Building Recently Constructed (1948)



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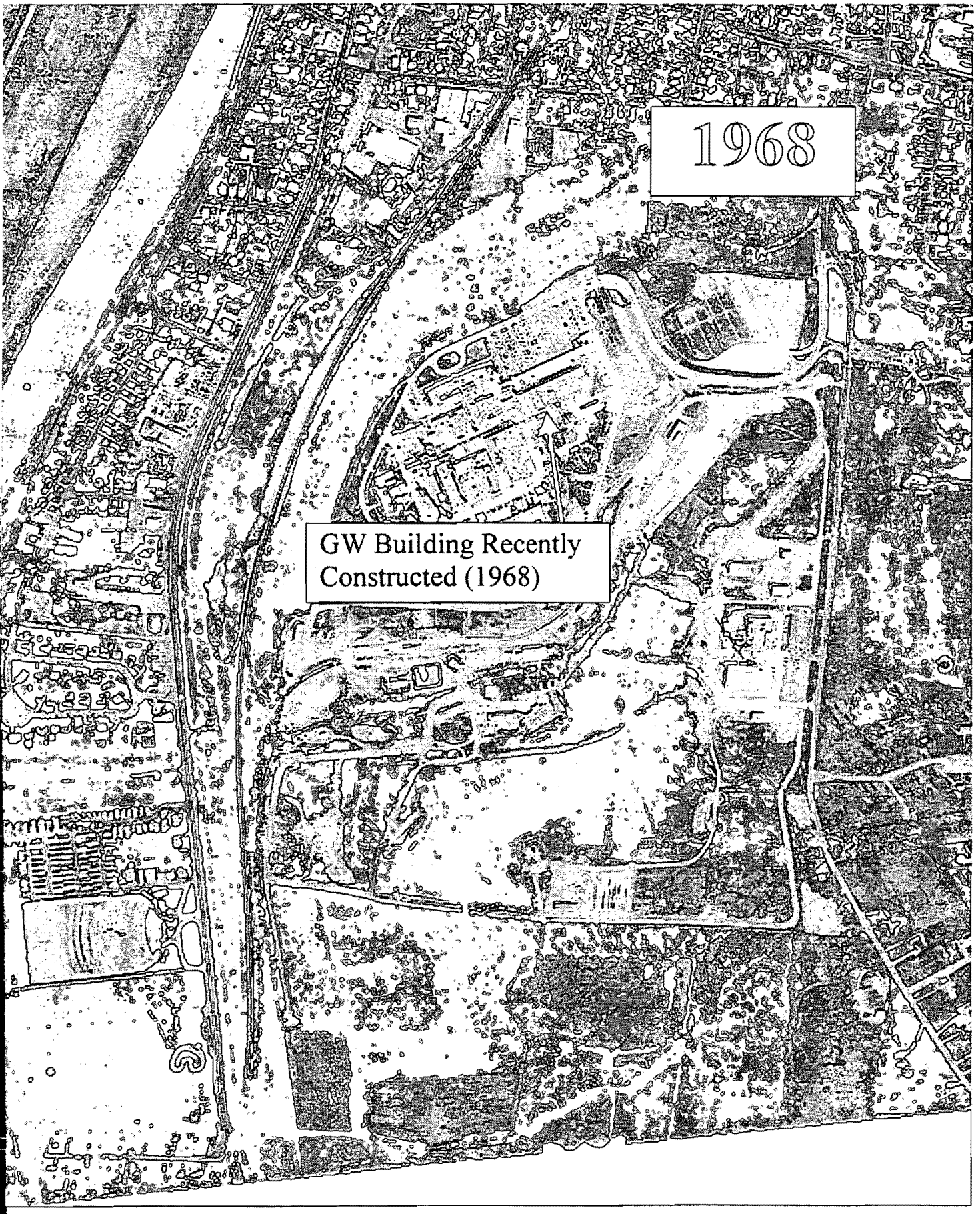
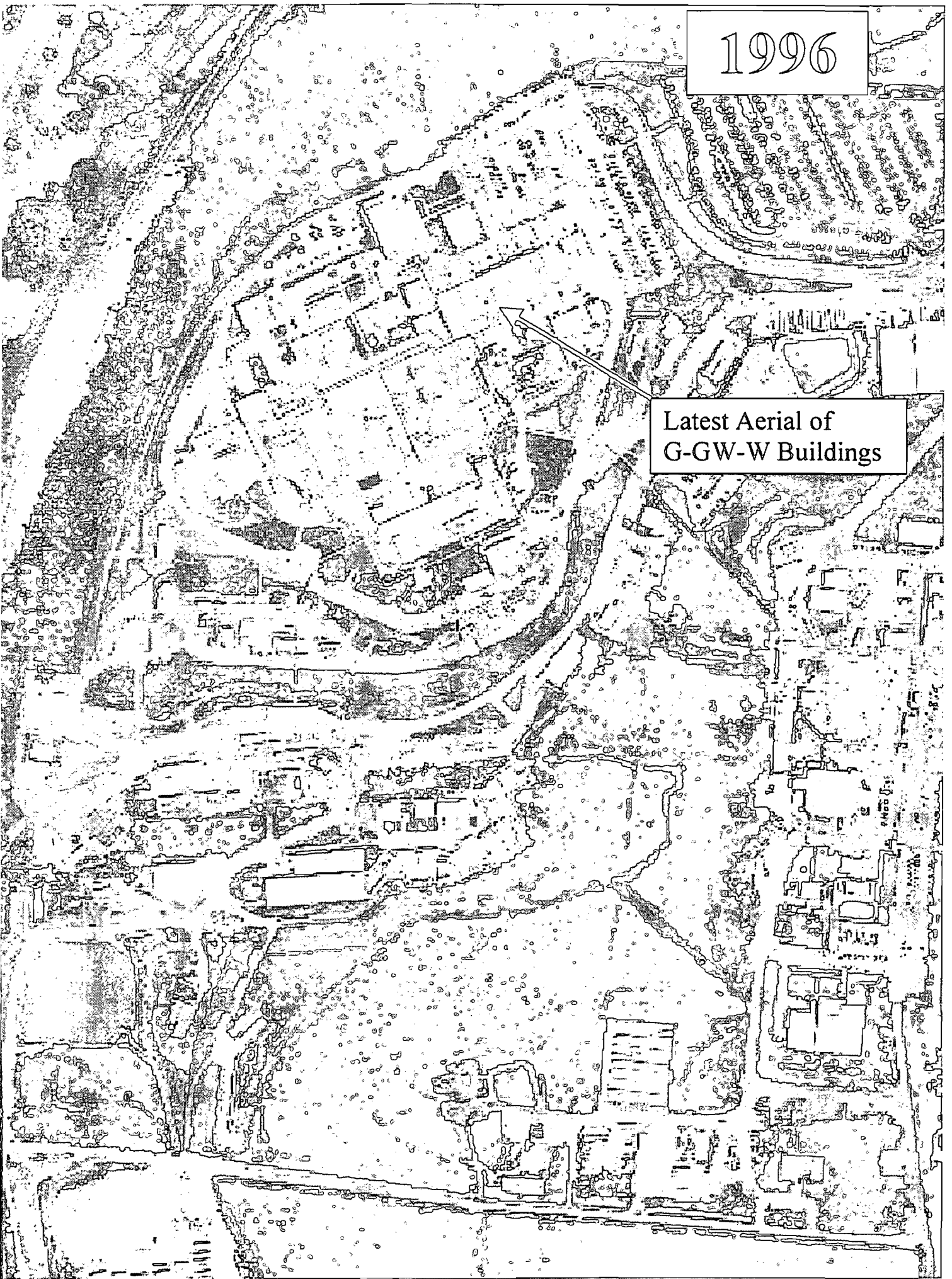


E 3of 4



F4SP4

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

	Pages
• G Building	F1 through F56
• GW Building	F57 through F118
• W Building	F119 through F178

9.7 BUILDING G (Garage)

9.7.1 Scope of Building G (Garage) Report

In late 1995 and the early months of 1996, EG&G MAT performed a review of environmental conditions at the Mound Plant. The purpose was to develop a performance baseline, and to identify areas for improvement on a building and a sitewide basis. EG&G MAT did not perform a "due diligence" or Phase I Environmental Site Assessment as specified by ASTM 1527 or ASTM 1528. The scope of the appraisal effort and a discussion of the appraisal methodology are detailed in Sections 2.0 and 5.0, found in Volume 1 of this report.

The appraisal team performed a walk-through of Building G (Garage) on February 26, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.7.6.1). The appraisers were accompanied by the building manager and 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 9.7.6.2).

9.7.2 Description of Building G

Building G is a one-story, 7,518-square-foot concrete block building with brick facing and a metal built-up membrane roof. Building G services 137 fleet vehicles and 26 pieces of heavy-duty equipment. The facility is overcrowded with supplies and equipment. Approximately one-fourth of the building houses a caged storage area for janitorial and grounds maintenance supplies and equipment. The location is shown in Attachment 3 (Section 9.7.6.3). Adjacent buildings are Building OSE to the north, Building 40 to the west, Building GW to the east, and Building P to the south. Floor plans are presented as Attachment 4 (Section 9.7.6.4). The building is serviced by central steam for heat, chilled water, and electrical service (*Mound Facility Physical Characterization,* 12-1-93).

Building G was constructed in 1948. The building has been used for the same purpose since construction. The building is not contaminated with any radioactive or energetic materials (*Mound Facility Physical Characterization*, 12-1-93).

9.7.3 Summary of Findings

Building G (garage) is used for the maintenance and repair of all Government Services Administration (GSA) vehicles, carts, and heavy-duty equipment. The building is also used to store janitorial, grounds maintenance supplies and equipment. The building is well-maintained, but has several issues of environmental concern identified during the walk-through or during review of reference materials.

9.7.4 Observations

9.7.4.1 Air Emissions

The air emission sources are identified on the EAC, in Attachment 1 (Section 9.7.6.1). There is a recirculating parts cleaner that uses mineral spirits and the vehicle exhaust is combined and vented out of the building. These sources should be evaluated to determine air permit applicability. The air emissions inventory status is listed on the EAC. No air emission permit applications have been submitted to the Regional Air Pollution Control Agency (RAPCA) for activities in the building. While the emissions are probably *de minimis*, the determination should be documented. There are no fuel-burning units in the building. There is no evidence of fugitive dust.

9.7.4.2 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.

9.7.4.2.1 Sanitary

The building does have sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.7.6.5), 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 G does not deviate from that expected by the sanitary treatment plant manager.

9.7.4.2.2 Storm Wastewater

The building does appear to be serviced by storm drains according to Attachment 5 (Section 9.7.6.5). 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 have entered the storm drainage system.

The exterior of the building is serviced by storm drains via Building GW according to Mound drawings #350400-04001 and #352000-04001. These drawings also indicate that two drains, with a longitudinal grate running the length of the inside service area, are connected to the storm drain. The interior and exterior grates and drains were not tested to confirm that they connect to the storm drainage system. Inspection outside showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water have entered the storm drainage system. Inspection inside showed signs of colored discharges and scarring which indicate that materials such as hydrocarbon products, mixed hydrocarbon products, antifreeze, and/or water and antifreeze from vehicles undergoing maintenance and repair or from cleaning the concrete floor have entered the storm drainage system. There are no oil/water separators. However, there have been no known spills reported from Building G.

9.7.4.2.3 Chemicals

A list of chemicals found in Building G is included in the BMQ, Attachment 2 (Section 9.7.6.2). The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994, as 1995 data were not yet available when the appraisal was conducted. Confirmation of the 1994 inventory by the appraisal team was not attempted, as the 1995 survey was in progress. However, storage, handling, and disposal of chemicals in the BMQ were reviewed to assure conformance to regulations related to 40 CFR 122 and 29 CFR 1910.

There is asbestos in the building materials. Asbestos is identified as a Clean Water Act (CWA) toxic pollutant and xylene is identified as a hazardous substance in 40 CFR Part 122, Appendix D, Table V. The chemical inventory list is included in Attachment 2 (Section 9.7.6.2), the BMQ. Motor oil, power steering fluid, kerosene, hydraulic oil, antifreeze, and transmission and lubricating oils are stored in 55-gallon containers on a rack located on the southwest side of the building. Secondary containment is not provided. Handling procedures are in place for proper disposal of chemicals. There is no evidence that chemicals enter the storm or sanitary drains. There have been no reported spills from Building G.

9.7.4.3 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 Environmental Protection Agency (EPA) protocol, annual sampling criteria do not require testing of each fountain. Sources of service water were posted as non-potable.

9.7.4.4 Chemical Storage and Hazardous Materials

Chemicals used in the garage and associated processes are stored in Building G. There is a flammable 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's) were available in the building. Some of the chemicals in the flammable storage cabinet and in the work areas had faded labels. Containers of 1,1,1-trichloroethane were stored in the flammable storage containers.

The building is equipped with appropriate emergency response equipment such as an eyewash, safety shower, and fire extinguishers. Extinguishers are bar-coded. The inspection date database is maintained in the Fire Station, Building 98. Emergency safety showers have been modified with a siphon to keep the piping flushed and cleared of debris. There is an Emergency Evacuation Plan, and signs were posted in work areas.

There are two 5,000-gallon aboveground storage tanks that service the garage. These tanks are located between Building 22 and Building 51. One tank contains gasoline and the other contains diesel fuel. The tanks have secondary containment. However, the integrity of the containment needs to be tested, since it appears to have cracked. There are two portable diesel tanks which are estimated to have a volume of 250 gallons each. A 1,000-gallon capacity diesel tank is located in the spoils area and is not in use and is being maintained until it is determined if it will be needed for an upcoming decontamination and decommissioning (D&D) project. There is no preventive maintenance of the tanks for testing. Hoses which dispense fuels are changed as needed and are visually inspected at the time of use for wear. They are identified on the BMQ, in Attachment 2 (Section 9.7.6.2). 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 (*Asbestos Program Manual*, 9-6-95). There is no evidence of friable asbestos. Pipe lagging was intact.

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

9.7.4.5 Solid, Hazardous, and Radioactive Wastes

Solid wastes generated are primarily rags, empty oil filters, used tires and batteries. Solid wastes are removed by janitorial personnel to a local collection point, then shipped offsite to a local landfill by a contractor. Used oil filters are drained until empty into the waste oil drum. The empty filter is disposed of in a solid waste dumpster. Aluminum cans, glass and cardboard are removed by janitorial personnel to specific collection points, then sent offsite to be recycled by a contractor. White paper is collected, compacted and sent offsite for recycling by a contractor. Scrap metal is collected at a specific site, then sent offsite to be recycled by a contractor. Lead-acid batteries are recycled by a contractor. These service contracts are maintained by Waste Management. Classified paper is collected and taken to the Montgomery County South Incinerator by Security.

Solid hazardous wastes generated by Building G's process, maintenance and cleaning, is stored in a SAA located inside the building proximate to and within eye contact of the work area. Cleaning rags contaminated with oil and solvents are disposed in solid waste containers for disposal. The disposal practice of cleaning rags should be reviewed. Some of the materials that may be on the rags include trichloroethane.

Waste oil generated by the process, maintenance, and cleaning operations is stored in a SAA located adjacent to the building in a 55-gallon drum that is kept locked except when adding wastes. Liquid hazardous waste (spent solvents) are stored in 5-gallon containers located in a SAA located in the building. The SAA procedures and appearance conform to Resource Conservation and Recovery Act (RCRA) requirements. Wastes are collected and transported by a representative of the Waste Management Group, and are stored in Building 72 for ultimate disposal. There is no onsite treatment of waste. All wastes sent to Building 72 are disposed of under a service contract. Waste disposal manifests and Certificates of Disposal are maintained by the EG&G Waste Management Group. They conform to RCRA requirements.

9.7.4.6 Waste Minimization and Pollution Prevention

At Mound, there is an active program to minimize waste streams, in accordance with local and federal requirements and Executive Order 12856. Programs for waste minimization include reclamation/recycling of lead-acid batteries and replacing chlorinated solvents with mineral spirits. Exhaust systems are dismantled and sent to solid waste for disposal. The ozone-depleting compound, 1,1,1-trichloroethane, could also be evaluated for nonessential use.

9.7.5 Findings and Recommendations

The environmental appraisal of Building G indicates that the following action items, in priority order, should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place. Photographs were taken to document inspection findings. They are included as Attachment 6 (Section 9.7.6.6).

G-1 Evaluate air sources that are not permitted and document results in accordance with OAC 3745-31. Update information for the Mound air emissions inventory as appropriate.

G-2 The drains serving the vehicle maintenance area of the building do not have an oil/water separator or other means of precluding the discharge of chemicals into the storm water collection system. In the event there is a discharge, a potential violation of the NPDES permit and the Clean Water Act (CWA) could occur. Evaluate alternative protective measures. If the drains remain active within the building, the discharge point should be listed as an NPDES point source, and best treatment methods for wastewater evaluated. Evaluate the current NPDES application to determine if discharge is listed; if not, revise application.

G-3 Cleaning rags are contaminated with hazardous waste, including trichloroethane. This waste stream should be stored and disposed of in accordance with the Mound's Part B Permit Application and OAC 3745-52-11, OAC 3745-52-34 (c), and OAC 3745-59. A satellite accumulation area should be used for storage.

G-4 Consider evaluating waste oil and solvent-based degreasing as target assessments for reduction, including the use of filtration technology to reuse used oil.

G-5 Evaluate to ensure there is an automated preventive maintenance program for tank integrity testing.

G-6 Evaluate the integrity of the containment berm for the aboveground storage tanks.

G-7 Purge the empty diesel tank located in the spoils area.

G-8 Evaluate the operations and determine the necessity for expansion into another building. In the interim consider moving janitorial supplies to another storage facility.

G-9 Consider installing a portable berm under the 55-gallon containers of oil to reduce and control spillage.

G-10 Re-inventory the flammable storage cabinets and evaluate for compatibility and storage.

G-11 Restrict the use of products containing, 1,1,1-trichloroethane, an ozone depleting chemical.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name GARAGE

Appraisers:

Name Discipline

Name Discipline

Name Discipline

Name Discipline

Building Manager: JEFFREY L. BOSTON

Process Manager: PAUL G. DETRO

Date: 2/26/96

ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental A[illegible]aisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

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 NA	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	asbestos
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	Vehicle maintenance
	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	drawings suggest sanitary.
	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	 If spilled.

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

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	Vehicle exhaust combines & vents outside
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	see above - and Recirculating Parts Cleaner
	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	NA
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	Bd. exhaust Parts cleaner
OAC 3745-31-03	Are there sources which are lab equipment of lab fumeheads used exclusively for chemical or physical analyses and bench scale lab equipment? These sources do not require a permit. However, the air emissions database should be updated.	Y/N	
	Has there been any release of air contaminants from this building?	Y/N	

Environmental Appraisal Checklist

Building Name: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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
Combined vehicle exhaust	1	NA	Y / N	Y / N	gasoline	To Be Determined	none	varies	NOx SO2 VOCs CO Particulate
Recirculating Parts Cleaner	1	NA	Y / N	Y / N	Mineral spirits 66 (naphtha)	about 60 ga/yr (from Chem. Inv. C495)	To Be Determined	varies	VOCs
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					

Source: Paul Detro

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

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	SOME FADED AND DIFFICULT TO READ, SPILLS IN CABINET WILL REMEDY IN 72 HRS.
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	(Y) / N	NEEDS UPDATED
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	DRUMS OK AILSLES OK
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	(Y) / N	
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	Y / (N)	FLAMMABLES STORED WITH COMBUSTIBLES NEED TO EVAL. CHEMICALS IN FLAMMABLE CABINETS
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: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	ON PIPEFITTER PREVENTATIVE MAINTENANCE CHECK, PIPES ARE CLEAR OF DEBRIS
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)	ACETYLENE / O^2 USED FOR CUTTING & WELDING - REMOVE AFTER EACH USE
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	SEPARATELY - OLD CONTAINERS
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	O2 & ACETYLINE STORED ON CART
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: GARAGE

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

Date: 2/26/96

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)	SEE TABLE - CRACKIN CEMENT WALL *
	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 (GAL)	In Service	Containment	Visual Stains/ Contamination	If Empty, Flushed
BETWEEN 51 AND 22	5,000 GALLONS	GASOLINE	1,000-2500	(Y) / N	(Y) / N	Y / (N)	Y / N N/A
BETWEEN 51 AND 22	5,000 GALLONS	DIESEL FUEL	1,000-2500	(Y) / N	(Y) / N	Y / (N)	Y / N N/A
SPOILS AREA	500 GALLONS	DIESEL FUEL	250	(Y) / N	Y / (N)	Y / (N)	Y / N N/A
SPOILS AREA	500 GALLONS	DIESEL FUEL	250	(Y) / N	Y / (N)	Y / (N)	Y / N N/A
SPOILS AREA	1000 GALLONS	DIESEL FUEL	EMPTY	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: PAUL DETRO

Building Name: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

Safe Drinking Water Act (SDWA) Screening Checklist

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

SDWA Checklist

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

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
NEND of G BLDG	GARAGE	CAN NOT SEE	OASIS

Source: PAUL DETRO

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96.

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)	BOTH
OAC 3745 52-11	Are any of the materials noted RCRA hazardous waste? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed with the appropriate section below.	(Y) / N	

Building Name: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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	
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: GARAGE

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

Date: 2/26/96

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.		

Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

RCRA Checklist

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

General Comments:

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Environmental Appraisal Checklist

Building Name: GARAGE Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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	

Environmental Appraisal Checklist

Building Name: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

TSCA Checklist

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

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

TSCA Checklist

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

GENERAL COMMENTS:

Building Name: GARAGE Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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: GARAGE

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

Date: 2/26/96

Low-Level Waste and Transuranic Waste Checklist

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

Building Name: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

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: GARAGE

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

Date: 2/26/96

Low-Level Waste and Transuranic Waste Checklist

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

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

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	CITRUS BASED CLEANERS COULD BE EVALUATED FOR USE
	Are there solvent wastes?	Y / N	SELF CONTAINED PARTS WASHER MINERAL SPIRITS
	Is vehicle maintenance performed?	(Y) / N	
	Are oils used ?	(Y) / N	
	Are these corrosive wastes?	Y / (N)	ACID BATTERIES
	Are there sludges?	(Y) / N	PARTS WASHER
	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)	
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

Environmental Appraisal Checklist

Building Name: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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: GARAGE

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

Date: 2/26/96

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	DIP TANK Between 2 Bays

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Building Name: GARAGE Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/26/96

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	WD-40
	Can the process be modified or changed to use water-based fluids?	Y / N SEE COMMENTS	THIS PROCESS COULD BE EVALUATED TO USE CITRUS BASED CLEANER
	Are these good housekeeping and operation practices used to minimize oil waste production?		
	Use oils not contaminated with other liquids?	(Y) / N	CARTS - HAVE OIL AND GAS MIXTURE WHEN MALFUNCTIONING
	Oil spills prevented?	(Y) / N	USE of ABSORBAL FOR SPILLS
	Drip pans installed?	(Y) / N	
	Oil soaked rags laundered?	Y / (N)	THROWN IN DUMPSTER
	Rags and absorbants used to their limit?	(Y) / N	

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Environmental Appraisal Checklist

Building Name: GARAGE

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

Date: 2/26/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		NO OIL/WATER SEPARATOR IN DRAINS
	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	REPLACED WITH MINERAL OIL
	Reducing the use of solvents?	Y / N	
	Reducing the loss of solvents?	Y / N	DIP TANK IN USE
	Increasing recyclability?	Y / N	
	Are solvents segregated?	Y / N	ONLY ONE KIND USED
	Are waste solvents free from water and garbage?	Y / N	
	Are recycled solvent containers labeled as such?	Y / N	N/A
	Are containers kept closed?	Y / N	N/A
	Free and sheltered from the elements?	Y / N	N/A
	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: GARAGE Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/26/96

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?	_____ _____	KEEP WASTE UNTIL 5 GALLON CONTAINER IS FULL AND MOVED IN TWO DAYS

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Building Manager's Questionnaire

Building Name: G Building Manager: J.L. Boston Phone: 3262 Date: 12-07-95
Alternate: [illegible] Phone: [illegible]

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

2. What protective equipment is required to enter the building?
   SAFETY GLASSES WITH SIDE SHIELDS
   HARD TOE SHOES (SAFETY)
   ~~[illegible]~~

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

4. Provide a physical description of the building.

Building G is a one-story, concrete block (with facing brick) structure containing 7,518 ft². It has a BUM roof (coal tar); HVAC systems are central steam and window air conditioning. Building contains several hydraulic lifts. Building is not contaminated with any radioactive or energetic materials. BUILDING HAS EXHAUST SYSTEM USED TO REMOVE EXHAUST FUMES WHEN VEHICLES ARE TEST RUN

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

5. Provide a drawing of the building.

Attached

6. What is the current building use?

Used for maintenance and repair of all plant GSA vehicles. CARTS & HEAVY EQUIPMENT & L EQUIP Also used to store yards and grounds equipment and tools. Contains office space to support above activities.

Source: Mound Buildings, 5-9-95

7. What is the history of building use other than that described in #6?
   ALWAYS BEEN USED FOR GARAGE

Source: Mound Buildings, 5-9-95

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Building Manager's Questionnaire

Building Name: G 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: Garage, pesticide and herbicide storage, custodial supply storage

How Wastes Are Generated:

Used batteries and tires from Mound's vehicles are treated as hazardous wastes and picked up by Waste Management for disposal.

Oil drained from vehicles during oil changes is put in a 55-gal waste drum. Small amounts of transmission fluid, ~~antifreeze~~, and Stoddard Solution (used to clean metal parts) are also added to this drum. When the drum is nearly full, it is set outside for Waste Management to pick up. ETHYLGLYCOL HAS A SEPERATE DRUM

Some asbestos waste is generated when brake shoes are replaced.

Pesticides and herbicides are stored in Building G in a locked cabinet. Use of these materials generates no hazardous waste. Empty containers of products that must be mixed with water, such as Roundup herbicide, are triple rinsed before being put in the trash. Rinse water is put in the spray tank and sprayed on weeds.

Some custodial supplies are stored in Building G. No hazardous wastes are generated by using these supplies. If the product in a container is not completely used (e.g., a new product is tried and found to be unacceptable), Waste Management is asked to pick up the partially full bottle.

Contact: PAUL DETRO
Phone #: 3246

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

Building Manager's Questionnaire

Building Name: G 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: G 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? Yes

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

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Building Manager's Questionnaire

Building Name: G 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)
PUMMEL HAND SOAP	L	124 GA
RINSE-FREE SOAP	L	48 GA
SBS LOTION SOAP	L	24 GA
SEAL-CON-SEAL	L	24 GA
SEALER IRONSTONE	L	24 GA
SHINELINE BASE	L	24 OZ
SPIN-OUT	L	48 GA
SPOT,PILE DRIVER	L	12 OZ
STAINLESS CLEANER	L	12 OZ
STATCIDE	L	24 GA
STRIPPER	L	12 GA
SYRFACE GLEEM	L	12 OZ
TREATMENT/DUST	L	12 OZ
VESTA POWER	L	24 GA
WINDOW SHINE	L	36 GA
LAVA SOAP	G	4 OZ
BLUE MAX SPRAY BUFF	L	36 GA
CLEAN-N-DRY	L	36 GA
CLR WINDOW	L	60 GA
CONQUEST	L	16 GA
DD/85 SPRAY	L	48 GA
DMQ	L	36 GA
DOU-POWDER	S	15 OZ
FLOOR FINISH/ABOVE	L	24 GA
FOUNTAIN HEAD	L	48 GA
GLOSS EXTENDER	L	48 GA
GREASE-BE-GONE	L	36 GA
HEAD START	L	48 GA
INSECT SPRAY/CHERRY	L	24 OZ
INSECTICIDE/WASP	L	12 OZ
KINDEST CARE	L	48 PT
LAVA HAND SOAP	S	80 OZ
LIL BROTHER SAM	L	48 PT

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Building Manager's Questionnaire

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

Chemical Name	State	Amount (MAX)
NABC	L	60 QT
NEUT.FLOOR CORP.	L	75 OZ
ODOR BANE	L	36 GA
ON-BASE SEALER	L	36 GA
ONE-STEP SURE BET	L	24 GA
POLISH/LEMON	L	12 OZ

Source: Chemical Inventory 1994

NOTE - NEED TO ADD GARAGE CHEMICALS INVENTORY

Building Manager's Questionnaire

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

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

Chemical	Amount	Clean-up Measures

Source: _____

21. Where do waste chemicals go?
WASTE MANAGEMENT BLDG 72

22. What janitorial supplies are stored inside or outside of the building?
SEE PAGE 5 + 5A

23. Where do excess janitorial supplies go?
WASTE MANAGEMENT

Source: _____

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

Chemical	Amount	Chemical	Amount
ROUNDUP	1 8 GAL		
SPECTICIDE	1 PT		

Source: _____

Building Manager's Questionnaire

Building Name: G 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

Registration Number	Content	Quantity	Last Inspection Date	Preventive Maintenance Performed	Inside Or Outside
~~8006-61-9~~	~~GASOLINE~~	~~30 GAL~~		Y/N	
				Y/N	

Source: Emergency and Hazardous Chemical Inventory Form - Chemical Storage Tanks on EGG Mound Site Owned and Maintained by Outside Contractors 8/8/94

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
Attached	

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

Building Manager's Questionnaire

Building Name: G 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 Manager's Questionnaire

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

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

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

Source: _____

Building Manager's Questionnaire

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

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

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

Source: _____

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

NONE

Building Manager's Questionnaire

Building Name: G 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.
recycle oil, Antifreeze & white paper

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

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AGE	OIL WASTE	NONE	323.4
AGE	OIL WASTE	NONE	455.4
AGE	OIL WASTE	NONE	457.7
	OIL WASTE	NONE	275.0
	OIL WASTE	NONE	350.0
AGE	OIL WASTE	NONE	422.4
AGE	OIL WASTE	NONE	378.4
AGE	OIL WASTE	D001	438.8
AGE	OIL WASTE	NONE	425.5
AGE	OIL WASTE	D001	401.0
AGE	OIL WASTE	D001	384.0
AGE	OIL WASTE, FUEL OIL	NONE	240.9
AGE	OIL WASTE, GAS	D001	384.1
AGE	OIL WASTE, GAS	D001	446.6
AGE	OIL WASTE, GAS	D001	450.4
AGE	OIL WASTE, GAS	D001	470.0
AGE	OIL WASTE, GAS	D001	572.0
AGE	OIL WASTE, GAS	D001	459.9
AGE	OIL WASTE, GAS	D001	453.0
AGE	OIL WASTE, GAS	D001	410.9
AGE	OIL WASTE, GAS	D001	425.6
AGE	OIL WASTE, GAS	D001	415.1
AGE	OIL WASTE, HYDRAULIC	NONE	439.7
AGE	OIL WASTE, HYDRAULIC OIL	NONE	214.4
AGE	OIL, GAS SAMPLE, 94-333	D001	0.9
AGE	OIL, GAS SAMPLE, 94-357	D001	0.9
AGE	OIL, GAS WASTE	D001	428.5
AGE	OIL, GAS WASTE	D001	434.0
	OIL, GAS WASTE	D001	352.8
AGE	OIL, GAS WASTE	D001	444.9
AGE	OIL, GAS WASTE	D001	453.2
AGE	OIL, GAS WASTE	D001	231.1
AGE	OIL, GAS WASTE	D001	412.6
AGE	OIL, GAS WASTE	D001	411.6
AGE	OIL, GAS WASTE	D001	442.9
AGE	OIL, GAS WASTE	D001	426.2
AGE	OIL, GAS WASTE	D001	444.6
AGE	OIL, GAS WASTE	D001	457.8
AGE	OIL, GAS WASTE	D001	324.2
AGE	OIL, GAS WASTE	D001	429.5
AGE	OIL, GAS WASTE	D001	449.0
AGE	OIL, GAS WASTE	D001	452.4
AGE	OIL, GAS WASTE	D001	452.0
AGE	OIL, GAS WASTE	D001	434.7
AGE	OIL, GAS WASTE	D001	320.8
AGE	OIL, GAS WASTE	D001	414.4
AGE	OIL, GAS WASTE	D001	441.0
AGE	OIL, GAS WASTE	D001	438.0
AGE	OIL, GAS WASTE	D001	361.8
AGE	OIL, GAS WASTE SAMPLE, 95-001	D001	1.0
AGE	OIL, HYDRAULIC OIL WASTE	NONE	313.1
AGE	PCB BALLAST (1) (BULKED INTO 92-167 ON 07-27-92)	PCB2	5.0
	PCB BALLASTS (10) >500PPM, OUT OF SERVICE DATE 03-17-92, MODEL#: 72F655	PCB2	601.0

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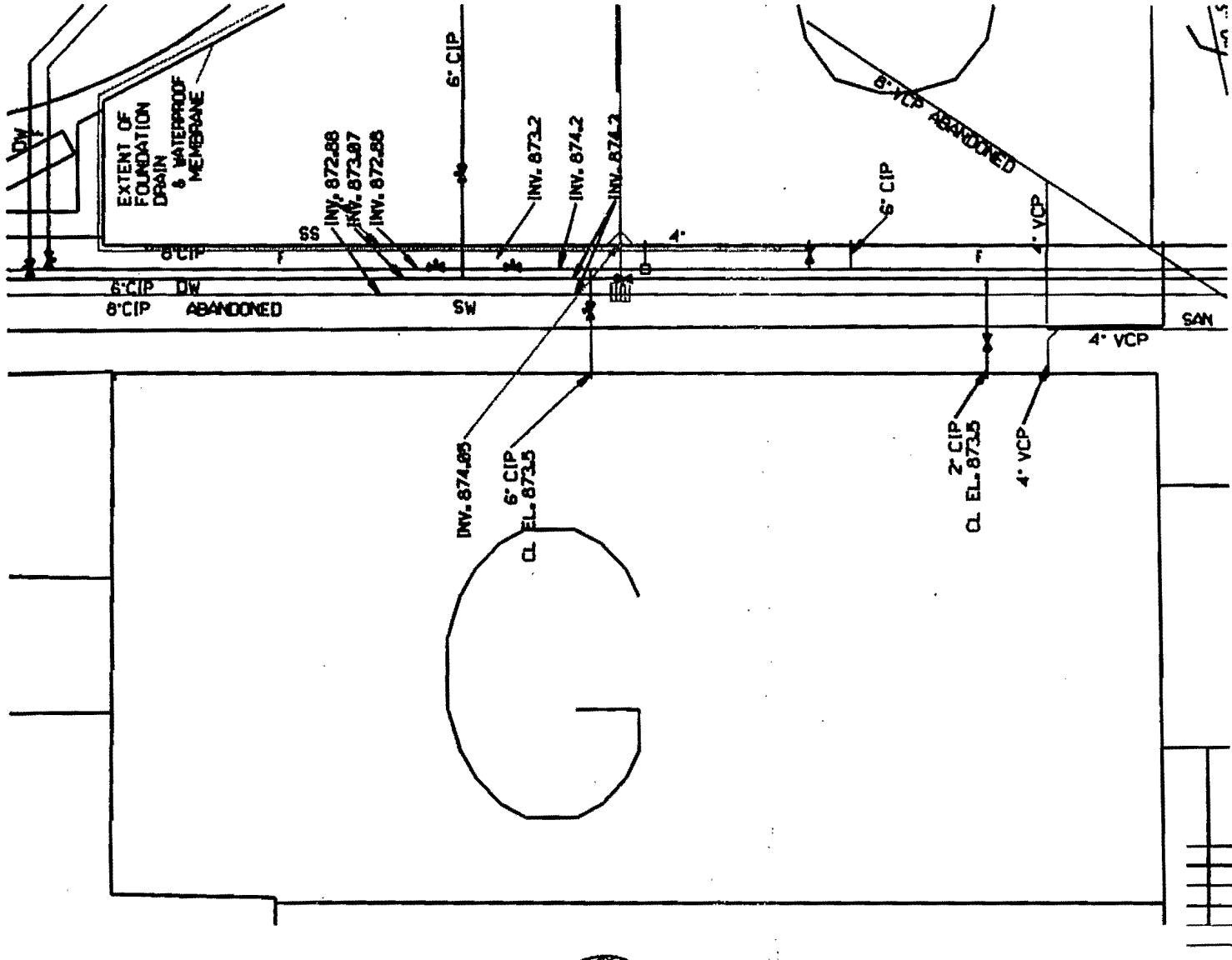
GARAGE	ANTIFREEZE WASTE	NONE	417.7
GARAGE	ANTIFREEZE WASTE	NONE	283.3
GARAGE	ANTIFREEZE WASTE	NONE	533.1
GARAGE	ASBESTOS WASTE	NONE	200.2
GARAGE	CHILDERS CP-10	NONE	49.1
GARAGE	DIESEL FUEL, WATER	NONE	345.4
GARAGE	DIESEL FUEL, WATER WASTE	D001	114.6
GARAGE	DIESEL FUEL, WATER WASTE	D001	432.5
GARAGE	DIESEL FUEL, WATER WASTE	D001	434.7
GARAGE	DIESEL FUEL, WATER WASTE	D001	285.4
GARAGE	NITRIC ACID	D002	2.7
GARAGE	OIL WASTE	NONE	461.9
GARAGE	OIL WASTE	NONE	350.1
GARAGE	OIL WASTE	NONE	292.0
GARAGE	OIL WASTE	D001	435.0
GARAGE	OIL WASTE	D001	442.7
GARAGE	OIL WASTE	D001	405.0
GARAGE	OIL WASTE	D001	444.2
GARAGE	OIL WASTE	D001	482.0
GARAGE	OIL WASTE	D001	379.2
GARAGE	OIL WASTE	D001	416.0
GARAGE	OIL WASTE	D001	460.3
GARAGE	OIL WASTE	D001	230.9
GE	OIL WASTE	NONE	433.4

9.7-54



UNCLASSIFIED

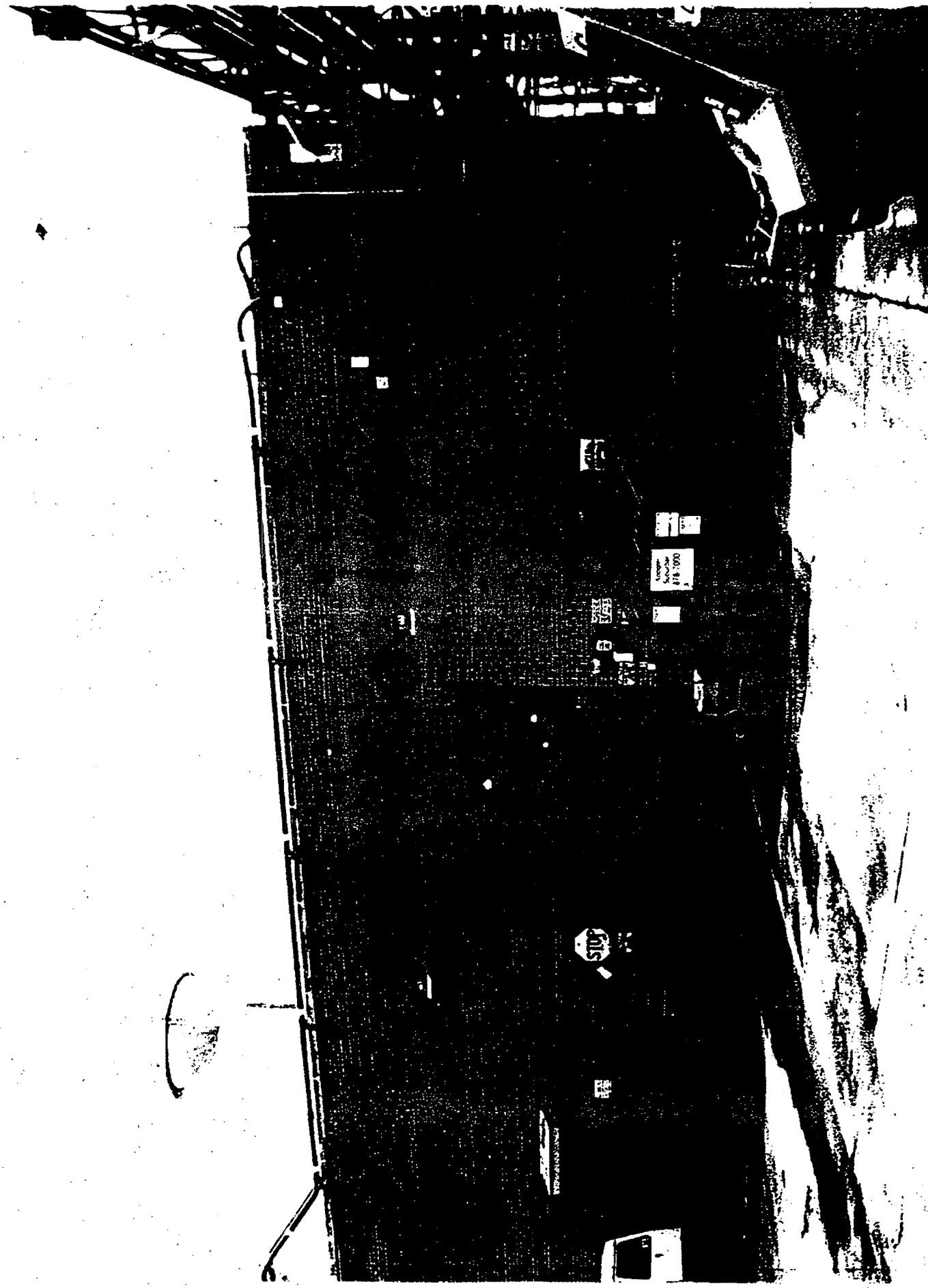
E.G. & G. - MOUND

UNDERGROUND WATER & WASTE LINES
G BLDG.

DATE: 3/4/96

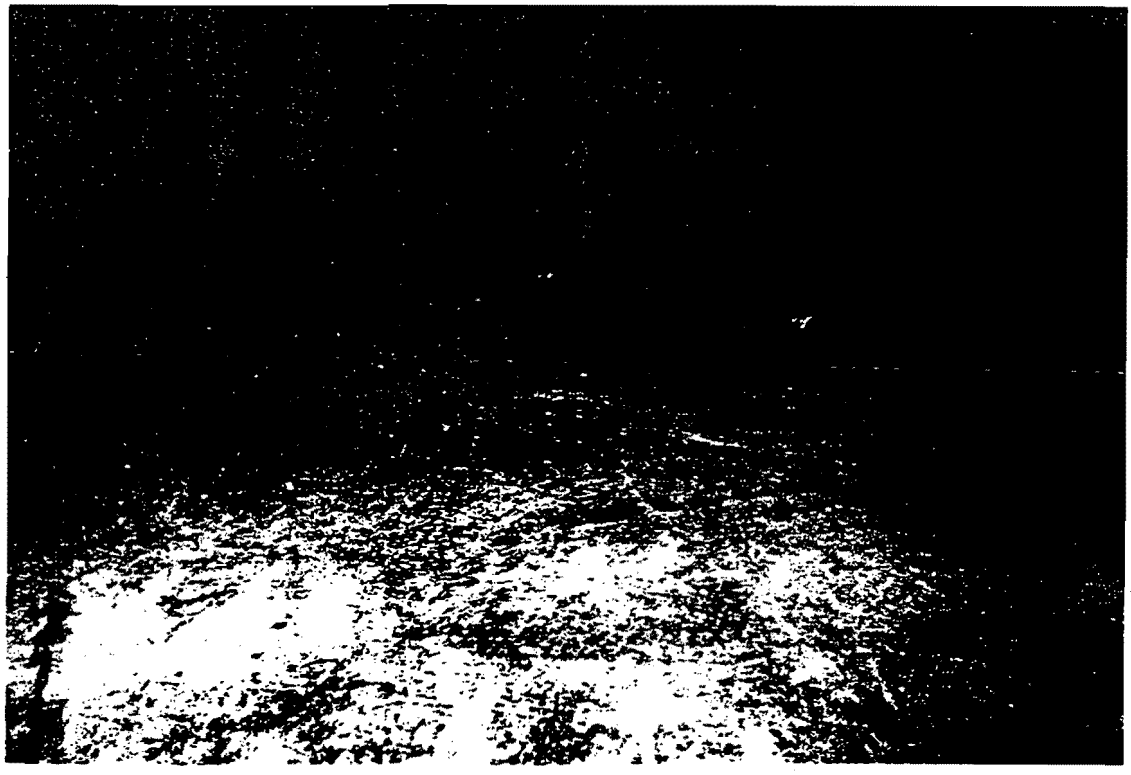
FS1 pt 178

9.7-65



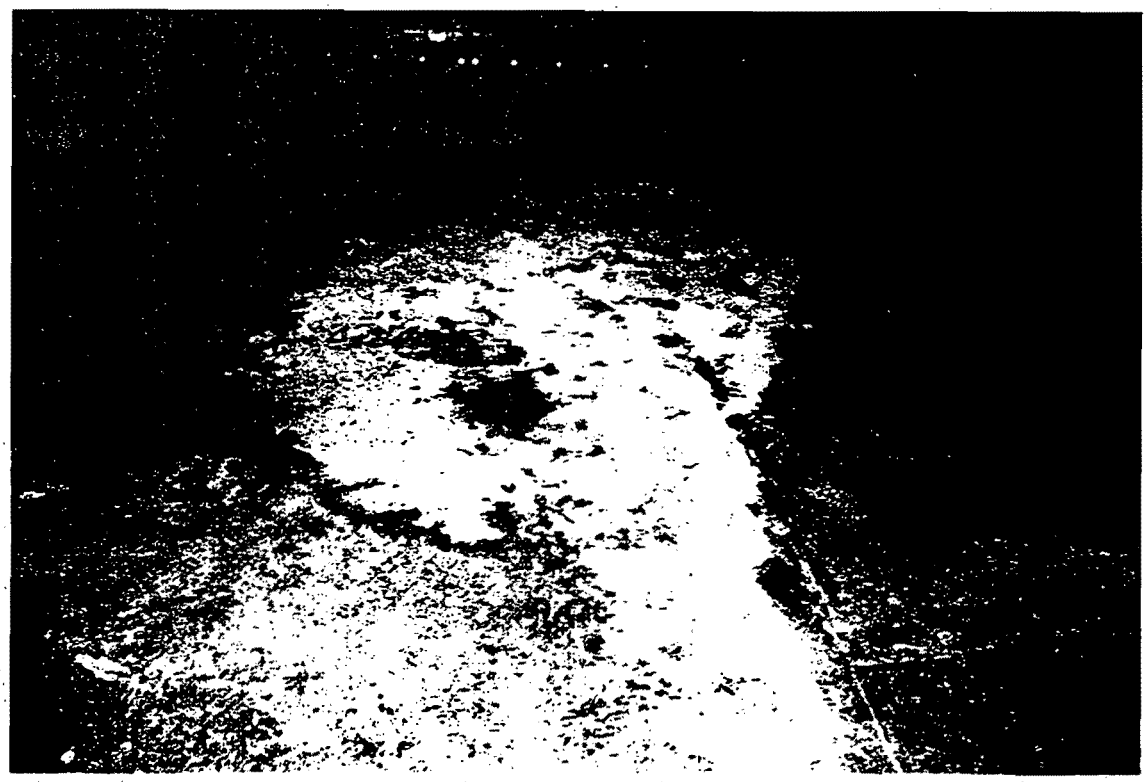
Mound Plant Building G (Garage)

An oil drip pan for vehicles is located next to a drain.



Floor drain in garage goes to the storm wastewater collection system.

Oil drums are stored without containment in a work area.



Scarring and staining on floor next to drain indicates chemical spills.

Floor scarring and stains are signs of chemical spills.

Oil is stored in barrels without containment.

Flammable chemicals are stored on top of tool cabinet.

Solvent parts washer should be evaluated for air permit applicability.

9.14 BUILDING GW

9.14.1 Scope of Building GW 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.

A team of environmental professionals performed a walk-through of Building GW on February 22, 1996. The Environmental Appraisal Checklist was used to record findings. The checklist is included as Attachment 1 (Section 9.14.6.1). Escorting the appraisers were knowledgeable personnel such as the process owners. Other information was supplied by the building manager and recorded on the BMQ, included as Attachment 2 (Section 9.14.6.2).

9.14.2 Description of Building GW

Building GW is a two-story 9,782-square-foot reinforced concrete building with brick facing and a built-up membrane roof. Location is shown in Attachment 3 (Section 9.14.6.3). The building is bordered by Building P to the south, Building W to the east, Building G to the west and Building 91 to the north. Floor plans for the building are presented in Attachment 4 (Section 9.14.6.4). The building is serviced by central steam for heat, chilled water and electrical service. The building has a fire sprinkler system (*Mound Facility Physical Characterization*, 12-1-93).

Building GW was constructed in 1968. According to the *Mound Facility Physical Characterization* report, the building is not contaminated with radioactive or energetic materials.

9.14.3 Summary of Findings

Building GW contains office areas and long-term record storage. The building was originally built to house offices, bonded stores, and receiving/inspection for weapons programs. The building is well-maintained, but has several issues of environmental concern identified during the walk-through and review of reference materials.

9.14.4 Observations

9.14.4.1 Air Emissions

The building contains one walk-in refrigeration unit. The refrigeration unit is used for storing medical x-rays. Due to past storage practices, some of the x-rays have deteriorated and are emitting acetic acid fumes through the decay process. An engineering plan is currently in process to vent the acetic acid fumes. Further investigation needs to be done to verify if an air permit

application is required. There are no fuel-burning units in the building. There is no evidence of fugitive dust.

9.14.4.2 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.

9.14.4.2.1 Sanitary Wastewater

The building does have sanitary services. According to a diagram of underground lines, presented as Attachment 6 (Section 9.14.6.6), 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 not 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 GW does not deviate from that expected by the sanitary treatment plant manager.

9.14.4.2.2 Storm Wastewater

The building is serviced by storm drains according to the utilities diagram in Attachment 5 (Section 9.14.6.5). There were floor drains in the bathrooms and janitorial closet. 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.

9.14.4.2.3 Chemicals

Janitorial supplies are stored and used in Building GW. Chemical storage and handling procedures are in place for proper disposal of chemicals. A list of chemicals residing in Building GW 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.

Storage, handling, and disposal of chemicals listed in the BMQ 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 GW.

9.14.4.3 Potable and Service Water

Potable water is supplied to the building. There is one water fountain (Halsey-Taylor) located on the first floor; it has not been tested for lead. According to EPA protocol, annual sampling criteria do not require testing of each fountain.

9.14.4.4 Chemical Storage and Hazardous Materials

Chemicals used in janitorial services are stored in Building GW. Chemicals are stored in the building in accordance with applicable standards. MSDS's were not readily available in the building.

The building is equipped with appropriate emergency response equipment such as fire extinguishers and sprinklers. There is an emergency evacuation plan, and signs were posted in the areas.

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

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

There are no capacitors or transformers containing PCBs located in the building (1995 PCB Annual Document Log).

9.14.4.5 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. The service contract is maintained by Waste Management. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

The processes that generated hazardous wastes are no longer in operation.

9.14.4.6 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. Current programs for waste minimization in place include aluminum can and white paper recycling.

9.14.5 Findings and Recommendations

The environmental appraisal of Building GW indicates that the following action items, in order of priority, should be planned and scheduled for accomplishment thus assuring the best management and operating practices are in place. Photographs were taken to document the environmental appraisal. They are included as Attachment 6 (Section 9.14.6.6).

GW-1 In accordance with OAC 3745-31, the process of storing medical x-rays needs to be reviewed to determine if an air permit application is required. Determination should be documented.

GW-2 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 GW

Appraisers:

Name _____ Discipline _____

Name _____ Discipline _____

Name _____ Discipline _____

Name _____ Discipline _____

Building Manager: JEFFREY L. BOSTON

Process Manager: CHERYL A. KIRKWOOD

Date: 1/22/96

ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental Appraisal Checklist

Building Name: GW

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

Date: 1/22/96

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	ONLY JANITORIAL CHEMICALS ARE USED
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N ____ ____	THE BUILDING IS USED FOR OFFICES AND RECORDS STORAGE
	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)	
	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	FLOOR DRAINS IN BATHROOMS N/A

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Environmental Appraisal Checklist

Building Name: GW

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

Date: 1/22/96

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	However, plans exist to vent refrigerator to the outside. Determination needs to be made if permit is required.
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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Building Name: GW

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

Date: 1/22/96

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: GN

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

Date: 1/22/96

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 SUPPLIES ONLY
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	(Y) / N	
29 CFR 1910.22, 1910.106, 1910.176	All places of employment, passageways, storerooms and service areas shall be kept clean and orderly and in a sanitary manner. Aisles shall be unobstructed. Drums and containers are not leaking and are tightly sealed.	(Y) / N	
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	Y / N	N/A
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	Y / N	N/A
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)	

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Building Name: GIV

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

Date: 1/22/96

HM Checklist

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

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Environmental Appraisal Checklist

Building Name: G10

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

Date: 1/22/96

HM Checklist

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

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

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

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Source: _____

Building Name: GW

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

Date: 1/22/96

Safe Drinking Water Act (SDWA) Screening Checklist

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

SDWA Checklist

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

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
GW	1ST FLOOR	WM8A	HALSEY TAYLOR S/N 489087

Source: _____

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Environmental Appraisal Checklist

Building Name: GIV

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

Date: 1/22/96

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?	Y / (N)	JANITORIAL CHEMICALS ONLY
	Was charactarization by analysis or by process knowledge?	analysis / process	N/A
	Are lab results or documentation of process knowledge readily available?	Y / N	N/A
	Note any uncharacterized material in comment section. Is it waste?	Y / N	
	If yes, proceed with next section.		N/A
OAC 3745 52-11	Are any of the materials noted RCRA hazardous waste?	Y / (N)	
	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.		

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Building Name: GW

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

Date: 1/22/96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
I. HAZARDOUS WASTE STORED IN CONTAINERS			
	Is there an area in the building that could qualify as a Satellite Accumulation Area? Is it treated as such?	Y / N Y / N	
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: GW

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

Date: 1/22/96

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: GW

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

Date: 1/22/96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: G1U

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

Date: 1/22/96

RCRA Checklist

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

General Comments:

Building Name: GW

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

Date: 1/22/96

Asbestos Screening Checklist

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

Asbestos Checklist

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

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

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9.14-22

Environmental Appraisal Checklist

Building Name: GIJ. Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 1/22/96

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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Environmen. Appraisal Checklist

Building Name: GIU

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

Date: 1/22/96

TSCA Checklist

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

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9.14-24

Environmental Appraisal Checklist

Building Name: G10

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

Date: 1/22/96

TSCA Checklist

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

GENERAL COMMENTS:

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Building Name: G10 Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 1/22/96

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: GW

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

Date: 1/22/96

Low-Level Waste and Transuranic Waste Checklist

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

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Building Name: GW

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

Date: 1/22/96

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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9.14-27

Environmental Appraisal Checklist

Building Name: GW

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

Date: 1/22/96

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	

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Building Name: GW

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

Date: 1/22/96

Low-Level Waste and Transuranic Waste Checklist

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

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: GW

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

Date: 1/22/96

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 RECYCLING ONLY
	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	
	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: GW

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

Date: 1/22/96

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: GW

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

Date: 1/22/96

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	

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Building Name: GW

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

Date: 1/22/96

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: GW

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

Date: 1/22/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		N/A
	Reclaiming process to remove water and solvents by heat?	Y / N	
	Gravity setting?	Y / N	
	Screening?	Y / N	
	Centrifugation?	Y / N	
	Filtration?	Y / N	
SOLVENT WASTES			
	Has there been an attempt to reduce volume or toxicity by:		N/A
	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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Building Name: GW

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

Date: 1/22/96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Building Manager's Questionnaire

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

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

none

2. What protective equipment is required to enter the building? none

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

4. Provide a physical description of the building.

Building is a two-story, 9,782-ft² concrete block structure with a brick face and a BUM roof (coal tar). HVAC services are central steam and chilled water.

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

5. Provide a drawing of the building.

No drawing provided.

6. What is the current building use?

First floor ~~receiving/inspection for weapons program~~
Second floor ~~chemical storage~~ (one-third); offices (two-thirds)
Longterm Storage for Record Management

Source: Mound Buildings, 5-9-95

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

Previously used as office space for uncleared employees, part-time employees, and new employees. Planned for conversion to its present use in January of 1994.
Office Space & Landed Stores Area

Source: Mound Buildings, 5-9-95

Building Manager's Questionnaire

Building Name: GW 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: Long Term Records - Boxes ~~Manufacturing support~~, ~~bonded stores~~, offices

How Wastes Are Generated:

~~Materials~~ that have been tested ~~and approved~~ for use in manufacturing are ~~stored in GW~~. ~~If the time~~ period for which a particular material was approved ~~ends and the material is not~~ recertified, Waste Management is called to pick it up. Materials ~~that are not~~ acceptable or are no longer needed may also be picked up.

Contact:
Phone #:

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

Building Name: GW 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: GW 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 N/A
Where?

15. Does the building discharge to the sanitary sewer? Yes No N/A
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

9.14-42

Building Manager's Questionnaire

Building Name: GW 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)
DAP 306	S	25/LB
DAP Short Glass 5201 Part #A15371	S	500/LB
Defoamer Resin Part #4582	G	360/OZ
Dextrose Powder Part 3027	S	19/LB
Dimer Parylene Part 2434	S	1/LB
Dimer Parylene Part 2434	L	17/LB
Dye Gard 184 Part 4318	L	22/KG
Dye Zuler Blue Part 2410	S	3/LB
Epon 828 Part 4036	L	26/L
Epon 828 Resin	L	20/QT
Ester Alcohol Part 2398	L	1/GA
Flux Part 4194	L	15/PT
Flux Supr #30 Part 4550	L	14/PT
Flux Type B Part 5343	L	5/QT
Gold Brightner Part 3450	L	39/L
Gold Stripper 14254	L	1 GA
Graphite	S	70/OZ
Hexane Reagent Part 4459	L	19/L
Hydrofluric Acid	L	10/LB
Isocut Fluid	L	9/QT
Magnesium Oxide Part 2279	S	6/LB
Markem Cleaner	L	24/QT
Methyl Alcohol Part 5031	L	30/L
Methyl Orange Solution Part 3850	L	2/L
Mold Whiz F-9 Part 4864	L	13/GA
Oxidizers, Chromic Acid Part 5379	S	250/G
Permabond 910	L	28/OZ
Polysacharride Part 2955	S	6/GA

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Building Manager's Questionnaire

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

Chemical Name	State	Amount (MAX)
Potassium Perchlorate Part 2409	S	1/GA
Replenisher Gold Part 3451	L	9/GA
RTV 630 A&B	S	1/LB
Silver Flake MK Part 4025	L	375/OZ
Silver Paint Part 2994	L	625/G
Sodium Bicarbonate	S	30/LB
Sodium Carbonate Part 5097	S	11/LB
Sodium Dichromate Part 5136	S	625/G/
Sodium Potassium Tartarate	S	15/LB
Solder	S	5/OZ
Solder Resin Core Part 5414	S	20/OZ
Solution 7.0 Part 5130	L	3/L
SS4144 Primer	L	21/PT
Stir Epoxy Part A&B Part 4179	L	40/LB
Test Solution Part 5283	L	8/QT
TIH3 (Titanium Tri-hydride)	S	805/LB
Trephenyl Phosphate	L	23/LB
Triphenyl Penyl Part 4541	L	10/LB
Ultra Carbon Graphite Part 5015	S	278/OZ
Alconox Detergent	S	130/LB
Aluminum Alloy #2203	S	63/LB
Aluminum Alloy #2204	S	63/LB
Aluminum Oxide Part #13814	S	20/LB
Antifoam Type 11 Part 3581	L	8/GA
Blue Dap Short #4747	S	63/LB
Blue Paste Part 4325	S	3/GA
Boact EC 7 Part 5317	L	310/GA
Boron Powder Part 2408	S	5/LB
Calcium Sterate Part 5029	S	53/KG
Castone	S	31/LB
Chaner Markem Part 2310	L	8/QT
Cimstar Metal Working Fluid	L	6/GA
Clean Powder Part 3466	S	480/OZ
Cleaning Powder-3	S	12/LB
Compressed Air Duster Aerosol	G	210/OZ

Source: Chemical Inventory 1994

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Building Manager's Questionnaire

Building Name: GW 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?

Janitors Closet inside (1st floor)

23. Where do excess janitorial supplies go?

Waste Management

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

9.14-45

Building Manager's Questionnaire

Building Name: GW 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
ATTACHED	

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

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GW BLDG	AEROJET ACCELERATOR ATC-3	D007	31.4
GW BLDG	ALCOHOL	D001	0.3
GW BLDG	ALCONOX	NONE	31.3
GW BLDG	ALKYL SULPHANOTE	D002	2.1
GW BLDG	ALLYL GLYCIDYL ETHER	D001	1.6
GW BLDG	ALLYL GLYCIDYL ETHER	D001	1.8
GW BLDG	ALLYL GLYCIDYL ETHER	D001	14.0
GW BLDG	ALCOINE 1200S	D001 D007	4.0
GW BLDG	ALCOINE 1200S	D001	10.8
GW BLDG	ALCOINE 1201	D007	9.0
GW BLDG	ALUMINA C	NONE	1.0
GW BLDG	ALUMINUM OXIDE	NONE	137.5
GW BLDG	ALUMINUM OXIDE	NONE	1.0
GW BLDG	ALUMINUM OXIDE	NONE	5.5
GW BLDG	ALUMINUM OXIDE	NONE	6.6
GW BLDG	ALUMINUM OXIDE	NONE	0.1
GW BLDG	ALUMINUM OXIDE	NONE	16.5
GW BLDG	AMDRY CEMENT	D001	16.2
GW BLDG	AMMONIUM IODIDE	NONE	1.1
GW BLDG	AMMONIUM PHOSPHATE	NONE	1.1
GW BLDG	AMMONIUM PHOSPHATE, MONOBASIC	NONE	8.8
GW BLDG	ANCO A-8007	NONE	70.0
GW BLDG	ANTIMONY	NONE	0.5
GW BLDG	AP-20	NONE	12.2
GW BLDG	AXEL MOLD RELEASE P-9	D001 F002 F003 F005	8.4
GW BLDG	BARIUM FLUORIDE	D003 D005	0.1
GW BLDG	BARIUM FLUORIDE	D003 D005	0.1
GW BLDG	BIPHENYL	NONE	0.1
GW BLDG	BLUE PASTE 2301	NONE	0.9
GW BLDG	BORIC ACID	NONE	32.2
GW BLDG	BORIC ACID, SOLID	NONE	13.0
GW BLDG	BORON POWDER	D001 D003	6.5
GW BLDG	BORON REFERENCE SOLUTION	NONE	6.7
GW BLDG	BRIGHTENER E3	NONE	71.9
GW BLDG	BX 20101 PART B	NONE	1.6
GW BLDG	CAB-O-SIL	NONE	11.7
GW BLDG	CABOSIL	NONE	0.2
GW BLDG	CABOSIL	NONE	1.0
GW BLDG	CALCIUM NICKEL	NONE	1.5
GW BLDG	CALCIUM STEARATE	NONE	129.1
GW BLDG	CALCIUM STEARATE	NONE	13.6
GW BLDG	CASTONE BUFF	NONE	25.6
GW BLDG	CAYTUR 21	D001	2.4
GW BLDG	CGE 100 ETCHANT	D002	11.5
GW BLDG	CHLOROFORM	D001 D022	3.0
GW BLDG	CHROMIUM ETCHANT	D002 D007	17.6
GW BLDG	CHROMIUM TRIOXIDE	D001 D007	0.5
GW BLDG	CHROMIUM TRIOXIDE	D001 D007	1.0
GW BLDG	CITRATE SOLUTION	NONE	1.0
GW BLDG	CITRIC ACID	NONE	9.8
GW BLDG	CITRIC ACID MONOHYDRATE	NONE	13.0
GW BLDG	CLEANER	NONE	1.0
GW BLDG	CLEANING POWDER 2	NONE	15.1
BLDG	CLEANING POWDER 3	NONE	11.5
LDG	CLEAR ARCRYLIC	D001	48.0

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GW BLDG	COMPONENT A	NONE	12.0
GW BLDG	COMPONENT B	NONE	12.0
GW BLDG	CONAP AD1146	D001 F005	28.4
[illegible] BLDG	CONAP CONATHANE EN7-A	NONE	8.3
GW BLDG	CONAP CONATHANE EN7-B	NONE	1.9
GW BLDG	CONAP DS 1834	D003 D006	20.0
GW BLDG	CONAP EN7 PART A	NONE	1.8
GW BLDG	CONAP EN7 PART A	D001 F005	3.0
GW BLDG	CONAP EN7 PART A	D001 F005	29.2
GW BLDG	CONAP EN7 PART A	NONE	3.5
GW BLDG	CONAP EN7 PART B	NONE	0.5
GW BLDG	CONAP EN7 PART B	NONE	0.4
GW BLDG	CONAP EN7 PART B	NONE	0.7
GW BLDG	CONAP EN7 PART B	NONE	6.5
GW BLDG	CONAP EN7 PART B	NONE	0.8
GW BLDG	CONAP EN8 PART A	D003	1.5
GW BLDG	CONAP EN8 PART B	NONE	0.4
GW BLDG	CONAP S-1	D001 F005 U220	17.1
GW BLDG	CONATHANE EN7 PART A	D003	1.6
GW BLDG	CONATHANE EN7 PART A	NONE	1.7
GW BLDG	CONATHANE EN7 PART B	NONE	0.3
GW BLDG	CONDUCTOR COMPOSITION	D001 D011	1.3
GW BLDG	CONTACT CEMENT	D001 F002 F005	2.1
GW BLDG	COPPER FLUORIDE	NONE	0.1
GW BLDG	CORROCOAT 1295	D001 D003 F003	0.2
GW BLDG	CORROCOAT 1295	D001 D003 F003	0.9
GW BLDG	CORROCOTE THINNER WITH TOLUENE 2,4 DIISOCYANATE	D003 F003	2.0
[illegible] BLDG	CPVC	D001	3.0
[illegible] BLDG	CTBN EPOXY	NONE	39.5
GW BLDG	CURING AGENT	D001	0.1
GW BLDG	CYANIDE PIT WASTE RAGS	F007 F009	1.2
GW BLDG	CYANOCURE	NONE	2.7
GW BLDG	DAP BLUE FIBERGLASS	NONE	6.4
GW BLDG	DE-OX-ID	D001	0.4
GW BLDG	DEXTROSE	NONE	23.8
GW BLDG	DIAALYL PHTHALATE	NONE	39.6
GW BLDG	DIALLYL PHTHALATE	NONE	294.9
GW BLDG	DIALLYL PHTHALATE	NONE	339.0
GW BLDG	DIALLYL PHTHALATE	NONE	135.3
GW BLDG	DIALLYL PHTHALATE	NONE	1.0
GW BLDG	DIALLYL PHTHALATE	NONE	6.6
GW BLDG	DIALLYL PHTHALLATE COMPOUND	NONE	74.3
GW BLDG	DIALYL PHTHALLATE	NONE	22.8
GW BLDG	DIAMINOBENZENE (1,3)-4,4 METHYLENEDIANILINE	NONE	10.7
GW BLDG	DIBUTYL TIN DILAURATE	NONE	0.1
GW BLDG	DIBUTYL TIN DILAURATE	NONE	0.4
GW BLDG	DIBUTYL TIN DILAURATE	NONE	0.8
GW BLDG	DIBUTYL TIN DILAURATE	NONE	0.1
GW BLDG	DIBUTYL TIN DILAURATE	NONE	0.1
GW BLDG	DIETHYL AMINE	D001	25.0
GW BLDG	DIETHYLAMINO ETHANOL	D001	85.3
GW BLDG	DIETHYLENE GLYCOL	D001	1.3
[illegible] BLDG	DIETHYLENE GLYCOL BUTYL ETHER ACETATE	D001	0.9

GW BLDG	DIMETHYLFORMAMIDE	NONE	77.0
GW BLDG	DIMETHOXY-PHENYLACETOPHENASE	NONE	1.0
BLDG	DIPHENYL METHANE 4,4 DIISOCYANATE	D001 D003	1.0
(LDG	DOW 1200 PRIME COAT	D001	0.8
GW BLDG	DOW 1200 PRIME COAT	D001	0.8
GW BLDG	DOW 1200 PRIME COAT	D001	9.0
GW BLDG	DOW 1204 PRIME COAT	D001	0.8
GW BLDG	DOW 1204 PRIME COAT	D001	0.8
GW BLDG	DOW 3140	NONE	1.0
GW BLDG	DOW 3140	NONE	1.0
GW BLDG	DOW 3140 RTV	NONE	1.1
GW BLDG	DOW CORNING 3140 RTV COATING	NONE	3.8
GW BLDG	DOW PRIME COAT 1204	D001	2.7
GW BLDG	DUPONT CONDUCTER	D001 D011	0.2
GW BLDG	DYNAMARK 8500	D001	0.5
GW BLDG	DYNATRONIX ACIDIC SOLUTION	D002	14.3
GW BLDG	E SOLDER A	D008	1.0
GW BLDG	E SOLDER B	D008	1.1
GW BLDG	E-SOLDER 3012	D011	2.9
GW BLDG	EGMB ETHER,FORMALDEHYDE,DIETHYL ETHANOLAMINE	D001	26.8
GW BLDG	ENTHONE ENPLATE NI-416M	NONE	53.8
GW BLDG	EPON 815	NONE	2.5
GW BLDG	EPON 815	D001	2.5
GW BLDG	EPON 828	NONE	4.0
GW BLDG	EPON 828	NONE	1.3
GW BLDG	EPON CURING AGENT U	D002	33.6
BLDG	EPON CURING AGENT U	D002	2.4
LDG	EPON CURING AGENT U	D002	20.0
BLDG	EPON CURING AGENT U	D002	22.8
GW BLDG	EPON RESIN 815	NONE	0.0
GW BLDG	EPON RESIN 828	NONE	2.4
GW BLDG	EPON RESIN 828	NONE	1.1
GW BLDG	EPON RESIN 828	NONE	2.4
GW BLDG	EPON RESIN 828	NONE	4.8
GW BLDG	EPON RESIN 828	NONE	125.1
GW BLDG	EPON U	D002	2.0
GW BLDG	EPOXY 8822 PART A	NONE	1.5
GW BLDG	EPOXY 8822 PART B	NONE	0.5
GW BLDG	EPOXY RESIN	NONE	22.6
GW BLDG	EPOXY RESIN	NONE	1.5
GW BLDG	EPOXY RESIN	NONE	30.0
GW BLDG	EPOXY RESIN	D001	0.7
GW BLDG	EPOXY RESIN	NONE	102.0
GW BLDG	EPOXY RESIN	D001	3.5
GW BLDG	EPOXY RESIN	D001	1.7
GW BLDG	EPOXY RESIN	D001	4.4
GW BLDG	EPOXY RESIN	D001	2.0
GW BLDG	EPOXY RESIN	D001	3.0
GW BLDG	EPOXY RESIN	D001	1.6
GW BLDG	EPOXY RESIN	D001	1.0
GW BLDG	EPOXY RESIN	D001	2.8
BLDG	EPOXY RESIN	D001	4.0
BLDG	EPOXY RESIN	D001	1.0
LDG	EPOXY RESIN	D001	1.0

GW BLDG	EPOXY RESIN	D001	2.0
GW BLDG	EPOXY RESIN,METHYLENE BIPHENYL ISOCYANATE	D003	1.9
[illegible] LDG	EPOXY RESIN,POLYPROPYLENE TRIOL	NONE	1.5
GW BLDG	EPOXY RESIN,TALC	NONE	1.5
GW BLDG	EPOXY RESIN,TALC	NONE	5.7
GW BLDG	EPOXY SRIS	NONE	4.0
GW BLDG	EPOXYLITE 8822 PART A	NONE	7.0
GW BLDG	EPOXYLITE 8822 PART A	NONE	71.0
GW BLDG	EPOXYLITE 8822 PART A	NONE	10.5
GW BLDG	EPOXYLITE 8822 PART A	NONE	26.0
GW BLDG	EPOXYLITE 8822 PART A	NONE	22.5
GW BLDG	EPOXYLITE 8822 PART A	NONE	9.5
GW BLDG	EPOXYLITE 8822 PART A	NONE	6.0
GW BLDG	EPOXYLITE 8822 PART A	NONE	6.9
GW BLDG	EPOXYLITE 8822 PART A	NONE	7.3
GW BLDG	EPOXYLITE 8822 PART A	NONE	26.7
GW BLDG	EPOXYLITE 8822 PART A	NONE	3.7
GW BLDG	EPOXYLITE 8822 PART A	NONE	6.2
GW BLDG	EPOXYLITE 8822 PART A	NONE	1.6
GW BLDG	EPOXYLITE 8822 PART A	NONE	12.2
GW BLDG	EPOXYLITE 8822 PART A	NONE	2.8
GW BLDG	EPOXYLITE 8822 PART A	NONE	9.2
GW BLDG	EPOXYLITE 8822 PART A	NONE	20.2
GW BLDG	EPOXYLITE 8822 PART A	NONE	11.8
GW BLDG	EPOXYLITE 8822 PART A	NONE	1.0
GW BLDG	EPOXYLITE 8822 PART A	NONE	13.7
GW BLDG	EPOXYLITE 8822 PART A	NONE	1.3
[illegible] LDG	EPOXYLITE 8822 PART A	NONE	1.5
[illegible] LDG	EPOXYLITE 8822 PART A	NONE	12.3
GW BLDG	EPOXYLITE 8822 PART A	NONE	5.4
GW BLDG	EPOXYLITE 8822 PART A	NONE	14.4
GW BLDG	EPOXYLITE 8822 PART A	NONE	3.0
GW BLDG	EPOXYLITE 8822 PART A	NONE	9.9
GW BLDG	EPOXYLITE 8822 PART A	NONE	4.7
GW BLDG	EPOXYLITE 8822 PART A	NONE	1.5
GW BLDG	EPOXYLITE 8822 PART B	NONE	25.0
GW BLDG	EPOXYLITE 8822 PART B	NONE	2.6
GW BLDG	EPOXYLITE 8822 PART B	NONE	4.1
GW BLDG	EPOXYLITE 8822 PART B	NONE	9.0
GW BLDG	EPOXYLITE 8822 PART B	NONE	7.5
GW BLDG	EPOXYLITE 8822 PART B	D002	2.0
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	2.7
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	2.5
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	9.9
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	0.7
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	1.3
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	2.2
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	3.3
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	4.3
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	6.6
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	4.8
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	1.1
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	1.0
[illegible] DG	EPOXYLITE 8822 PART B	D002 D003	5.0

GW BLDG	EPOXYLITE 8822 PART B	D002 D003	0.6
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	2.0
BLDG	EPOXYLITE 8822 PART B	D002	4.5
BLDG	EPOXYLITE 8822 PART B	D002	0.3
GW BLDG	EPOXYLITE 8822 PART B	D002	1.0
GW BLDG	EPOXYLITE 8822 PART B	D002	5.3
GW BLDG	EPOXYLITE 8822 PART B	D002	1.7
GW BLDG	EPOXYLITE 8822 PART B	D002	3.6
GW BLDG	EPOXYLITE 8822 PART B	D002	0.6
GW BLDG	EPOXYLITE 8822 PART B	D002 D003	1.0
GW BLDG	EPOXYPOLYMIDE,TRIPHENYLPHOSPHITE,MA GNESIUM OXIDE,PIGMENT	D001	9.0
GW BLDG	ETHACURE	NONE	2.8
GW BLDG	ETHACURE	NONE	17.1
GW BLDG	ETHACURE 100	NONE	2.8
GW BLDG	ETHOCURE	NONE	3.0
GW BLDG	ETHYLCYANOCRYLATE,HYDROQUINONE	D001	1.2
GW BLDG	ETHYORTHOSILICATE,TETRABUTYTITONEET ,PETROLEUM DISTILLATES	D001	1.0
GW BLDG	EUROPIUM HYDRIDE	D003	0.1
GW BLDG	EUROPIUM HYDRIDE	D003	0.1
GW BLDG	EUROPIUM METAL	D003	0.2
GW BLDG	EXTERNAL MOLD RELEASE	D001	82.6
GW BLDG	FERRIC CHLORIDE	NONE	3.6
GW BLDG	FLUORENE	NONE	0.1
GW BLDG	FOAM SUPPRESSANT	NONE	52.0
GW BLDG	FORMIC ACID	D002	6.6
BLDG	FORMICA 100	NONE	1.0
BLDG	GE BLUE PRIMER SS4155	D001	1.5
BLDG	GE PRIMER BLUE SS4155	D001	1.1
GW BLDG	GE RTV 630 PART A	NONE	2.5
GW BLDG	GE RTV 630 PART A	NONE	0.8
GW BLDG	GE RTV 630 PART B	F005	0.2
GW BLDG	GE RTV 630 PART B	F005	0.1
GW BLDG	GE RTV 630A SILICONE	NONE	2.0
GW BLDG	GE RTV 630B CURING AGENT	NONE	2.0
GW BLDG	GE RTV II	NONE	293.0
GW BLDG	GE RTV SILICONE	NONE	4.8
GW BLDG	GE SILICONE	D001	9.9
GW BLDG	GE SILICONE	D001	1.4
GW BLDG	GE SILICONE	D001	2.6
GW BLDG	GE SILICONE A	NONE	0.9
GW BLDG	GE SILICONE B	D001	0.1
GW BLDG	GE SILICONE BLUE- SS 4155	D001	4.4
GW BLDG	GE SILICONE PRIMER BLUE	D001	1.5
GW BLDG	GE SILICONE RTV 11	NONE	9.3
GW BLDG	GE SILICONE RTV 630 PART A	NONE	2.8
GW BLDG	GE SILICONE RTV 630 PART B	NONE	0.3
GW BLDG	GE SILICONE RTV 630A	NONE	1.0
GW BLDG	GE SILICONE RTV 630B	NONE	0.1
GW BLDG	GE SILICONE SS-4155	D001	2.9
GW BLDG	GE SILICONE SS4155	D001	4.3
BLDG	GE SILICONE SS4155	D001	4.3
GW BLDG	GE SILICONE SS4155	D001	25.5
BLDG	GE SILICONE SS4155	D001	27.4

GW

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GW BLDG	GE SS4155	D001	1.0
GW BLDG	GE SS4155	D001	1.0
GW BLDG	GE SS4155	D001	1.2
GW BLDG	GE SS4155	D001	1.3
GW BLDG	GE SS4155 BLUE PRIMER	D001	1.4
GW BLDG	GE SS4155 BLUE PRIMER	D001	2.0
GW BLDG	GE SS4155 PRIMER	D001	1.4
GW BLDG	GE SS4155 PRIMER	D001	7.0
GW BLDG	GLACIAL ACETIC ACID	D001 D002	5.7
GW BLDG	GLASS BEADS	NONE	22.7
GW BLDG	GLASS BEADS	NONE	20.0
GW BLDG	GLYCERIN	NONE	1.3
GW BLDG	GOLD ETCH	D002	31.0
GW BLDG	GOLD SALT 9NT	NONE	161.1
GW BLDG	GOLD STRIPPER	D002	49.0
GW BLDG	GRAPHITE POWDER	NONE	33.2
GW BLDG	GREEN GLUE	NONE	1.0
GW BLDG	GREEN GLUE	NONE	1.5
GW BLDG	GREEN GLUE	NONE	1.2
GW BLDG	GREEN GLUE	NONE	1.2
GW BLDG	GREEN GLUE	NONE	3.7
GW BLDG	GREEN GLUE	NONE	5.0
GW BLDG	GREEN GLUE	NONE	1.2
GW BLDG	GREEN GLUE	NONE	1.0
GW BLDG	GREEN GLUE	NONE	6.3
GW BLDG	GREEN GLUE EPOXY	NONE	1.3
GW BLDG	GREEN GLUE EPOXY	NONE	6.3
GW BLDG	HACH EDTA SALT	NONE	0.5
GW BLDG	HALTHANE 7200 PART A	D001	0.4
GW BLDG	HALTHANE 7200 PART B	D008	0.4
GW BLDG	HALTHANE 73-18 CURING AGENT	NONE	3.4
GW BLDG	HALTHANE 73-18 RESIN	NONE	5.1
GW BLDG	HALTHANE 7318	NONE	0.5
GW BLDG	HALTHANE 88-3 CURING AGENT	NONE	0.4
GW BLDG	HALTHANE 88-3 CURING AGENT	NONE	0.3
GW BLDG	HALTHANE 88-3 RESIN	NONE	0.4
GW BLDG	HALTHANE 88-3 RESIN	NONE	0.9
GW BLDG	HALTHANE CURING AGENT	NONE	1.0
GW BLDG	HALTHANE CURING AGENT 73-18	NONE	0.4
GW BLDG	HALTHANE CURING AGENT 73-18	NONE	1.1
GW BLDG	HALTHANE CURING AGENT 73-18	NONE	0.2
GW BLDG	HALTHANE CURING AGENT 88-3	NONE	2.0
GW BLDG	HALTHANE CURING AGENT 88-3	NONE	0.2
GW BLDG	HALTHANE RESIN	NONE	1.0
GW BLDG	HALTHANE RESIN 73-18	NONE	0.7
GW BLDG	HALTHANE RESIN 73-18	NONE	2.1
GW BLDG	HALTHANE RESIN 73-18	NONE	0.2
GW BLDG	HALTHANE RESIN 88-3	D001	4.6
GW BLDG	HALTHANE RESIN 88-3	D001	0.6
GW BLDG	HERESITE CSE6006	D001	3.0
GW BLDG	HEXANE	D001	40.9
GW BLDG	HEXANE WASTE	D001	1.0
GW BLDG	HYDROFLUORIC ACID	D002 U134	9.3
GW BLDG	HYDROFLUORIC ACID 49%	D002 U134	1.1
GW BLDG	HYDROXYPROPYL (2)-ETHYLENE DIAMINE	D001	4.0

GW bldg

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GW BLDG	HYSOL 934 PART A	NONE	72.0
GW BLDG	HYSOL 934 PART B	NONE	24.0
GW BLDG	HYSOL A	NONE	17.1
LDG	HYSOL B	D001	11.2
GW BLDG	HYSOL EE-4169 CASTING COMPOUND	NONE	42.2
GW BLDG	HYSOL PART A	NONE	1.5
GW BLDG	HYSOL PART B	NONE	0.5
GW BLDG	INSTAGEL XF	D001	48.0
GW BLDG	IRGACURE 651	NONE	6.0
GW BLDG	IRON POWDER	D003	12.5
GW BLDG	ISO VERRE STRIPPER	D002 F002	1.1
GW BLDG	ISO VERRE STRIPPER	F002	34.0
GW BLDG	ISOPROPANOL	D001	0.3
GW BLDG	ISOPROPYL, BROMOCRESOL, POTASSIUM HYDROXIDE	D001	2.5
GW BLDG	J.R. ACCELERATOR POLYSULFIDE	D001	0.4
GW BLDG	J.R. BASE POLYSULFIDE	D001 F005	2.1
GW BLDG	JAGUAR C13	NONE	11.7
GW BLDG	JOINT SEALANT	D001 D005 D008	11.0
GW BLDG	KESTER FLUX 197	D001	10.0
GW BLDG	KESTER RESIN AP-20	F002	67.8
GW BLDG	KESTER SOLDER FLUX	D001	1.5
GW BLDG	KODAK INDUSTREX DEVELOPER PART A	D002	286.3
GW BLDG	KODAK TRIPHENYL PHOSPHITE	NONE	43.2
GW BLDG	LACQUER	D001	6.0
GW BLDG	LANTHANUM HYDRIDE	D003	0.1
GW BLDG	LANTHANUM METAL	D003	0.5
GW BLDG	LANTHANUM NICKEL ALUMINUM	NONE	0.1
LDG	LANTHANUM NICKEL HYDRATE	D001	0.1
BLDG	LEAD DIOXIDE	D001 D008	1.9
GW BLDG	LEAD DIOXIDE PART B	D008	4.0
GW BLDG	LEAD OCTOATE WITH SYRINGES	D008	5.0
GW BLDG	LEAD OXIDE- RED	D001 D008	9.5
GW BLDG	LEAD ZIRCONATE TITANATE	D008	5.7
GW BLDG	LECTROLESS NICKEL MAKEUP	D008	201.0
GW BLDG	LIMONENE	D001	37.2
GW BLDG	LITHIUM CARBONATE	NONE	13.7
GW BLDG	LITHIUM CARBONATE	NONE	2.3
GW BLDG	LITHIUM CARBONATE	NONE	17.0
GW BLDG	LITHIUM HYDRIDE	D003	0.1
GW BLDG	LITHIUM HYDRIDE	D003	0.2
GW BLDG	LITHIUM HYDRIDE, BERRYLIUM HYDRIDE	D003	0.1
GW BLDG	LITHIUM HYDRIDE, BERYLLIUM HYDRIDE	D003	0.1
GW BLDG	LITHIUM MAGNESIUM HYDRIDE	D003	0.2
GW BLDG	LITHIUM PHOSPHATE	NONE	11.0
GW BLDG	LOCTITE Z71	D001	1.0
GW BLDG	M-PYROL	NONE	1.0
GW BLDG	MAGNESIUM NICKEL	D003	0.1
GW BLDG	MAGNESIUM NICKEL	D003	0.1
GW BLDG	MAGNESIUM NICKEL	D003	0.1
GW BLDG	MAGNESIUM NICKEL HYDRIDE	D003	0.1
GW BLDG	MAGNESIUM OXIDE	NONE	1.1
GW BLDG	MAGNESIUM OXIDE	NONE	1.5
BLDG	MAGNESIUM OXIDE	NONE	9.0
LDG	MANNITOL	NONE	8.0

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Bldg.

GW BLDG	MANNITOL	NONE	15.3
GW BLDG	MARKEM 207 CLEANER	F002	56.8
GW BLDG	MARKEM 320	D001	2.0
GW BLDG	MARKEM 320	D001	11.5
GW BLDG	MARKEM 7132 BLACK INK	NONE	3.0
GW BLDG	MARKEM 8639 BLACK INK	NONE	1.1
GW BLDG	MARKEM 8639 BLACK INK	NONE	0.9
GW BLDG	MARKEM 8639 BLACK INK	NONE	0.7
GW BLDG	MARKEM BLACK 8829	NONE	0.3
GW BLDG	MARKEM CLEANER 320	D001 F003	13.1
GW BLDG	MECURY THERMOMETERS	D009	2.1
GW BLDG	MEK, ACETONE, 1,1,1-TRICHLOROETHANE, PETROLEUM HYDROCARBONS	D035 F001 F003 F005	336.6
GW BLDG	MERCURY	D009	0.2
GW BLDG	METHANOL	D001 F003 U154	14.7
GW BLDG	METHYL ETHYL KETONE	D001 D035 F005	46.0
GW BLDG	METHYL ETHYL KETONE	D001	0.5
GW BLDG	METHYL ETHYL KETONE	D001 D035 F005 U159	119.8
GW BLDG	METHYL ORANGE	NONE	5.5
GW BLDG	METHYL PYRROLIDONE	NONE	0.9
GW BLDG	METHYLENE BIS-PHENYL ISOCYANATE	D001	1.0
GW BLDG	METHYLENE BIS-PHENYL ISOCYANATE	D001	1.0
GW BLDG	MOUND GREEN GLUE	NONE	5.8
GW BLDG	MOUND GREEN GLUE	NONE	3.8
GW BLDG	MOUND GREEN GLUE	NONE	2.5
GW BLDG	NADIC METHYL ANDHYDRIDE	NONE	5.3
GW BLDG	NADIC METHYL ANHYDRIDE,EPOXY RESIN	NONE	10.0
GW BLDG	NICKEL CARBONATE	NONE	40.7
GW BLDG	NICKEL STANDARD	D002	25.0
GW BLDG	NICKEL SULFAMATE SOLUTION	NONE	159.8
GW BLDG	NICKEL SULFATE	NONE	8.8
GW BLDG	NITRIC ACID	D001 D002	9.3
GW BLDG	ORGANIC INK	D001	1.0
GW BLDG	ORGANIC INK	D001	1.8
GW BLDG	ORGANIC ISOCYANATE	D003	1.0
GW BLDG	ORGANIC RESIN	NONE	1.9
GW BLDG	PARYLENE	NONE	1.3
GW BLDG	PCB OIL >500PPM	PCB2	0.5
GW BLDG	PDI BLUE 2301	NONE	2.8
GW BLDG	PDI BLUE EPOXY	NONE	19.6
GW BLDG	PDI BLUE PASTE	NONE	9.8
GW BLDG	PDI EPOXY	NONE	80.0
GW BLDG	PDI EPOXY 22-38010	NONE	9.4
GW BLDG	PDI EPOXY BLUE 22-38010	NONE	0.9
GW BLDG	PDI YELLOW	D001	22.2
GW BLDG	PDI YELLOW 22-20480	NONE	11.5
GW BLDG	PDI YELLOW PASTE	NONE	43.4
GW BLDG	PDI YELLOW PASTE	NONE	35.0
GW BLDG	PDI YELLOW PASTE 22-2048	NONE	78.6
GW BLDG	PETROLEUM DISTILLATES	D001	3.0
GW BLDG	PETROLEUM DISTILLATES	D001	1.0
GW BLDG	PETROLEUM DISTILLATES	D001	1.0
GW BLDG	PETROLEUM DISTILLATES	D001	2.0
GW BLDG	PHENOLIC MICROBALLOONS	NONE	1.0

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G W
Bldg.

GW BLDG	PHENOLIC RESIN	NONE	21.6
GW BLDG	PHOSPHORIC ACID	D002	2.9
BLDG	PLASTISIL ADHESIVE	D001 F003 F005	0.4
DG	PLASTISIL BASE	NONE	1.3
GW BLDG	PLASTISIL CATALYST	NONE	1.0
GW BLDG	POLISHING POWDER	NONE	1.6
GW BLDG	POLYAMID RESIN	D001	11.0
GW BLDG	POLYAMIDE RESIN,TRIMETHYLENE TETRAMINE	D001	1.0
GW BLDG	POLYSULFIDE PART A	D003 F005	11.0
GW BLDG	POLYSULFIDE PART A	D001 F005	21.0
GW BLDG	POLYSULFIDE PART B	D001 D008	6.0
GW BLDG	POTASSIUM CHLORIDE	NONE	2.0
GW BLDG	POTASSIUM IODIDE	NONE	4.4
GW BLDG	POTASSIUM PERCHLORATE	D001	10.6
GW BLDG	POTASSIUM PHOSPHATE	NONE	2.0
GW BLDG	POTASSIUM SULFATE	NONE	1.0
GW BLDG	PRC 1201QA	D008	0.4
GW BLDG	PRC 1201QB	D001	2.2
GW BLDG	PRC A	D001	0.3
GW BLDG	PRC B	D001	1.3
GW BLDG	PRIME COAT	NONE	0.8
GW BLDG	PRIME COAT 1200	D001	10.8
GW BLDG	PRIME COAT 1200	D001	4.8
GW BLDG	PRIME COAT 1204	D001	0.8
GW BLDG	PRIMER	D001	6.8
GW BLDG	PRIMER	D001	0.9
BLDG	PRIMER SIL	D001	4.6
LDG	PURA GOLD CONDUCTING SALT	NONE	150.0
LDG	Q DOPE	D001 F005	0.9
GW BLDG	Q DOPE	D001 F005	1.0
GW BLDG	RAYCOHESIVE B-84	F002	4.0
GW BLDG	RC-20	D001	20.0
GW BLDG	RESIN	D003	3.0
GW BLDG	RESIN,ISOPROPANOL,TURPENTINE	D001	5.0
GW BLDG	RTV 11	NONE	1.0
GW BLDG	RTV 3145	NONE	0.1
GW BLDG	RTV 511 SILICONE	NONE	1.2
GW BLDG	RTV 511 SILICONE	NONE	1.2
GW BLDG	RTV 511 SILICONE RUBBER COMPOUND	NONE	84.1
GW BLDG	RTV 630 A	NONE	2.7
GW BLDG	RTV 630 A	NONE	0.9
GW BLDG	RTV 630 A	NONE	11.0
GW BLDG	RTV 630 B	D001	0.3
GW BLDG	RTV 630 B	D001	0.1
GW BLDG	RTV 630 B	NONE	1.0
GW BLDG	RTV 630 PART A	NONE	0.9
GW BLDG	RTV 630 PART A	NONE	3.0
GW BLDG	RTV 630 PART A	NONE	0.9
GW BLDG	RTV 630 PART A	NONE	1.3
GW BLDG	RTV 630 PART A	NONE	20.6
GW BLDG	RTV 630 PART B	NONE	0.2
GW BLDG	RTV 630 PART B	D001	0.1
BLDG	RTV 630 PART B	F005	0.1
LDG	RTV 630 PART B	F005	6.8

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GW Bldg.

GW BLDG	RTV F	NONE	2.1
GW BLDG	RTV-11	NONE	1.0
GW BLDG	RUGER TRITON	NONE	1.0
[illegible]DG	SAES GETTERS	D001 D003	1.0
GW BLDG	SCOTCH ELECTRICAL RESIN PART A	NONE	22.0
GW BLDG	SCOTCH ELECTRICAL RESIN PART B	NONE	22.0
GW BLDG	SCOTCH WELD EPOXY ADHESIVE 2214	D003	3.1
GW BLDG	SCOTCHCAST ELECTRICAL RESIN 8 PART A	NONE	4.3
GW BLDG	SCOTCHCAST ELECTRICAL RESIN 8 PART B	NONE	4.4
GW BLDG	SCOTCHCAST RESIN PART B	NONE	10.0
GW BLDG	SCOTH WELD 2214 ADHESIVE	D003	2.0
GW BLDG	SCOTHCAST RESIN PART A	NONE	10.0
GW BLDG	SILICA	NONE	6.6
GW BLDG	SILICA	NONE	10.0
GW BLDG	SILICA	NONE	10.0
GW BLDG	SILICA	NONE	4.0
GW BLDG	SILICA	NONE	2.0
GW BLDG	SILICA	NONE	2.0
GW BLDG	SILICA POWDER	NONE	0.5
GW BLDG	SILICON DIOXIDE WASTE (CABOSIL)	NONE	78.4
GW BLDG	SILICON OXIDE, LITHIUM	D003	0.1
GW BLDG	SILICONE	D001	2.0
GW BLDG	SILICONE	D001	0.9
GW BLDG	SILICONE	D001	0.1
GW BLDG	SILICONE BLUE PRIMER SS4155	D001	4.2
GW BLDG	SILICONE CURING AGENT	D001	2.0
[illegible]LDG	SILICONE CURING AGENT	D001	0.9
[illegible]LDG	SILICONE CURING AGENT	D001	0.2
GW BLDG	SILICONE ELASTOMER	NONE	8.5
GW BLDG	SILICONE ELASTOMER	D001	1.1
GW BLDG	SILICONE RUBBER	D001	1.0
GW BLDG	SILICONE RUBBER RTV 630A	NONE	0.6
GW BLDG	SILICONE RUBBER RTV 630B	F005	0.1
GW BLDG	SILICONE RUBBER,TOLUENE	NONE	0.1
GW BLDG	SILVER EPOXY	D011	0.9
GW BLDG	SILVER EPOXY	D011	0.9
GW BLDG	SILVER FLAKES	D011	23.3
GW BLDG	SILVER METAL	D011	0.1
GW BLDG	SILVER PAINT	D001 D011	1.5
GW BLDG	SILVER PAINT	D001 D011	1.7
GW BLDG	SLYGARD 184 CURING AGENT	NONE	0.1
GW BLDG	SLYGARD 184 CURING AGENT	NONE	0.3
GW BLDG	SLYGARD 184 CURING AGENT	NONE	5.9
GW BLDG	SLYGARD 184 CURING AGENT	NONE	0.1
GW BLDG	SLYGARD 184 CURING AGENT	NONE	0.1
GW BLDG	SLYGARD 184 CURING AGENT	NONE	4.9
GW BLDG	SLYGARD 184 ELASTOMER	NONE	1.0
GW BLDG	SLYGARD 184 ELASTOMER	NONE	0.6
GW BLDG	SLYGARD 184 ELASTOMER	NONE	0.2
GW BLDG	SLYGARD 184 ELASTOMER	NONE	26.8
GW BLDG	SLYGARD 184 PART A	NONE	39.2
GW BLDG	SLYGARD 184 PART A	NONE	10.0
[illegible] LDG	SLYGARD 184 PART A	NONE	23.0

GW BLDG	SLYGARD 184 PART A	NONE	52.0
GW BLDG	SLYGARD 184 PART B	NONE	2.3
ILDG	SLYGARD 184 PART B	NONE	2.3
[illegible]DG	SLYGARD 184 PART B	NONE	12.5
GW BLDG	SLYGARD 184 SILICONE	NONE	47.0
GW BLDG	SLYGARD 186 CURING AGENT	NONE	0.2
GW BLDG	SLYGARD CURING AGENT	D001	0.1
GW BLDG	SLYGARD CURING AGENT	NONE	39.2
GW BLDG	SLYGARD CURING AGENT 184	NONE	0.1
GW BLDG	SLYGARD ELASTOMER	NONE	8.6
GW BLDG	SLYGARD ELASTOMER 184	NONE	1.0
GW BLDG	SLYGARD PRIME COAT	D001	1.0
GW BLDG	SLYGARD PRIME COAT	D001	1.0
GW BLDG	SLYGARD PRIME COAT	D001	57.0
GW BLDG	SLYGARD PRIME COAT	D001	1.0
GW BLDG	SODIUM BICARBONATE	NONE	3.6
GW BLDG	SODIUM BICARBONATE	NONE	8.7
GW BLDG	SODIUM CARBONATE	NONE	10.8
GW BLDG	SODIUM DICHROMATE	D001 D007	1.0
GW BLDG	SODIUM DICHROMATE	D007	0.9
GW BLDG	SODIUM HYDROXIDE	D002	5.7
GW BLDG	SODIUM HYDROXIDE	D002	1.2
GW BLDG	SODIUM HYDROXIDE	NONE	6.0
GW BLDG	SODIUM HYDROXIDE	NONE	2.1
GW BLDG	SODIUM HYDROXIDE	NONE	65.1
GW BLDG	SODIUM HYDROXIDE PELLETS	NONE	6.9
GW BLDG	SODIUM HYPOCHLORITE	D002	37.0
BLDG	SODIUM NITRATE	D001	1.2
[illegible]LDG	SODIUM NITRATE	D001	26.2
[illegible]LDG	SODIUM NITRATE	D001	4.0
GW BLDG	SODIUM POTASSIUM TARTRATE	NONE	13.6
GW BLDG	SODIUM SULFATE	NONE	3.0
GW BLDG	SODIUM SULFATE ANHYDROUS	NONE	1.0
GW BLDG	SOLDER FLUX 135	D001	6.3
GW BLDG	SPAN 80	NONE	8.6
GW BLDG	SPAN-80	NONE	1.0
GW BLDG	SRIR EPOXY PART A	NONE	1.0
GW BLDG	SRIR EPOXY PART B	NONE	1.0
GW BLDG	SS 4155	D001	2.0
GW BLDG	SS 4155	D001	3.0
GW BLDG	SULFURIC ACID	NONE	4.0
GW BLDG	SUPERIOR FLUX 30	D002	25.5
GW BLDG	SYNKOOL N173	NONE	8.0
GW BLDG	SYNKOOL SS311	D002	7.0
GW BLDG	TACPAC ACCELLERATOR	D001	4.7
GW BLDG	TETRA ETCH	D001	24.5
GW BLDG	TEXANOL ESTER ALCOHOL	NONE	8.8
GW BLDG	TITANIUM COPPER DIOXIDE	D003	0.3
GW BLDG	TITANIUM COPPER HYDRATE	D003	0.1
GW BLDG	TITANIUM COPPER OXIDE	D003	0.1
GW BLDG	TITANIUM IRON	D003	0.1
GW BLDG	TITANIUM NICKEL HYDRATE	D003	0.1
W BLDG	TITANIUM OXIDE	D003	0.1
GW BLDG	TITANIUM POWDER	D003	0.1
LDG	TITANIUM POWDER	D003	0.1

PTK

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GW bldg

GW BLDG	TITANIUM POWDER	D003	3.4
GW BLDG	TITANIUM POWDER	D003	5.5
GW BLDG	TITANIUM POWDER	D001 D003	33.8
GW BLDG	TITANIUM, OSMIUM	D003	0.5
GW BLDG	TOLUENE DIISOCYANATE	D003	4.1
GW BLDG	TOLUENE DIISOCYANATE	D001 D003	1.0
GW BLDG	TOLUENE DIISOCYANATE	D001	1.0
GW BLDG	TRIBUTYLPHOSPHITE	D001	1.3
GW BLDG	TRICHLOROETHANE (1,1,1-)	D001	1.0
GW BLDG	TRICHLOROETHANE (1,1,1-)	F002	82.0
GW BLDG	TRICHLOROETHANE (1,1,1-)	F002	6.2
GW BLDG	TRIPHENYL PHOSPHITE	D001	13.4
GW BLDG	TRIPHENYL PHOSPHITE	D001	4.0
GW BLDG	TRIPHENYL PHOSPHITE	NONE	15.5
GW BLDG	TRIPHENYL PHOSPHITE	NONE	5.2
GW BLDG	TRITON N-101	NONE	1.1
GW BLDG	TRITON X-100	NONE	14.7
GW BLDG	URETHANE 7200 A	D003	6.9
GW BLDG	URETHANE 7200 B	D008	6.9
GW BLDG	UVITHANE 783	NONE	10.0
GW BLDG	VANADIUM HYDRIDE	NONE	0.5
GW BLDG	VERSAMID 125	NONE	25.4
GW BLDG	VERSAMID 140	NONE	1.0
GW BLDG	VERSAMID 140	NONE	1.2
GW BLDG	VERSAMID 140	NONE	1.3
GW BLDG	VERSAMID 140	NONE	6.3
GW BLDG	VERSAMID 140	NONE	50.2
GW BLDG	VERSIMID	D001	2.5
GW BLDG	VERSIMID 125	NONE	2.0
GW BLDG	VERSIMID 140	NONE	1.0
GW BLDG	VERSIMID 140	NONE	1.2
GW BLDG	VEX CONCENTRATE	D002	9.0
GW BLDG	VIDEOJET 16	D001 F003 F005	31.0
GW BLDG	VIDEOJET 2600	D001	12.0
GW BLDG	VINYL (N) -2-PYRROLIDONE	NONE	7.2
GW BLDG	WELD-ON CEMENT 16	D001 D035 D040 F002 F005 U080	0.8
GW BLDG	WESGO 532	D001	14.0
GW BLDG	XYLENE,ALUMINUM,EPOXY RESIN	D003	0.5
GW BLDG	ZINC OXIDE	NONE	5.3
GW BLDG	ZIRCONIUM CHROMATE	D001 D007	0.1
GW BLDG	ZIRCONIUM OXIDE	D003	0.1
GW BLDG	ZIRCONIUM POWDER	D003	1.0
GW BLDG	ZULU BLUE	NONE	2.8
GW BLDG-ETSC	TERT- BUTYL PEROXY BENZOATE, FORMERLY LP92-400	D001	4.0
GW BLDG-ETSC	TERT- BUTYL PEROXY BENZOATE, FORMERLY LP92-400	D001	4.0
GW BLDG-ETSC	TERT- BUTYL PEROXY BENZOATE, FORMERLY LP92-400	D001	4.0
GW BLDG-ETSC	TERT- BUTYL PEROXY BENZOATE, FORMERLY LP92-400	D001	4.0
GW BLDG-ETSC	TERT- BUTYL PEROXY BENZOATE, FORMERLY LP92-400	D001	4.0
GW BLDG-ETSC	TERT- BUTYL PEROXY BENZOATE, FORMERLY LP92-420	D001	8.0

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GW Bld

GW BLDG	186 CURING AGENT	D001	0.1
GW BLDG	186 SILICONE	NONE	0.9
GW BLDG	520 ADHESIVE	D001 F003 F005	2.0
GW BLDG	7200 CURING AGENT	D008	1.3
GW BLDG	7200 RESIN	D001 D003	1.3
GW BLDG	8822 EPOXY PART A	NONE	32.0
GW BLDG	8822 EPOXY PART B	D002	10.5
GW BLDG	A2 ADHESIVE	NONE	1.0
GW BLDG	ABRASIVE POWDER 9	NONE	26.2
GW BLDG	ABRASIVE POWDER 9	NONE	25.0
GW BLDG	ACME E SOLDER 3025 PART A	D011	2.8
GW BLDG	ACME E SOLDER 3025 PART B	D008	2.7
GW BLDG	ACTIVATOR A	D001	0.6
GW BLDG	ADIPRENE 100	NONE	215.0
GW BLDG	ADIPRENE 100	NONE	216.0
GW BLDG	ADIPRENE L-100	NONE	2.1
GW BLDG	ADIPRENE L-100	NONE	2.3
GW BLDG	ADIPRENE L-100	NONE	50.0
GW BLDG	ADIPRENE L-100	NONE	42.0
GW BLDG	ADIPRENE L-100	NONE	25.0
GW BLDG	ADIPRENE L-100	NONE	50.0
GW BLDG	ADIPRENE L-100	NONE	30.0
GW BLDG	ADIPRENE L-100	NONE	50.0
GW BLDG	ADIPRENE L-100	NONE	42.0
BLDG	ADIPRENE L-100	NONE	50.0
GW BLDG	ADIPRENE L-100	NONE	55.4
GW BLDG	ADIPRENE L-100	NONE	12.0
GW BLDG	ADIPRENE L-100	NONE	10.0
GW BLDG	ADIPRENE L-100	NONE	10.0
GW BLDG	ADIPRENE L-100	NONE	10.0
GW BLDG	ADIPRENE L-100	NONE	5.0
GW BLDG	ADIPRENE L-100	NONE	16.0
GW BLDG	ADIPRENE L100	NONE	34.1
BLDG	ADSTART	D002	28.0

p7

Bldg E

p7m

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Building Manager's Questionnaire

Building Name: GW 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 Manager's Questionnaire

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

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

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

Source: _____

Building Manager's Questionnaire

Building Name: GW 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

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Building Manager's Questionnaire

Building Name: GW 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.

Recycle paper

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

N/A

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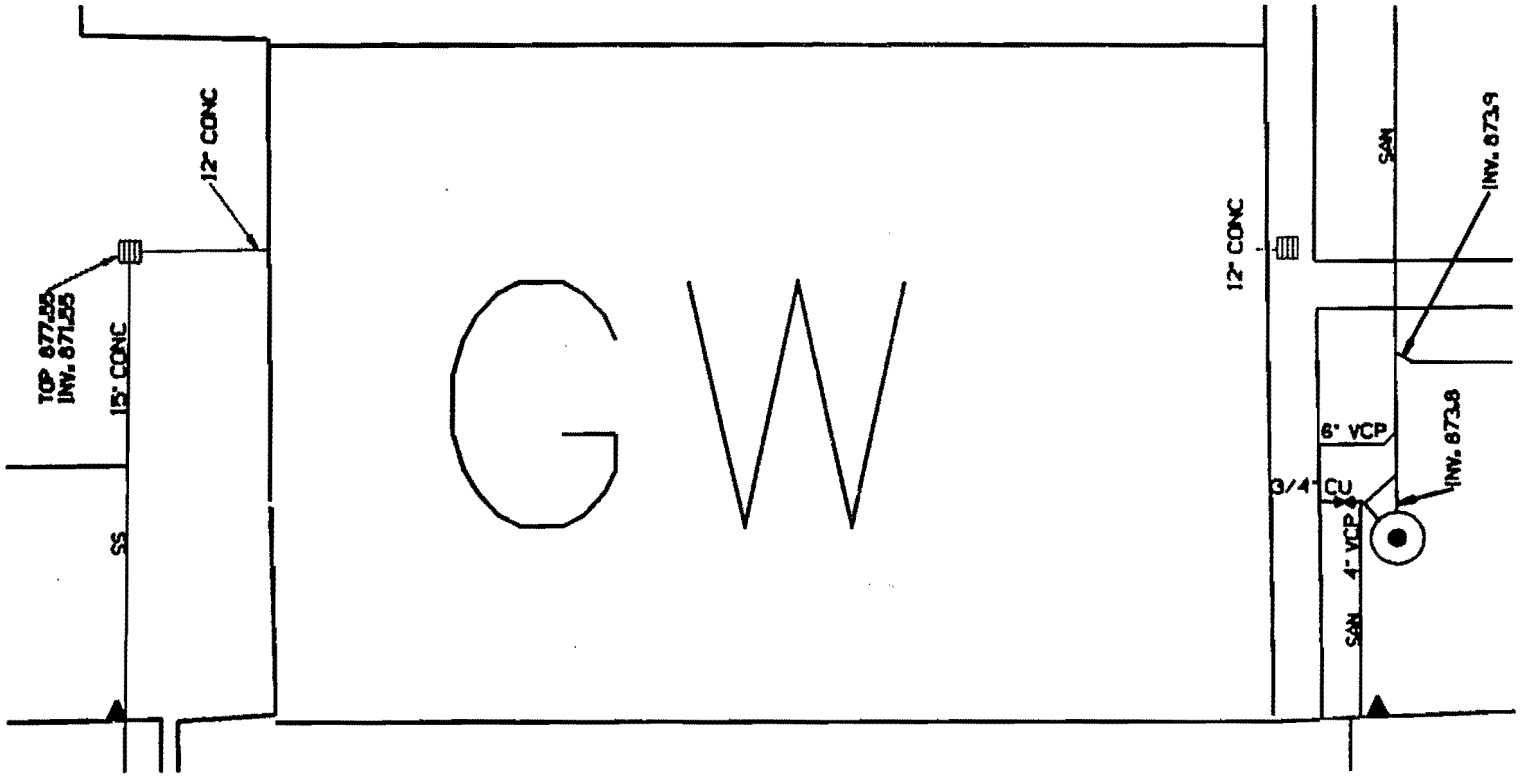

FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL

N

E.G. & G. - MOUND

UNDERGROUND WATER & WASTE LINES OF BLDG.

DATE: 9-14-77

UNCLASSIFIED

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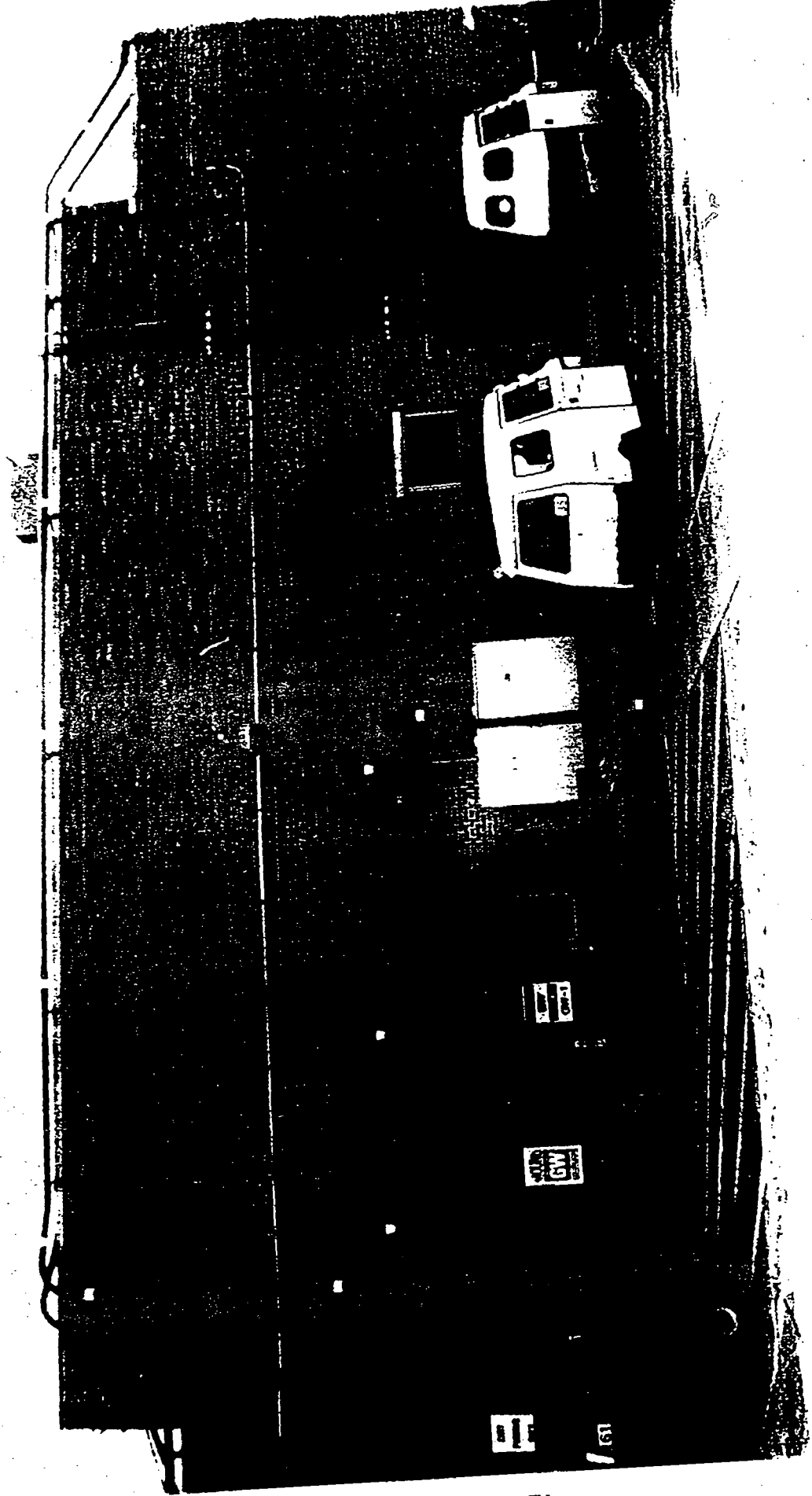

Mound Plant Building GW

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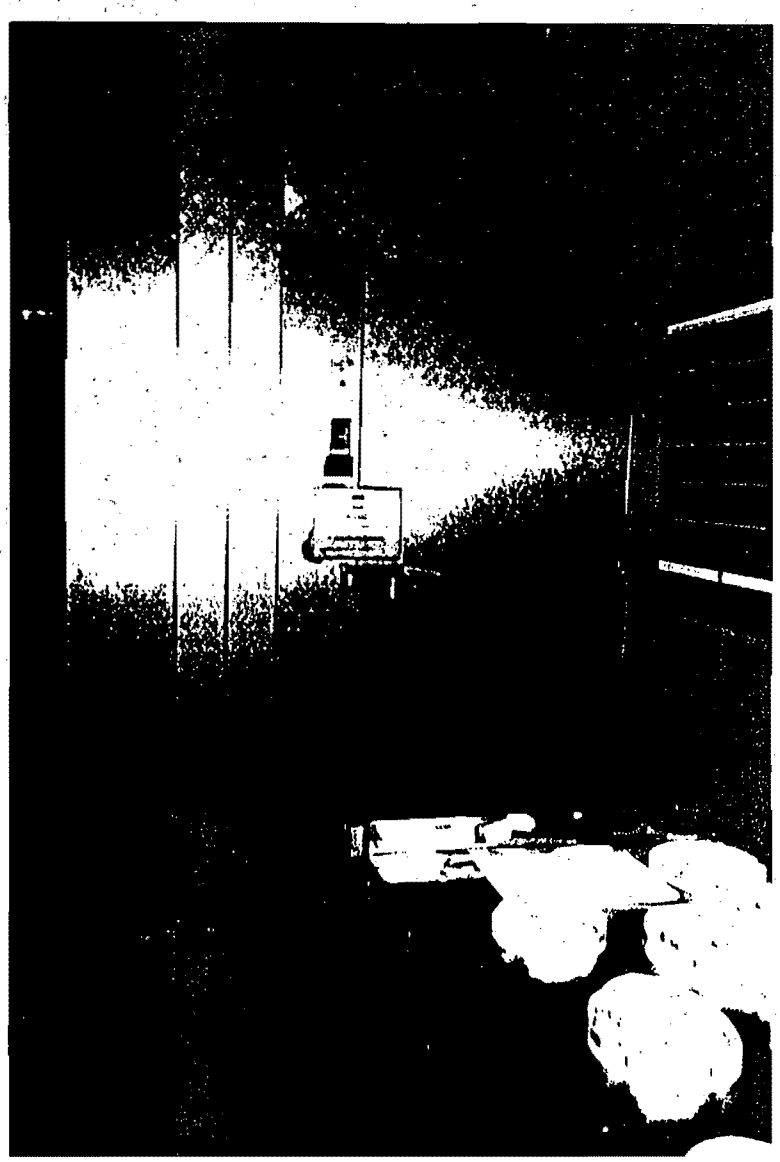
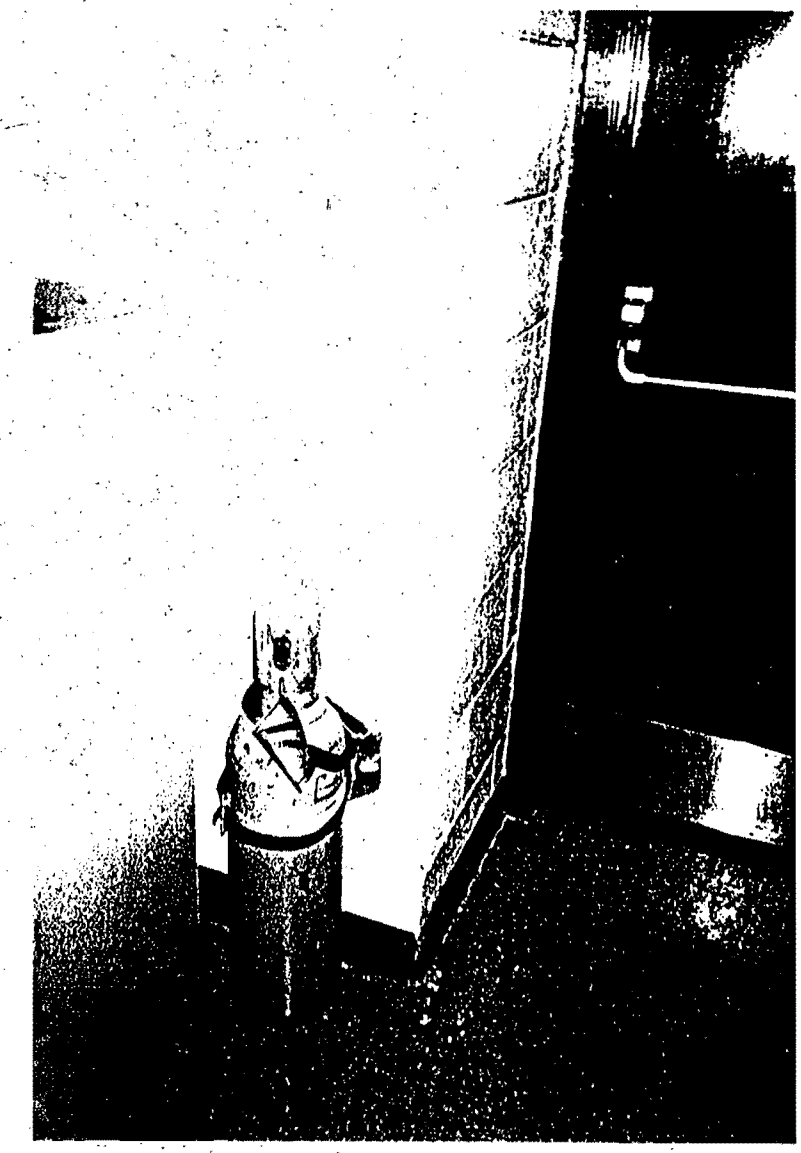


Requirements for air emissions permits for the refurbishment unit must be determined



A Freon cylinder is stored properly in Building GM

9.31 BUILDING W

9.31.1 Scope of Building W Report

In late 1995 and the early months of 1996, EG&G MAT performed a review of environmental conditions at the Mound Plant. The purpose was to develop a performance baseline, and to identify areas for improvement on a building and a sitewide basis. EG&G MAT did not perform a "due diligence" or Phase I Environmental Site Assessment as specified by ASTM 1527 or ASTM 1528. The scope of the appraisal effort and a discussion of the appraisal methodology are detailed in Sections 2.0 and 5.0, found in Volume 1 of this report.

The appraisal team performed a walk-through of Building W on February 21, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.31.6.1). The appraisers were accompanied by the building manager and other knowledgeable personnel such as the process owner. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.31.6.2).

9.31.2 Description of Building W

Building W is a two-story 32,484 square feet reinforced concrete building with brick facing and a built-up membrane roof. Its location is shown in Attachment 3 (Section 9.31.6.3). The building is bordered by Building P to the south, Building 47 to the east, Building G to the west and Building 91 to the north. Floor plans for the building are presented in Attachment 4 (Section 9.31.6.4). Offices are located on the first and second floors. The first floor consists of the following trade shops: carpenter, sheet metal/mechanic, pipefitter/welding, electrical and heating, ventilation and air conditioning, and a tool crib. Lavatories are located on both floors. The building is serviced with central steam, chilled water, and electrical service. The building has a fire sprinkler system *(Mound Physical Facility Characterization*, 12-1-93).

Building W was constructed in 1948. The building contains asbestos in the thermal insulation and building materials (MD-10391, *Asbestos Program Manual*, 9-14-95). The building is not contaminated with radioactive or energetic materials *(Mound Physical Facility Characterization*, 12-1-93).

9.31.3 Summary of Findings

Building W contains office areas and trade shops. The building is well-maintained, but has several issues of environmental concern that were identified during the walk-through or review of reference materials.

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9.31.4 Observations

9.31.4.1 Air Emissions

The air emission sources are identified on the EAC in Attachment 2 (Section 9.31.6.2). Emissions from the sandblaster, the carpentry shop, and the recirculating parts cleaner should be evaluated to determine if an air permit application should be submitted. If an application does not have to be submitted, the determination should be documented.

There is an existing air permit for the building (No. 0857091196P011). Most of the terms and conditions of the permit are being followed. Chemical usage is being documented. However in Room 117, and for pump maintenance, alcohol, mineral spirits, and pump oil are used in addition to the chemicals specified in the permit application. In accordance with the permit, the Regional Air Pollution Control Agency (RAPCA) should be notified of the usage of these additional chemicals.

There are no fuel-burning units in the building. Fugitive dust emissions were not evident. Sawdust from the carpentry shop is swept into exhaust vents or exhausted directly from the woodworking equipment to an outside filter; the sawdust captured by the filter is forced from the filter into waste boxes.

9.31.4.2 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.

9.31.4.2.1 Sanitary Wastewater

The building has sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.31.6.5), 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 W does not deviate from that expected by the sanitary treatment plant manager.

9.31.4.2.2 Storm Wastewater

The building is also serviced by storm drains according to the underground diagram located in Attachment 5 (Section 9.31.6.5). 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.

9.31.4.2.3 Chemicals

Construction trade materials and janitorial supplies are stored and used in Building W. A list of chemicals found in Building W 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. Storage, handling, and disposal of chemicals in the BMQ were reviewed to assure conformance to regulations related to 40 CFR 122, 40 CFR 261-265, 268, and 29 CFR 1910.

There is asbestos in the building. Asbestos is identified as a Clean Water Act (CWA) toxic pollutant in 40 CFR Part 122, Appendix D, Table V. The list is included in Attachment 2 (Section 9.31.6.2), the BMQ. Chemical storage and handling procedures are in place for proper disposal of chemicals. There is no evidence that chemicals enter the storm or sanitary drains. There have been no reported spills from Building W.

9.31.4.3 Potable and Service Water

Potable water is supplied to the building. There are five water fountains located in the building. The water fountains sources are identified on the EAC in Attachment 1 (Section 9.31.6.1). The fountains which supply drinking water have not been tested for lead. According to Environmental Protection Agency (EPA) protocol, annual sampling criteria do not require testing of each fountain. Potable water is supplied to the building where it is separated with a backflow preventer into potable and service water and then distributed throughout the building.

9.31.4.4 Chemical Storage and Hazardous Materials

Chemicals used in construction trades and janitorial services are stored in Building W. There are flammable storage cabinets inside and outside the facility which meet standard National Fire Protection Agency (NFPA) requirements. Some chemicals in the flammable storage cabinets appear to be unused and/or outdated. Nonflammable chemicals are stored in the cabinets designated for flammable chemicals. Several products such as Micro-cleaner and Magnaflux

contain 1,1,1-trichloroethane. Oxygen, acetylene and other compressed gases listed in the BMQ are used and properly stored and maintained. Material Safety Data Sheets (MSDS's) are available in the building, and are prominently displayed and readily accessible to employees. Some MSDS's were not current and MSDS's from different manufacturer's other than the manufacturer on the label were in use.

The building is equipped with appropriate emergency response equipment such as fire extinguishers and sprinklers. Extinguishers are bar-coded. The inspection date database is maintained in the fire station, Building 98. There is an Emergency Evacuation Plan, and signs were posted in the 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 materials (MD-10391, *Asbestos Program Manual*, 9-14-95). There was 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).

9.31.4.5 Solid, Hazardous, and Radioactive Wastes

Solid wastes generated are primarily paper. There is metal, paper and glass recycling to minimize solid waste. Solid wastes, i.e., trash, paper, glass, and cardboard are removed by janitorial personnel to a site collection point, then shipped offsite to a local landfill or recycling center by a contractor. Scrap metal is collected at specific sites, then sent offsite for recycling by a contractor. Lead-acid batteries are recycled by a contractor. These service contracts are maintained by Waste Management. Classified paper is collected by Security and incinerated at the Montgomery South Incinerator. This contract is maintained by Security. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

Some materials required for the construction trades and janitorial services are stored in Building W. If partially used containers of these materials need to be disposed of, Waste Management is contacted. Some cutting oils and aerosols used in the shops contain 1,1,1-trichloroethane and methylene chloride. Small quantities are sprayed on to either remain on the metal or are wiped off with rags. The rags are thrown into the trash. Further investigation into the disposal of the rags should be performed.

Hazardous wastes generated by the processes are stored in a satellite accumulation area (SAA) located inside the building near to and within eye contact of the work area. The SAA procedures and appearance conform to the 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. Hazardous wastes are disposed of under a contract. Waste disposal manifests and Certificates

of Disposal are maintained by the EG&G Waste Management Group. They conform to RCRA requirements.

9.31.4.6 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 in place including aluminum can and paper recycling, scrap metal recycling, and selling scrap wood. 1,1,1-trichloroethane, the ozone-depleting compound could also be evaluated for nonessential use. A large supply of common compressed gas cylinders, including oxygen, acetylene, and argon, etc., could be evaluated to determine the feasibility of reduction of use.

Evaluation of Findings and Recommendations

The environmental appraisal of Building W indicates that the following action items in order of priority should be planned and scheduled for accomplishment thus assuring the best management and operating practices are in place. Photographs were taken to document environmental appraisal activities. They are included as Attachment 6 (Section 9.31.6.6).

W-1 Notify RAPCA of additional chemical usage if usage is planned to continue.

W-2 Disposal practices of cleaning rags needs to be reviewed. Some of the materials include trichloroethane and methylene chloride. This waste stream should be stored and disposed of in accordance with OAC 3745-52-11, OAC 3745-52-34 (c), and OAC 3745-59.

W-3 Evaluate air sources that are not permitted and document *de minimis* determinations in accordance with OAC 3745-15.

W-4 MSDS displays should be updated to include only materials that are currently in the building along with current manufacturers.

W-5 Evaluate the chemical inventory and remove chemicals not in use or outdated as waste in accordance with 40 CFR 261-265,268.

W-6 Evaluate the flammable chemical storage cabinets to determine chemical compatibility.

W-7 Evaluate gas cylinders for reduction in use.

W-8 Restrict the use of products containing 1,1,1-trichloroethane, an ozone-depleting chemical.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name W

Appraisers:

Name Discipline

Name Discipline

Name Discipline

Name Discipline

Building Manager: JEFFREY L. BOSTON

Process Manager: JEFFREY M BAVER

Date: 2/21/96

ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental A, . ,a..d Checklist

Building Name: W

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

Date: 2/21/96

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	
	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	
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	DRAINS ONLY IN BUILDING

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9.31-11

9.31-12

Building Name: W

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

Date: 2/21/96

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: W

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

Date: 2/21/96

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 #/h
PUMP MAINTENANCE	117	W1170001	(Y)/N	(Y)/N	WD-40 1,1,1,-TCA VACUUM OIL MINERAL SPIRITS ALCOHOL	TO BE DETERMINED	TO BE DETERMINED	~10-20	0.0114 0.0385
SOLDERING STATION	125	REMOVED	(Y)/N	Y/(N)	N/A				
WELDING STATION	130	W1300001	Y/(N)	(Y)/N	SILVER SOLDER SOLDER FLUX	NEGLIGIBLE	TO BE DETERMINED	TO BE DETERMINED	0 0
WELDING STATION	130	W1300002	Y/(N)	(Y)/N	ARC WELD ROD MIG " " TIG " "	NEGLIGIBLE	TO BE DETERMINED	TO BE DETERMINED	0 0 0
WELDING STATION	130	W1300003 4 5 6 7	(Y)/N	(Y)/N	ISOPROPANOL TIG ACETYLENE OXYGEN	TO BE DETERMINED	TO BE DETERMINED	TO BE DETERMINED	0.006

Source: JEFFREY M. BAUER

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9.31-15

Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

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 #/h
PLASMA TORCH	131	Removed	(Y)/N	Y/(N)	N/A				
Pipe CLEANING	135	W135 0001 " 2 3 (CANNOT SEPARATE HOOD)	(Y)/N	(Y)/N	MICRO OIL METALS	TO BE DETERMINED	TO BE DETERMINED	TO BE DETERMINED	0.42 TRACE TRACE
PARTS CLEANER	135	W135 0004	Y/(N)	(Y)/N	MICRO OIL METALS	TO BE DETERMINED	TO BE DETERMINED	TO BE DETERMINED	TRACE TRACE
SANDBLASTER	125	N/A	Y/(N)	(Y)/N	SAND	TO BE DETERMINED	TO BE DETERMINED	TO BE DETERMINED	TO BE DETERMINED
CARPENTRY SHOP	121	N/A	Y/(N)	(Y)/N	WOOD	TO BE DETERMINED	TO BE DETERMINED	TO BE DETERMINED	TO BE DETERMINED

Source: JEFFREY M. BAVER

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3A

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

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 #/h
BATTERY MAINTENANCE	136	W136.0001	(Y)/N	(Y)/N	SULFUR ACID	TO BE DETERMINED	TO BE DETERMINED	12	0.057
RECIRCULATING PARTS CLEANER	124	N/A	Y/(N)	(Y)/N	UNCERT. MINERAL SPIRITS (NAPTHA)	~ϕ	ϕ	<10	ϕ
			Y/N	Y/N					
			Y/N	Y/N					
			Y/N	Y/N					

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* THIS UNIT HAS NOT BEEN IN USE FOR A COUPLE OF YEARS

Source: JEFFREY M BAVER

Building Name: W

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

Date: 2/21/96

Hazardous Materials (HM) Screening Checklist

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

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.1200(b,f)	All containers of hazardous chemicals shall be labeled as to the identity of the chemical and the appropriate hazard warnings.	(Y)/N	
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	(Y)/N	EXCELLENT MSDS MAINTENANCE
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	WELL-MAINTAINED GOOD STORAGE - SEE PHOTO UNOBSTRUCTED AISLES GOOD SHOP
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	(Y)/N	
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	Y/(N)	SOME INCOMPATIBLES STORED TOGETHER
29 CFR 1910.106(d)(4)	Inside Flammable/combustible storage rooms must meet the following: 4 in. raised sill or trench that drains to a safe area, liquid tight wall/floor joints, self-closing doors, gravity or mechanical exhaust providing 6 room changes/hr., exhaust switch located outside room, at least one 3 ft. aisle; no cracks in secondary containment.	Y/N	N/A

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

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	ROOM 101
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	(Y) / N	TESTED ON QUARTERLY BASIS BY Pipefitters
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	GAS STORAGE AREA 73
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	PHOTO TAKEN
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	PHOTO TAKEN
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	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	STANDARD RANTPLAN

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Building Name: W

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

Date: 2/21/96

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

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Source: _____

Environmental A[illegible]al Checklist

Building Name: W

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

Date: 2/21/96

Safe Drinking Water Act (SDWA) Screening Checklist

Does this facility have potable water?	Y / N	If yes, conduct the following survey.

SDWA Checklist

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

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
W	110	FGDF 710-10-1	ELKAY
W	124	EHFS-8-1	ELKAY
W	136	FGDF 710-10-1	ELKAY
W	202	ESRC-13-1	ELKAY

Source: _____

Building Name: W

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

Date: 2/21/96

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	N/A N/A
OAC 3745 52-11	Are any of the materials noted RCRA hazardous waste? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed with the appropriate section below.	(Y) / N	

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

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	

Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

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: W

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

Date: 2/21/96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
II. HAZARDOUS WASTE STORED IN TANKS			
OAC 3745-52-32 (B)	Has any chemical waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / N	NO
	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: W

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

Date: 2/21/96

RCRA Checklist

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

General Comments:

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

Asbestos Screening Checklist

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

Asbestos Checklist

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

Regulatory Guideline	Question	Response	Comments
ADAPTED FROM TSCA ACBM IN SCHOOLS:			
	Has this building been characterized either through process knowledge, by analyses, or by inspection to determine if it contains asbestos?	(Y)/N	INSPECTION & ANALYSIS
	If no for this building or area note this conclusion in the comment section.		
	Is there any evidence of friable asbestos?	Y/(N)	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N N/A	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: W

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

Date: 2/21/96

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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Environmental Appraisal Checklist

Building Name: W1

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

Date: 2/21/96

TSCA Checklist

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

Building Name: W

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

Date: 2/21/96

TSCA Checklist

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

GENERAL COMMENTS:

Environmental Appraisal Checklist

Building Name: W1 **Appraisers:** Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore **Date:** 2/21/96

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	TRITIUM IS CONTAINED IN THE EXIT SIGNS AND THE OLD SMOKE DETECTORS HAVE SMALL AMOUNTS OF RADIOACTIVITY ~.008 CURIE (PROCESS KNOWLEDGE)
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	LABELLED AS SUCH OLD TRITIUM EXIT SIGNS ARE RETURNED TO MANUFACTURER FOR RECYCLING
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	N/A
	Is the waste stored in a configuration that protects ground-water resources?	Y / N	N/A
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	N/A
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N	N/A

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96.

Low-Level Waste and Transuranic Waste Checklist

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

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

Date: 2/21/96

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	

Building Name: W

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

Date: 2/21/96

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	

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

Low-Level Waste and Transuranic Waste Checklist

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

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96.

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	1, 1, 1, TCA HAS TCE ON INVENTORY . NONE OBSERVED IN SHOP
	Are there solvent wastes?	(Y)/N	SOLVENT - MINERAL SPIRITS
	Is vehicle maintenance performed?	Y/(N)	
	Are oils used ?	(Y)/N	VACUUM PUMP OIL, CUTTING FLUID
	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)	
	Ion exchange process?	Y/(N)	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y/(N)	
	Storage tank agitators installed?	Y/(N)	
	Corrosive resistant materials used?	Y/(N)	
	Prevention of crude oil oxidation ?	Y/(N)	
	Drying?	Y/(N)	

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

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	SOME HCL AND H_2SO_4 USED FOR pH ADJUSTMENT FOR BATTERY MAINTENANCE

Building Name: W1 Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/21/96

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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	

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Environmental Appraisal Checklist

Building Name: W **Appraisers:** Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore **Date:** 2/21/96

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	AGAINST A METAL BREAK FOR SHEET METAL FORMING
	Oil soaked rags laundered?	Y / (N)	
	Rags and absorbants used to their limit?	Y / N	N/A

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Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

Waste Minimization/Pollution Prevention Activities Checklist

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

Environmental Appraisal Checklist

Building Name: W

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

Date: 2/21/96

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)	COULD BE REEVALUATED
	How long is solvent waste stored and where?	_____	STORED IN CABINETS UNTIL USED UP

Building Manager's Questionnaire

[redacted]

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

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

   None

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

   Safety Glasses

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

4. Provide a physical description of the building.

This two-story building contains 32,484 ft^2 and includes a high-bay area. The structure is concrete block with brick facing, with a BUM roof (coal tar, carboline, asphalt, and metal). 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 houses trade shops and offices. Shops include: mechanical, sheet metal, carpenters, pipefitter/welder, and electrical.

Source: Mound Buildings, 5-9-95

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

   Warehouse

Source: Mound Buildings, 5-9-95

Building Manager's Questionnaire

Building Name: W 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: Trade shops (carpenter, electrical, machine, welding, pipefitting, etc.), offices

How Wastes Are Generated:

Some materials required for the construction trades are stored in Building W. If a partially used container of one of these materials needed to be disposed of, Waste Management would be called.

In the past, acid was used to clean pipes. Now pipes are cleaned with "Micro" solution which is non-toxic.

Some cutting oils are used in the Fabrication Mechanics Shop. They are sprayed on in small quantities and either remain on the metal or are wiped off with paper. The paper goes in trash.

Residues of hardened adhesives used in the carpenter shop are put in the trash.

Small amounts of acid are kept in the electrical shop to top off batteries, but no wastes are generated.

Contact:
Phone #:

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

Building Manager's Questionnaire

Building Name: W 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? Yes

Process Source	Room Number	Hood Number	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Lbs./Yr. Operation	Air Emissio
W-BD-EF-E	117	W1170001	Y	WD-40 1,1,1-tri-chloroethane	0.0114 1.54		0.456 1.54	
W-BD-EF-1	125	W1250001	Y	lead tin hydrochloric acid	0.0214 0.0087 0.0392		0.2568 0.1044 0.4704	
W-BD-EF-1	130	W1300003	Y	isopropanol	0.0018		0.7488	
W-BD-EF-1	130	W1300004	Y	isopropanol	0.0018		0.7488	
W-BD-EF-1	130	W1300005	Y	isopropanol	0.006		7.488	
W-BD-EF-1	130	W1300006	Y	isopropanol	0.006		7.488	
W-BD-EF-1	130	W1300007	Y	isopropanol	0.006		7.488	
W-BD-EF-1	131	W1310001	Y	acetylene	3		36	
W-BD-EF-B	135	W1310001, 2,3	Y	MICRO	0.42		420	
W-BD-EF-C	136	W1360001	Y	sulfuric acid	0.057		0.684	

Source: _____

9.31-95

Building Manager's Questionnaire

Building Name: W 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.

Process Source	Emissions	Control Equipment	Functioning
Hoods: 1, B, C, D, E		None	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?

Process Source	Permit	Log	Permit Conditions & Frequency of Monitoring
Hoods: 1, B, C, D, E	857091196P011	Y / N	Notify RAPCA of proposed usage increase more than 25% for process constituents and new substances.
		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? SEE Floor Plan

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

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

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

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Building Manager's Questionnaire

Building Name: W 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)
Attached		

Source: Chemical Inventory 1994

:T NICKEL CAST ELECTRODES	HOBART BROTHERS CO., TROY, OHIO	10	(L	100	(L	1	(L	W	SHOP	MS	F	1	4	CLAWSON
:T RUTILE COATED (TITANIA)	HOBART BROTHERS CO., TROY,	10	(L	300	(L	1	(L	W	SHOP	MS	F	1	4	CLAWSON
:T SMAW CARBON STEEL	HOBART BROTHERS CO., TROY, OHIO	50	(L	250	(L	5	(L	W	SHOP	MS	F	1	4	CLAWSON
:T SMAW HARDSURFACING:BUILD-UP	HOBART BROTHERS CO., TROY, OHIO	50	(L	250	(L	5	(L	W	SHOP	MS	F	1	4	CLAWSON
:T SMAW LOW HYDROGEN CARBON	HOBART BROTHERS, CO., TROY, OHIO	50	(L	250	(L	5	(L	W	SHOP	MS	F	1	4	CLAWSON
:T SMAW LOW HYDROGEN, LOW	HOBART BROTHERS,CO., TROY OHIO	50	(L	250	(L	5	(L	W	SHOP	MS	F	1	4	CLAWSON
)GEN	AIR PRODUCTS AND CHEMICLS, INC.,	1500	(C	1500	(C	5	(C	W	SHOP	PG	L	2	4	CLAWSON
;T KARE HAND SOAP	CALGON VESTAL LABORATORIES, ST.	12	(O	48	(O	0.5	(O	W	SHOP	ML	N	1	4	CLAWSON
PLUMBER	THE CLOROX COMPANY, PLEASANTON,	1	(G	15	(G	0.5	(G	W	SHOP	ML	N	1	4	CLAWSON
PLUMBER PROFESSIONAL	THE CLOROX COMPANY, PLEASANTON,	1	(G	15	(G	0.5	(G	W	SHOP	ML	N	1	4	CLAWSON
WRENCH NO. 1 PENETRANT	RADIATOR SPECIALTY COMPANY	12	(O	144	(O	1	(O	W	SHOP	ML	F	1	4	CLAWSON
	INTERNATIONAL PRODUCTS CORP.,	1	(G	10	(G	0.5	(G	W	SHOP	ML	N	1	4	CLAWSON
) CRYSTAL CLEAR VISOR CLEANER	MIDACO CORP., ELK GROVE VILLAGE, IL	12	(O	12	(O	0.1	(O	W	SHOP	ML	L	2	4	CLAWSON
(WELDING SYSTEM COOLANT		1	(G	10	(G	0.5	(G	W	SHOP				4	CLAWSON
1, 15 W 50 SYN. OIL	MOBIL OIL CORP., FAIRFAX, VA 22037	5	(G	5	(G	5	(G	W	SHOP	ML	F	1	4	CLAWSON
TE NO-DRIP PLASTIC COATING	MORTITE, INC., KANKAKEE, IL 60901-0431	1	(L	5	(L	0.5	(L	W	SHOP	MS	R	1	4	CLAWSON
TE NO-DRIP TAPE	MORTITE, INC., KANKAKEE, IL 60901-0431	1	(L	15	(L	0.5	(L	W	SHOP	MS	R	1	4	CLAWSON
TIC ACID	HERBERT-VERKAMP-CALVERT	1	(G	5	(G	0.1	(G	W	SHOP	ML	N	1	4	CLAWSON
) HEAT FENCE		12	(O	24	(O	0.5	(O	W	SHOP				4	CLAWSON
:-REG	BOSTIK, MIDDLETON, MA 01949	0	(G	0	(G	0	(G	W	SHOP	ML	F	1	4	CLAWSON
ANTI SEIZE LUBRICANT		12	(O	48	(O	0.1	(O	W	SHOP				4	CLAWSON
GEN	AIR PRODUCTS AND CHEMICAL, INC.,	1500	(C	35000	(C	5	(C	W	SHOP	PG	L	2	4	CLAWSON
NO. 5 FLUX	OATEY CO., CLEVELAND, OH 44135	7	(O	70	(O	0.1	(O	W	SHOP	ML	F	1	4	CLAWSON
PVC CEMENT	OATEY CO., CLEVELAND OH 44135	12	(O	72	(O	0.5	(O	W	SHOP	ML	F	1	4	CLAWSON
PVC CLEANER	OATEY CO., CLEVELAND, OH 44135	12	(O	72	(O	0.2	(O	W	SHOP	ML	F	1	4	CLAWSON
)USTER FRAGRANCE, REFILL	TOKAI CORP., JAPAN	4	(O	12	(O	48	(O	W	SHOP	ML	R	1	4	CLAWSON
:N	AIR PRODUCTS AND CHEMICALS INC.,	1500	(C	35000	(C	5	(C	W	SHOP	PG	L	2	4	CLAWSON
PIPE SEALANT		12	(O	144	(O	0.1	(O	W	SHOP				4	CLAWSON
NE	MATHESON GAS PRODUCTS,	20	(C	350	(C	0.5	(C	W	SHOP	MG	L	2	4	CLAWSON
EL SKIN CLEANER	STATE CHEMICAL MANUFACTURING	24	(O	144	(O	0.1	(O	W	SHOP	ML	N	1	4	CLAWSON
METAL LOCTITE	LOCTITE CORP., FAIRFAX, VA 22037	6	(O	18	(O	30	(O	W	SHOP	ML	R	1	4	CLAWSON
)RSEAL NO. 2	RECTORSEAL CORP., HOUSTON, TX	12	(O	48	(O	1	(O	W	SHOP	ML		1	4	CLAWSON
)RSEAL NO. 5	THE RECTORSEAL CORP., HOUSTON,	12	(O	48	(O	1	(O	W	SHOP	ML		1	4	CLAWSON
BOND #1	SCHWARTZ CHEMICAL CO., INC., LONG	1	(G	3	(G	0.1	(G	W	SHOP	ML	F	1	4	CLAWSON
FLUID SOLDERING FLUX	RUBY CHEMICAL CO., COLUMBUS, OHIO	12	(O	48	(O	0.1	(O	W	SHOP	ML		1	4	CLAWSON
FLEX SHIELD	INTERNATIONAL PROTECTIVE	1	(O	5	(G	0.1	(G	W	SHOP	ML	F	1	4	CLAWSON
LOC	INTERNATIONAL PROTECTIVE	1	(O	5	(G	0.1	(G	W	SHOP	ML	F	1	4	CLAWSON
MASTIC	INTERNATIONAL COATINGS CORP.,	1	(O	5	(G	0.1	(G	W	SHOP	ML	F	1	4	CLAWSON
NE RUBBER SEAL RTV 102	GENERAL ELECTRIC CO.,	12	(O	144	(O	0.1	(O	W	SHOP	ML	R	1	4	CLAWSON
NE RUBBER SEAL RTV 102-5PI	GENERAL ELECTRIC CO., WATERFORD,	12	(O	144	(O	0.1	(O	W	SHOP	ML	R	1	4	CLAWSON
NE RUBBER SEAL RTV 108	GENERAL ELECTRIC CO.,	12	(O	144	(O	0.1	(0	W	SHOP	ML	R	1	4	CLAWSON
NE RUBBER SEAL RTV 108-5PI	GENERAL ELECTRIC CO., WATERFORD,	12	(O	144	(O	0.1	(O	W	SHOP	ML	R	1	4	CLAWSON
NE SPRAY	IMS COMPANY, CHAGRIN FALLS, OH	12	(O	144	(O	0.1	(O	W	SHOP	ML	L	2	4	CLAWSON
F/ZC-7 (AEROSOL	MAGNAFLUX CORP., CHICAGO, IL. 60656	12	(O	144	(O	0.1	(O	W	SHOP	ML	L	2	4	CLAWSON
F/ZP9B DEV (AEROSOL)	MAGNAFLUX CORP., CHICAGO, IL. 60656	12		144	(O	0.1	(O	W	SHOP	ML	L	2		CLAWSON

'TERY ACID, SULF[illegible] ACID-UN2796	COLONIAL CHEMICAL CO.,	5	(L	10	(G	20	(O	W		ML	N	1	[illegible]	WEIMER
'TERY TERMINAL CLEANER AND	CRC CHEMICALS, WARMINSTER, PA	60	(O	720	(O	12	(O	W		ML	L	2	4	WEIMER
'ANE GAS	BLAZER CORP., NEW YORK, NY	5	(C	25	(C	1	(C	W		PG	L	2	4	WEIMER
.VACENE HIGH VAC. GREASE	CVC PRODUCTS, INC., ROCHESTER, NY	2	(L	5	(L	5	(O	W		MS		1	4	WEIMER
ESTERTON CUTTING OIL 390	A.W. CHESTERTON COMPANY,	60	(O	720	(O	12	(O	W		ML	L	2	4	WEIMER
:AR URETHANE SEAL COAT	CRC CHEMICALS, WARMINISTER, PA	12	(O	60	(O	12	(O	W		ML	L	2	4	WEIMER
OL-AMP SILVER PLATING POWDER	COOL-AMP CONDUCTO-LUBE CO.,	1	(L	5	(L	4	(O	W		MS		1	4	WEIMER
OL-TOOL II CUTTING & TAPPING FLUID	MONROE FLUID TECHNOLOGY, HILTON,	12	(O	60	(O	2	(O	W		ML	F	1	4	WEIMER
OX-ID ELECTRICAL CONTACT CLEANER	GC ELECTRONICS, ROCKFORD, IL 61101	12	(O	144	(O	12	(O	W		ML	L	2	4	WEIMER
IA-BLUE CABLE LUBRICANT	AMERICAN POLYWATER CORP.,	5	(G	10	(G	1	(G	W		ML	N	1	4	WEIMER
CTRICAL CONTACT CLEANER, AEROSOL	CALGON VESTAL LABORATORIES, ST.	12	(O	144	(O	12	(O	W		ML	L	2	4	WEIMER
CTROLYTE 2X	ENGELHARD CORP., NEWARK, NJ 07029	5	(G	10	(G	1	(G	W		ML		1	4	WEIMER
CTRONIC COMPONENTS CLEANER	SEA COAST IND. CHEMICAL,	16	(O	160	(O	16	(O	W					4	WEIMER
ORCER WASP AND HORNET KILLER	ENFORCER PRODUCTS, INC.,	16	(O	160	(O	16	(O	W		ML	L	2	4	WEIMER
:RI-FLOC	TENNESSEE CHEMICAL COMPANY,	5	(L	10	(L	5	(O	W		MS		1	4	WEIMER
E BARRIER CAULK CP-25	3M COMPANY,	32	(O	320	(O	16	(O	W		ML	R	1	4	WEIMER
3 PRUF LENS SOLUTION	MINE SAFETY APPLIANCE CO.,	4	(O	12	(O	0	(O	W		ML	N	1	4	WEIMER
APHITE POWDER, FIBERS	ALFA PRODUCTS, DANVERS, MA 01923	16	(O	32	(O	1	(O	W		PS	F	1	4	WEIMER
AY PAINT, MRO	SEYMOUR OF SYCAMORE, INC.,	16	(O	160	(O	16	(O	W		ML	L	2	4	WEIMER
.D FREE PLUMBING SOLDERS	J.W. HARRIS COMPANY, CINCINNATI, OH	5	(L	10	(L	1	(O	W		MS	R	1	4	WEIMER
ION FURNITURE POLISH	VARIOUS	16	(O	72	(O	1	(O	W		ML	L	2	4	WEIMER
UID PAPER CORRECTION FLUID ALL	GILLETTE MEDICAL EVALUTION LAB.,	1	(O	4	(O	0	(O	W		ML	N	1	4	WEIMER
UID PAPER PEN ANDINK CORRECTION	GILLETTE MEDICAL EVALUATION LAB.,	1	(O	4	(O	0	(O	W		ML	N	1	4	WEIMER
UID WRENCH	RADIATOR SPECIALTY CO.,	16	(O	72	(O	1	(O	W		ML	L	2	4	WEIMER
:K-EASE LE-5	AGS COMPANY, MUSKEGON HTS, MI	2	(O	10	(O	0	(O	W		ML	L	2	4	WEIMER
:K-EASE NO. LE-4 & LE-18	AMERICAN GREASE STICK CO.,	2	(O	10	(O	0	(O	W		ML	F	1	4	WEIMER
IRICANT J	AMERICAN POLYWATER CORP.,	2	(G	10	(G	1	(G	W		ML		1	4	WEIMER
RKER BOARD CLEANER NO. 202	CHEMICAL PACKAGING CORP., NORTH	8	(O	16	(O	1	(O	W		ML	N	1	4	WEIMER
RKER BOARD CLEANER NO. 404	CHEMICAL PACKAGING CORP., NORTH	8	(O	16	(O	1	(O	W		ML	N	1	4	WEIMER
TAL WORKING OIL, GULF CUT 11D	GULF OIL, W ORO ,MASSACHUSETTS	2	(G	8	(G	1	(G	W		ML		1	4	WEIMER

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:ATSFOOT OIL AND PETROLEUM	HUB STATES CORP.(BLUE RIBBON),	12	(O	48	(O	1	(O	W		ML			4	WEIMER
.X-OSOLV, WATERLESS HAND CLEANER	CALGON VESTAL LABORATORIES, ST.	2	(L	5	(L	1	(L	W		ML				WEIMER
ASTIC PIPE CEMENT, WELD-ON	INDUSTRIAL POLY CHEMICAL SERVICE,	8	(O	40	(O	4	(O	W		ML				WEIMER
)LYCHLORINATED BIPHENYLS	MONSANTO CO., ST. LOUIS, MO. 63167	55	(G	55	(G	5	(G	W		ML				WEIMER
/C CLEANER	OATEY COMPANY, CLEVELAND, OH	8	(O	40	(O	4	(O	W		ML	F	1	4	WEIMER
JICK METAL LOCTITE	LOCTITE CORP., NEWINGTON, CT 06111	2	(O	20	(O	1	(O	W		ML	R	1	4	WEIMER
'V 102 SILICONE RUBBER SEAL	GENERAL ELECTRIC CO., WATERFORD,	24	(O	240	(O	10	(O	W		ML	R	1	4	WEIMER
'V 102-5P1 SILICONE RUBBER SEAL	GENERAL ELECTRIC CO., WATERFORD,	24	(O	240	(O	10	(O	W		ML	R	1	4	WEIMER
'V 108 SILICONE RUBBER SEAL	GENERAL ELECTRIC CO., WATERFORD,	24	(O	240	(O	10	(O	W		ML	R	1	4	WEIMER
'V 108-5P1 SILICONE RUBBER SEAL	GENERAL ELECTRIC CO., WATERFORD,	24	(O	240	(O	10	(O	W		ML	R	1	4	WEIMER
JBY FLUID SOLDERING PASTE	RUBY CHEMICAL CO., COLUMBUS, OH	3	(O	12	(O	1	(O	W		ML		1	4	WEIMER
.DDLE SOAP	BLUE RIBBON PRODUCTS DIV.,	4	(O	48	(O	1	(O	W		MS	F	1	4	WEIMER
ALING COMPOUND SC-80Z	KILLARK	12	(O	48	(O	1	(O	W					4	WEIMER
'IN SCREEN HAND PROTECTION	CONTACT IND., INC., ELIZABETH, NJ	7	(O	49	(O	1	(O	W		ML	L	2	4	WEIMER
:IN-SO-SOFT	AVON PRODUCTS, INC., NEW YORK,NY	20	(O	100	(O	1	(O	W		ML	N	1	4	WEIMER
1OKE DETECTOR TESTOR	HOME SAFEGUARD & SECURITY PROD.	1	(O	10	(O	1	(O	W		ML	L	2	4	WEIMER
'AY CLEAN SOLDERING & TINNING FLUX	J.W. HARRIS CO., CINCINNATI, OH 45242	20	(O	100	(O	1	(O	W		ML		1	4	WEIMER
\P MAGIC CUTTING FLUID	STECO CORP., LITTLE ROCK,	12	(O	120	(O	1	(O	W		ML	F	1	4	WEIMER
IREE-IN-ONE HOUSEHOLD OIL	BOYLE-MIDWAY, CRANFORD,NJ 07016	2	(O	10	(O	11	(O	W		ML	F	1	4	WEIMER
IREE-IN-ONE MOTOR OIL SAE 20	BOYLE-MIDWAY INC., NEW YORK, NY	2	(Q	12	(Q	1	(Q	W		ML	F	1	4	WEIMER
)OL COOL-CUTTING FLUID 74102	RED LION RESEARCH CORP., BOHEMIC,	12	(O	120	(O	1	(O	W		ML	L	2	4	WEIMER
:ICHLORETHLENE	J.T. BAKER CHEMICAL CO.,	12	(O	120	(O	1	(O	W		ML		1	4	WEIMER
ILEADED GASOLINE	ASHLAND OIL CO., ASHLAND, KY 41101	5	(G	10	(G	1	(G	W		ML	F	1	4	WEIMER
\SELINE INTENSIVE CARE LOTION	CHESEBROUGH PONDS INC.,	10	(O	100	(O	1	(O	W		ML	N	1	4	WEIMER
D-40	WD-40 COMPANY, SAN DIEGO, CA	9	(O	90	(O	1	(O	W		ML	L	2	4	WEIMER
:ARING GREASE	DOW CORNING CORP.	96	OZ	96	OZ	200	OZ	W	125	PS	R	1	4	FIELDS
:NETRON 12	ALLIED SIGNAL INC.	60	LB	120	LB	500	LB	W	125	PL	L	2	4	FIELDS
:NETRON 22	ALLIED SIGNAL INC.	180	LB	240	LB	1600	LB	W	125	PL	L	2	4	FIELDS
:NETRON 502	ALLIED SIGNAL INC.	60	LB	60	LB	270	LB	W	125	PL	L	2	4	FIELDS
ASTIC WEATHER COATING	VIMASCO CORP.	30	LB	30	LB	60	LB	W	125	PS	N	1	4	FIELDS
N 1 OIL	BOYLE-MIDWAY INC.	21	OZ	30	OZ	21	OZ	W	135	PL	F	1	4	FIELDS
:ARING GREASE, MEDIUM	DOW CORNING CORP., MIDLAND, MI	96	(O	200	(O	96	(O	W	135	ML		1	4	FIELDS
\LGON SPRAY ADHESIVE (4080)	CALGON-VESTAL KLABORATORIES, ST.	66	(O	77	(O	66	(O	W	135	ML	L	2	4	FIELDS
AS-AID	DIAS INCORPORATED	3	GA	5	GA	50	GA	W	135	PL	N	1	4	FIELDS
AS-AID CONCENTRATE	DIAS INC., KALAMAZOO, MI 49003	5	(G	50	(G	3	(G	W	135	ML		1	4	FIELDS
.ECT. CONTACT CLEANER	SEA COAST IND.	80	OZ	120	OZ	32	OZ	W	135	PL	F	2	4	FIELDS
.ECTRIC CONTACT CLEANER	MILLER-STEPHENSON CHEMICAL CO.,	120	(O	32	(O	80	(O	W	135	ML	L	2	4	FIELDS
.ECTRICAL CONTACT CLEANER (4082)	CALGON-VESTAL LABORATORIES, ST.	120	(O	32	(O	80	(O	W	135	ML	L	2	4	FIELDS
\S LEAK DETECTOR(BUBBLE TYPE)	HIGHSIDE CHEMICALS INC., GULFPORT,	40	(O	60	(O	40	(O	W	135	ML	N	1	4	FIELDS
:NETRON 12	ALLIED CORPORATION, CHEMICAL	120	(L	500	(L	60	(L	W	135	PG	L	2	4	FIELDS
:NETRON 22 CHLORODIFLUOROMETHANE	ALLIED-SIGNAL, INC., MORRISTOWN, NJ	240	(L	1600	(L	180	(L	W	135	PG	L	2	4	FIELDS
:NETRON 502 AZEOTROPE	ALLIED CORP., MORRISTOWN, NJ 07960	60	(L	270	(L	60	(L	W	135	MG	L	2	4	FIELDS
E MACHINE CLEANER	CALGON CORP.	48	OZ	80	OZ	80	OZ	W	135	PL	N	1	4	FIELDS
'INT SEALING COMPOUND	HIGHSIDE CHEMICALS	15	OZ	15	OZ	6	OZ	W	135	PS	N	1	4	FIELDS
AK LOCK J[illegible]T SEALING COMPOUND	HIGHSIDE CHEMICALS, INC., GULFPORT,	1'	(O	6	(O	15	(O	W	135	ML			4	FIELDS
AK-TEC	AMERICAN GAS & CHEM	40	O[illegible]	40	OZ	60	OZ	W	135	PL	N	1	4	[illegible]LDS
)UID ICE MACHI[illegible] EANER 4207-47	CALGON VESTAL LABORATORIES, ST.	80	[illegible]	80	[illegible]	[illegible]								

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OCTITE ANTI-SEIZE LUBRICANT 767	LOCTITE CORP., NEWINGTON, CT 06111	48	(O	12	(O	24	(O	W	135	ML	L	2	4	FIELDS
OCTITE ANTI-SEIZE THREAD COMPOUND	LOCTITE CORPORATION,	4	(L	4	(L	2	(L	W	135	ML		1	4	FIELDS
OCTITE LUBRICANT	LOCTITE CORP.	24	OZ	48	OZ	12	OZ	W	135	PL	F	2	4	FIELDS
OCTITE THREAD COMPOUND	LOCTITE CORP.	2	LB	4	LB	1	LB	W	135	PS	F	1	4	FIELDS
RTV SEALANT	GENERAL ELECTRIC	48	OZ	80	OZ	80	OZ	W	135	PS	R	1	4	FIELDS
RTV SILICONE RUBBER SEALANT 102	GENERAL ELECTRIC COMPANY,	80	(O	80	(O	48	(O	W	135	ML	R	1	4	FIELDS
RTV SILICONE RUBBER SEALANT 102 5P1	GENERAL ELECTRIC CO., WATERFORD	80	(O	80	(O	48	(O	W	135	ML	R	1	4	FIELDS
RTV SILICONE RUBBER SEALANT 108	GENERAL ELECTRIC CO., WATERFORD,	80	(O	80	(O	48	(O	W	135	ML	R	1	4	FIELDS
RTV SILICONE RUBBER SEALANT 108 5P1	GENERAL ELECTRIC CO., WATERFORD,	80	(O	80	(O	48	(O	W	135	ML	R	1	4	FIELDS
SOLDERING FLUX	J.W. HARRIS INC.	32	OZ	32	OZ	16	OZ	W	135	PS	N	1	4	FIELDS
SPRAY ADHESIVE	CALGON	66	OZ	66	OZ	77	OZ	W	135	PL	F	2	4	FIELDS
STAYCLEAN SOLDERING FLUXES	J.W. HARRIS CO., INC., CINCINNATI,	32	(O	16	(O	32	(O	W	135	ML		1	4	FIELDS
SUNISO REFRIGERATION OIL 3GS L316	VIRGINIA KMP CORP., DALLAS, TX 75237	5	(G	3	(G	5	(G	W	135	ML		1	4	FIELDS
THERMO-TRAP	CALGON CORP.	44	OZ	55	OZ	11	OZ	W	135	PS	N	1	4	FIELDS
THERMO-TRAP PROTECTIVE HEAT SINK	CALGON-VESTAL LABORATORIES,ST.	55	(O	11	(O	44	(O	W	135	ML		1	4	FIELDS
VIMASCO, WC-5 WHITE VINYL-ACRYLIC	VIMASCO CORP., NITRO, WV 25143	30	(L	60	(L	30	(L	W	135	ML	F	1	4	FIELDS
ALMAGARD VARI-PURPOSE GREASE #3752	LUBRICATING ENG. INC.,	13	(O	244	(O	39	(O	W	FABM	ML	R	1	4	CLAWSON
APIEZON VAC. GREASE	JAMES G. BIDDLE CO., BLUE BELL, PA	2	(O	24	(O	24	(O	W	FABM	ML	N	1	4	CLAWSON
BELT DRESSING-CLING SURFACE	DOW CORNING CORP., MIDLAND, MI	12	(O	144	(O	144	(O	W	FABM	ML	L	2	4	CLAWSON
BLUE TOOLMAKER'S INK #6001,16001	CROWN INDUSTRIAL PRODUCTS CO.,	12	(O	144	(O	144	(O	W	FABM	ML	L	2	4	CLAWSON
BREAK-FREE CLP, AEROSOL	BREAK-FREE CORP., 1035 S. LINWOOD	12	(O	36	(O	36	(O	W	FABM	ML	L	2	4	CLAWSON
CELVACENE VACUUM GREASE	CVC PRODUCTS, INC., ROCHESTER, NY	2	(O	24	(O	24	(O	W	FABM	ML	N	1	4	CLAWSON
CHESTERTON NR. 390 CUTTING OIL	A. W. CHESTERTON COMPANY,	12	(O	144	(O	432	(O	W	FABM	ML	L	2	4	CLAWSON
CONVOIL 20	CVC PRODUCTS, INC., 525 LEE RD.,	1	(G	3	(G	3	(G	W	FABM	ML	N	1	4	CLAWSON
DOW CORNING GENERAL PURPOSE	DOW CORNING CORP., MIDLAND, MI	10.3	(O	103	(O	206	(O	W	FABM	ML	R	1	4	CLAWSON
DRY FILM LUBRICANT	CROWN INDUSTRIAL	12	(O	12	(O	12	(O	W	FABM	ML	L	2	4	CLAWSON
DUO SEAL OIL, CAT. NO. 1407K	SARGENT-WELCH SCIENTIFIC	20	(G	40	(G	240	(G	W	FABM	ML	N	1	4	CLAWSON
FISHER BRAND 19 MECHANICAL PUMP OIL	INLAND VACUUM INDUSTRIES,	4	(G	8	(G	16	(G	W	FABM	ML	N	1	4	CLAWSON
FOGPRUF LENS SOLUTION	MINE SAFETY APPLIANCE	4	(O	16	(O	48	(O	W	FABM	ML	N	1	4	CLAWSON
IMS SILICONE SPRAY #512	IMS COMPANY, CHAGRIN FALLS, OH	12	(O	12	(O	12	(O	W	FABM	ML	L	2	4	CLAWSON
INLAND 19	INLAND VACUUM IND., 35 HOWARD AVE.,	4	(G	4	(G	8	(G	W	FABM	ML	N	1	4	CLAWSON
LIQUID WRENCH NO. 1 (AEROSOL)	RADIATOR SPECIALTY COMPANY	12	(O	120	(O	240	(O	W	FABM	ML	L	2	4	CLAWSON
LIQUID WRENCH NO. 1 PENETRANT	RADIATOR SPECIALTY COMPANY	4	(O	80	(O	320	(O	W	FABM	ML	F	1	4	CLAWSON
LOCTITE #242 THREADLOCKER	LOCTITE CORP., CLEVELAND, OHIO	1	(O	24	(O	96	(O	W	FABM	ML	N	1	4	CLAWSON
MINERAL OIL	TOTAL PETROLEUM, INC., ALMA, MI	1	(P	12	(P	4	(P	W	FABM	ML	N	1	4	CLAWSON
MOBILUX EP1	MOBIL OIL CORP., FAIRFAX, VA 22037	12	(O	12	(O	12	(O	W	FABM	ML	R	1	4	CLAWSON
MOBILUX EP2	MOBIL OIL CORP., FAIRFAX, VA 22037	12	(O	12	(O	12	(O	W	FABM	ML	R	1	4	CLAWSON
NEV-SZ-REG	BOSTIK, MIDDLETON, MA 01949	6	(O	72	(O	72	(O	W	FABM	ML	N	1	4	CLAWSON
PAX-SOLV WATERLESS HAND CLEANER	CALGON	5	(L	20	(L	25	(L	W	FABM	ML	F	1	4	CLAWSON
PERMATEX #1	LOCTITE CORP., CLEVELAND, OH 44128	6	(O	36	(O	72	(O	W	FABM	ML	N	1	4	CLAWSON
PERMATEX #2	LOCTITE CORP., CLEVELAND, OH 44128	6	(O	36	(O	72	(O	W	FABM	ML	N	1	4	CLAWSON
PUMMELL	STATE CHEMICAL MANUFACTURING	3	(L	3	(L	12	(L	W	FABM	ML	N	1	4	CLAWSON
RTV SILICONE RUBBER SEALANT 102	GENERAL ELECTRIC	8	(O	48	(O	48	(O	W	FABM	ML	R	1	4	CLAWSON
RTV SILICONE RUBBER SEALANT 102 5P1	GENERAL ELECTRIC	12	(O	24	(O	48	(O	W	FABM	ML	R	1	4	CLAWSON
RTV SILICONE RUBBER SEALANT 108	GENERAL ELECTRIC	8	(O	16	(O	16	(O	W	FABM	ML	R	1	4	CLAWSON
RTV SILICONE RUBBER SEALANT 108 5P1	GENERAL ELECTRIC	12	(O	24	(O	24	(O	W	FABM	ML	R	1	4	CLAWSON

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	MANUFACT	USE		MAX	Unit	AVG	Unit	BD	RM	STATE	STOR	PRES	TM	SUPER
DERS, VARIOUS TRADE NAMES	J.W. HARRIS CO., CINCINNATI, OHIO	16	(O	132	(O	0.2	(O	W	SHOP	MS	R	1	4	CLAWSON
ID STEEL WELDING WIRE	L-TEC WELDING & CUTTING SYSTEMS,	10	(L	250	(L	0.5	(L	W	SHOP	MS	F	1	4	CLAWSON
AY-TAP HB-1	CHEM-TECH, INC., WILMINGTON, DE.	16	(O	160	(O	0.2	(O	W	SHOP	ML	L	2	4	CLAWSON
Y CLEAN SOLDERING FLUXES	J.W. HARRIS CO., CINCINNATI, OHIO	12	(O	144	(O	0.2	(O	W	SHOP	ML	R	1	4	CLAWSON
DDARD SOLVENT TYPE II	VARIOUS	3	(G	12	(G	3	(G	W	SHOP	ML	F	1	4	CLAWSON
DDARD SOLVENT, TYPE III	VARIOUS	3	(G	12	(G	3	(G	W	SHOP	ML	F	1	4	CLAWSON
RMO TRAP	CALGON VEASTAL LABORATORIES, ST.	12	(O	144	(O	1	(O	W	SHOP	ML	F	1	4	CLAWSON
EAD SEAL TAPE (PLAIN) TEFLON TAPE	OAK MATERIALS GROUP, HOOSICK	1	(O	10	(O	0.1	(O	W	SHOP	MS	R	1	4	CLAWSON
-40 (AEROSOL)	WD-40 COMPANY, SAN DIEGO, CA	12	(O	144	(O	0.1	(O	W	SHOP	ML	F	1	4	CLAWSON
-40 TRADESMAN (NON AEROSOL)	WD-40 COMPANY, SAN DIAGO, CA	128	(O	128	(O	0.1	(O	W	SHOP	ML	F	1	4	CLAWSON
LDING WIRE	ALCOTEC WIRE COMPANY,TRAVERSE	50	(L	100	(L	5	(L	W	SHOP	MS	K	1	4	CLAWSON
LDING WIRE ALLOYS, COILED	ALCOA, 1501 ALCOA BLDG.,	10	(L	100	(L	0.5	(L	W	SHOP	MS	K	1	4	CLAWSON
ITMORE #2 GREASE	WHITMORE MANUFACTURING CO.,	12	(O	556	(O	360	(O	W	SHOP	ML	R	1	4	CLAWSON
RK SPAT-R-PRUF COMPOUND 110	YORK SALES CO., ELMHURST, IL. 60126	0	(O	0	N/	0	N/	W	SHOP	MS		1	4	CLAWSON
BIL DTE LIGHT	MOBIL OIL CORP., 3225 GALLOWS RD.,	0	(G	55	(G	55	(G	W	STOR	ML	D	1	4	CLAWSON
,1-TRICHLORETHANE SOLVENT MS-170	MILLER-STEPHENSON CHEM. CO.,	12	(O	24	(O	16	(O	W		ML	L	2	4	WEIMER
KING SODA	ARM & HAMMER (CHURCH & DWIGHT	1	(L	12	(L	4	(O	W		MS	K	1	4	WEIMER
TTERY ACID, SULFUIC ACID-UN2796	COLONIAL CHEMICAL CO.,	5	(G	10	(G	20	(O	W		ML	N	1	4	WEIMER
TTERY TERMINAL CLEANER AND	CRC CHEMICALS, WARMINSTER, PA	60	(O	720	(O	12	(O	W		ML	L	2	4	WEIMER
TANE GAS	BLAZER CORP., NEW YORK, NY	5	(C	25	(C	1	(C	W		PG	L	2	4	WEIMER
LVACENE HIGH VAC. GREASE	CVC PRODUCTS, INC., ROCHESTER, NY	2	(L	5	(L	5	(O	W		MS		1	4	WEIMER
ESTERTON CUTTING OIL 390	A.W. CHESTERTON COMPANY,	60	(O	720	(O	12	(O	W		ML	L	2	4	WEIMER
EAR URETHANE SEAL COAT	CRC CHEMICALS, WARMINISTER, PA	12	(O	60	(O	12	(O	W		ML	L	2	4	WEIMER
OL-AMP SILVER PLATING POWDER	COOL-AMP CONDUCTO-LUBE CO.,	1	(L	5	(L	4	(O	W		MS		1	4	WEIMER
OL-TOOL II CUTTING & TAPPING FLUID	MONROE FLUID TECHNOLOGY, HILTON,	12	(O	60	(O	2	(O	W		ML	F	1	4	WEIMER
-OX-ID ELECTRICAL CONTACT CLEANER	GC ELECTRONICS, ROCKFORD, IL 61101	12	(O	144	(O	12	(O	W		ML	L	2	4	WEIMER
NA-BLUE CABLE LUBRICANT	AMERICAN POLYWATER CORP.,	5	(G	10	(G	1	(G	W		ML	N	1	4	WEIMER
ECTRICAL CONTACT CLEANER, AEROSOL	CALGON VESTAL LABORATORIES, ST.	12	(O	144	(O	12	(O	W		ML	L	2	4	WEIMER
ECTROLYTE 2X	ENGELHARD CORP., NEWARK, NJ 07029	5	(G	10	(G	1	(G	W		ML		1	4	WEIMER
ECTRONIC COMPONENTS CLEANER	SEA COAST IND. CHEMICAL,	16	(O	160	(O	16	(O	W					4	WEIMER
FORCER WASP AND HORNET KILLER	ENFORCER PRODUCTS, INC.,	16	(O	160	(O	16	(O	W		ML	L	2	4	WEIMER
RRI-FLOC	TENNESSEE CHEMICAL COMPANY,	5	(L	10	(L	5	(O	W		MS		1	4	WEIMER
E BARRIER CAULK CP-25	3M COMPANY,	32	(O	320	(O	16	(O	W		ML	R	1	4	WEIMER
G PRUF LENS SOLUTION	MINE SAFETY APPLIANCE CO.,	4	(O	12	(O	0	(O	W		ML	N	1	4	WEIMER
APHITE POWDER, FIBERS	ALFA PRODUCTS, DANVERS, MA 01923	16	(O	32	(O	1	(O	W		PS	F	1	4	WEIMER
AY PAINT, MRO	SEYMOUR OF SYCAMORE, INC.,	16	(O	160	(O	16	(O	W		ML	L	2	4	WEIMER
D FREE PLUMBING SOLDERS	J.W. HARRIS COMPANY, CINCINNATI, OH	5	(L	10	(L	1	(O	W		MS	R	1	4	WEIMER
ION FURNITURE POLISH	VARIOUS	16	(O	72	(O	1	(O	W		ML	L	2	4	WEIMER
UID PAPER CORRECTION FLUID ALL	GILLETTE MEDICAL EVALUTION LAB.,	1	(O	4	(O	0	(O	W		ML	N	1	4	WEIMER
UID PAPER PEN ANDINK CORRECTION	GILLETTE MEDICAL EVALUATION LAB.,	1	(O	4	(O	0	(O	W		ML	N	1	4	WEIMER
UID WRENCH	RADIATOR SPECIALTY CO.,	16	(O	72	(O	1	(O	W		ML	L	2	4	WEIMER
K-EASE LE-5	AGS COMPANY, MUSKEGON HTS, MI	2	(O	10	(O	0	(O	W		ML	L	2	4	WEIMER
K-EASE NO. LE-4 & LE-18	AMERICAN GREASE STICK CO.,	2	(O	10	(O	0	(O	W		ML	F	1		WEIMER
RICANT J	AMERICAN POLYWATER CORP.,	2	(O	10	(G	1	(G	W		ML		1		WEIMER
KER BOARD CLEANER NO. 202	CHEMICAL PACKAGING CORP., NORTH	8	(O	18	(O	1	(O	W		ML		1	4	WEIMER

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TCHECK PENETRA KL-HF/S	MAGNAFLUX, CHICAGO, IL 60656	8	(O		(O	8	(O	W	FABM			2	4	CLAWSON
TCHECK/ZYGLO DEVELOPER	MAGNAFLUX, CHICAGO, IL 60656	8	(O	8	(O	8	(O	W	FABM			2	4	CLAWSON
AY-REMOVER SP-1138	ITW DEVON, ST. LOUIS, MO 63114	10	(O	10	(O	10	(O	W	FABM			2	4	CLAWSON
AY STEEL BLUE SP-1100	ITW DEVCON, ST LOUIS, MO 63114	10	(O	10	(O	10	(O	W	FABM	ML	L	2	4	CLAWSON
AY-TAP HB-1	CHEM-TECH INC., P.O. BOX 1748,	6	(O	36	(O	72	(O	W	FABM	ML	F	1	4	CLAWSON
MAGIC CUTTING FLUID	THE STECO CORP., 2330 CANTRELL	16	(O	192	(O	576	(O	W	FABM	ML	F	1	4	CLAWSON
EE-IN-ONE MOTOR OIL SAE 20	BOYLE-MIDWAY, CRANFORD,NJ 07016	2	(O	12	(O	12	(O	W	FABM	ML	F	1	4	CLAWSON
ELINE INTENSIVE CARE LOTION	CHESEBROUGH-PONDS, TRUMBULL C	12	(O	72	(O	144	(O	W	FABM	ML	N	1	4	CLAWSON
40	WD-40 COMPANY, P.O. BOX 80607,SAN	12	(O	144	(O	432	(O	W	FABM	ML	L	2	4	CLAWSON
)EST KARE HAND SOAP	CALGON VESTAL LABORATORIES, ST.	8	(O	32	(O	320	(O	W	RR	ML	N	1	4	CLAWSON
A SOAP	PROCTER & GAMBLE, CINCINNATI, OH	4	(O	16	(O	320	(O	W	RR	MS	K	1	4	CLAWSON
-TRICHLOROETHANE SOLVENT	MILLER-STEPHENSON CHEMICAL CO.,	12	(O	96	(O	864	(O	W	SHOP	ML	L	2	4	CLAWSON
METHANE/90% ARGON	AIR PRODUCTS AND CHEMICALS, INC.,	3000	(C	150	(C	35000	(C	W	SHOP	MG	L	2	4	CLAWSON
IETHANE/95% ARGON	AIR PRODUCTS AND CHEMICALS, INC.,	3000	(C	35	(C	4500	(C	W	SHOP	MG	L	2	4	CLAWSON
TYLENE	AIR PRODUCTS AND CHEMICALS, INC.,	350	(C	25	(C	5000	(C	W	SHOP	PG	L	2	4	CLAWSON
:O CODE ARC 7018MR COVERED	THE LINCOLN ELECTRIC	100	(L	1000	(L	10	(L	W	SHOP	MS	F	1	4	CLAWSON
OA ALMIGWELD ALUMINUM ELECTRODE	CROWN ALLOYS CO., MADISON HTS., MI	100	(L	300	(L	2	(L	W	SHOP	MS	F	1	4	CLAWSON
OHOL USP, ETHYL ALCOHOL, 190 PROOF	AAPER ALCOHOL AND CHEMICAL CO.,	2	(G	20	(G	0.2	(G	W	SHOP	ML		1	4	CLAWSON
MINUM WELDING ELECTRODES	L-TEC WELDING &CUTTING SYSTEMS,	100	(L	300	(L	2	(L	W	SHOP	MS	F	1	4	CLAWSON
IMINUM WIRES & RODS	L-TEC WELDING & CUTTING SYSTEMS,	100	(L	300	(L	2	(L	W	SHOP	MS	F	1	4	CLAWSON
GREASE HI-TEMP NONMELT GREASE	STATE CHEMICALMANUFACTURING CO.,	30	(L	300	(L	5	(L	W	SHOP	ML		1	4	CLAWSON
3ON	AIR PRODUCTS AND CHEMICALS INC.,	3000	(C	35000	(C	150	(C	W	SHOP	PG	L	2	4	CLAWSON
3OSHIELD GAS #75, #75A	AIRCO DIV., THE BOC GROUP,INC.,	1500	(C	1500	(C	5	(C	W	SHOP	MG	L	2	4	CLAWSON
3OSHIELD GAS #8C, #25C	AIRCO DIV., THE BOC GROUP,INC.,	1500	(C	1500	(C	5	(C	W	SHOP	MG	L	2	4	CLAWSON
\RING GREASE, LIGHT	DOW CORNING CORP., MIDLAND, MI	12	(O	48	(O	36	(O	W	SHOP	ML	R	1	4	CLAWSON
\RING GREASE, MEDIUM	DOW CORNING CORP., MIDLAND, MI	12	(O	48	(O	36	(O	W	SHOP	ML	R	1	4	CLAWSON
AZING FLUXES STAY SILV WHITE & BLACK	J.W. HARRIS CO., INC., CINCINNATI,	20	(O	60	(O	1	(O	W	SHOP	ML		1	4	CLAWSON
DGIT SOLDERING FLUX	J.W. HARRIS CO., INC., CINCINNATI,	8	(O	40	(O	1	(O	W	SHOP	ML		1	4	CLAWSON
LCI-SOLVE NYCO N-001	NYCO PRODUCTS CO., CHICAGO, IL	2	(G	12	(G	0.5	(G	W	SHOP	ML	N	1	4	CLAWSON
LCON PAX-SOLV WATERLESS HAND	CALGON VESTAL LABORATORIES, ST.	1	(L	10	(L	0.1	(L	W	SHOP	ML	F	1	4	CLAWSON
RTANIUM 78 GAS-TIG	CERTANIUM ALLOYS & RESEARCH CO.,	10	(L	50	(L	0.5	(L	W	SHOP	MS	F	1	4	CLAWSON
RTANIUM 889SP AC-DC	CERTANIUM ALLOYS & RESEARCH CO.,	10	(L	50	(L	0.5	(L	W	SHOP	MS	F	1	4	CLAWSON
WTHERM (R) SR-1 HEAT TRANSFER FLUID	DOW CHEMICAL, MIDLAND, MI 48674	10	(O	50	(O	0.5	(O	W	SHOP	ML		1	4	CLAWSON
WTHERM-J	DOW CHEMICAL, MIDLAND, MICHIGAN	10	(O	50	(O	0.5	(O	W	SHOP	ML		1	4	CLAWSON
O SEAL OIL CAT. NO. 1407K	SARGENT-WELCH SCIENTIFIC CO.,	1	(G	15	(G	0.5	(G	W	SHOP	ML		1	4	CLAWSON
ASHBACK ARRESTER LIQUID	VAN WATERS & ROGERS, INC.,	12	(O	24	(O	0.5	(O	W	SHOP	ML		1	4	CLAWSON
EETWELD 5P	LINCOLN ELECTRIC CO., CLEVELAND,	50	(L	250	(L	1	(L	W	SHOP	MS	F	1	4	CLAWSON
APHITE POWDER, FIBERS	MORTON THIOKOL, INC., DANVERS, MA	2	(O	8	(O	8	(O	W	SHOP	PS	R	1	4	CLAWSON
RRIS LEAD FREE PLUMBING SOLDERS	J.W. HARRIS CO., CINCINNATI, OHIO	1	(L	10	(L	0.5	(L	W	SHOP	MS	R	1	4	CLAWSON
RRIS SAFETY SILV (SILVER SOLDER)	J.W. HARRIS CO., INC., CINCINNATI, OH	1	(L	10	(L	0.5	(L	W	SHOP	MS	R	1	4	CLAWSON
LIUM	AIR PRODUCTS AND CHEMICALS, INC.,	1500	(C	1500	(C	5	(C	W	SHOP	PG	L	2	4	CLAWSON
3H VAC GREASE, DOW-CORNING	DOW CORNING CORP., MIDLAND, MI	11	(O	132	(O	132	(O	W	SHOP	ML	R	1	4	CLAWSON
)BART FCAW	HOBART BROTHERS CO., TROY, OHIO	10	(L	100	(L	1	(L	W	SHOP	MS	F	1	4	CLAWSON
)BART FCAW LOW ALLOY	HOBART BROTHERS CO., TROY, OHIO	10	(L	100	(L	1	(L	W	SHOP	MS	F	1	4	CLAWSON
)BART FCAW MILD STEEL	HOBART BROTHERS CO., TROY, OHIO	50	(L	250	(L	5	(L	W	SHOP	MS	F	1	4	CLAWSON
)RART FCAW SELF SHIELDED TUBULAR	HOBART BROTHERS CO., TROY,	10	(L	200	(L	5	(L	W	SHOP	MS		1	4	CLAWSON

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Building Manager's Questionnaire

Building Name: W 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
OMO Napkins	2 cases	
Lime Remover	4 gal	
Concentrate Cleaner	16 gal	
Pummel Hand Soap	[illegible]	
Mark Dust	30 Quarts	

Source: _____

21. Where do waste chemicals go? To waste management through established [illegible]

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

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

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

Building Manager's Questionnaire

Building Name: W 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.

Registration Number	Content	Quantity	Last Inspection Date	Preventive Maintenance Performed	Inside Or Outside
7440-37-1	ARGON	03C		Y/N	161
7440-59-7	HELIUM	01C		Y/N	SHOP
7782-37-9	NITROGEN	03C		Y/N	~~SHOP~~
				Y/N	

Source: Emergency and Hazardous Chemical Inventory Form - Chemical Storage Tanks on EGG Mound Site Owned and Maintained by Outside Contractors 8/8/94

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
ATTACHED Dry Cell Batteries	
Aerosol Cans	

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

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W BLDG	ANTIFREEZE WASTE	NONE	245.8
W BLDG	ANTIFREEZE, WATER WASTE	NONE	210.6
W BLDG	ANTIFREEZE, WATER WASTE	NONE	471.2
W BLDG	CLEANING SOLUTION, BASIC	D002	599.9
W BLDG	CYANIDE PIT WASTE	NONE	13.4
W BLDG	DOW THERM SR-1 COOLANT	NONE	260.1
W BLDG	ETHYLENE GLYCOL, WATER	NONE	514.8
W BLDG	FORMICA ADHESIVE	D001 F003	1.1
W BLDG	GC RUBBER TO METAL CEMENT	D001 D035 F005	0.3
W BLDG	HICKMAN HK300	D001	38.0
W BLDG	K-POXY CLEANER	F002	2.9
W BLDG	KOPPERS 441	D001	50.0
W BLDG	KOPPERS FLASH ON 441	D001	50.3
W BLDG	KOPPERS MASTIC 451	D001	12.6
W BLDG	LIQUID NAIL	D001 F005	8.6
W BLDG	MERCURY	D009	2.1
W BLDG	MERCURY	D009 U151	0.3
W BLDG	MERCURY DEBRIS WASTE SAMPLE, 95-998	D009	1.0
W BLDG	OIL RAGS, DEBRIS	NONE	120.2
W BLDG	OIL WASTE, SOLVENTS	D001 D018 F001 F003 F005	163.7
W BLDG	OIL WASTE, WATER	NONE	494.8
BLDG	PETROLEUM NAPHTHA, UNIT 301-82433	D001 D018 D039	75.0
DG	PETROLEUM NAPHTHA, UNIT 301-82433	D001 D018 D039	75.0
DG	PETROLEUM NAPHTHA, UNIT 301-82433	D001 D018 D039	75.0
W BLDG	PETROLEUM NAPHTHA, UNIT 301-82433	D001 D018 D039	75.0
W BLDG	PETROLEUM NAPHTHA, UNIT 301-82433	D001 D018 D039	75.0
W BLDG	PETROLEUM NAPHTHA, UNIT 301-82433	D001 D018 D039	75.0
W BLDG	PETROLEUM NAPHTHA, UNIT 301-82433	D001 D018 D039	75.0
W BLDG	PURPLE PRIMER	D001	0.8
W BLDG	PVC PIPE CEMENT	D001 D035 F003	3.2
W BLDG	PVC PRIMER	D001	1.5
W BLDG	STA SHARP ADHESIVE	D001	28.3
W BLDG	TRICHLORO ETHANE (1,1,1-)	F001	118.0
W BLDG	TRICHLOROETHANE (1,1,1-)	F002	5.8
W-118	DOW THERM SR-1	NONE	2.8
W-136	SUFURIC ACID BATTERY FLUID	D002	37.8

WD BLDG	COBALT OXIDE	NONE	0.1
WD BLDG	CUPROUS CHLORIDE	NONE	0.3
WD BLDG	DIETHANOLAMINE	NONE	1.0
[illegible]DG	DIMETHYL SULFOXIDE	NONE	1.2
WD BLDG	DISODIUM ETHYLENEDIAMINE TETRACETATE	NONE	1.0
WD BLDG	ETHYL ETHER (DEACTIVATED)	NONE	1.0
WD BLDG	FERRIC NITRATE	D001	1.0
WD BLDG	GLYCERIN	NONE	1.2
WD BLDG	HYDROCHLORIC ACID	D002	7.0
WD BLDG	HYPOPHOPHOROUS ACID	D002	1.7
WD BLDG	LEAD OXIDE	D008	0.1
WD BLDG	LITHIUM CHLORIDE	NONE	1.0
WD BLDG	LITHIUM CHLORIDE	NONE	4.4
WD BLDG	MAGNESIUM OXIDE	NONE	224.0
WD BLDG	MAGNESIUM OXIDE	NONE	204.6
WD BLDG	MAGNESIUM OXIDE	NONE	0.2
WD BLDG	MAGNESIUM SULFATE	NONE	38.1
WD BLDG	MERCURY	D009	7.0
WD BLDG	NICKEL OXIDE	NONE	1.0
WD BLDG	PHOSPHORIC ACID	D002	1.4
WD BLDG	PHOSPHORIC ACID	D002	2.0
WD BLDG	POTASSIUM CHLORIDE	NONE	1.0
WD BLDG	POTASSIUM DIHYDROGEN PHOSPHATE	NONE	0.4
WD BLDG	POTASSIUM FERROCYANIDE	NONE	0.2
WD BLDG	POTASSIUM HYDROXIDE	D002	2.0
WD BLDG	POTASSIUM HYDROXIDE	D002	1.0
WD BLDG	POTASSIUM NITRATE	D001	1.0
[illegible]LDG	POTASSIUM SILICATE	NONE	0.1
[illegible]LDG	RUBIDIUM FLUORIDE	NONE	0.1
WD BLDG	SEMI-CARBAZIDE HYDROCHLORIDE	NONE	0.2
WD BLDG	SILICOTUNGSTIC ACID	NONE	0.2
WD BLDG	SILVER NITRATE	D001 D011	0.3
WD BLDG	SODA ASH/SODIUM CARBONATE	NONE	206.0
WD BLDG	SODIUM ACETATE	NONE	3.0
WD BLDG	SODIUM DICHROMATE	D001 D007	3.7
WD BLDG	SODIUM HYDROXIDE	D002	6.0
WD BLDG	SODIUM HYDROXIDE	D002	2.5
WD BLDG	SODIUM NITRATE	D001	5.0
WD BLDG	SODIUM PHOSPHATE	NONE	1.0
WD BLDG	SODIUM TETRAPHENYLBORON	NONE	1.2
WD BLDG	SODIUM TITANATE	NONE	29.0
WD BLDG	SODIUM TITINATE	NONE	0.6
WD BLDG	STRONTIUM CARBONATE	NONE	0.1
WD BLDG	STRONTIUM HYDROXIDE	D002	0.1
WD BLDG	STRONTIUM OXALATE	NONE	0.1
WD BLDG	THALLIUM NITRATE	D001	0.2
WD BLDG	THAM	NONE	0.2
WD BLDG	TIN OXIDE	NONE	0.1
WD BLDG	TOLUENE	D001 F005	0.6
WD BLDG	UREA OXALATE	NONE	0.2
WD BLDG	ZEOLON	NONE	0.1
WD BLDG	ZINC OXIDE	NONE	0.1
WD BLDG	ZIRCONIUM CHLORIDE	NONE	1.0
[illegible]DG	ZIRCONIUM PHOSPHATE	NONE	0.4

WD BLDG	ALUMINUM NITRATE	D001	1.0
WD BLDG	ALUMINUM OXIDE	NONE	0.2
WD BLDG	AMINOGUAMIDINE BICARCONATE	NONE	1.0
WD BLDG	AMMONIUM HYDROXIDE	D002	5.3
WD BLDG	ANTIFREEZE WASTE	NONE	279.7
WD BLDG	ANTIFREEZE WASTE	NONE	434.0
WD BLDG	ANTIFREEZE WASTE	NONE	489.4
WD BLDG	BORIC ACID	NONE	1.1
WD BLDG	BORON PHOSPHATE	NONE	0.4
WD BLDG	CALCIUM CHLORIDE	NONE	1.0
WD BLDG	CALCIUM OXIDE	D001 D003	213.4
WD BLDG	CESIUM CHLORIDE	NONE	0.1
[illegible]LDG	CHROMIUM OXIDE	D007	0.1

WD BLDG- OUTSIDE	NOX RUST- UNOPENED	D001	532.4
WD BLDG- OUTSIDE	NOX RUST- UNOPENED	D001	479.6
WD [illegible] OUTSIDE	NOX RUST- UNOPENED	D001	519.2
[illegible]G- OUTSIDE	NOX RUST- UNOPENED	D001	545.6
[illegible]	MOLECULAR SEIVES	NONE	3.6
WD-[illegible]	SILICA GEL DESSICANT	NONE	10.5
WD-113	SILICA GEL DESSICANT	NONE	10.0
WD-113	SILICON DIOXIDE	NONE	12.0
*** Total ***			1073033

P7
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9.31-59 B

Building Manager's Questionnaire

Building Name: W 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: _____

9.31-60

Building Manager's Questionnaire

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

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

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

Source: _____

Building Name: W 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

9.31-62

Building Manager's Questionnaire

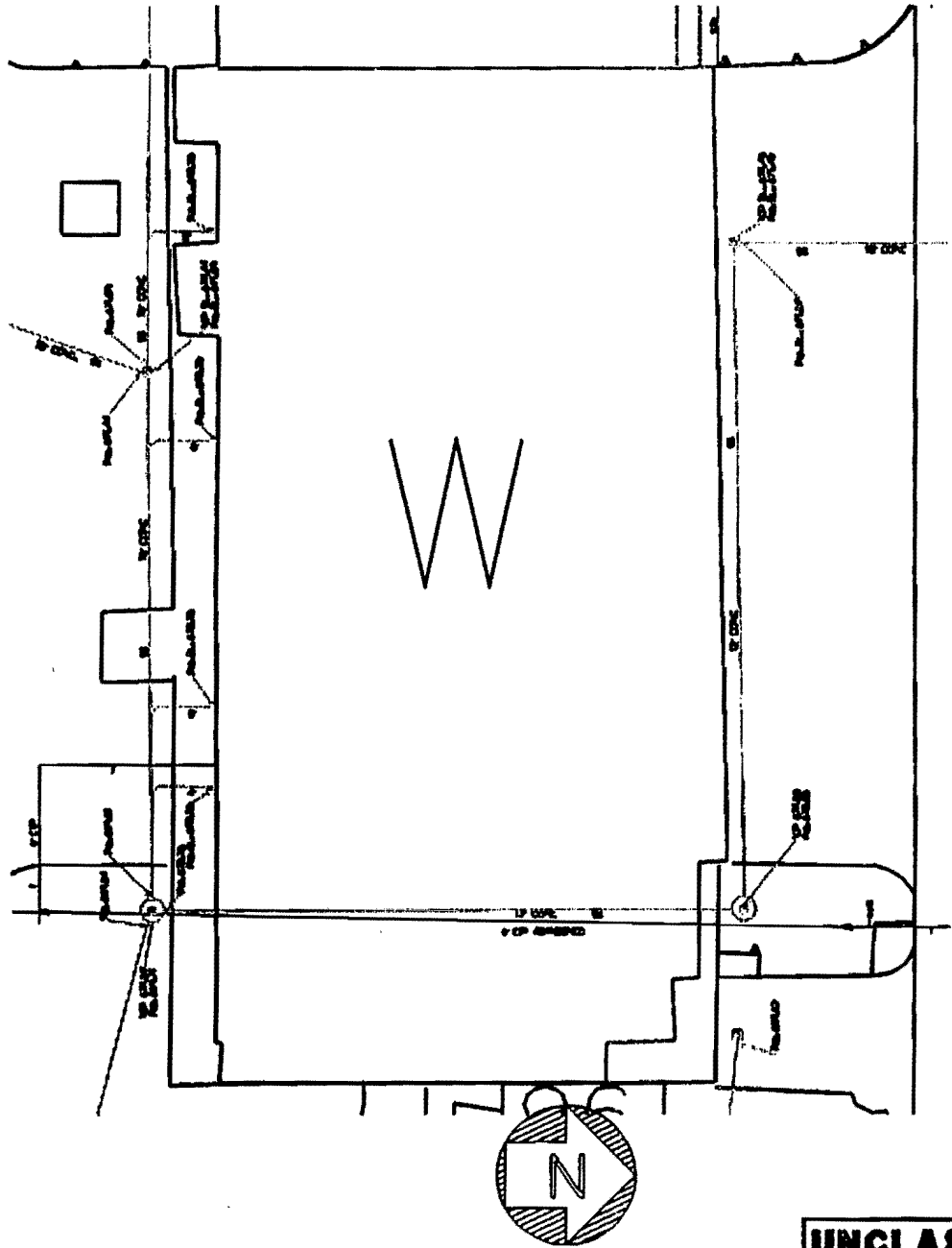
Building Name: W Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

white Paper Recycling
Scrap metal

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

9.31-63



FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL

E.G. & G. - MOUND

UNDERGROUND WATER & WASTE LINES
W BLDG.

DATE: 9-5-96

UNCLASSIFIED

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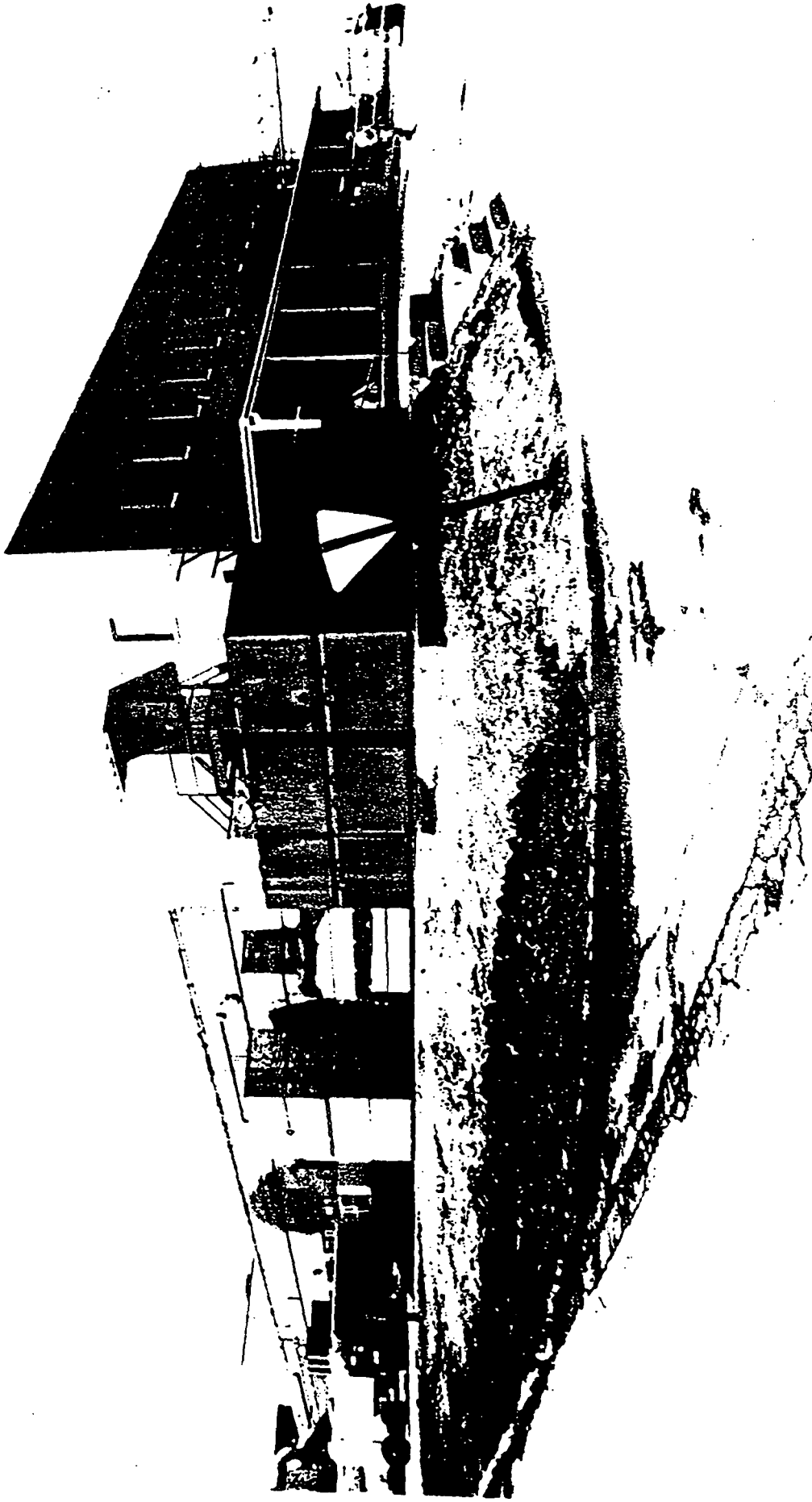
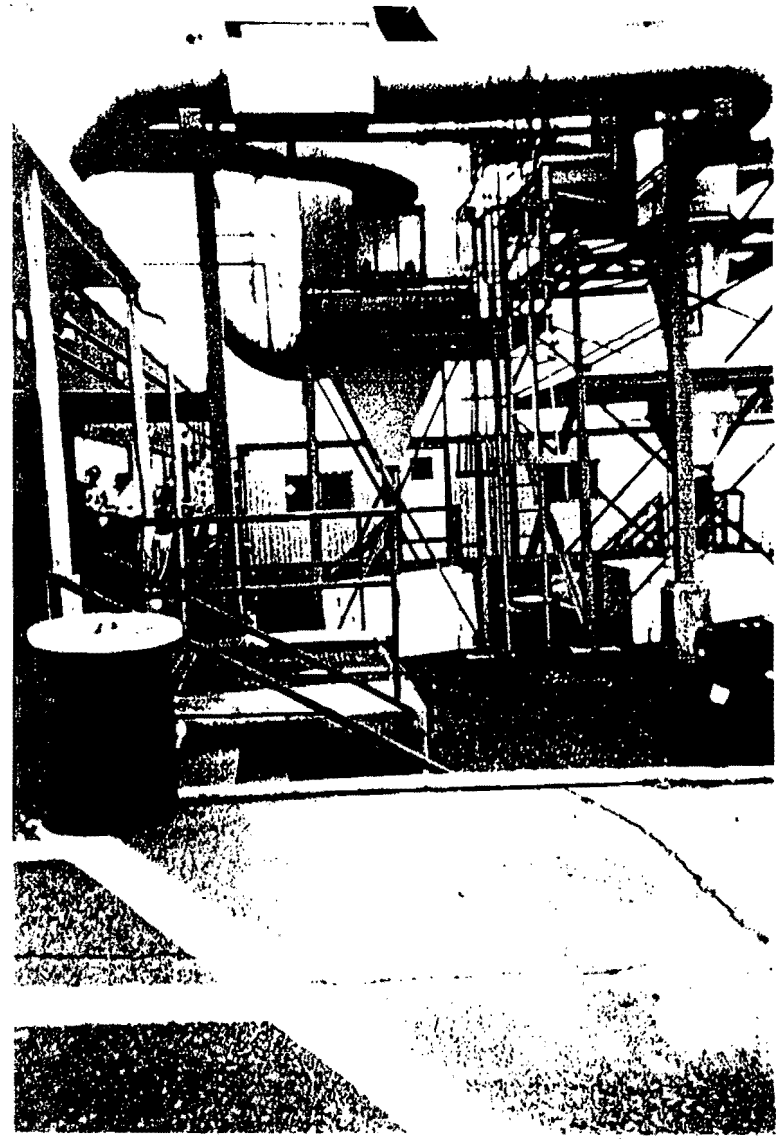
9.31-77



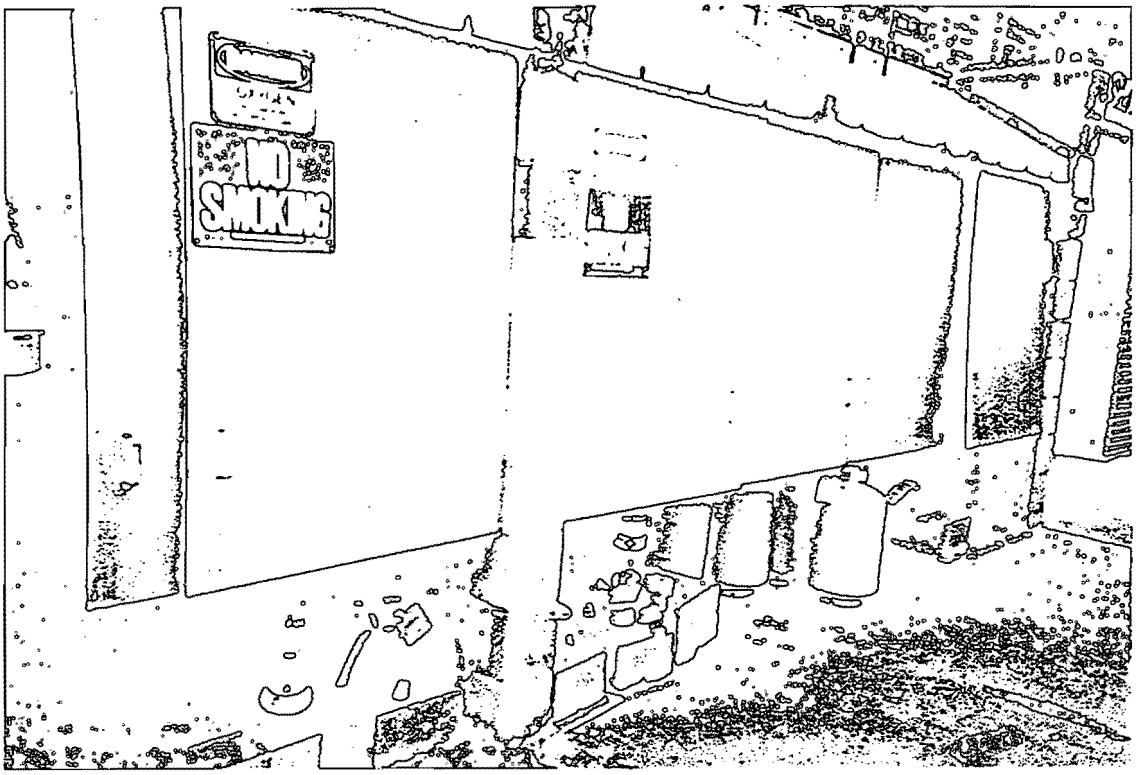
Mound Plant Building W

9.31-79

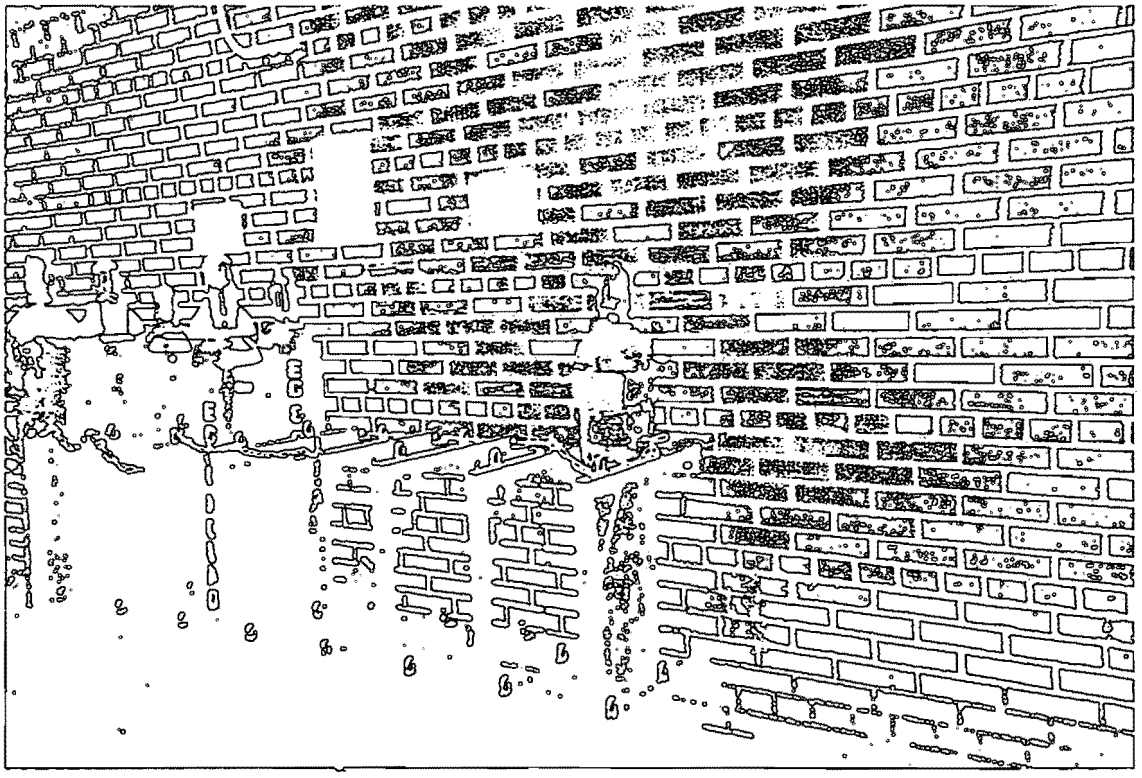
Full and empty gas cylinders are segregated alon the side of the building.



The carpentry shop in Building W has an exhaust collection system.



In Building W empty and full cylinders are segregated.



Acetylene and oxygen cylinders are properly segregated.

9.31-83

Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

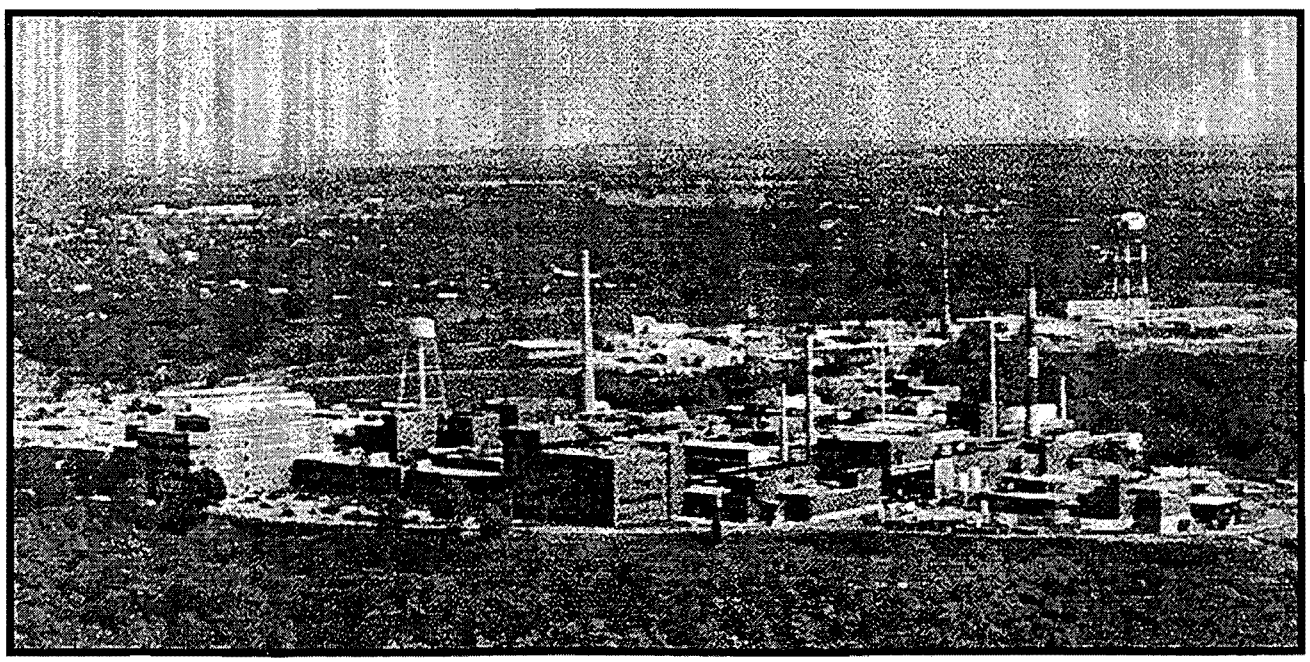
G-GW-W Buildings

(Demolition)

Final

September 2003

Volume 2 of 3 (Appendix G)



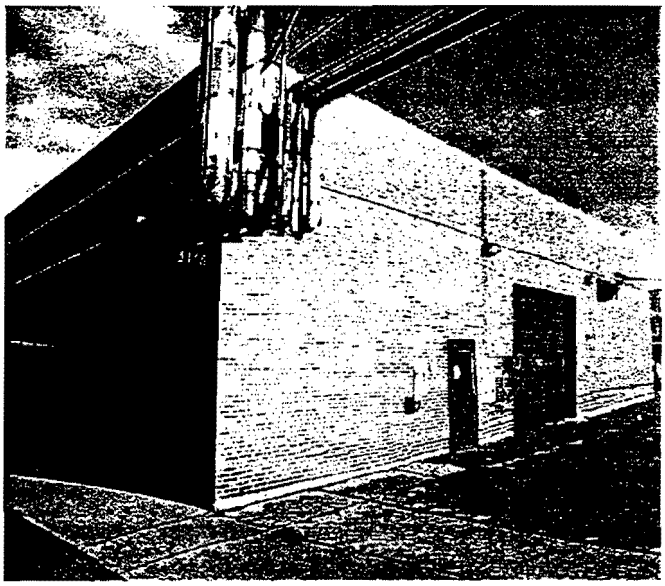
Due to the document size, the final version of the G-GW-W Buildings BDP is printed in three volumes: Volume 1 of 3 contains the text through Appendix F, Volume 2 of 3 contains Appendix G, and Volume 3 of 3 contains Appendix H through Appendix O.

Appendix G

Radiological Information

	Pages
• G Building	G 1 through 68
• GW Building	GW 1 through 54
• W Building	W 1 through 199

Final Status Report
For
Building G



Prepared by:	**Roderick C. Case**	**Date:**	**July 2, 2003**
Reviewed by:	**Galen Tomlinson**	**Date:**	7-7-03
Approved by:	**A. Stephen Collas**	**Date:**	7-7-03

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1.0 Historical Review

The Garage (G Building) was constructed in the north central part of the site in 1948 as a one-story steel frame building with brick and masonry block walls and a pre-cast cement tile roof deck. The building, as constructed, was 121 foot 8 inches long and 61 foot 9 inches wide having a gross floor area of 7,513 square feet. The Garage contained facilities for servicing, repairing and painting automobiles. Over the years, the Garage has been used to service and repair a variety of vehicles, including motorized lawn equipment, motorized carts, automobiles, trucks, vans, buses, and heavy equipment.

No significant alterations were made to G Building other than the addition of GW Building, which was reviewed separately. Minor alterations over the years have included the addition and removal of various interior rooms. Rooms 6, 7, 8, and 9, as indicated on the 1991 floor plan were added to the southeast corner of the Garage building; a stairway was added to access the overhead area of Room 9. While the drawings depicting the construction of these rooms may have existed as part of the in-house engineering files there are no drawings in the Mound drawing control system that depict these modifications. Based upon field observations done in conjunction with the preparation of this report, these rooms have since been removed.

In addition to the Garage's function as a vehicle maintenance area, the Garage was used in 1955, as an interim storage area for thorium source material. However, no thorium processing activities occurred in the Garage. According to the September 1955 Quarterly Health Physics report[1] the floors were scrubbed and decontaminated after the drums were removed. No subsequent storage or use of radiological material was found in the historical record.

G Building continued to function as a vehicle maintenance facility throughout its history and is scheduled for demolition in accordance with Miamisburg Closure Project goals.

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

2.0 Survey Objectives

The objective of this survey plan is to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building G satisfy the site release criteria. 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.

---

[1] Meyer, H.E. 1955f. "Quarterly Health Physics Report Through September 30, 1955." Monsanto Chemical Company, Mound Laboratory, Miamisburg, Ohio. October 25, 1955

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. Based on historical information, Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta/gamma measurements.

2.1 Survey Design

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

Building G Survey Units

Survey Unit Number	Survey Unit Room Designation	Area (ft^2)	Class	Data Points	Surface Scan
1-3	Main Floor	7513	3	20	10%
4	Remaining Interior Surfaces	N/A	N	Bias	Judgmental
5	Exterior Surfaces	N/A	N	Bias	Judgmental

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 17 dpm/100cm^2 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) data points were randomly placed in each Class 3 survey unit. A reference coordinate grid system was used to locate the data points. The location of each data point is determined by multiplying the north-south (X) and the east-west (Y) dimensions of the survey unit by a randomly generated number for each dimension. A computer spreadsheet program was used to determine random coordinates. The data points were then located on a scaled drawing and transferred to the survey unit. At least 10% of each survey unit was scanned for alpha contamination.

Twenty (20) judgmental data points were obtained in the remaining survey units. 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. A composite sediment sample was obtained from the north and south section of the floor drain trough in accordance with the SPF-01. 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 the Class 3 survey units were averaged and compared to the $DCGL_w$. Since all measurements were less than the $DCGL_w$, the Sign Test was not utilized. The highest observed alpha measurement was 94 dpm/100cm^2. This location was resurveyed and found to be 72 dpm/100cm^2. The average alpha activity in the Class 3 Survey Units was 25.9 dpm/100cm^2.

The alpha and beta fixed point measurements from the judgmental survey units were collected and compared directly to the $DCGL_w$. One data point on the exterior wall was observed to be above the $DCGL_w$ (105 dpm/100cm^2 alpha). Two additional data points were observed to be just below the $DCGL_w$ (99 dpm/100cm^2 and 94 dpm/100cm^2 alpha). These elevated readings are believed to be the result of short-lived activity from Radon daughters and/or naturally occurring radioactive material known to be present in standard brick building material. NUREG 1507 reports the average background value in standard brick is six counts per minute alpha with a 126

cm^2 gas flow proportional probe. When adjusted for background and probe size, the highest observed alpha measurement is 72 dpm/100cm^2. To test this, the exterior walls were re-surveyed. The re-survey results showed that no long-lived activity was present at these locations above the $DCGL_w$. The highest re-survey value on the exterior walls was 72 dpm/100cm^2 with no background correction. The highest measured value in the survey unit was 80 dpm/100cm^2 on the roof and the average was 46.4 dpm/100cm^2. The data points in the remaining survey units were all found to be below the $DCGL_w$. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1.

A retrospective power curve (Attachment 2) demonstrates that the survey design had sufficient power (probability) to meet the DQO's for the Class 3 survey units. The average alpha measurement is 25.9 dpm/100 cm^2 ±3.9 dpm/100 cm^2 and the actual standard deviation (σ) is 15.4. The relative shift (Δ/σ) = 3.25 and Sign p (probability that a random measurement is < $DCGL_w$) = 1.0. The retrospective number of data points (*n*) per Equation 5-2, Reference 2 is 20.

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	94	27.3	9.17	530	336.8	47.2
Survey Unit 2	44	23.4	5.05	610	385.0	45.2
Survey Unit 3	55	26.9	5.54	600	404.8	43.2
Survey Unit 4	50	25.3	5.44	750	349	71.1
Survey Unit 5	80	46.4	10.80	1354	806.1	153.8

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	3.35	0.70	0.44	8.28	3.51	1.18
Survey Unit 2	6.84	1.71	1.02	11.98	3.49	1.26
Survey Unit 3	5.27	1.32	0.68	7.95	2.54	1.06
Survey Unit 4	9.24	1.26	1.01	7.91	1.79	0.84
Survey Unit 5	4.01	0.50	0.48	3.84	1.32	0.49

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The highest removable tritium activity was 43.75 dpm/100cm2 (RSDS# 03-TF-0155). The average removable tritium was 3.59 dpm/100cm2 (±1.09).

At least ten percent of the building floor was scanned for alpha activity. No activity was observed above the instrument alarm setpoint of 75 dpm/100cm^2 (RSDS# 03-TF-0154).

2.3 Sediment Sample Data

Sediment samples obtained from each of the long floor drains were analyzed by gamma spectroscopy. No activity was observed in any sediment sample above the Mound 2000 Screening Levels for Soil/Sediment. A smear was obtained when no material was present at the sample location. Smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan. No fixed alpha or beta activity was observed above background at any sample location (See RSDS # 03-TF-0157).

2.4 Quality Control

Quality control measurements were taken to evaluate the measurement precision. Ten data points were selected at random from the sample group of 100 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). Negative beta values occur when the measured value is below the instrument background level. These values are used for this analysis to show the true variability of the data set. 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
QC5-08	0	0	24	512	45.3	336
QC5-17	105	20.5	88	976	62.5	1120
QC1-04	94	19.4	72	450	42.4	905
QC1-08	0	0	11	365	38.2	405
QC2-04	44	13.3	28	435	41.7	300
QC2-20	6	4.9	17	370	38.5	325
QC3-09	6	4.9	11	320	35.8	370
QC3-19	55	14.8	33	360	37.8	470
QC4-08	6	4.9	28	320	35.8	380
QC4-20	50	14.1	22	235	30.7	205
Variance (S^2)	485.8		668.9	66404		85645
Ratio			0.73			0.8
Agreement			Yes			Yes

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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 G 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 G 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 G Survey Results

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2)
Highest Alpha Smearable Activity	03-TF-0155	Interior Wall	9.24	20
Highest Alpha Fixed Activity	03-TF-0154	Floor	94	100
Highest Beta Smearable Activity	03-TF-0154	Floor	11.98	1000
Highest Beta Fixed Activity	03-TF-0149	Exterior Walls	1354	5000
Highest Tritium Smearable Activity	03-TF-0155	Interior Wall	43.75	10,000

3.0 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

Attachment 2 – Retrospective Power Curve

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 40-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building G 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-80047, 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

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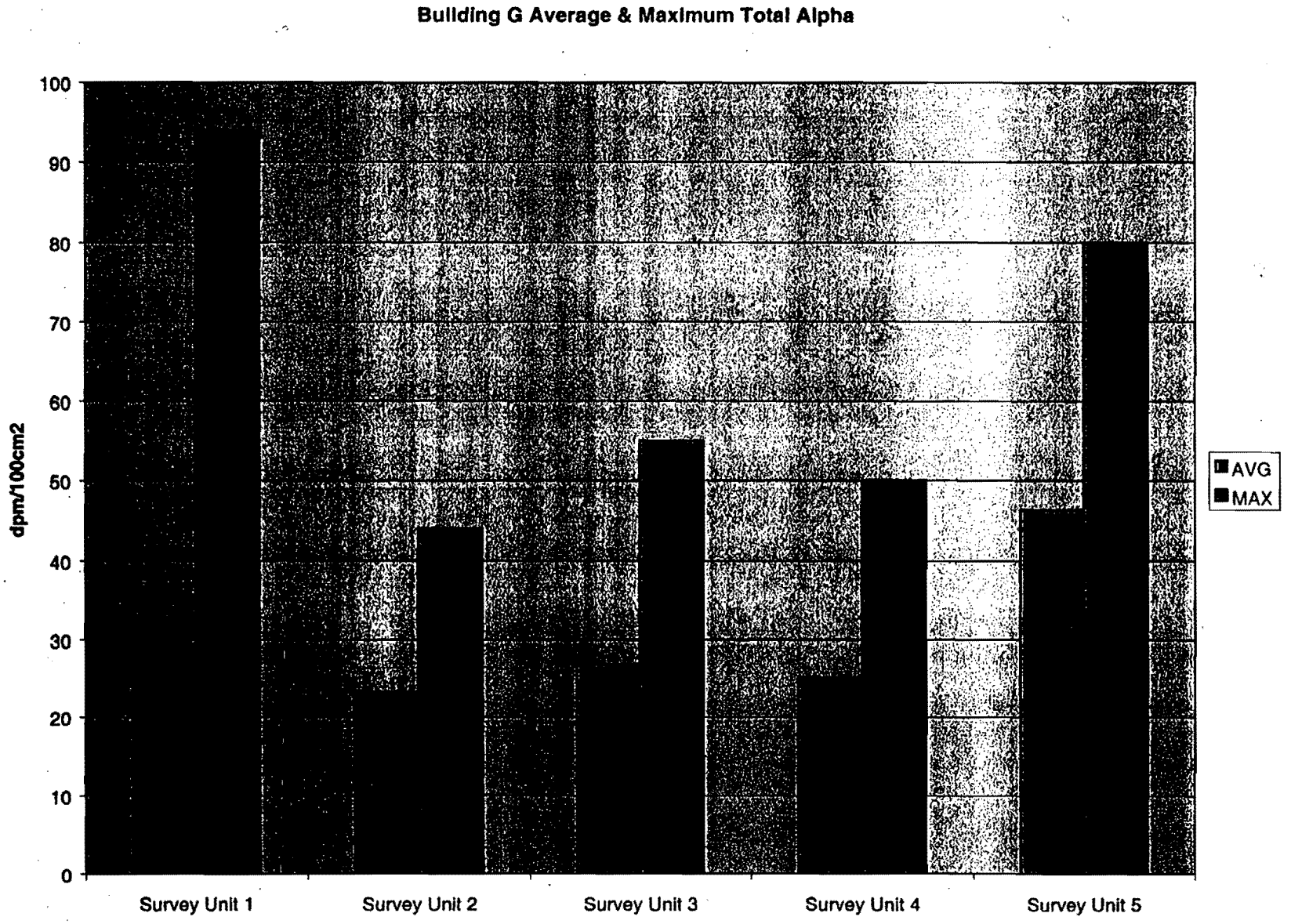
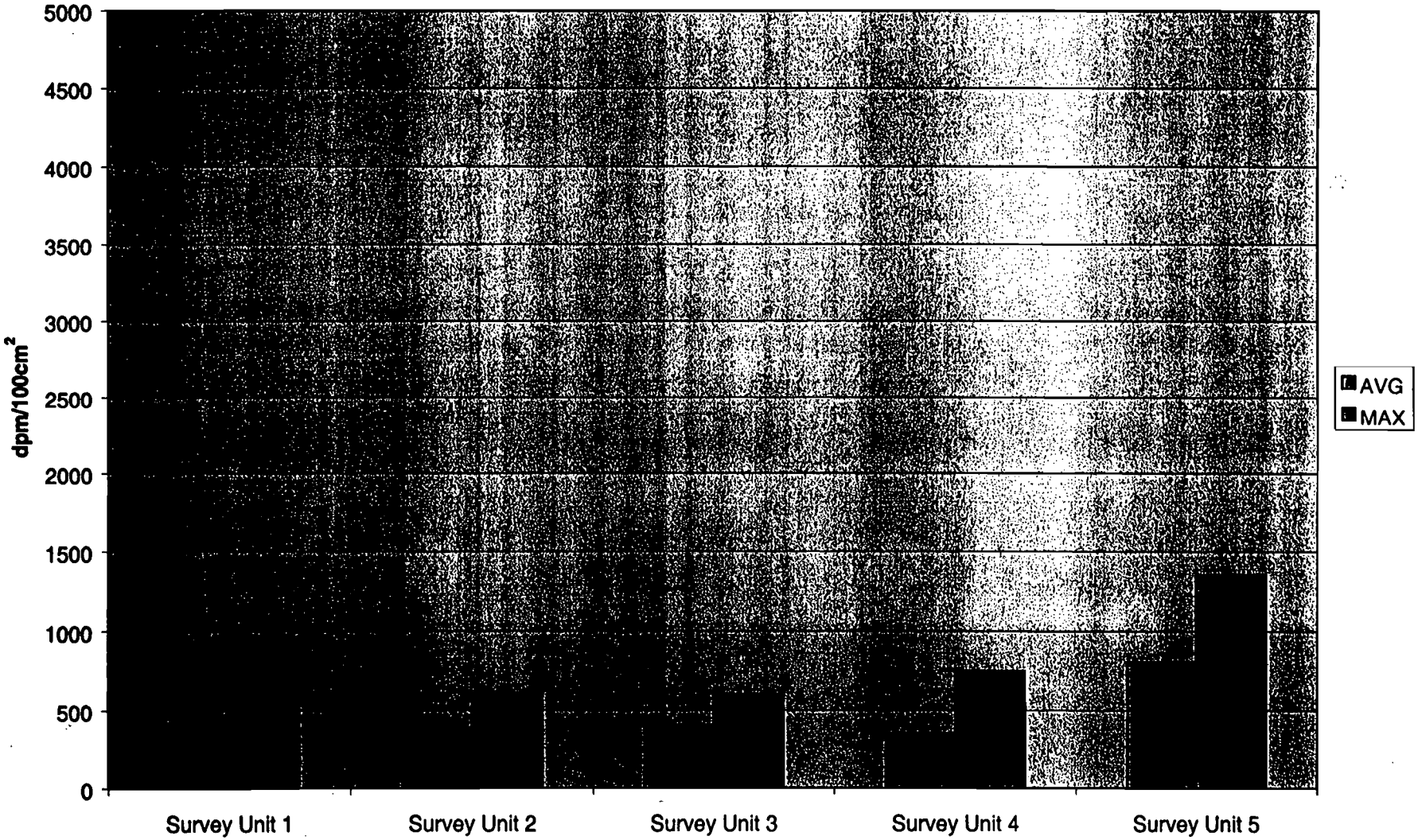
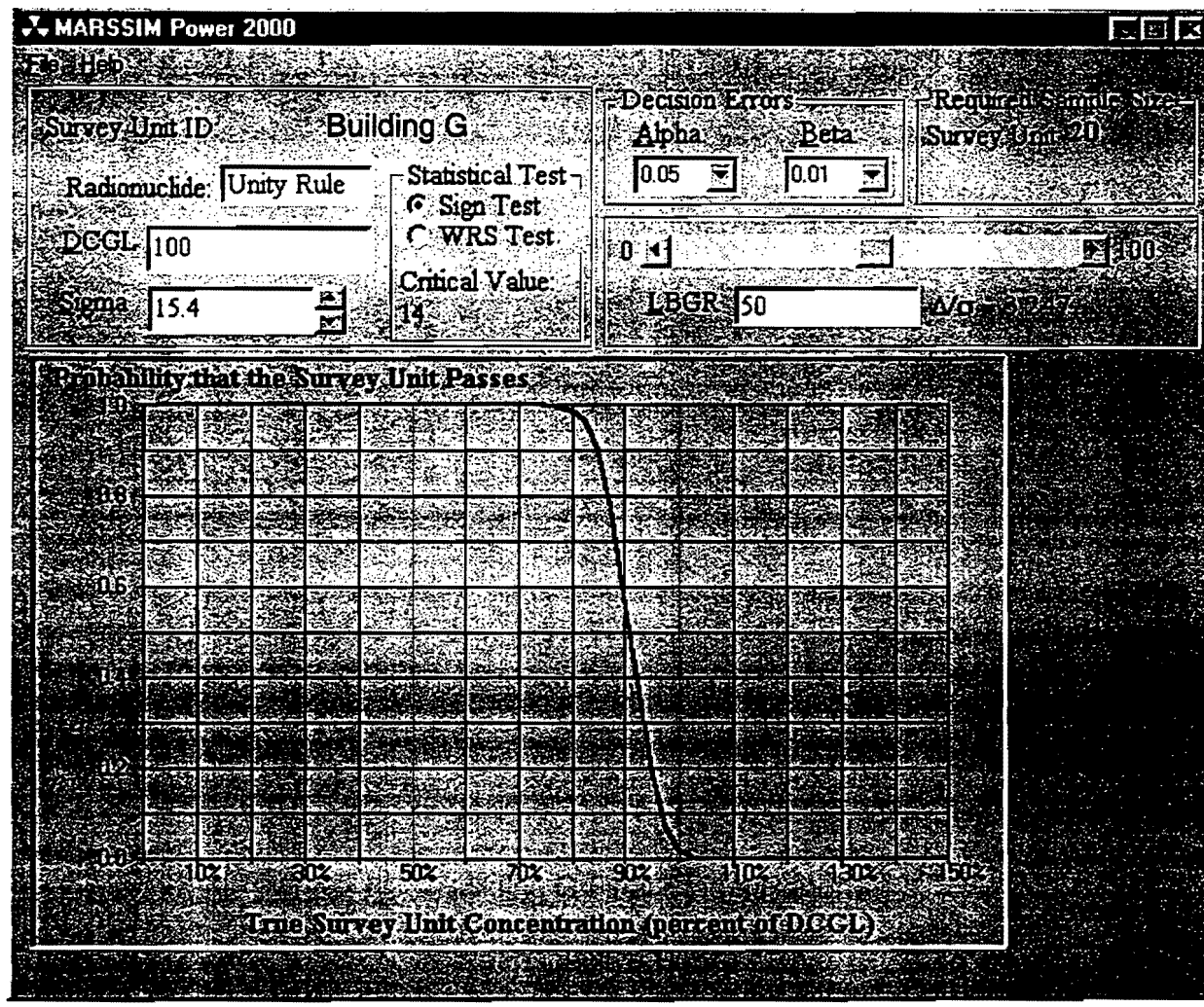

Building G Average & Maximum Total Alpha
dpm/100cm2
100
90
80
70
60
50
40
30
20
10
0
Survey Unit 1
Survey Unit 2
Survey Unit 3
Survey Unit 4
Survey Unit 5
AVG
MAX

Filed 68

Building G Average and Maximum Total Beta Activity





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

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Building G Survey Data Collection Sheet

		Smearable			Fixed			
Location	RSDS#	α	β	H^3	α	- Bkg	Recnt	β
SU1-01	0154	0.49	0	0.26	33		33	520
SU1-02	0154	0	0.54	4.16	6		6	365
SU1-03	0154	0	2.28	6.73	11		11	300
SU1-04	0154	0	0	6.04	94		72	450
SU1-05	0154	0	5.39	0.35	17		17	355
SU1-06	0154	0	5.8	6.17	17		17	325
SU1-07	0154	0	8.08	0	17		17	395
SU1-08	0154	0.5	0	0	0		0	365
SU1-09	0154	0	8.28	0.25	28		28	325
SU1-10	0154	0	3.58	5.95	28		28	185
SU1-11	0154	0	0.79	2.23	17		17	175
SU1-12	0154	1.36	3.7	7.35	33		33	380
SU1-13	0154	3.35	3.1	5.9	28		28	355
SU1-14	0154	0	4.86	0	39		39	185
SU1-15	0154	2.95	6.76	0.24	28		28	310
SU1-16	0154	0.85	6.07	3.18	50		50	360
SU1-17	0154	1.91	3.92	5.44	44		44	460
SU1-18	0154	1.09	4.45	5.14	39		39	530
SU1-19	0154	1.15	1.19	5.73	17		17	185
SU1-20	0154	0.5	1.43	0	0		0	210
SU2-01	0154	1.05	5.69	7.8	28		28	560
SU2-02	0154	0	0.24	5.01	39		39	425
SU2-03	0154	3.48	2.96	1.86	33		33	450
SU2-04	0154	0	0	0	44		44	435
SU2-05	0154	0	4.68	5.65	11		11	320
SU2-06	0154	0.2	2.33	2.98	11		11	610
SU2-07	0154	5.06	7.92	0	17		17	510
SU2-08	0154	3	0	4.33	11		11	250
SU2-09	0154	5.74	4.85	11.57	28		28	305
SU2-10	0154	0	3.39	2.29	39		39	360
SU2-11	0154	0	2.69	5.16	17		17	225
SU2-12	0154	0	4.01	0	17		17	365
SU2-13	0154	4.89	5.34	6.16	17		17	210
SU2-14	0154	6.84	3.03	0	17		17	395
SU2-15	0154	0	3.27	0.28	11		11	350
SU2-16	0154	0	2.68	3.94	28		28	475
SU2-17	0154	0	0	0	22		22	290
SU2-18	0154	0.2	2.33	1.31	33		33	380
SU2-19	0154	2.93	11.98	1.53	39		39	415
SU2-20	0154	0.85	2.43	0.27	6		6	370
SU3-01	0154	0	7.95	5.47	28		28	310
SU3-02	0154	0	0	6.72	28		28	310
SU3-03	0154	3.24	2.38	1.2	28		28	600
SU3-04	0154	0	0	4.49	44		44	435
SU3-05	0154	0	4.66	0	39		39	450
SU3-06	0154	3.29	1.08	0.3	17		17	380
Location	RSDS#	α	β	H^3	α	- Bkg	Recnt	β
SU3-07	0154	0	0.79	1.34	28		28	395

SU3-08	0154	5.27	1.15	0.34	28		28	345
SU3-09	0154	3.35	5.64	0	6		6	320
SU3-10	0154	2.24	0	1.77	11		11	270
SU3-11	0154	2.95	2.85	1.32	22		22	325
SU3-12	0154	0.85	2.43	1.72	22		22	385
SU3-13	0154	0	1.54	0	11		11	555
SU3-14	0154	1.1	0	0	44		44	480
SU3-15	0154	1.14	6.58	0	22		22	355
SU3-16	0154	0.5	0.21	1.04	39		39	555
SU3-17	0154	1.05	2.07	12.89	28		28	480
SU3-18	0154	1.5	5.67	3.5	11		11	510
SU3-19	0154	0	2.03	4.53	55		55	360
SU3-20	0154	0	3.82	0	28		28	275
SU4-01	0155	0	0.83	2.27	39		39	530
SU4-02	0155	3.27	0.59	0.51	11		11	310
SU4-03	0155	0	0.83	6.2	22		22	155
SU4-04	0155	0	2.11	23.59	17		17	300
SU4-05	0155	0	0	1.21	17		17	500
SU4-06	0155	1.26	0	8.23	33		33	405
SU4-07	0155	1.23	1.99	7.41	22		22	525
SU4-08	0155	0	3.39	14.27	6		6	320
SU4-09	0155	0	3.39	0	17		17	415
SU4-10	0155	1.24	0.71	43.75	17		17	255
SU4-11	0155	0	0	0	33		33	585
SU4-12	0155	9.24	7.91	0	22		22	115
SU4-13	0155	0	0.83	0	17		17	370
SU4-14	0155	1.23	1.99	1.65	28		28	255
SU4-15	0155	1.19	4.55	0	22		22	210
SU4-16	0155	1.23	1.99	6.5	22		22	230
SU4-17	0155	0	2.11	0	44		44	330
SU4-18	0155	0	0	0	17		17	185
SU4-19	0155	0	2.11	0	50		50	750
SU4-20	0155	5.29	0.47	3.72	50		50	235
SU5-01	0149	2.01	1.16	1.42	16		16	572
SU5-02	0149	0	0	3.68	32		32	500
SU5-03	0149	2.02	0	6.19	16		16	824
SU5-04	0149	2.01	1.16	9.85	64		64	236
SU5-05	0149	0	3.84	5.5	24		24	452
SU5-06	0149	0	1.28	2.4	56		56	556
SU5-07	0149	0	0	2.43	80		80	604
SU5-08	0149	0	1.28	0.41	0		0	512
SU5-09	0149	0	2.56	0	16		16	868
SU5-10	0149	4.01	2.32	0	16		16	564
SU5-11	0149	0	0	5.26	77	44	72	1316
SU5-12	0149	0	1.28	1.38	66	33	77	1212
SU5-13	0149	0	2.56	0	94	61	55	1354

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Building G Survey and Sample Data Worksheets
Enclosure 1

Location	RSDS#	α	β	H^3	α	- Bkg	Recnt	β
SU5-14	0149	0	2.56	0.33	39	6	61	960
SU5-15	0149	0	2.56	0	22	-11	39	260
SU5-16	0149	0	0	7.83	88	55	66	1248
SU5-17	0149	0	1.28	4.11	105	72	72	976
SU5-18	0149	0	1.28	2.88	72	39	66	1232
SU5-19	0149	0	0	7.19	99	66	55	968
SU5-20	0149	0	1.28	6.88	50	17	44	908
DV-01	0157	1.24	0.71	0	-10			180
DV-02	0157	0	0.83	0	10			260
DV-03	0157	1.24	0.71	0	0			165
DV-04	0157	1.23	1.99	0	20			200
DV-05	0157	0	3.39	0	0			335
DV-06	0157	7.3	1.63	0	50			535
DV-07	0157	1.26	0	0	30			205
DV-08	0157	0	0	0	50			190
DV-09	0157	0	0	0	20			395
DV-10	0157	1.16	7.11	1.33	40			140
DV-11	0157	1.19	4.55	0	40			85
DV-12	0157	0	0.83	0	30			135
DV-13	0157	1.21	3.27	0	30			175

	α	β	H^3	α			β
#	100	100	100	100	10	100	100
Avg	1.101	2.5309	3.5894	30.91	38.05083	29.64	456.32
SD	1.773179	2.413997	5.564379	22.04179	27.25517	18.25549	257.6906
Max	9.24	11.98	43.75	105	71.85083	80	1354
+/-	0.347536	0.473134	1.090597	4.320104	16.8926	3.578006	50.50635
				60			
				25.88333			
				15.44711			
				94			
				3.908581			
				485.8403			66404.44

Notes: elevated measurements observed in SU# 3 Ext walls
Brick Bkg = 6 cpm = 33 dpm/100cm2 (6 / .5*.2*1.81)

Stats	
Mean	71.2
Std Error	8.618842
Median	74.5
Mode	#N/A
Std Dev	27.25517
Variance	742.8444
Kurtosis	-0.625078
Skewness	-0.584889
Range	83
Minimum	22
Maximum	105
Sum	712
Count	10

Bin	*Frequency*
22	1
49.66667	1
77.33333	4
More	4

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	10	712	71.2	742.8444
Column 2	10	380.5083	38.05083	742.8444

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Building G Survey and Sample Data Worksheets
Enclosure 1

	Survey Unit 1					
	Smearable			Fixed		
	α	β	H^3	α	β	α Recnt
Number	20	20	20	20	20	20
Avg	0.7075	3.511	3.256	27.3	336.75	26.2
SD	1.010075	2.685409	2.843227	20.93122	107.76772	17.54573
Max	3.35	8.28	7.35	94	530	72
+/-	0.442676	1.176909	1.246075	9.173328	47.230348	7.6896024

	Survey Unit 2					
Number	20	20	20	20	20	
Avg	1.712	3.491	3.007	23.4	385	25.883333
SD	2.3196	2.867863	3.174923	11.53211	105.35654	15.447112
Max	6.84	11.98	11.57	44	610	
+/-	1.016589	1.256872	1.391444	5.054068	46.173622	

	Survey Unit 3				
Number	20	20	20	20	20
Avg	1.324	2.5425	2.3315	26.95	404.75
SD	1.552795	2.418194	3.226543	12.65109	98.481564
Max	5.27	7.95	12.89	55	600
+/-	0.680529	1.059799	1.414067	5.544473	43.160591

	Survey Unit4				
Number	20	20	20	20	20
Avg	1.259	1.79	5.9655	25.3	349
SD	2.310536	1.926945	10.73413	12.41434	162.14516
Max	9.24	7.91	43.75	50	750
+/-	1.012617	0.844504	4.704346	5.440716	71.061838

	Survey Unit 5					α Recnt
Number	20	20	20	20	20	20
Avg	0.5025	1.32	3.387	51.6	806.1	46.35
SD	1.104788	1.124278	3.067245	32.75491	350.97907	24.63048
Max	4.01	3.84	9.85	105	1354	80
+/-	0.484185	0.492727	1.344253	14.35519	153.8203	10.794569

	Drains & Vents				
Number	13	13	13	13	13
Avg	1.217692	1.924615	0.102308	23.84615	230.76923
SD	1.923873	2.126984	0.368876	19.38146	123.55576
Max	7.3	7.11	1.33	50	535
+/-	1.045808	1.156219	0.200519	10.53567	67.164342

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Instrument Data

	Inst	SN	CDD	RSDS	α Bkg(cpm)	β Bkg(cpm)
1	L2350	5856/5148	5/12/04	0149	2.8	
2	L2360	5775/5720	9/25/03	0149	1	139
3	L2350	5856/5148	5/12/04	0154	2.8	
4	L2360	5833/5847	3/13/01	0154		116
5	L2350	5856/5148	5/12/04	0155	2.8	
6	L2360	5833/5847	3/13/04	0155		116
7	L2360	5833/5847	3/13/04	0157	1	111

Sample Data RSDS# 0157

Sediment Data pCi/g

	Co-60	Cs137	Pb210	Ra226	AC227	Th230	Th232	Pu238	Am241
N Drain	0.03	0.01	0.77	0.86	0.14	0	0.24	0	0
S Drain	0.05	0.03	1.21	1.03	0.25	0.98	0.39	0	0
MDA	0.01	0.01	0.2	0.16	0.07	1.33	0.03	4.97	0.01
S/L	0.07	0.76	1.8	2.1	0.56	2	1.47	55	6.3

NUREG 1507 Table 5.1 (GFP)
Background Count Rates for Various Materials (NCPM)

	Alpha	Beta
Brick	6	567.2
Ceramic Block	15	792
Ceramic Tile	12.6	647
Concrete Block	2.6	344
Drywall	2.6	325
Floor Tile	4	308
Linoleum	2.6	346
Carbon Steel	2.4	322.6

Replicate Fixed Point QC

	alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	initial	2σ	replicate	initial	2σ	replicate
QC5-8	0	0.00	24	512	45.25	336
QC5-17	105	20.49	88	976	62.48	1120
QC1-04	94	19.39	72	450	42.43	905
QC1-08	0	0.00	11	365	38.21	405
QC2-04	44	13.27	28	435	41.71	300
QC2-20	6	4.90	17	370	38.47	325
QC3-09	6	4.90	11	320	35.78	370
QC3-19	55	14.83	33	360	37.95	470
QC4-08	6	4.90	28	320	35.78	380
QC4-20	50	14.14	22	235	30.66	205
Variance (S2) =	485.8403		668.9333	66404.442		85645.6
Ratio			0.726291			0.7753398
Agreement			YES			YES

QC Measurements

	Location	RSDS#	α	β
1	QC5-8	0149	24	336
2	QC5-17	0149	88	1120
3	QC1-04	0154	72	905
4	QC1-08	0154	11	405
5	QC2-04	0154	28	300
6	QC2-20	0154	17	325
7	QC3-09	0154	11	370
8	QC3-19	0154	33	470
9	QC4-08	0154	28	380
10	QC4-20	0154	22	205

SURVEY PLAN FORM

SP NUMBER	G-01	**DATE OF REQUEST**	April 29, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building G		
PURPOSE	The purpose of this SP is to characterize Building G to support decisions on final disposition.		
SURVEY UNIT # 1-3	Interior Floor	**SURVEY UNIT**	
SURVEY UNIT # 4	Remaining Interior Surfaces	**SURVEY UNIT**	
SURVEY UNIT # 5	Roof and Exterior Surfaces	**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. 30031, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	L 43-93		
SURFACE SCAN	☒ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE**	L 2360	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Issue 29, Op. No. 30031, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	L 43-93		

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	G-01	DATE OF REQUEST	April 29, 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.

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 at least 10% of Survey Units 1 through 3.
3. Perform a 30 second integrated count at every location where an alarm is obtained. In addition, obtain a 30 secon integrated count at any point where an audible or visual indication of elevated activity is observed at twice th background rate.
4. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

Data Point Location

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

Static Measurements Using L 2350 with 43-20 (alpha) probe and L 2360 with 43-93 (beta) probe

1. Perform an alpha and beta measurement on twenty (20) data points in Survey Units 1-3.
2. Perform an alpha and beta measurement on twenty (20) data points in Survey Unit 4. Data points are selected b 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 roof areas. Data points ar randomly selected by the surveyor and should be broadly representative of the entire survey unit.
4. Perform an alpha and beta measurement on at least ten (10) data points on the building exterior walls and expose foundations. Data points are randomly selected by the surveyor and should be broadly representative of the entir survey unit
5. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
6. 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, sump, roof gutt 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. Collect a composite sample of the centerline floor drain. Obtain a 250ml sample at four evenly spaced locatior along the drain. Composite the sampled material and mix well to ensure a homogenous mixture. Collect two (250ml samples from the mixture and submit for gamma spectroscopy analysis.

Continued Next Page

4. Document sample information and description of material on Attachment 1.
5. Label sample container with sample number, date and time of collection, and location in accordance with Mound procedures.
6. Show sample location on the RSDS map.
7. Submit sediment samples to laboratory for isotopic analysis. Submit smears for gross alpha and beta analysis.
8. Additional intrusive samples may be collected in areas of elevated activity as determined by the MARSSIM Engineer.

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**	April 29, 2003
Technical Reviewer	RM Coblentz	**DATE**	05/01/03
Rad Con Manager	AS Collins	**DATE**	5/7/03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. Case	**DATE**	7-2-03
Technical Reviewer	G. Tomlinson	**DATE**	7-6-03
Rad Con Manager	AS Collins	**DATE**	7-7-03
COMMENTS			

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Attachment 1

Field Sample Data Collection Sheet

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
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									

See RSDS # 03-TF-0157

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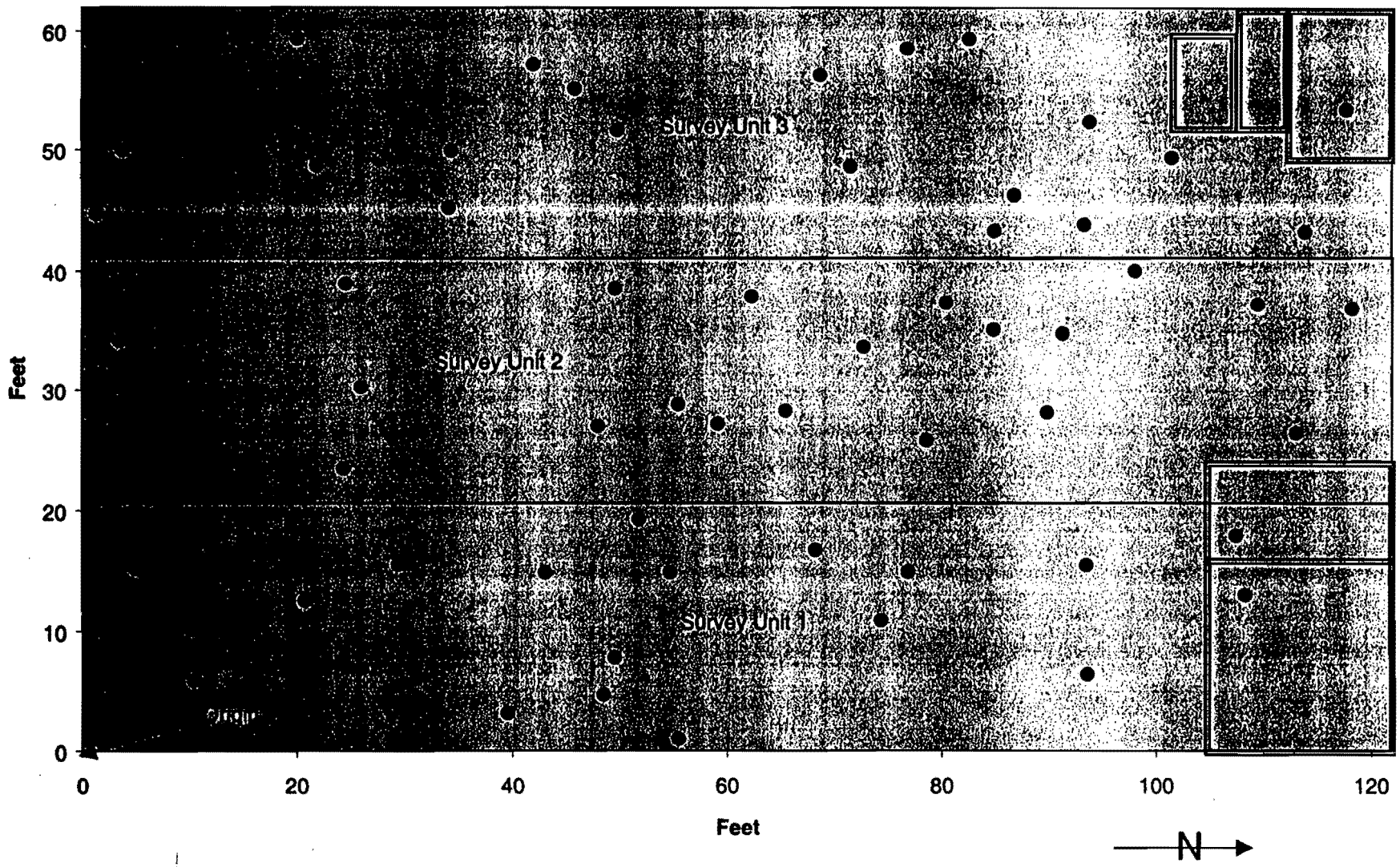
Building G Survey Units 1,2,3



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Survey Units 1-3 Coordinates

	Survey Unit 1		Survey Unit 2		Survey Unit3	
	X	Y	X	Y	X	Y
1	55	1	24	23	114	43
2	40	3	79	26	85	43
3	2	4	113	26	93	44
4	48	5	48	27	1	45
5	10	6	59	27	34	45
6	94	6	90	28	87	46
7	50	8	65	28	72	49
8	10	10	55	29	22	49
9	74	11	26	30	101	49
10	21	13	73	34	34	50
11	108	13	3	34	4	50
12	43	15	91	35	50	52
13	55	15	85	35	94	52
14	77	15	118	37	118	53
15	5	15	109	37	46	55
16	93	15	80	37	69	56
17	29	16	62	38	42	57
18	68	17	25	39	77	59
19	107	18	98	40	83	59
20	52	19	50	39	20	59

Note: All measurements are from Southeast corner origin.

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) G BUILDING	SURVEY NO. 03-TF-0154
PURPOSE: MARSSIM SURVEY PLAN G-01 UNITS 1, 2 AND 3 (FLOOR)	RWP NO. N/A
	DATE: 06-27-03
	TIME: 1600

MAP/DRAWING

SEE ATTACHED RESULTS AND DRAWINGS

SURVEY ALSO INCLUDES GREATER THAN 10% FLOOR WITH ALL RESULTS < 75 DPM ALARM SETPOINT.

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
2350	5856	5-12-04
2360/4393	5833/5847	3-13-04

[redacted]	HP# 6178 5214	Date: 7-1-03
[redacted]		
Counted by: (Signature)	HP#	Date:
Counted by: (Print) SEE ATTACHED		
Reviewed/Appr[redacted]	HP# 7492	Date: 7-1-03
Reviewed/Approved by: (Print) [redacted]		

ML-9620

RSDS# 03-TF-0154

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

See attached results

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

See attached results

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

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G BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2 and 3

RSDS# 03-TF-0154 RCT: DJH RCT: JKP

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:			Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	1584	cm2	Surface Eff:			Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/27/03	7:42	14	300	15	
SRC CHECK	5856	6178	5148	2		6/27/03	8:34	2104	60	11624	
SRC CHECK	5856	6178	5148	2		6/27/03	8:36	2084	60	11514	
SRC CHECK	5856	6178	5148	2		6/27/03	8:37	1984	60	10961	
SRC CHECK	5856	6178	5148	2		6/27/03	8:39	2064	60	11403	
U-1 01	5856	6178	5148	2	1	6/27/03	8:49	6	60	33	
U-1 02	5856	6178	5148	2	2	6/27/03	8:51	1	60	6	
U-1 03	5856	6178	5148	2	3	6/27/03	8:52	2	60	11	
U-1 04	5856	6178	5148	2	4	6/27/03	8:54	17	60	94	
U-1 05	5856	6178	5148	2	5	6/27/03	8:56	3	60	17	
U-1 06	5856	6178	5148	2	6	6/27/03	8:57	3	60	17	
U-1 07	5856	6178	5148	2	7	6/27/03	8:58	3	60	17	
U-1 08	5856	6178	5148	2	8	6/27/03	9:00	0	60	0	
U-1 09	5856	6178	5148	2	9	6/27/03	9:01	5	60	28	
U-1 10	5856	6178	5148	2	10	6/27/03	9:02	5	60	28	
U-1 11	5856	6178	5148	2	11	6/27/03	9:03	3	60	17	
U-1 12	5856	6178	5148	2	12	6/27/03	9:05	6	60	33	
U-1 13	5856	6178	5148	2	13	6/27/03	9:06	5	60	28	
U-1 14	5856	6178	5148	2	14	6/27/03	9:07	7	60	39	
U-1 15	5856	6178	5148	2	15	6/27/03	9:09	5	60	28	
U-1 16	5856	6178	5148	2	16	6/27/03	9:10	9	60	50	
U-1 17	5856	6178	5148	2	17	6/27/03	9:11	8	60	44	
U-1 18	5856	6178	5148	2	18	6/27/03	9:13	7	60	39	

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G BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2 and 3

RSDS# 03-TF-0154 RCT: DJH RCT: SKP

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-1 19	5856	6178	5148	2	19	6/27/03	9:14	3	60	17
U-1 20	5856	6178	5148	2	20	6/27/03	9:16	0	60	0
QCU-1 04	5856	6178	5148	2		6/27/03	9:21	13	60	72
QCU-1 08	5856	6178	5148	2		6/27/03	9:23	2	60	11
U-2 01	5856	6178	5148	2	21	6/27/03	9:26	5	60	28
U-2 02	5856	6178	5148	2	22	6/27/03	9:27	7	60	39
U-2 03	5856	6178	5148	2	23	6/27/03	9:28	6	60	33
U-2 04	5856	6178	5148	2	24	6/27/03	9:30	8	60	44
U-2 05	5856	6178	5148	2	25	6/27/03	9:31	2	60	11
U-2 06	5856	6178	5148	2	26	6/27/03	9:33	2	60	11
U-2 07	5856	6178	5148	2	27	6/27/03	9:34	3	60	17
U-2 08	5856	6178	5148	2	28	6/27/03	9:35	2	60	11
U-2 09	5856	6178	5148	2	29	6/27/03	9:39	5	60	28
U-2 10	5856	6178	5148	2	30	6/27/03	9:41	7	60	39
U-2 11	5856	6178	5148	2	31	6/27/03	9:42	3	60	17
U-2 12	5856	6178	5148	2	32	6/27/03	9:44	3	60	17
U-2 13	5856	6178	5148	2	33	6/27/03	9:46	3	60	17
U-2 14	5856	6178	5148	2	34	6/27/03	9:47	3	60	17
U-2 15	5856	6178	5148	2	35	6/27/03	9:49	2	60	11
U-2 16	5856	6178	5148	2	36	6/27/03	9:50	5	60	28
U-2 17	5856	6178	5148	2	37	6/27/03	9:51	4	60	22
U-2 18	5856	6178	5148	2	38	6/27/03	9:53	6	60	33
U-2 19	5856	6178	5148	2	39	6/27/03	9:54	7	60	39
U-2 20	5856	6178	5148	2	40	6/27/03	9:55	1	60	6
QCU-2 04	5856	6178	5148	2		6/27/03	9:58	5	60	28

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G BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2 and 3

RSDS# 03-TF-0154 RCT: DGH RCT: JKK

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
QCU-2 20	5856	6178	5148	2		6/27/03	10:00	3	60	17
U-3 01	5856	6178	5148	2	41	6/27/03	10:02	5	60	28
U-3 02	5856	6178	5148	2	42	6/27/03	10:03	5	60	28
U-3 03	5856	6178	5148	2	43	6/27/03	10:05	5	60	28
U-3 04	5856	6178	5148	2	44	6/27/03	10:06	8	60	44
U-3 05	5856	6178	5148	2	45	6/27/03	10:07	7	60	39
U-3 06	5856	6178	5148	2	46	6/27/03	10:09	3	60	17
U-3 07	5856	6178	5148	2	47	6/27/03	10:10	5	60	28
U-3 08	5856	6178	5148	2	48	6/27/03	10:11	5	60	28
U-3 09	5856	6178	5148	2	49	6/27/03	10:12	1	60	6
U-3 10	5856	6178	5148	2	50	6/27/03	10:14	2	60	11
U-3 11	5856	6178	5148	2	51	6/27/03	10:15	4	60	22
U-3 12	5856	6178	5148	2	52	6/27/03	10:16	4	60	22
U-3 13	5856	6178	5148	2	53	6/27/03	10:18	2	60	11
U-3 14	5856	6178	5148	2	54	6/27/03	10:19	8	60	44
U-3 15	5856	6178	5148	2	55	6/27/03	10:20	4	60	22
U-3 16	5856	6178	5148	2	56	6/27/03	10:22	7	60	39
U-3 17	5856	6178	5148	2	57	6/27/03	10:23	5	60	28
U-3 18	5856	6178	5148	2	58	6/27/03	10:24	2	60	11
U-3 19	5856	6178	5148	2	59	6/27/03	10:26	10	60	55
U-3 20	5856	6178	5148	2	60	6/27/03	10:27	5	60	28
QCU-3 09	5856	6178	5148	2		6/27/03	10:29	2	60	11
QCU-3 19	5856	6178	5148	2		6/27/03	10:31	6	60	33

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G-BLDG CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0154 RCT: DJH RCT: SKB

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-1 01	5833	5214	5847	1	06/27/2003	220	60	520
U-1 02	5833	5214	5847	2	06/27/2003	189	60	365
U-1 03	5833	5214	5847	3	06/27/2003	176	60	300
U-1 04	5833	5214	5847	4	06/27/2003	206	60	450
U-1 05	5833	5214	5847	5	06/27/2003	187	60	355
U-1 06	5833	5214	5847	6	06/27/2003	181	60	325
U-1 07	5833	5214	5847	7	06/27/2003	195	60	395
U-1 08	5833	5214	5847	8	06/27/2003	189	60	365
U-1 09	5833	5214	5847	9	06/27/2003	181	60	325
U-1 10	5833	5214	5847	10	06/27/2003	153	60	185
U-1 11	5833	5214	5847	11	06/27/2003	151	60	175
U-1 12	5833	5214	5847	12	06/27/2003	192	60	380
U-1 13	5833	5214	5847	13	06/27/2003	187	60	355
U-1 14	5833	5214	5847	14	06/27/2003	153	60	185
U-1 15	5833	5214	5847	15	06/27/2003	178	60	310
U-1 16	5833	5214	5847	16	06/27/2003	188	60	360
U-1 17	5833	5214	5847	17	06/27/2003	208	60	460
U-1 18	5833	5214	5847	18	06/27/2003	222	60	530
U-1 19	5833	5214	5847	19	06/27/2003	143	60	135
U-1 20	5833	5214	5847	20	06/27/2003	158	60	210
QC 04	5833	5214	5847		06/27/2003	297	60	905
QC 08	5833	5214	5847		06/27/2003	197	60	405
BETA BACKGROUND (CPM) FOR 6-27-2003 WAS---------->								116

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G-BLDG CHARACTERIZATION BETA SURVEY UNIT 2

RSDS# 03-TF-0154 RCT: DJA RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-2 01	5833	5214	5847	21	06/27/2003	228	60	560
U-2 02	5833	5214	5847	22	06/27/2003	201	60	425
U-2 03	5833	5214	5847	23	06/27/2003	206	60	450
U-2 04	5833	5214	5847	24	06/27/2003	203	60	435
U-2 05	5833	5214	5847	25	06/27/2003	180	60	320
U-2 06	5833	5214	5847	26	06/27/2003	238	60	610
U-2 07	5833	5214	5847	27	06/27/2003	218	60	510
U-2 08	5833	5214	5847	28	06/27/2003	166	60	250
U-2 09	5833	5214	5847	29	06/27/2003	177	60	305
U-2 10	5833	5214	5847	30	06/27/2003	188	60	360
U-2 11	5833	5214	5847	31	06/27/2003	161	60	225
U-2 12	5833	5214	5847	32	06/27/2003	189	60	365
U-2 13	5833	5214	5847	33	06/27/2003	158	60	210
U-2 14	5833	5214	5847	34	06/27/2003	195	60	395
U-2 15	5833	5214	5847	35	06/27/2003	186	60	350
U-2 16	5833	5214	5847	36	06/27/2003	211	60	475
U-2 17	5833	5214	5847	37	06/27/2003	174	60	290
U-2 18	5833	5214	5847	38	06/27/2003	192	60	380
U-2 19	5833	5214	5847	39	06/27/2003	199	60	415
U-2 20	5833	5214	5847	40	06/27/2003	190	60	370
QC 04	5833	5214	5847		06/27/2003	176	60	300
QC 20	5833	5214	5847		06/27/2003	181	60	325
BETA BACKGROUND (CPM) FOR 6-27-2003 WAS---------->								116

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G-BLDG CHARACTERIZATION BETA SURVEY UNIT 3

RSDS# 03-TF-0154 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-3 01	5833	5214	5847	41	06/27/2003	178	60	310
U-3 02	5833	5214	5847	42	06/27/2003	178	60	310
U-3 03	5833	5214	5847	43	06/27/2003	236	60	600
U-3 04	5833	5214	5847	44	06/27/2003	203	60	435
U-3 05	5833	5214	5847	45	06/27/2003	206	60	450
U-3 06	5833	5214	5847	46	06/27/2003	192	60	380
U-3 07	5833	5214	5847	47	06/27/2003	195	60	395
U-3 08	5833	5214	5847	48	06/27/2003	185	60	345
U-3 09	5833	5214	5847	49	06/27/2003	180	60	320
U-3 10	5833	5214	5847	50	06/27/2003	170	60	270
U-3 11	5833	5214	5847	51	06/27/2003	181	60	325
U-3 12	5833	5214	5847	52	06/27/2003	193	60	385
U-3 13	5833	5214	5847	53	06/27/2003	227	60	555
U-3 14	5833	5214	5847	54	06/27/2003	212	60	480
U-3 15	5833	5214	5847	55	06/27/2003	187	60	355
U-3 16	5833	5214	5847	56	06/27/2003	227	60	555
U-3 17	5833	5214	5847	57	06/27/2003	212	60	480
U-3 18	5833	5214	5847	58	06/27/2003	218	60	510
U-3 19	5833	5214	5847	59	06/27/2003	188	60	360
U-3 20	5833	5214	5847	60	06/27/2003	171	60	275
QC 09	5833	5214	5847		06/27/2003	190	60	370
QC 19	5833	5214	5847		06/27/2003	210	60	470
BETA BACKGROUND (CPM) FOR 6-27-2003 WAS---------->								116

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR002
Batch Ended: 6/30/03 8:49
Cal. Due Date: 5/1/05
Serial Number: 2696643

Batch ID: 03-TF-0154 Harvey-60 BSB

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.49	2.07		0.00	1.44	
A2	2	0.00	1.92		0.54	2.14	
A3	3	0.00	2.26		2.28	2.62	
A4	4	0.00	1.98		0.00	1.35	
B1	5	0.00	2.03		5.39	3.22	
B2	6	0.00	2.15		5.80	3.28	
B3	7	0.00	2.24		8.08	3.62	
B4	8	0.50	2.13		0.00	1.38	
C1	9	0.00	2.11		8.28	3.47	
C2	10	0.00	1.85		3.58	2.56	
C3	11	0.00	2.14		0.79	2.27	
C4	12	1.36	2.06		3.70	2.91	
D1	13	3.35	2.89		3.10	3.51	
D2	14	0.00	2.22		4.86	2.73	
D3	15	2.95	3.12		6.76	3.53	
D4	16	0.85	2.32		6.07	3.29	
B1	17	1.91	2.01		3.92	2.95	
B2	18	1.09	2.14		4.45	3.05	
B3	19	1.15	2.19		1.19	1.98	
B4	20	0.50	2.15		1.43	2.21	
C1	21	1.05	2.08		5.69	3.01	
C2	22	0.00	1.82		0.24	1.68	
C3	23	3.48	2.98		2.96	2.87	
C4	24	0.00	2.02		0.00	1.78	
D1	25	0.00	2.12		4.68	3.74	
D2	26	0.20	2.20		2.33	2.13	
D3	27	5.06	3.78		7.92	3.77	

DJH DJH

DJH 7-1-03

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR002
Batch Ended: 6/30/03 8:49
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: 03-TP-0154 Harvey-60 BSB

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
D4	28	3.00	3.12		0.00	1.84	
B1	29	5.74	3.39		4.85	3.22	
B2	30	0.00	2.13		3.39	2.80	
B3	31	0.00	2.20		2.69	2.40	
B4	32	0.00	2.17		4.01	2.81	
C1	33	4.89	3.43		5.34	3.01	
C2	34	6.84	3.61		3.03	2.56	
C3	35	0.00	2.16		3.27	2.87	
C4	36	0.00	2.05		2.68	2.67	
D1	37	0.00	2.05		0.00	2.07	
D2	38	0.20	2.20		2.33	2.13	
D3	39	2.93	3.15		11.98	4.42	
D4	40	0.85	2.28		2.43	2.52	
B1	41	0.00	2.05		7.95	3.71	
B2	42	0.00	2.09		0.00	1.85	
B3	43	3.24	3.04		2.38	2.39	
B4	44	0.00	2.13		0.00	1.37	
C1	45	0.00	2.06		4.66	2.75	
C2	46	3.29	2.56		1.08	2.01	
C3	47	0.00	2.14		0.79	2.27	
C4	48	5.27	3.44		1.15	2.41	
D1	49	3.35	2.91		5.64	3.95	
D2	50	2.24	2.98		0.00	1.29	
D3	51	2.95	3.10		2.85	2.69	
D4	52	0.85	2.28		2.43	2.52	
B1	53	0.00	1.98		1.54	2.32	
B2	54	1.10	2.08		0.00	1.40	
B3	55	1.14	2.23		6.58	3.36	
B4	56	0.50	2.14		0.21	1.84	
C1	57	1.05	2.03		2.07	2.15	

DJH DJH

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR002
Batch Ended: 6/30/03 8:49
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: 03-TF-0154 Harvey-60 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C2	58	1.50	1.88		5.67	3.01	
C3	59	0.00	2.15		2.03	2.59	
C4	60	0.00	2.06		3.82	2.91	

DJH DJH

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DJH 7-1-03

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	4.88
Region B:	2.0 -	18.6	0	0.0	4.84
Region C:	40.0 -	2000	0	0.0	12.58

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0154 HARVEY-60 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
Spectrum Data Drive & Path: c:\data

BJBrown

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	4.88	4.84	0	B	476.90		0.00	12.58
0	2.00	587.64	551.27	0		467.00	1336.01	128.24	4.24
1	2.00	0.12	0.09	0		484.22	0.26	7.68	0.00
2	2.00	1.62	1.66	0		385.94	4.16	9.96	1.42
3	2.00	2.96	2.22	0		465.88	6.73	9.57	0.00
4	2.00	2.95	2.99	0		569.02	6.04	8.62	0.00
5	2.00	0.17	0.00	0		582.84	0.35	7.04	0.00
6	2.00	2.62	2.17	0		440.84	6.17	9.73	0.00
7	2.00	0.00	0.00	0		393.41	0.00	0.00	0.00
8	2.00	0.00	0.00	0		388.90	0.00	0.00	0.00
9	2.00	0.12	0.16	0		528.40	0.25	7.35	0.00
10	2.00	1.11	1.15	0		371.39	2.95	9.93	0.00
11	2.00	1.12	0.88	0		600.31	2.23	7.46	0.00
12	2.00	3.39	3.33	0		505.92	7.35	9.34	0.00
13	2.00	2.26	1.55	0		380.15	5.90	10.52	0.00
14	2.00	0.00	0.00	0		365.53	0.00	0.00	0.00
15	2.00	0.12	0.16	0		557.83	0.24	7.16	0.00
16	2.00	1.12	1.16	0		341.69	3.18	10.62	0.00
17	2.00	2.61	2.65	0		548.72	5.44	8.60	4.42
18	2.00	2.12	1.71	0		421.91	5.14	9.70	0.00
19	2.00	2.60	2.07	0		488.62	5.73	9.09	0.00
20	2.00	0.00	0.00	0		492.82	0.00	0.00	0.00
21	2.00	3.89	3.93	0		594.58	7.80	8.88	0.00
22	2.00	2.12	1.68	0		438.28	5.01	9.47	0.00
23	2.00	0.85	0.58	0		492.96	1.86	8.04	0.00
24	2.00	0.00	0.00	0		356.68	0.00	0.00	3.92
25	2.00	2.55	2.53	0		485.87	5.65	9.10	0.00
26	2.00	1.12	0.44	0		370.00	2.98	9.96	0.00
27	2.00	0.00	0.00	0		512.12	0.00	0.00	3.42
28	2.00	1.62	1.31	0		367.74	4.33	10.37	0.42
29	2.00	4.62	4.68	0		400.58	11.57	11.50	0.00
30	2.00	1.12	0.00	0		569.62	2.29	7.66	0.00
31	2.00	2.62	2.66	0		618.33	5.15	8.11	0.00
32	2.00	0.00	0.00	0		423.31	0.00	0.00	0.00
33	2.00	3.12	3.16	0		611.96	6.16	8.39	0.00
34	2.00	0.00	0.00	0		466.24	0.00	0.00	0.00

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S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
35	2.00	0.12	0.16	0		418.12	0.28	8.44	0.00
36	2.00	1.62	1.21	0		418.23	3.94	9.44	0.00
37	2.00	0.00	0.00	0		404.96	0.00	0.00	0.92
38	2.00	0.62	0.66	0		527.85	1.31	7.65	0.00
39	2.00	0.62	0.66	0		406.16	1.53	8.94	1.42
40	2.00	0.12	0.16	0		448.15	0.27	8.07	0.00
41	2.00	2.62	2.48	0		546.14	5.47	8.62	0.00
42	2.00	3.12	2.93	0		512.13	6.72	9.15	0.00
43	2.00	0.62	0.32	0		634.05	1.20	6.99	0.00
44	2.00	2.12	2.16	0		530.88	4.49	8.47	0.00
45	2.00	0.00	0.02	0		451.98	0.00	0.00	0.00
46	2.00	0.12	0.00	0		394.33	0.30	8.75	0.00
47	2.00	0.62	0.16	0		505.47	1.34	7.81	0.00
48	2.00	0.12	0.16	0		333.45	0.34	10.03	0.00
49	2.00	0.00	0.00	0		536.00	0.00	0.00	0.00
50	2.00	0.91	0.95	0		626.01	1.77	7.19	0.00
51	2.00	0.62	0.53	0		517.01	1.32	7.73	0.00
52	2.00	0.62	0.34	0		350.31	1.72	10.03	0.00
53	2.00	0.00	0.00	0		383.64	0.00	0.00	0.00
54	2.00	0.00	0.00	0		508.71	0.00	0.00	0.00
55	2.00	0.00	0.00	0		519.54	0.00	0.00	0.00
56	2.00	0.40	0.05	0		388.54	1.04	9.07	0.00
57	2.00	6.12	5.66	0		537.72	12.89	10.36	0.00
58	2.00	1.66	1.54	0		535.68	3.50	8.19	0.00
59	2.00	2.12	1.66	0		519.15	4.53	8.56	3.92
60	2.00	0.00	0.00	0		455.95	0.00	0.00	0.00
~~10 MISSING TUBE(S)~~									
~~71~~	~~2.00~~	~~0.62~~	~~0.66~~	~~0~~		~~581.68~~	~~1.25~~	~~7.30~~	~~0.00~~
~~72~~	~~2.00~~	~~580.15~~	~~531.19~~	~~0~~		~~476.83~~	~~1258.81~~	~~121.73~~	~~0.00~~

Delete 7/1/03 [illegible]

[illegible] 7-1-03

03-TF-0154 13 of 14

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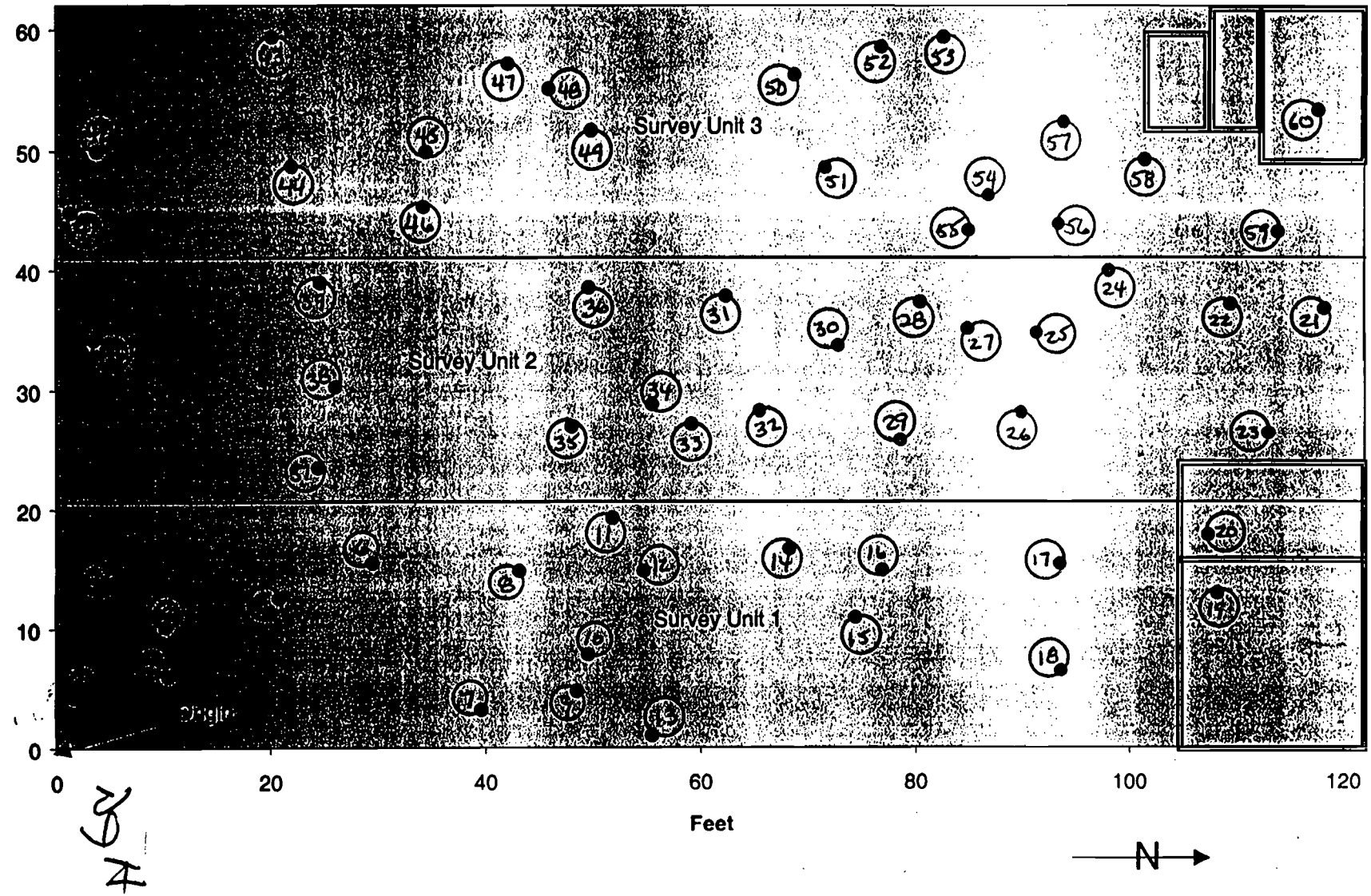
Attachment 2

Building G Survey Units 1,2,3



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) G BUILDING	SURVEY NO. 03-TF-0155
PURPOSE: MASSIM - SURVEY PLAN G-01 UNIT 4 (REMAINING INTERIOR SURFACES) WALLS AND OVERHEAD	RWP NO. N/A
	DATE: 06-27-03
	TIME: 1600

MAP/DRAWING

SEE ATTACHED RESULTS AND DRAWINGS

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

[redacted]

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5856	5-12-04
2360/4393	5833/5847	3-13-04
	N/A	

[redacted]	HP# 6178 5214	Date: 7-1-03
[redacted]		
Counted by: (Signature)	HP#	Date:
Counted by: (Print) SEE ATTACHED		
Reviewed/Approv[redacted]	HP# 7492	Date: 7-1-03
Reviewed/Approved by: (Print) [redacted]		

ML-9620

RSDS# 03-TF-0155

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
1				UNIT 4
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				UNIT 4
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	Comme
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
22				
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57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
99				
70				

See attached results

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.

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G BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 4

RSDS# 03-TF-0155 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	131	cm2	Surface Eff:			Detector # :	2
43-37 BKG:	[illegible]	EFF:	0.2	PROBE AREA:	384	cm2	Surface Eff:			Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/27/03	7:42	14	300	15	
SRC CHECK	5856	6178	5148	2		6/27/03	8:34	2104	60	11624	
SRC CHECK	5856	6178	5148	2		6/27/03	8:36	2084	60	11514	
SRC CHECK	5856	6178	5148	2		6/27/03	8:37	1984	60	10961	
SRC CHECK	5856	6178	5148	2		6/27/03	8:39	2064	60	11403	
U-4 01	5856	6178	5148	2	1	6/27/03	12:47	7	60	39	
U-4 02	5856	6178	5148	2	2	6/27/03	12:50	2	60	11	
U-4 03	5856	6178	5148	2	3	6/27/03	12:54	4	60	22	
U-4 04	5856	6178	5148	2	4	6/27/03	12:57	3	60	17	
U-4 05	5856	6178	5148	2	5	6/27/03	13:01	3	60	17	
U-4 06	5856	6178	5148	2	6	6/27/03	13:05	6	60	33	
U-4 07	5856	6178	5148	2	7	6/27/03	13:09	4	60	22	
U-4 08	5856	6178	5148	2	8	6/27/03	13:15	1	60	6	
U-4 09	5856	6178	5148	2	9	6/27/03	13:16	3	60	17	
U-4 10	5856	6178	5148	2	10	6/27/03	13:21	3	60	17	
U-4 11	5856	6178	5148	2	11	6/27/03	13:25	6	60	33	
U-4 12	5856	6178	5148	2	12	6/27/03	13:32	4	60	22	
U-4 13	5856	6178	5148	2	13	6/27/03	13:35	3	60	17	
U-4 14	5856	6178	5148	2	14	6/27/03	13:40	5	60	28	
U-4 15	5856	6178	5148	2	15	6/27/03	13:44	4	60	22	
U-4 16	5856	6178	5148	2	16	6/27/03	13:48	4	60	22	
U-4 17	5856	6178	5148	2	17	6/27/03	13:52	8	60	44	
U-4 18	5856	6178	5148	2	18	6/27/03	14:03	3	60	17	

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G BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 4

RSDS# 03-TF-0155 RCT: DJH RCT: SK

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-4 19	5856	6178	5148	2	19	6/27/03	14:09	9	60	50
U-4 20	5856	6178	5148	2	20	6/27/03	14:12	9	60	50
QCU-4 08	5856	6178	5148	2		6/27/03	14:15	5	60	28
QCU-4 20	5856	6178	5148	2		6/27/03	14:17	4	60	22

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G-BLDG CHARACTERIZATION BETA SURVEY UNIT 4

RSDS# 03-TF-0155 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-4 01	5833	5214	5847	1	06/27/2003	222	60	530
U-4 02	5833	5214	5847	2	06/27/2003	178	60	310
U-4 03	5833	5214	5847	3	06/27/2003	147	60	155
U-4 04	5833	5214	5847	4	06/27/2003	176	60	300
U-4 05	5833	5214	5847	5	06/27/2003	216	60	500
U-4 06	5833	5214	5847	6	06/27/2003	197	60	405
U-4 07	5833	5214	5847	7	06/27/2003	221	60	525
U-4 08	5833	5214	5847	8	06/27/2003	180	60	320
U-4 09	5833	5214	5847	9	06/27/2003	199	60	415
U-4 10	5833	5214	5847	10	06/27/2003	167	60	255
U-4 11	5833	5214	5847	11	06/27/2003	233	60	585
U-4 12	5833	5214	5847	12	06/27/2003	139	60	115
U-4 13	5833	5214	5847	13	06/27/2003	190	60	370
U-4 14	5833	5214	5847	14	06/27/2003	167	60	255
U-4 15	5833	5214	5847	15	06/27/2003	158	60	210
U-4 16	5833	5214	5847	16	06/27/2003	162	60	230
U-4 17	5833	5214	5847	17	06/27/2003	182	60	330
U-4 18	5833	5214	5847	18	06/27/2003	153	60	185
U-4 19	5833	5214	5847	19	06/27/2003	266	60	750
U-4 20	5833	5214	5847	20	06/27/2003	163	60	235
QC 08	5833	5214	5847		06/27/2003	192	60	380
QC 20	5833	5214	5847		06/27/2003	157	60	205
BETA BACKGROUND (CPM) FOR 6-27-2003 WAS---------->								116

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1 . 0

Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200306300707	**Count Date:**	6/30/2003
Group:	J	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0155 HARVEY-20 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

Background (cpm)				Efficiency (%)				Spillover (%)			
Alpha Rate:	0.25	±	0.28	**Alpha:**	35.30	±	0.11	**Alpha to Beta:**	9.38	±	0.00
Beta Rate:	0.92	±	0.66	**Beta:**	44.94	±	0.12	**Beta to Alpha:**	0.85	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	55	0.00	0.80	0.83	2.56
2	83	3.27	2.79	0.59	2.57
3	64	0.00	0.80	0.83	2.56
4	31	0.00	0.80	2.11	2.96
5	37	0.00	0.80	0.00	1.47
6	13	1.26	2.05	0.00	2.09
7	33	1.23	2.05	1.99	2.97
8	15	0.00	0.80	3.39	3.31
9	67	0.00	0.80	3.39	3.31
10	72	1.24	2.05	0.71	2.57
11	64	0.00	0.80	0.00	1.47
12	44	9.24	4.30	7.91	4.46
13	58	0.00	0.80	0.83	2.56
14	75	1.23	2.05	1.99	2.97
15	92	1.19	2.05	4.55	3.63
16	96	1.23	2.05	1.99	2.97
17	83	0.00	0.80	2.11	2.96
18	70	0.00	0.80	0.00	2.09
19	22	0.00	0.80	2.11	2.96
20	16	5.29	3.37	0.47	2.57

DJH DJH

Batch ID: 03-TF-0155 HARVEY-20 BSB

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DJH 7-1-03

Protocol #: 4 PW H3 #403727 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	7.48
Region B:	2.0	- 18.6	0	0.0	7.19
Region C:	40.0	- 2000	0	0.0	13.55

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0155 HARVEY-20 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT4.dat
Count Data Filename: C:\DATA\SDATA4.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.48	7.19	13.55	621.13	3	B		0.00
0	2.00	401.04	389.78	0.00	536.69	0		871.83	89.15
1	2.00	1.15	1.06	0.00	657.28	0		2.27	8.86
2	2.00	0.27	0.55	0.00	682.69	0		0.51	8.29
3	2.00	3.21	3.07	3.45	679.13	0		6.20	9.56
4	2.00	11.02	11.31	7.95	554.10	0		23.59	13.65
5	2.00	0.55	0.83	3.95	521.18	0		1.21	9.66
6	2.00	4.02	3.44	1.21	607.08	0		8.23	10.46
7	2.00	3.41	3.04	0.00	537.23	0		7.41	10.83
8	2.00	6.09	6.33	0.00	477.21	0		14.27	12.89
9	2.00	0.00	0.00	0.00	631.33	0		0.00	0.00
10	2.00	17.62	16.49	6.45	433.72	0		43.75	18.39
11	2.00	0.00	0.00	0.00	688.80	0		0.00	0.00
12	2.00	0.00	0.00	0.00	676.80	0		0.00	0.00
13	2.00	0.00	0.06	0.00	545.01	0		0.00	0.00
14	2.00	0.83	0.76	0.00	647.81	0		1.65	8.78
15	2.00	0.00	0.00	1.45	421.78	0		0.00	0.00
16	2.00	3.02	3.31	0.95	548.18	0		6.50	10.55
17	2.00	0.00	0.00	0.00	661.34	0		0.00	0.00
18	2.00	0.00	0.00	2.95	622.13	0		0.00	0.00
19	2.00	0.00	0.00	0.00	595.68	0		0.00	0.00
20	2.00	1.56	1.85	0.00	462.59	0		3.72	10.96

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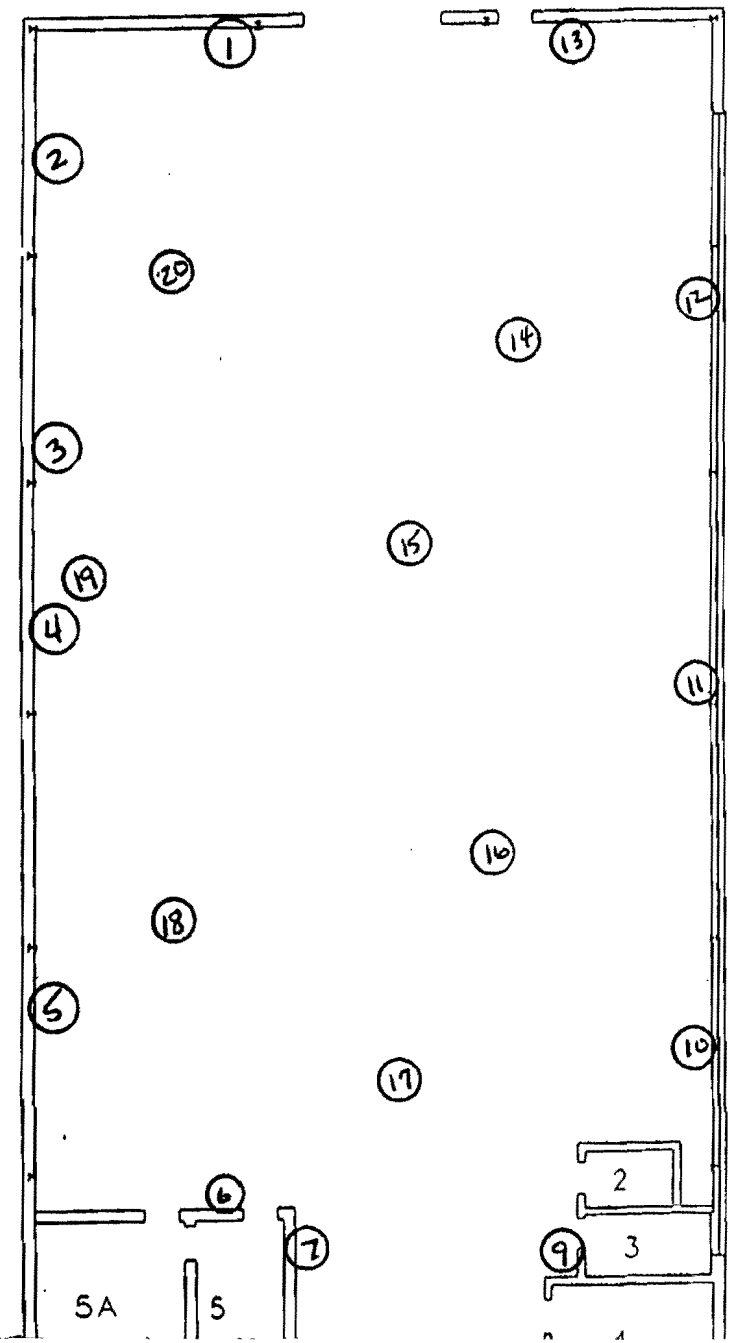

G BLDG
FIRST FLOOR

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) G BUILDING	SURVEY NO. 03-TF-0157
PURPOSE: MARSSIM SURVEY VENTILATION AND DRAINS PER SURVEY PLAN G-01	RWP NO. N/A
	DATE: 06-28-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED RESULTS 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	3-13-04

N/A

[redacted] HP# 6178 5214 Date: 7-1-03

[redacted]

Counted by: (Signature) HP# Date:

Counted by: (Print) SEE ATTACHED

Reviewed/Approved [redacted] HP# 7492 Date: 7-1-03

Reviewed/Approved by: (Print) [redacted]

ML-9620

RSDS# 03-TF-0157

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
1				EXHAUST FAN
2				HEATER
3				HEATER
4				HEATER
5				EXHAUST TUBE
6				FAN
7				HEATER
8				HEATER
9				FLOOR DRAIN
10				FLOOR DRAIN
11				FLOOR DRAIN
12				FLOOR DRAIN
13				FLOOR DRAIN
14				
15				
16				
17				
18				
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23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

See attached results

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comm
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
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67				
68				
99				
70				

See attached results

COMMENTS: SEDIMENT SAMPLE G-01 COMPOSITE FROM #10 & #11

SEDIMENT SAMPLE G-02 COMPOSITE FROM #12 & #13

NOTES:

1. See MD-60036 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.

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G-BLDG CHARACTERIZATION BETA and ALPHA SURVEY VENTILATION and DRAINS

RSDS# 03-TF-0157 RCT: [illegible] RCT: [illegible]

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
ex. fan 1	5833	5214	5847	1	06/28/2003	147	60	180	0	60	-10
heater 2	5833	5214	5847	2	06/28/2003	163	60	260	2	60	10
heater 3	5833	5214	5847	3	06/28/2003	144	60	165	1	60	0
heater 4	5833	5214	5847	4	06/28/2003	151	60	200	3	60	20
ex. tube 5	5833	5214	5847	5	06/28/2003	178	60	335	1	60	0
fan 6	5833	5214	5847	6	06/28/2003	218	60	535	6	60	50
heater 7	5833	5214	5847	7	06/28/2003	152	60	205	4	60	30
heater 8	5833	5214	5847	8	06/28/2003	149	60	190	6	60	50
flr. drain 9	5833	5214	5847	9	06/28/2003	190	60	395	3	60	20
flr. drain10	5833	5214	5847	10	06/28/2003	139	60	140	5	60	40
flr. drain11	5833	5214	5847	11	06/28/2003	128	60	85	5	60	40
flr. drain12	5833	5214	5847	12	06/28/2003	138	60	135	4	60	30
flr. drain13	5833	5214	5847	13	06/28/2003	146	60	175	4	60	30
BETA BACKGROUND (CPM) FOR 6-28-2003 WAS---------->								111			
ALPHA BACKGROUND (CPM) FOR 6-28-2003 WAS---------->								1			

89 2 15-9

Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200306300708	**Count Date:**	6/30/2003
Group:	D	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0157 HARVEY-13 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

Background (cpm)				Efficiency (%)				Spillover (%)			
Alpha Rate:	0.25	±	0.28	Alpha:	35.30	±	0.11	Alpha to Beta:	9.38	±	0.00
Beta Rate:	0.92	±	0.66	Beta:	44.94	±	0.12	Beta to Alpha:	0.85	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	26	1.24	2.05	0.71	2.57
2	48	0.00	0.80	0.83	2.56
3	14	1.24	2.05	0.71	2.57
4	32	1.23	2.05	1.99	2.97
5	38	0.00	0.80	3.39	3.31
6	60	7.30	3.86	1.63	2.98
7	95	1.26	2.05	0.00	2.09
8	7	0.00	0.80	0.00	1.47
9	23	0.00	0.80	0.00	2.09
10	91	1.16	2.05	7.11	4.20
11	88	1.19	2.05	4.55	3.63
12	4	0.00	0.80	0.83	2.56
13	54	1.21	2.05	3.27	3.32

DJH DJH

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	6.38
Region B:	2.0	- 18.6	0	0.0	6.25
Region C:	40.0	- 2000	0	0.0	15.00

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
01-TF-0157 HARVEY-13 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

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	6.38	6.25	15.00	535.92	2	B		0.00
0	2.00	619.27	599.89	0.00	537.61	0		1345.17	124.95
1	2.00	0.00	0.00	0.00	313.31	0		0.00	0.00
2	2.00	0.00	0.00	0.00	296.83	0		0.00	0.00
3	2.00	0.00	0.00	0.00	438.45	0		0.00	0.00
4	2.00	0.00	0.00	0.00	277.17	0		0.00	0.00
5	2.00	0.00	0.00	0.00	403.42	0		0.00	0.00
6	2.00	0.00	0.00	0.00	192.29	0		0.00	0.00
7	2.00	0.00	0.00	0.00	422.08	0		0.00	0.00
8	2.00	0.00	0.00	0.00	556.66	0		0.00	0.00
9	2.00	0.00	0.00	0.00	612.22	0		0.00	0.00
10	2.00	0.62	0.55	0.00	560.48	0		1.33	8.67
11	2.00	0.00	0.00	0.00	414.72	0		0.00	0.00
12	2.00	0.00	0.00	0.00	269.55	0		0.00	0.00
13	2.00	0.00	0.00	0.00	343.25	0		0.00	0.00

DJH

5 of 9 GBBrown

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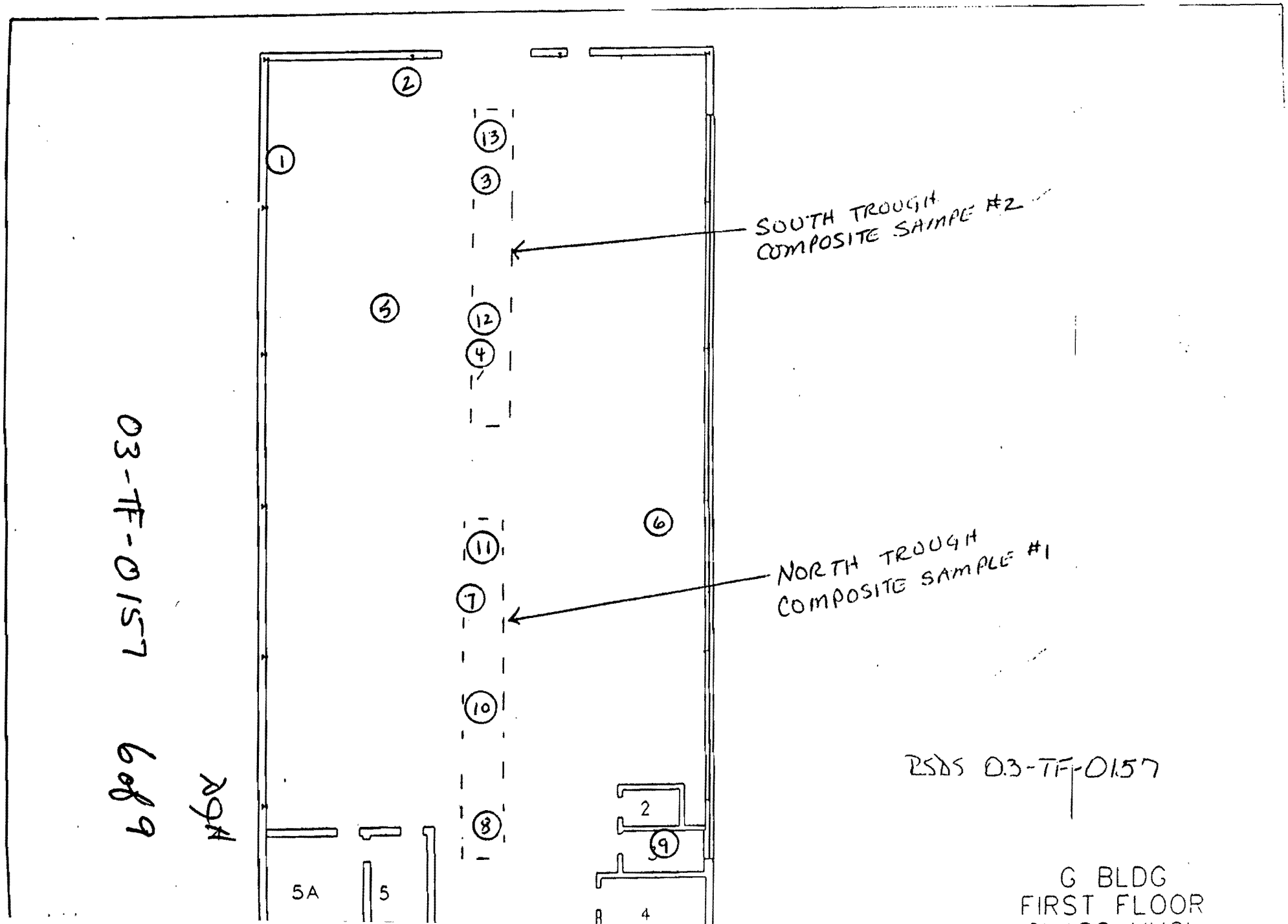

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15644
File ID: MG301148.S0
Priority: Yes

Description\Location
North Trough Bldg. G drain sample 1
Long Count

Collector: 5214
Date Received: 6/26/03
Date Collected: 6/26/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60		0.03	0.01	45,000
Cs-137		0.01	0.01	45,000
Pb-210		0.77	0.13	45,000
Ra-226		0.86	0.11	800
Ac-227 (D)		0.14	0.11	40
Th-230	*	0	1.14	800
Th-232 (D)		0.24	0.02	130
Pu-238	*	0	3.11	500
Am-241	*	0	0.01	500

Other Nuclides

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

Σ_{DOT} 0.01 nCi/g $\Sigma_{Respirator}$ 0.01

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

Σ_{DOT} 2nCi/g limit, total activity.

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

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments: Sample primarily liquid (water).

03-TF-0157 7019

Date: 6/30/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

G-SS of 68

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15645
File ID: MG500437.S0
Priority: Yes

Description\Location
South Trough Bldg. G drain sample 2
Long Count

Collector: 5214
Date Received: 6/26/03
Date Collected: 6/26/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60		0.05	0.01	45,000
Cs-137		0.03	0.01	45,000
Pb-210		1.21	0.2	45,000
Ra-226		1.03	0.16	800
Ac-227 (D)	*	0.05	0.07	40
Th-230	*	0.98	1.33	800
Th-232 (D)		0.39	0.03	130
Pu-238	*	0	4.97	500
Am-241	*	0	0.01	500

Other Nuclides

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

Σ_{DOT} 0.01 nCi/g $\Sigma_{Respirator}$ 0.02

Instrument type: High Purity Germanium

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

Σ_{DOT} 2nCi/g limit, total activity.

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

* Indicates activity < MDA. MDA used in limits calculation

Comments:

DAH

03-TF-0157 8 of 9

Date: 6/30/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

G-5668

Attachment 1

Field Sample Data Collection Sheet

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
G-01- 01	6-26-03	1020		NORTH TROUGH FLOOR DRAIN G BLDG.	D.K. Riley	6/26/03	12:45	DKR	[illegible]
G-01- 02	6-26-03	1020		SOUTH TROUGH FLOOR DRAIN G BLDG	D.K. Riley	"	"	DKR	"
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									
G-01-									

NO FURTHER ENTRIES THIS PAGE

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) G	SURVEY NO. 03-TF-0149
PURPOSE: MARSSIM SURVEY PLAN G-01 SURVEY UNIT 5	RWP NO. N/A
	DATE: 6-24-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED

COPY

* FOLLOW-UP READING TAKEN PAGE 9

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	5775/5720	9-25-03
2350	5856/5148	5-12-04
	N/A	

[redacted]

HP # 6178 5214	Date: 7-1-03 ~~6-28-03~~	[redacted]
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approve[redacted]	HP # 7492	Date: 7-1-03
Reviewed/Approved by: (Print Name [redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0149

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comment
		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-9620A (4-98)

G-BLDG CHARACTERIZATION ALPHA-BETA SURVEY UNIT 5

RSDS# 03-TF-0149 RCT: [illegible] RCT: [illegible]

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U-5 01	5775	5214	5720	1	6/24/03	273	60	572	3	60	16
U-5 02	5775	5214	5720	2	6/24/03	255	60	500	5	60	32
U-5 03	5775	5214	5720	3	6/24/03	336	60	824	3	60	16
U-5 04	5775	5214	5720	4	6/24/03	189	60	236	9	60	64
U-5 05	5775	5214	5720	5	6/24/03	243	60	452	4	60	24
U-5 06	5775	5214	5720	6	6/24/03	269	60	556	8	60	56
U-5 07	5775	5214	5720	7	6/24/03	281	60	604	11	60	80
U-5 08	5775	5214	5720	8	6/24/03	258	60	512	1	60	0
U-5 09	5775	5214	5720	9	6/24/03	347	60	868	3	60	16
U-5 10	5775	5214	5720	10	6/24/03	271	60	564	3	60	16
QC U-5 8	5775	5214	5720		6/24/03	214	60	336	4	60	24
BETA BACKGROUND (CPM) FOR 6-24-2003 WAS---------->								130			
ALPHA BACKGROUND (CPM) FOR 6-24-2003 WAS---------->								1			

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G BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 5

RSDS# 03-TF-0149 RCT: DJH RCT: JK

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/25/03	8:16	14	300	15	
SRC CHECK	5856	6178	5148	2		6/25/03	8:19	2084	60	11514	
SRC CHECK	5856	6178	5148	2		6/25/03	8:21	2133	60	11785	
SRC CHECK	5856	6178	5148	2		6/25/03	8:24	1965	60	10856	
SRC CHECK	5856	6178	5148	2		6/25/03	8:26	2170	60	11989	
U5 11	5856	6178	5148	2	11	6/25/03	12:13	14	60	77	
U5 12	5856	6178	5148	2	12	6/25/03	12:17	12	60	66	
U5 13	5856	6178	5148	2	13	6/25/03	12:28	17	60	94	
U5 14	5856	6178	5148	2	14	6/25/03	12:32	7	60	39	
U5 15	5856	6178	5148	2	15	6/25/03	12:35	4	60	22	
U5 16	5856	6178	5148	2	16	6/25/03	12:39	16	60	88	
U5 17	5856	6178	5148	2	17	6/25/03	12:42	19	60	105	
U5 18	5856	6178	5148	2	18	6/25/03	12:46	13	60	72	
U5 19	5856	6178	5148	2	19	6/25/03	12:49	18	60	99	
U5 20	5856	6178	5148	2	20	6/25/03	12:53	9	60	50	
QC 17	5856	6178	5148	2		6/25/03	12:58	16	60	88	

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G-BLDG CHARACTERIZATION BETA SURVEY UNIT 5

RSDS# 03-TF-00149 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-5 11	5775	5214	5720	11	06/25/2003	468	60	1316
U-5 12	5775	5214	5720	12	06/25/2003	442	60	1212
U-5 13	5775	5214	5720	13	06/25/2003	480	60	1364
U-5 14	5775	5214	5720	14	06/25/2003	379	60	960
U-5 15	5775	5214	5720	15	06/25/2003	204	60	260
U-5 16	5775	5214	5720	16	06/25/2003	451	60	1248
U-5 17	5775	5214	5720	17	06/25/2003	383	60	976
U-5 18	5775	5214	5720	18	06/25/2003	447	60	1232
U-5 19	5775	5214	5720	19	06/25/2003	381	60	968
U-5 20	5775	5214	5720	20	06/25/2003	366	60	908
QC 17	5775	5214	5720		06/25/2003	419	60	1120
BETA BACKGROUND FOR 6-25-2003 WAS---------->								139

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Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200306261036	**Count Date:**	6/26/2003
Group:	D	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0149 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	92	2.01	1.89	1.16	1.49
2	96	0.00	0.00	0.00	0.00
3	83	2.02	1.89	0.00	0.14
4	70	2.01	1.89	1.16	1.49
5	22	0.00	0.03	3.84	2.57
6	16	0.00	0.02	1.28	1.48
7	90	0.00	0.00	0.00	0.00
8	26	0.00	0.02	1.28	1.48
9	48	0.00	0.02	2.56	2.10
10	14	4.01	2.67	2.32	2.11
11	32	0.00	0.00	0.00	0.00
12	38	0.00	0.02	1.28	1.48
13	60	0.00	0.02	2.56	2.10
14	95	0.00	0.02	2.56	2.10
15	7	0.00	0.02	2.56	2.10
16	23	0.00	0.00	0.00	0.00
17	54	0.00	0.02	1.28	1.48
18	4	0.00	0.02	1.28	1.48
19	88	0.00	0.00	0.00	0.00
20	91	0.00	0.02	1.28	1.48

DJH DJH

RDR

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	6.33
Region B:	2.0	- 18.6	0	0.0	6.01
Region C:	40.0	- 2000	0	0.0	11.50

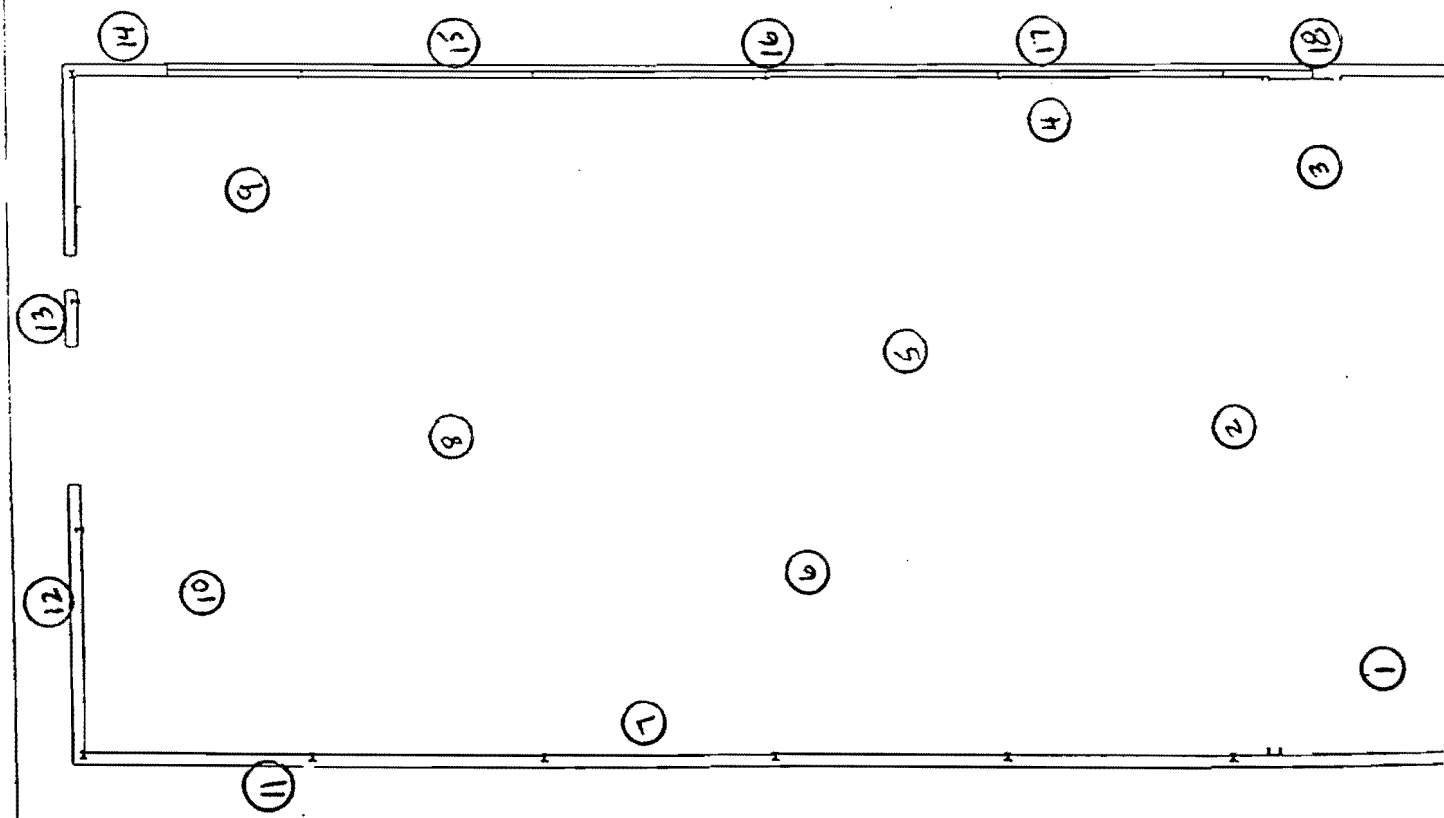
Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0149 HARVEY-20 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	6.33	6.01	11.50	646.01	1	B		0.00
0	2.00	557.59	541.01	0.00	518.72	0		1237.55	117.37
1	2.00	0.69	1.01	0.00	610.26	0		1.42	8.32
2	2.00	1.17	1.22	4.00	317.96	0		3.68	13.14
3	2.00	2.67	2.85	3.17	484.81	0		6.19	10.51
4	2.00	4.70	4.52	0.00	581.04	0		9.85	10.41
5	2.00	2.67	2.43	0.00	602.23	0		5.50	9.33
6	2.00	1.17	1.49	0.00	607.33	0		2.40	8.58
7	2.00	1.17	1.49	0.00	594.59	0		2.43	8.67
8	2.00	0.17	0.39	0.00	476.42	15		0.41	9.23
9	2.00	0.00	0.00	0.00	427.69	0		0.00	0.00
10	2.00	0.00	0.00	1.34	425.15	0		0.00	0.00
11	2.00	2.67	2.99	0.00	656.56	0		5.26	8.93
12	2.00	0.67	0.99	0.00	605.63	0		1.38	8.34
13	2.00	0.00	0.00	1.06	640.07	0		0.00	0.00
14	2.00	0.17	0.49	1.00	702.52	0		0.33	7.49
15	2.00	0.00	0.00	1.50	699.00	0		0.00	0.00
16	2.00	4.18	4.48	2.50	727.34	0		7.83	9.11
17	2.00	2.17	1.54	0.00	708.92	0		4.11	8.36
18	2.00	1.53	1.36	1.00	718.84	0		2.88	8.04
19	2.00	3.67	3.99	0.00	662.97	0		7.19	9.31
20	2.00	3.67	3.99	0.00	730.38	0		6.88	8.90

29H

RSBrown

G BLDG
ROOF



29H

03-TF-0149

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G BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 5 FOLLOW-UP

RSDS# 03-TF-0149 RCT: [illegible] RCT: _____

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 1

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	6178	5148	2		6/30/03	12:33	16	300	18
SRC CHECK	5856	6178	5148	2		6/30/03	12:35	2177	60	12028
SRC CHECK	5856	6178	5148	2		6/30/03	12:36	2048	60	11315
SRC CHECK	5856	6178	5148	2		6/30/03	12:38	2005	60	11077
SRC CHECK	5856	6178	5148	2		6/30/03	12:39	2206	60	12188
U-5 11	5856	6178	5148	2		6/30/03	13:15	13	60	72
U-5 12	5856	6178	5148	2		6/30/03	13:17	14	60	77
U-5 13	5856	6178	5148	2		6/30/03	13:18	10	60	55
U-5 14	5856	6178	5148	2		6/30/03	13:20	11	60	61
U-5 15	5856	6178	5148	2		6/30/03	13:21	7	60	39
U-5 16	5856	6178	5148	2		6/30/03	13:23	12	60	66
U-5 17	5856	6178	5148	2		6/30/03	13:26	13	60	72
U-5 18	5856	6178	5148	2		6/30/03	13:28	12	60	66
U-5 19	5856	6178	5148	2		6/30/03	13:30	10	60	55
U-5 20	5856	6178	5148	2		6/30/03	13:32	8	60	44

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Final Status Report
For
Building GW

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

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

Approved by: A. Stephen Collas / **Date:** 7-7-03

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1.0 Historical Review

Building GW was constructed in 1968, as an enclosure between "G" and "W" Buildings. At the time of construction, the building contained approximately 4900 ft^2, which included one large room and two restrooms. GW Building was originally built as a warehouse and included offices and receiving/inspection area for weapons programs.

The original GW Building was constructed with a large high-bay area on its northern end. The Foundation plans indicate that part of the floor system utilized an existing 6" slab, and that there was a 12" concrete storm sewer pipe under the building site. The storm sewer appears to be located under the building, 4' to 5' foot below the ground surface. The original building also included overhead doors on both the southern and northern elevations. There were three sets of steel sash windows near the top of the building "fronts", as constructed. A parapet wall extended above the tops of the adjacent G and W Buildings, much as it does today.

A 1979 addition was constructed in the high-bay area and was constructed of pre-cast slabs set on beams resting on six interior columns. A 1980 addition also constructed in the high bay area resulted in four smaller offices and an elevator. The remodeling projects were undertaken to convert GW Building to an "Inspection Receiving" facility and by 1984, the building footage was 9,782-ft^2.

The addition included offices, an equipment room, and a conference room. The lower level is a storage area and includes a refrigerated storage area for the massive collection of Mound employee medical related x-rays, a work area, and a supervisor's office.

Building GW 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. Storage activities have included "bonded" chemical storage and records management storage. GW Building has also housed a quality control area containing precision instrumentation that supported site advanced device production activities. Building GW is scheduled for demolition in accordance with the Miamisburg Closure Project goals.

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

2.0 Survey Objectives

The objective of this survey plan is to confirm the classification of Building GW 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 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 GW, 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 – External surfaces and Penthouse

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 results of 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.

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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 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 was collected and compared directly to the $DCGL_w$. One data point on the exterior wall was observed to be above the $DCGL_w$ (105 dpm/100cm^2 alpha). Two additional data points were observed to be just below the $DCGL_w$ (99 dpm/100cm^2 alpha). These elevated readings are believed to be the result of short-lived activity from Radon daughters and/or naturally occurring radioactive material known to be present in standard brick building material. NUREG 1507 reports the average background value in standard brick is six counts per minute alpha with a 126 cm^2 gas flow proportional probe. When adjusted for background and probe size, the highest observed alpha measurement is 72 dpm/100cm^2. To test this, the affected areas were re-surveyed. The re-survey results showed that no long-lived activity was present at these locations. The highest measured value was 77 dpm/100cm^2 and the average was 44 dpm/100cm^2 with no background correction. The data points in the remaining survey units were all 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 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	39	18.5	3.6	925	200.5	98.3
Survey Unit 2	33	13.8	3.2	385	215.3	39.3
Survey Unit 3	77	44.0	10.3	1296	750.9	177.6

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	7.09	1.49	0.81	14.59	3.15	1.39
Survey Unit 2	4.37	1.1	0.58	6.85	2.40	0.82
Survey Unit 3	4.37	0.89	0.54	5.48	2.43	0.67

The highest removable tritium activity was 25.22 dpm/100cm2 (RSDS# 03-TF-0152). The average removable tritium was 5.94 dpm/100cm2 (±1.28).

The floors and major walkways throughout the building were scanned for alpha activity. No activity was observed above the instrument alarm setpoint of 75 dpm/100cm^2 (RSDS# 03-TF-0152).

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-0156). No gross alpha, beta, or tritium activity was observed at any sediment sample location above background. The highest removable gross alpha was 8.74 dpm/100cm^2, 6.85 dpm/100cm^2 beta, and 6.67 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 580 dpm/100cm^2 beta.

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 64 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). Negative beta values occur when the measured value is below the instrument background level. These values are used for this analysis to show the true variability of the data set. 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
QC3-19	105	20.5	88	1160	68.1	1056
QC3-16	6	4.9	28	-68	16.5	-56
QC2-01	33	11.5	33	385	39.2	440
QC2-06	0	0	22	95	19.5	235
QC1-06	6	4.9	11	30	11.0	100
QC1-10	39	12.5	50	925	60.8	935
Variance (S^2)	666.8		750.3	125344		205461
Ratio			0.88			0.61
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 GW 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 GW 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 GW Survey Results

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2)
Highest Alpha Smearable Activity	03-TF-0152	Floor	7.09	20
Highest Alpha Fixed Activity	03-TF-0148	External Wall	77	100
Highest Beta Smearable Activity	03-TF-0152	Floor	14.59	1000
Highest Beta Fixed Activity	03-TF-0148	External Wall	1296	5000
Highest Tritium Smearable Activity	03-TF-0152	Floor	25.22	10,000

3.0 Attachments and Enclosures

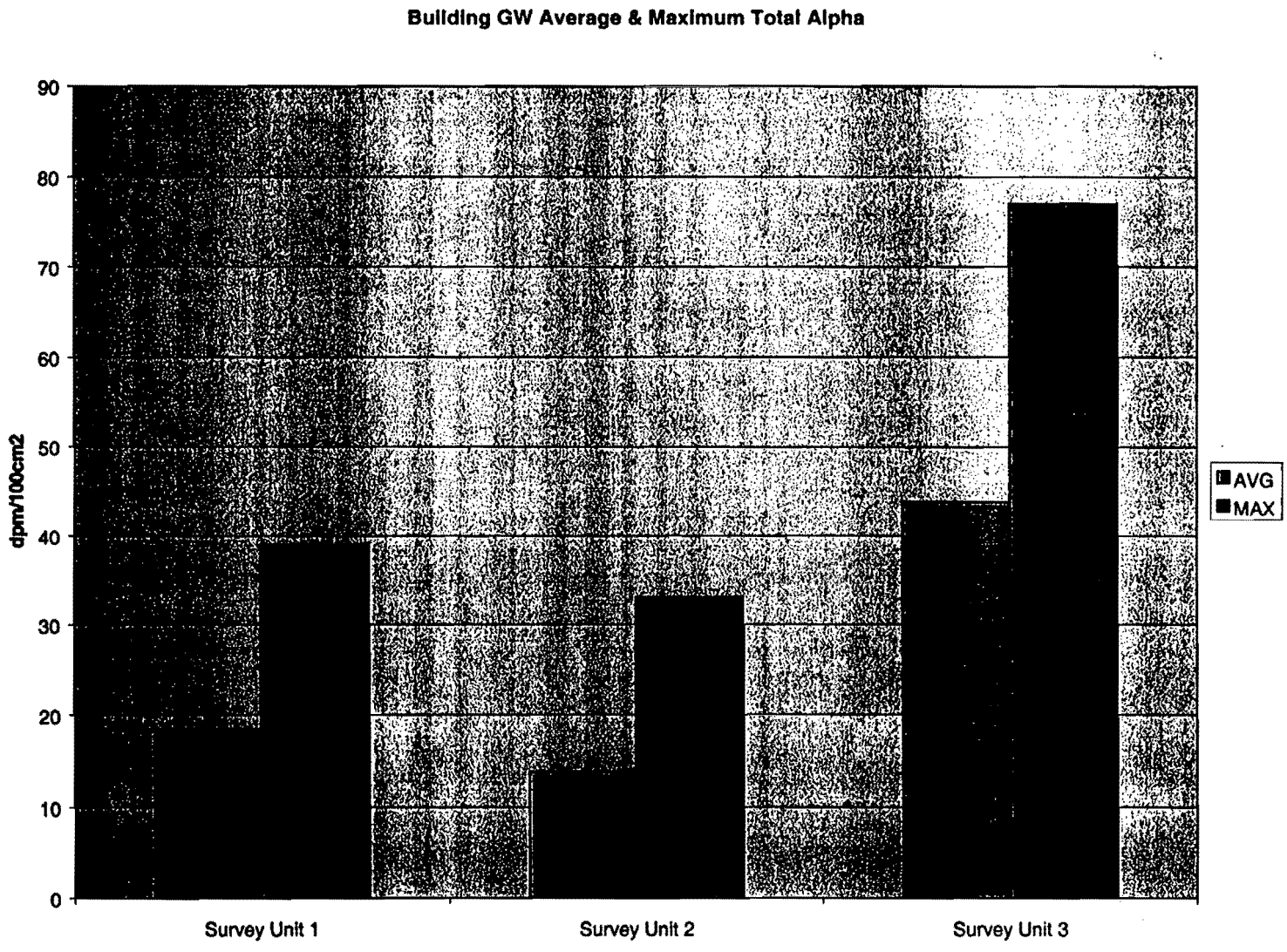
Attachment 1 – Average Total Alpha and Beta Graph

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF GW-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building GW 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 GW Average & Maximum Total Alpha
dpm/100cm2
90
80
70
60
50
40
30
20
10
0
Survey Unit 1
Survey Unit 2
Survey Unit 3
AVG
MAX

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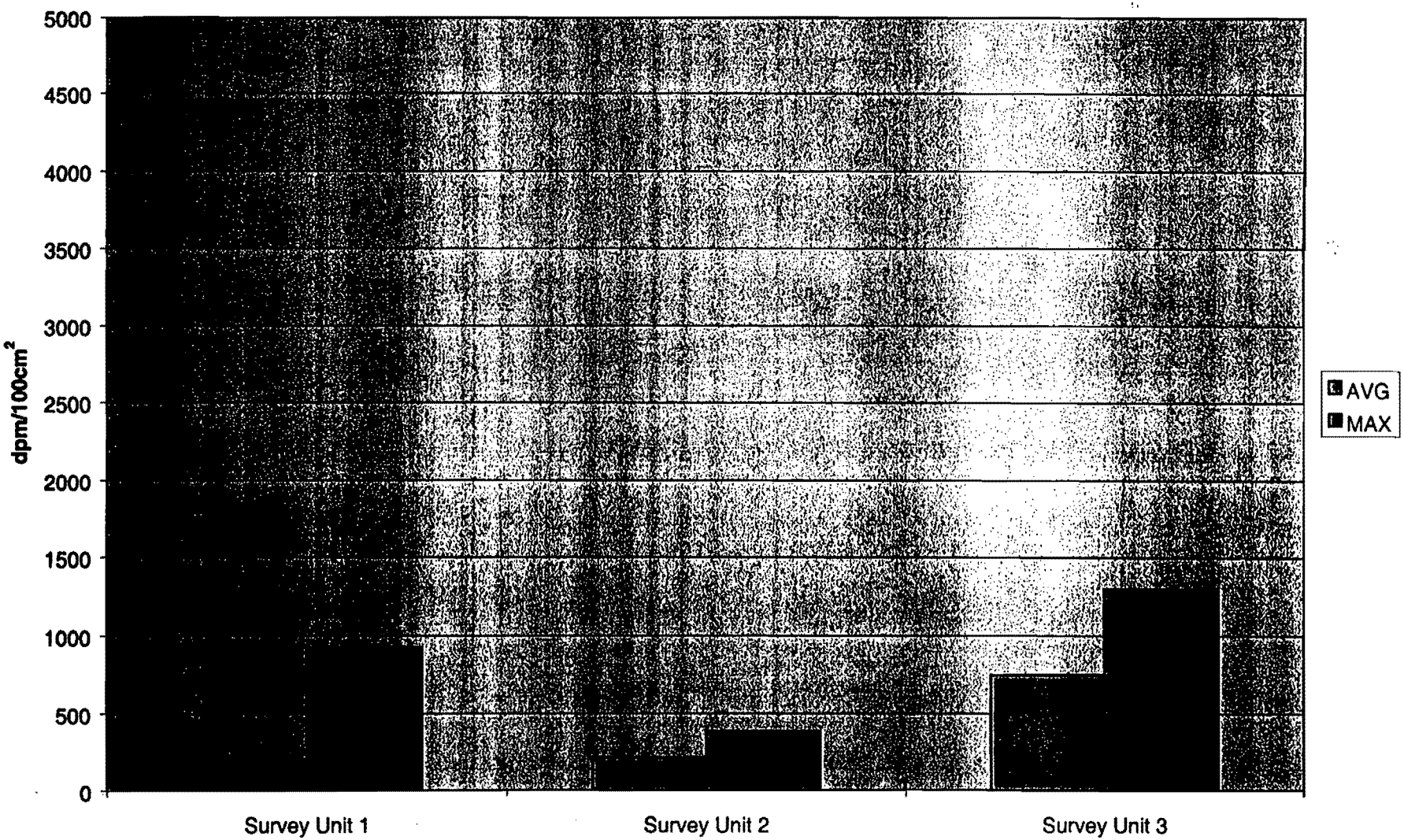
Building GW Average and Maximum Total Beta Activity



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Building GW Survey and Sample Data
Enclosure 1

Building GW Survey Data Collection Sheet

		Smearable			Fixed			
Location	RSDS#	α	β	H^3	α	- Bkg	Recount	β
SU1 01	0152	0.49	1.09	8.66	28		28	65
SU1 02	0152	1.59	0	3.36	11		11	250
SU1 03	0152	0	0	7.9	22		22	155
SU1 04	0152	0	0	14.58	22		22	175
SU1 05	0152	3.82	5.03	5.67	11		11	155
SU1 06	0152	1.09	3.24	11.14	6		6	30
SU1 07	0152	5.34	2.23	0	17		17	855
SU1 08	0152	0	0.35	5.79	11		11	65
SU1 09	0152	1.05	2.07	15.54	17		17	215
SU1 10	0152	0	3.58	5.76	39		39	925
SU1 11	0152	0	0	5.49	11		11	175
SU1 12	0152	1.36	2.55	12.37	28		28	220
SU1 13	0152	0	0	3.41	17		17	135
SU1 14	0152	2.23	5.79	11.05	11		11	90
SU1 15	0152	2.93	14.59	19.68	11		11	75
SU1 16	0152	2.99	3.5	2.95	17		17	40
SU1 17	0152	1.9	6.49	25.22	11		11	160
SU1 18	0152	7.09	5.22	3.85	33		33	110
SU1 19	0152	0	1.35	0	11		11	60
SU1 20	0152	0	5.23	0	22		22	15
SU1 21	0152	1.05	4.49	4.89	28		28	145
SU1 22	0152	0	2.47	2.97	22		22	295
SU2-01	0153	2.19	0	6.62	33		33	385
SU2-02	0153	2.19	1.21	9.08	11		11	280
SU2-03	0153	2.18	2.58	0.92	11		11	285
SU2-04	0153	0	2.74	5.11	17		17	175
SU2-05	0153	0	4.11	5.98	17		17	360
SU2-06	0153	0	4.11	3.14	0		0	95
SU2-07	0153	2.18	2.58	8.25	6		6	125
SU2-08	0153	0	6.85	0	17		17	135
SU2-09	0153	2.19	0	11.07	17		17	105
SU2-10	0153	0	2.74	0	17		17	195
SU2-11	0153	2.18	2.58	11.86	17		17	310
SU2-12	0153	0	5.48	0.91	6		6	205
SU2-13	0153	0	0	1.91	17		17	310
SU2-14	0153	2.18	3.95	3.72	22		22	105
SU2-15	0153	0	0	6.13	17		17	220
SU2-16	0153	0	1.37	10.7	6		6	180
SU2-17	0153	2.18	2.58	0.9	17		17	95
SU2-18	0153	0	2.74	0.88	6		6	265
SU2-19	0153	0	1.37	0	11		11	260
SU2-20	0153	4.37	1.06	0	11		11	215
SU3-01	0148	0	0	1.3	16		16	324
SU3-02	0148	0	4.11	8.12	32		32	376
Location	RSDS#	a	b	H^3	a		a	b
SU3-03	0148	2.19	0	4.53	24		24	380
SU3-04	0148	0	1.37	9.77	56		56	244

SU3-05	0148	0	0	12.95	8		8	196
SU3-06	0148	0	2.74	3.09	24		24	324
SU3-07	0148	0	2.74	7.08	48		48	452
SU3-08	0148	2.19	1.21	13.38	8		8	396
SU3-09	0148	0	2.74	6.24	16		16	716
SU3-10	0148	0	4.11	0	8		8	732
SU3-11	0148	0	1.37	0	99	66	77	1124
SU3-12	0148	0	5.48	8.27	88	55	66	1244
SU3-13	0148	0	2.74	6.21	50	17	61	1060
SU3-14	0148	0	1.37	10.04	66	33	72	1280
SU3-15	0148	4.37	5.17	5.68	33	0	66	1112
SU3-16	0148	2.18	3.95	3.5	6	-27	17	-68
SU3-17	0148	2.18	2.58	1.44	66	33	55	1044
SU3-18	0148	0	4.11	6.33	77	44	61	1100
SU3-19	0148	0	1.37	1.07	105	72	61	1160
SU3-20	0148	2.18	2.58	10.68	99	66	66	1296
SU3-21	0148	2.19	1.21	0	44	11	44	1016
SU3-22	0148	2.18	2.58	3.15	77	44	77	1012
DR-01	0156	6.55	5.01	0	30		30	580
DR-02	0156	2.19	1.21	6.67	0		0	280
DR-03	0156	0	4.11	0	40		40	410
DR-04	0156	0	4.11	0	50		50	120
DR-05	0156	6.56	2.27	0	-10		-10	195
DR-06	0156	0	4.11	4.68	60		60	425
DR-07	0156	4.37	6.54	0	20		20	225
DR-08	0156	2.18	2.58	0	80		80	245
DR-09	0156	0	6.85	0	20		20	25
DR-10	0156	2.18	3.95	0	-10		-10	80
DR-11	0156	8.74	3.49	0	80		80	255
DR-12	0156	0	1.37	0	30		30	75
DR-13	0156	4.37	2.43	2.36	10		10	155
DR-14	0156	0	1.37	0	0		0	140
DR-15	0156	2.18	2.58	0	10		10	-30
DR-16	0156	2.1/8	2.58	2.36	10		10	140
DR-17	0156	2.19	1.21	3.31	80		80	385
DR-18	0156	2.18	5.32	0	20		20	75
DR-19	0156	0	0	5.26	20		20	45
DR-20	0156	0	1.37	0.5	20		20	525

	α	β	H^3	α	α	α	β
#	83	84	84	84	12	84	84
Avg	1.42313	2.7775	4.82655	27.2857	34.3508	26.25	352.202
SD	1.90716	2.26965	5.06862	25.8222	29.8892	22.5008	354.04
Max	8.74	14.59	25.22	105	71.8508	80	1296
+/-	0.41029	0.48536	1.08392	5.52205	16.9111	4.81178	75.7112
Var				666.785			125344

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Notes:

elevated measurements observed in SU# 3 Ext walls
Brick Bkg = 6 cpm = 33 dpm/100cm2 (6 / .5*.2*1.81)

Stats	
Mean	67.5
Std Error	8.62827
Median	71.5
Mode	99
Std Dev	29.8892
Variance	893.364
Kurtosis	-0.0331
Skewness	-0.68
Range	99
Minimum	6
Maximum	105
Sum	810
Count	12
CL(95.0%)	18.9907

Bin	*Freq*	*Bin*	*Freq*
6	1	More	6
39	1	72	4
72	4	6	1
More	6	39	1

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	12	810	67.5	893.364
Column 2	12	412.21	34.3508	893.364

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Survey Unit 1

	Smearable			Fixed	
	α	β	H^3	α	β
Number	22	22	22	22	22
Avg	1.496818	3.148636	7.74	18.45455	200.45455
SD	1.929775	3.316818	6.561949	8.633971	235.18437
Max	7.09	14.59	25.22	39	925
+/-	0.806386	1.385982	2.742009	3.607835	98.275342

Survey Unit 2

Number	20	20	20	20	20
Avg	1.092	2.4025	4.359	13.8	215.25
SD	1.325815	1.869272	4.117131	7.230054	89.581997
Max	4.37	6.85	11.86	33	385
+/-	0.581052	0.819228	1.804376	3.168648	39.260262

Survey Unit 3 Roof & Walls

						α Recount
Number	22	22	21	22	22	22
Avg	0.893636	2.433182	5.699048	47.72727	750.90909	44
SD	1.289627	1.592023	4.221943	32.8839	425.04307	24.582091
Max	4.37	5.48	13.38	105	1296	77
+/-	0.53889	0.665251	1.805719	13.74103	177.61067	10.271998

Drains and Vents

Number	19	20	21	20	20
Avg	2.299474	3.123	1.347143	28	217.5
SD	2.673484	1.864895	2.100191	28.58045	170.72215
Max	8.74	6.85	6.67	80	580
+/-	1.202121	0.81731	0.898249	12.52569	74.820796

Building GW Survey and Sample Data Worksheets
Enclosure 1

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg(cpm)	β Bkg(cpm)
1	L2350	5856/5148	5/12/04	0148	2.8	
2	L2360	5775/5720	9/25/03	0148	1	139
3	L2350	5856/5148	5/12/04	0153	2.4	
4	L2360	5833/5847	3/13/04	0153		117
5	L2350	5856/5148	5/12/04	0152	2.4	
6	L2360	5833/5847	3/13/04	0152		117
7	L2360	5833/5847	3/13/04	0156	1	111

Background Correction Calc.

105dpm/100cm2 =	19 cpm
Bkg Table 5.1	6 cpm
NCPM	13 cpm

13 cpm/ 0.5*0.2*1.81 = 72 dpm/100cm2

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

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Replicate Fixed Point QC

	alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	initial	2σ	replicate	initial	2σ	replicate
QC3-19	105	20.49	88	1160	68.12	1056
QC3-16	6	4.90	28	-68	16.49	-56
QC2-01	33	11.49	33	385	39.24	440
QC2-06	0	0.00	22	95	19.49	235
QC1-06	6	4.90	11	30	10.95	100
QC1-10	39	12.49	50	925	60.83	935
Variance (S2) =	666.7849		750.2667	125344.33		205461.07
Ratio			0.88873			0.6100637
Agreement			YES			YES

QC Measurements

Location	RSDS#	α	β
QC3-19	0148	88	1056
QC3-16	0148	28	-56
QC2-01	0153	33	440
QC2-06	0153	22	235
QC1-06	0152	11	100
QC1-10	0152	50	935

SURVEY PLAN FORM

SP NUMBER	GW-01	**DATE OF REQUEST**	April 30, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building GW		
PURPOSE	The purpose of this SP is to characterize Building GW to support decisions on final disposition.		
SURVEY UNIT # 1	First Floor	**SURVEY UNIT**	
SURVEY UNIT # 2	Second Floor	**SURVEY UNIT**	
SURVEY UNIT # 3	Exterior Surfaces and Penthouse	**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** **PROBE TYPE**	L-2350 43-37 Floor Probe or 43-20 Hand Probe	**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
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE** **PROBE TYPE**	L-2350 43-20 Hand Probe	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Perform 1 minute counts at specified locations not more than ¼" from surface
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE** **PROBE TYPE**	L 2360 L 43-89 (or equivalent)	**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
DOSE RATE MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE** **PROBE TYPE**		**DETECTOR DISTANCE FROM SURFACE**	

OTHER SURVEY TYPES OR COMMENTS

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

Take photographs of survey units, if possible. Pay particular attention to grid markings or other identifying features. Date and label photos.

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	GW-01	DATE OF REQUEST	April 30, 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 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. Data 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

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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	Roderick C. Case	DATE	April 30, 2003
Technical Reviewer	Gwen Tomlinson	DATE	5-28-03
Rad Con Manager	ASCollins	DATE	5-29-03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R.C.Case	DATE	7-2-03
Technical Reviewer	G. Tomlinson	DATE	7-6-03
Rad Con Manager	ASCollins	DATE	7-7-03
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
GW-01-									
GW-01-									
GW-01-									
GW-01-									
GW-01-									
GW-01-									
GW-01-				N/A					
GW-01-									
GW-01-									
GW-01-									
GW-01-									
GW-01-									
GW-01-									

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RADIOLOGICAL SURVEY DATA SHEET

1 of 7

LOCATION: (BLDG./AREA/ROOM) GW	SURVEY NO. 03-TF-0148
PURPOSE: MARISSM SURVEY PLAN GW-01 SURVEY UNIT 3	RWP NO. N/A
	DATE: 6-24-03
	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	5775/5720	9-25-03
2350	5856/5148	5-12-04
	N/A	

[redacted]

HP # 6178 5214	Date: 7-1-03 6-28-03	7-1-
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approve[redacted]	HP # 7492	Date: 7-1-03
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98)

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Survey No. 03-TF-0148

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTACHED		ROOF
2				
3				
4				ROOF DRAIN
5				ROOF
6				
7				
8				
9				
10				
11				OUTSIDE WALL
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				PENTHOUSE
22				
		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-9620A (4-98)

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GW-BLDG CHARACTERIZATION ALPHA-BETA SURVEY UNIT 3

RSDS# 03-TF-0148 RCT: [illegible] RCT: [illegible]

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U-3 01	5775	6178	5720	1	6/24/03	211	60	324	3	60	16
U-3 02	5775	6178	5720	2	6/24/03	224	60	376	5	60	32
U-3 03	5775	6178	5720	3	6/24/03	225	60	380	4	60	24
U-3 04	5775	6178	5720	4	6/24/03	191	60	244	8	60	56
U-3 05	5775	6178	5720	5	6/24/03	179	60	196	2	60	8
U-3 06	5775	6178	5720	6	6/24/03	211	60	324	4	60	24
U-3 07	5775	6178	5720	7	6/24/03	243	60	452	7	60	48
U-3 08	5775	6178	5720	8	6/24/03	229	60	396	2	60	8
U-3 09	5775	6178	5720	9	6/24/03	309	60	716	3	60	16
U-3 10	5775	6178	5720	10	6/24/03	313	60	732	2	60	8
BETA BACKGROUND (CPM) FOR 6-24-2003 WAS---------->								130			
ALPHA BACKGROUND (CPM) FOR 6-24-2003 WAS---------->								1			

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GW BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 3

RSDS# 03-TF-0148 RCT: DJH RCT: SK

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/25/03	8:16	14	300	15	
SRC CHECK	5856	6178	5148	2		6/25/03	8:19	2084	60	11514	
SRC CHECK	5856	6178	5148	2		6/25/03	8:21	2133	60	11785	
SRC CHECK	5856	6178	5148	2		6/25/03	8:24	1965	60	10856	
SRC CHECK	5856	6178	5148	2		6/25/03	8:26	2170	60	11989	
U-3 11	5856	6178	5148	2	11	6/25/03	8:37	18	60	99	
U-3 12	5856	6178	5148	2	12	6/25/03	8:43	16	60	88	
U-3 13	5856	6178	5148	2	13	6/25/03	8:48	9	60	50	
U-3 14	5856	6178	5148	2	14	6/25/03	8:53	12	60	66	
U-3 15	5856	6178	5148	2	15	6/25/03	8:57	6	60	33	
U-3 16	5856	6178	5148	2	16	6/25/03	9:44	1	60	6	
U-3 17	5856	6178	5148	2	17	6/25/03	9:49	12	60	66	
U-3 18	5856	6178	5148	2	18	6/25/03	9:51	14	60	77	
U-3 19	5856	6178	5148	2	19	6/25/03	9:58	19	60	105	
U-3 20	5856	6178	5148	2	20	6/25/03	10:00	18	60	99	
U-3 21	5856	6178	5148	2	21	6/25/03	10:21	8	60	44	
U-3 22	5856	6178	5148	2	22	6/25/03	10:24	14	60	77	
QC 19	5856	6178	5148	2		6/25/03	10:32	16	60	88	
QC 16	5856	6178	5148	2		6/25/03	10:34	5	60	28	

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GW-BLDG CHARACTERIZATION BETA SURVEY UNIT 3

RSDS# 03-TF-00148 RCT: DJH RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-3 11	5775	5214	5720	11	6/25/03	420	60	1124
U-3 12	5775	5214	5720	12	6/25/03	450	60	1244
U-3 13	5775	5214	5720	13	6/25/03	404	60	1060
U-3 14	5775	5214	5720	14	6/25/03	459	60	1280
U-3 15	5775	5214	5720	15	6/25/03	417	60	1112
U-3 16	5775	5214	5720	16	6/25/03	122	60	-68
U-3 17	5775	5214	5720	17	6/25/03	400	60	1044
U-3 18	5775	5214	5720	18	6/25/03	414	60	1100
U-3 19	5775	5214	5720	19	6/25/03	429	60	1160
U-3 20	5775	5214	5720	20	6/25/03	463	60	1296
U-3 21	5775	5214	5720	21	6/25/03	393	60	1016
U-3 22	5775	5214	5720	22	6/25/03	392	60	1012
QC 19	5775	5214	5720	14	6/25/03	403	60	1056
QC 16	5775	5214	5720	15	6/25/03	125	60	-56
BETA BACKGROUND FOR 6-25-2003 WAS---------->								139

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Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200306261034	**Count Date:**	6/26/2003
Group:	G	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	~~03-TF-0145~~ HARVEY-22 BSB 03-J7-0148 Harvey 6/28/03	**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	67	0.00	0.00	0.00	0.00
2	72	0.00	0.00	4.11	2.50
3	64	2.19	1.92	0.00	0.16
4	100	0.00	0.00	1.37	1.45
5	18	0.00	0.00	0.00	0.00
6	65	0.00	0.00	2.74	2.04
7	66	0.00	0.00	2.74	2.04
8	33	2.19	1.92	1.21	1.45
9	19	0.00	0.00	2.74	2.04
10	85	0.00	0.00	4.11	2.50
11	89	0.00	0.00	1.37	1.45
12	1	0.00	0.00	5.48	2.89
13	9	0.00	0.00	2.74	2.04
14	66	0.00	0.00	1.37	1.45
15	54	4.37	2.72	5.17	2.90
16	68	2.18	1.92	3.95	2.51
17	28	2.18	1.92	2.58	2.05
18	24	0.00	0.00	4.11	2.50
19	80	0.00	0.00	1.37	1.45
20	12	2.18	1.92	2.58	2.05
21	84	2.19	1.92	1.21	1.45
22	45	2.18	1.92	2.58	2.05
		DJH		DJH	

26 Jun 2003 12:02 ALPHA/BETA - 1.09 Page #1
Protocol #: 1 PW H3 405828 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	5.75
Region B:	2.0 -	18.6	0	0.0	5.50
Region C:	40.0 -	2000	0	0.0	10.40

Quench Indicator: tSIE/AEC
Ext Std ~~Terminator: Count~~
03-TF-0148 HARVEY-22 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	5.75	5.50	0	B	595.55		0.00	10.40
0	2.00	200.97	190.60	0		459.89	461.50	58.50	0.10
1	2.00	0.68	0.44	0		664.42	1.30	7.39	4.28
2	2.00	4.19	4.11	0		634.99	8.12	9.16	3.10
3	2.00	2.29	2.55	0		611.49	4.53	8.49	0.00
4	2.00	3.25	3.24	20		318.06	9.77	14.86	1.59
5	2.00	5.75	5.46	9		473.17	12.95	11.38	0.10
6	2.00	1.25	0.66	29		406.13	3.09	11.74	0.10
7	2.00	3.64	3.57	0		632.31	7.08	8.94	0.10
8	2.00	6.75	5.14	0		609.36	13.38	10.40	2.60
9	2.00	3.25	3.15	0		646.16	6.24	8.67	0.00
10	2.00	0.00	0.00	0		596.56	0.00	0.00	0.00
11	2.00	0.00	0.00	0		623.02	0.00	0.00	0.60
12	2.00	4.25	3.35	0		629.23	8.27	9.23	2.60
13	2.00	3.25	3.50	0		652.74	6.21	8.63	1.60
14	2.00	5.25	4.64	0		650.82	10.04	9.47	1.27
15	2.00	2.75	2.81	0		558.00	5.68	9.10	0.00
16	2.00	1.75	2.00	0		595.98	3.50	8.34	0.00
17	2.00	0.75	1.00	0		642.27	1.44	7.54	2.10
18	2.00	3.25	3.50	0		629.14	6.33	8.80	0.00
19	2.00	0.56	0.07	0		657.21	1.07	7.36	0.60
20	2.00	5.63	5.11	0		664.79	10.68	9.53	0.00
21	2.00	0.00	0.00	0		615.86	0.00	0.00	0.00
22	2.00	1.52	1.28	0		557.56	3.15	8.50	0.60

~~12 MISSING~~ TUBE(S)

~~35~~	~~2.00~~	~~0.33~~	~~0.59~~	~~0~~	~~584.48~~	~~0.68~~	~~7.70~~	~~0.00~~
~~36~~	~~2.00~~	~~333.00~~	~~314.13~~	~~0~~	~~476.82~~	~~746.86~~	~~81.50~~	~~0.10~~

Delete 6/26/03 [illegible]

DJH 6-30-03

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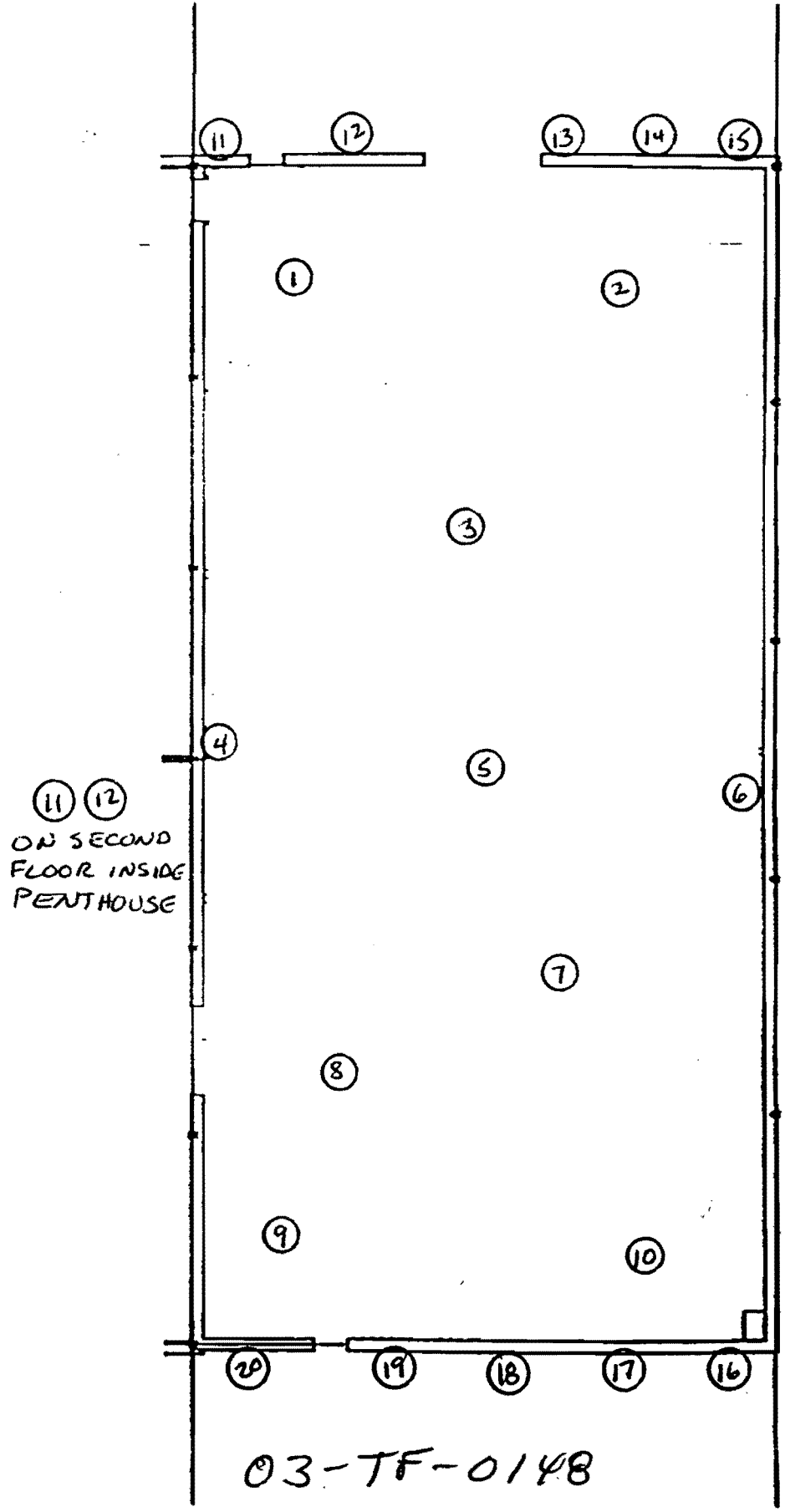

03-TF-0148

GW BLDG
ROOF

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GW BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 3
FOLLOW-UP

RSDS# 03-TF-0148 RCT: [illegible] RCT: _____

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/30/03	12:33	16	300	18	
SRC CHECK	5856	6178	5148	2		6/30/03	12:35	2177	60	12028	
SRC CHECK	5856	6178	5148	2		6/30/03	12:36	2048	60	11315	
SRC CHECK	5856	6178	5148	2		6/30/03	12:38	2005	60	11077	
SRC CHECK	5856	6178	5148	2		6/30/03	12:39	2206	60	12188	
U-3 11	5856	6178	5148	2		6/30/03	12:58	14	60	77	
U-3 12	5856	6178	5148	2		6/30/03	12:59	12	60	66	
U-3 13	5856	6178	5148	2		6/30/03	13:01	11	60	61	
U-3 14	5856	6178	5148	2		6/30/03	13:02	13	60	72	
U-3 15	5856	6178	5148	2		6/30/03	13:03	12	60	66	
U-3 16	5856	6178	5148	2		6/30/03	13:08	3	60	17	
U-3 17	5856	6178	5148	2		6/30/03	13:09	10	60	55	
U-3 18	5856	6178	5148	2		6/30/03	13:10	11	60	61	
U-3 19	5856	6178	5148	2		6/30/03	13:12	11	60	61	
U-3 20	5856	6178	5148	2		6/30/03	13:14	12	60	66	

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RADIOLOGICAL SURVEY DATA SHEET

1 of 8

LOCATION: (BLDG./AREA/ROOM) GW	SURVEY NO. 03-TF-0152
PURPOSE: MARISSM SURVEY PLAN GW-01 UNIT 1 FIRST FLOOR	RWP NO. N/A
	DATE: 6-26-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED

SURVEY ALSO INCLUDES SCANNING OF MAJOR WALK WAYS WITH ALL RESULTS < 75dpm ALARM SET POINT

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	5856/5148	5-12-04
2360	5833/5847	3-13-04
	N/A	

[redacted] HP # 6178 5214 Date: 7-1-03

Counted by: (Signature) SEE ATTACHED HP # Date:

Counted by: (Print Name)

Reviewed/Approv[redacted] HP # 7492 Date: 7-1-03

Reviewed/Approved by: (Print Nam[redacted]

ML-9620 (2-88)

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Survey No. 03-TF-0152

Page ___ of ___

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-22	SEE	ATTACHED		UNIT 1
		N	A	

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comment
		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 result are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

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GW BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1

RSDS# 03-TF-0152 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:			Detector # :	2
43-37 BKG:	[illegible]	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:			Detector # :	1

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	6178	5148	2		6/26/03	9:07	12	300	13
SRC CHECK	5856	6178	5148	2		6/26/03	9:13	2149	60	11873
SRC CHECK	5856	6178	5148	2		6/26/03	9:15	2124	60	11735
SRC CHECK	5856	6178	5148	2		6/26/03	9:16	2034	60	11238
SRC CHECK	5856	6178	5148	2		6/26/03	9:18	2112	60	11669
U-1 01	5856	6178	5148	2	1	6/26/03	9:52	5	60	28
U-1 02	5856	6178	5148	2	2	6/26/03	9:54	2	60	11
U-1 03	5856	6178	5148	2	3	6/26/03	9:55	4	60	22
U-1 04	5856	6178	5148	2	4	6/26/03	9:57	4	60	22
U-1 05	5856	6178	5148	2	5	6/26/03	9:58	2	60	11
U-1 06	5856	6178	5148	2	6	6/26/03	9:59	1	60	6
U-1 07	5856	6178	5148	2	7	6/26/03	10:01	3	60	17
U-1 08	5856	6178	5148	2	8	6/26/03	10:03	2	60	11
U-1 09	5856	6178	5148	2	9	6/26/03	10:04	3	60	17
U-1 10	5856	6178	5148	2	10	6/26/03	10:05	7	60	39
U-1 11	5856	6178	5148	2	11	6/26/03	10:07	2	60	11
U-1 12	5856	6178	5148	2	12	6/26/03	10:08	5	60	28
U-1 13	5856	6178	5148	2	13	6/26/03	10:10	3	60	17
U-1 14	5856	6178	5148	2	14	6/26/03	10:11	2	60	11
U-1 15	5856	6178	5148	2	15	6/26/03	10:13	2	60	11
U-1 16	5856	6178	5148	2	16	6/26/03	10:14	3	60	17
U-1 17	5856	6178	5148	2	17	6/26/03	10:16	2	60	11
U-1 18	5856	6178	5148	2	18	6/26/03	10:19	6	60	33

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GW BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1

RSDS# 03-TF-0152 RCT: [illegible] RCT: [illegible]

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-1 19	5856	6178	5148	2	19	6/26/03	10:21	2	60	11
U-1 20	5856	6178	5148	2	20	6/26/03	10:22	4	60	22
U-1 21	5856	6178	5148	2	21	6/26/03	10:24	5	60	28
U-1 22	5856	6178	5148	2	22	6/26/03	10:27	4	60	22
QCU-1 06	5856	6178	5148	2		6/26/03	10:29	2	60	11
QCU-1 10	5856	6178	5148	2		6/26/03	10:31	9	60	50

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GW-BLDG CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0152 RCT: 29H RCT: JK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-1 01	5833	5214	5847	1	6/26/03	130	60	65
U-1 02	5833	5214	5847	2	6/26/03	167	60	250
U-1 03	5833	5214	5847	3	6/26/03	148	60	155
U-1 04	5833	5214	5847	4	6/26/03	152	60	175
U-1 05	5833	5214	5847	5	6/26/03	148	60	155
U-1 06	5833	5214	5847	6	6/26/03	123	60	30
U-1 07	5833	5214	5847	7	6/26/03	288	60	855
U-1 08	5833	5214	5847	8	6/26/03	130	60	65
U-1 09	5833	5214	5847	9	6/26/03	160	60	215
U-1 10	5833	5214	5847	10	6/26/03	302	60	925
U-1 11	5833	5214	5847	11	6/26/03	152	60	175
U-1 12	5833	5214	5847	12	6/26/03	161	60	220
U-1 13	5833	5214	5847	13	6/26/03	144	60	135
U-1 14	5833	5214	5847	14	6/26/03	135	60	90
U-1 15	5833	5214	5847	15	6/26/03	132	60	75
U-1 16	5833	5214	5847	16	6/26/03	125	60	40
U-1 17	5833	5214	5847	17	6/26/03	149	60	160
U-1 18	5833	5214	5847	18	6/26/03	139	60	110
U-1 19	5833	5214	5847	19	6/26/03	129	60	60
U-1 20	5833	5214	5847	20	6/26/03	120	60	15
U-1 21	5833	5214	5847	21	6/26/03	146	60	145
U-1 22	5833	5214	5847	22	6/26/03	176	60	295
QCU-1 06	5833	5214	5847		6/26/03	137	60	100
QCU-1 10	5833	5214	5847		6/26/03	304	60	935
BETA BACKGROUND (CPM) FOR 6-26-2003 WAS---------->								117

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR001
Batch Ended: 6/30/03 8:26
Cal. Due Date: 5/1/05
Serial Number: 26966-3
Batch ID: 03-TF-0152 Harvey(22) 6/30/03 bob

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.49	2.10		1.09	2.29	
A2	2	1.59	1.91		0.00	1.79	
A3	3	0.00	2.24		0.00	1.92	
A4	4	0.00	1.98		0.00	1.35	
B1	5	3.82	2.79		5.03	3.22	
B2	6	1.09	2.13		3.24	2.80	
B3	7	5.34	3.70		2.23	2.39	
B4	8	0.00	2.14		0.35	1.84	
C1	9	1.05	2.03		2.07	2.15	
C2	10	0.00	1.85		3.58	2.56	
C3	11	0.00	2.12		0.00	1.90	
C4	12	1.36	2.05		2.55	2.67	
D1	13	0.00	2.07		0.00	2.74	
D2	14	2.23	3.02		5.79	2.99	
D3	15	2.93	3.17		14.59	4.80	
D4	16	2.99	3.14		3.50	2.80	
B1	17	1.90	2.04		6.49	3.47	
B2	18	7.09	4.09		5.22	3.28	
B3	19	0.00	2.19		1.35	1.98	
B4	20	0.00	2.18		5.23	3.06	
C1	21	1.05	2.06		4.49	2.75	
C2	22	0.00	1.84		2.47	2.30	

DJH DJH

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Protocol #: 6 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	6.86
Region B:	2.0 -	18.6	0	0.0	6.55
Region C:	40.0 -	2000	0	0.0	9.30

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0152 HARVEY-22 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT6.dat
Count Data Filename: C:\DATA\SDATA6.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	6.86	6.55	0	B	595.96		0.000	9.30
0	2.00	417.27	383.11	0		501.80	841.89	73.354	1.70
1	2.00	4.14	3.86	0		473.26	8.66	10.405	1.20
2	2.00	1.82	1.33	0		612.39	3.36	8.289	6.20
3	2.00	4.14	4.00	0		571.76	7.90	9.498	2.70
4	2.00	7.64	7.45	0		572.11	14.58	10.771	4.20
5	2.00	3.14	3.45	0		646.40	5.67	8.602	1.20
6	2.00	6.31	5.70	0		677.62	11.14	9.539	3.20
7	2.00	0.00	0.04	7		393.01	0.00	0.000	2.20
8	2.00	3.14	2.84	0		617.10	5.79	8.792	0.00
9	2.00	8.48	6.63	42		624.93	15.54	15.715	4.70
10	2.00	3.14	3.45	0		625.03	5.76	8.739	3.70
11	2.00	2.78	2.44	0		527.44	5.49	9.274	8.20
12	2.00	6.81	6.11	0		635.77	12.37	9.984	0.70
13	2.00	1.83	1.18	0		599.14	3.41	8.377	8.20
14	2.00	6.14	5.95	0		649.10	11.05	9.662	1.70
15	2.00	9.93	9.25	0		523.81	19.68	11.986	9.96
16	2.00	1.64	1.95	0		651.74	2.95	7.980	4.20
17	2.00	13.54	13.07	0		602.96	25.22	12.358	7.61
18	2.00	2.14	1.58	0		653.31	3.85	8.171	5.70
19	2.00	0.00	0.00	0		572.63	0.00	0.000	0.71
20	2.00	0.00	0.00	0		627.25	0.00	0.000	1.70
21	2.00	2.60	2.65	0		588.25	4.89	8.767	0.00
22	2.00	1.64	1.45	0		641.70	2.97	8.039	1.70

x9#

BABrown

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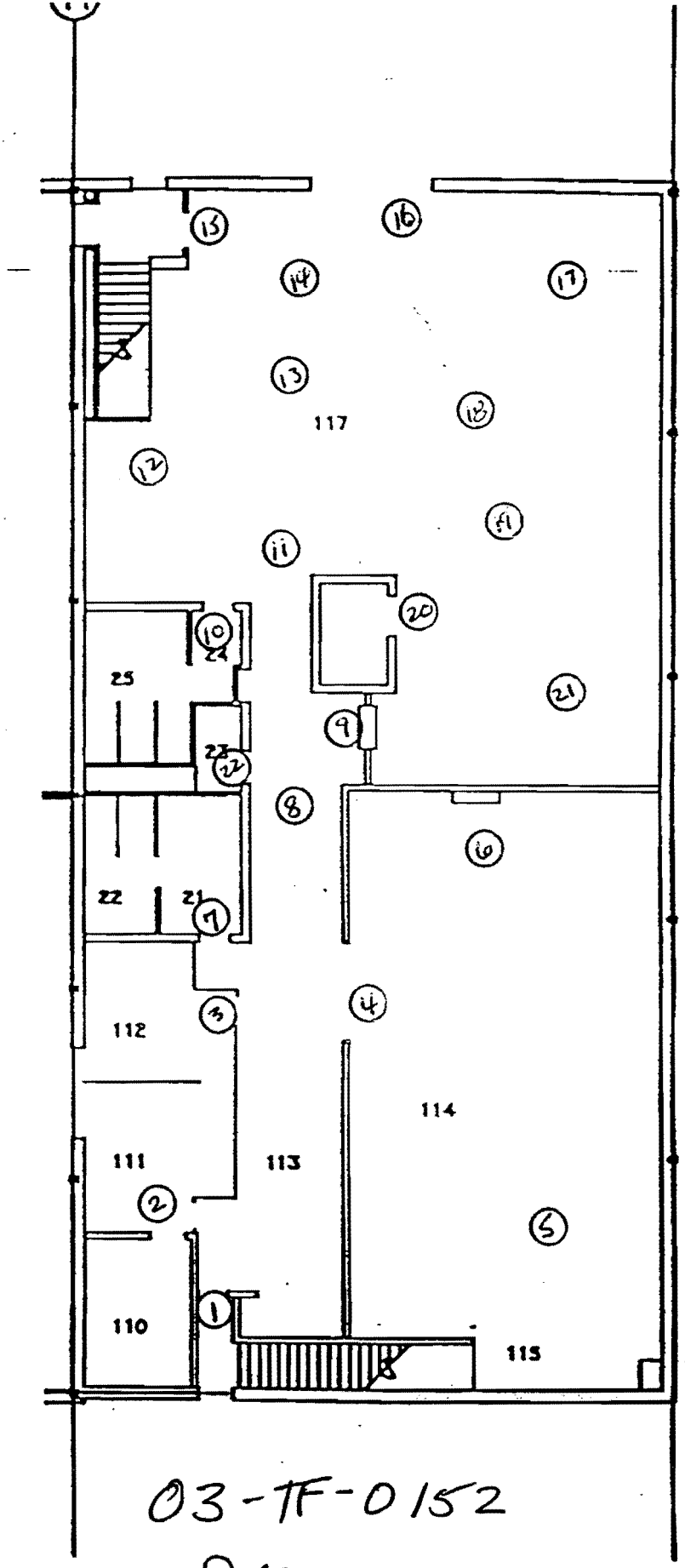

03-TF-0152

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N

GW BLDG
FIRST FLOOR
BLDG CODE:3521

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) GW BUILDING	SURVEY NO. 03-TF-0153
PURPOSE: MARSSIM SURVEY PLAN GW-01 UNIT 2 (SECOND FLOOR)	RWP NO. N/A
	DATE: 06-26-03
	TIME: 1600

MAP/DRAWING

SEE ATTACHED RESULTS AND DRAWING

SURVEY ALSO INCLUDES SCANNING OF MAJOR WALKWAYS WITH ALL RESULTS < 75 dpm ALARM SETPOINT.

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
2350	5856	5-12-04
2360/4393	5833/5847	3-13-04
	N/A	

ML-9620

[redacted]	HP# 617B 5214	Date: 7-1-03
[redacted]		
Counted by: (Signature)	HP#	Date:
Counted by: (Print) SEE ATTACHED		
Review [redacted]	HP# 7492	Date: 7-1-03
Reviewed/Approved by: (Print) [redacted]		

RSDS# 03-TF-0153

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

See attached results

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

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-0620

GW BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 2

RSDS# 03-TF-0153 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		Detector # :	2
43-07 BKG:	0.1	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		Detector # :	1

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	6178	5148	2		6/26/03	9:07	12	300	13
SRC CHECK	5856	6178	5148	2		6/26/03	9:13	2149	60	11873
SRC CHECK	5856	6178	5148	2		6/26/03	9:15	2124	60	11735
SRC CHECK	5856	6178	5148	2		6/26/03	9:16	2034	60	11238
SRC CHECK	5856	6178	5148	2		6/26/03	9:18	2112	60	11669
U-2 01	5856	6178	5148	2	1	6/26/03	12:57	6	60	33
U-2 02	5856	6178	5148	2	2	6/26/03	12:58	2	60	11
U-2 03	5856	6178	5148	2	3	6/26/03	13:00	2	60	11
U-2 04	5856	6178	5148	2	4	6/26/03	13:01	3	60	17
U-2 05	5856	6178	5148	2	5	6/26/03	13:03	3	60	17
U-2 06	5856	6178	5148	2	6	6/26/03	13:04	0	60	0
U-2 07	5856	6178	5148	2	7	6/26/03	13:05	1	60	6
U-2 08	5856	6178	5148	2	8	6/26/03	13:07	3	60	17
U-2 09	5856	6178	5148	2	9	6/26/03	13:08	3	60	17
U-2 10	5856	6178	5148	2	10	6/26/03	13:09	3	60	17
U-2 11	5856	6178	5148	2	11	6/26/03	13:11	3	60	17
U-2 12	5856	6178	5148	2	12	6/26/03	13:12	1	60	6
U-2 13	5856	6178	5148	2	13	6/26/03	13:14	3	60	17
U-2 14	5856	6178	5148	2	14	6/26/03	13:15	4	60	22
U-2 15	5856	6178	5148	2	15	6/26/03	13:17	3	60	17
U-2 16	5856	6178	5148	2	16	6/26/03	13:18	1	60	6
U-2 17	5856	6178	5148	2	17	6/26/03	13:20	3	60	17
U-2 18	5856	6178	5148	2	18	6/26/03	13:22	1	60	6

GW BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 2

RSDS# 03-TF-0153 RCT: [illegible] RCT: [illegible]

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-2 19	5856	6178	5148	2	19	6/26/03	13:23	2	60	11
U-2 20	5856	6178	5148	2	20	6/26/03	13:25	2	60	11
QCU-2 01	5856	6178	5148	2		6/26/03	13:27	6	60	33
QCU-2 06	5856	6178	5148	2		6/26/03	13:29	4	60	22

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GW-BLDG CHARACTERIZATION BETA SURVEY UNIT 2

RSDS# 03-TF-0153 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-2 01	5833	5214	5847	1	6/26/03	194	60	385
U-2 02	5833	5214	5847	2	6/26/03	173	60	280
U-2 03	5833	5214	5847	3	6/26/03	174	60	285
U-2 04	5833	5214	5847	4	6/26/03	152	60	175
U-2 05	5833	5214	5847	5	6/26/03	189	60	360
U-2 06	5833	5214	5847	6	6/26/03	136	60	95
U-2 07	5833	5214	5847	7	6/26/03	142	60	125
U-2 08	5833	5214	5847	8	6/26/03	144	60	135
U-2 09	5833	5214	5847	9	6/26/03	138	60	105
U-2 10	5833	5214	5847	10	6/26/03	156	60	195
U-2 11	5833	5214	5847	11	6/26/03	179	60	310
U-2 12	5833	5214	5847	12	6/26/03	158	60	205
U-2 13	5833	5214	5847	13	6/26/03	179	60	310
U-2 14	5833	5214	5847	14	6/26/03	138	60	105
U-2 15	5833	5214	5847	15	6/26/03	161	60	220
U-2 16	5833	5214	5847	16	6/26/03	153	60	180
U-2 17	5833	5214	5847	17	6/26/03	136	60	95
U-2 18	5833	5214	5847	18	6/26/03	170	60	265
U-2 19	5833	5214	5847	19	6/26/03	169	60	260
U-2 20	5833	5214	5847	20	6/26/03	160	60	215
QCU-2 01	5833	5214	5847		6/26/03	205	60	440
QCU-2 06	5833	5214	5847		6/26/03	164	60	235
BETA BACKGROUND (CPM) FOR 6-26-2003 WAS---------->								117

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Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200306300722	**Count Date:**	6/30/2003
Group:	E	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0153 HARVEY-20 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	74	2.19	1.92	0.00	0.16
2	60	2.19	1.92	1.21	1.45
3	52	2.18	1.92	2.58	2.05
4	72	0.00	0.00	2.74	2.04
5	18	0.00	0.00	4.11	2.50
6	69	0.00	0.00	4.11	2.50
7	43	2.18	1.92	2.58	2.05
8	14	0.00	0.00	6.85	3.23
9	2	2.19	1.92	0.00	0.16
10	13	0.00	0.00	2.74	2.04
11	65	2.18	1.92	2.58	2.05
12	30	0.00	0.00	5.48	2.89
13	40	0.00	0.00	0.00	0.00
14	93	2.18	1.92	3.95	2.51
15	29	0.00	0.00	0.00	0.00
16	3	0.00	0.00	1.37	1.45
17	61	2.18	1.92	2.58	2.05
18	65	0.00	0.00	2.74	2.04
19	59	0.00	0.00	1.37	1.45
20	99	4.37	2.72	1.06	1.46

DJH DJH

BJBrown

Batch ID: 03-TF-0153 HARVEY-20 BSB

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DJH
7-1-03

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Protocol #: 1 PW H3 #403727 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	6.05
Region B:	2.0	- 18.6	0	0.0	5.97
Region C:	40.0	- 2000	0	0.0	11.24

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0153 HARVEY-20 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	6.05	5.97	11.24	652.85	2	B		0.00
0	2.00	597.53	578.51	0.00	525.17	0		1315.62	123.04
1	2.00	3.45	3.09	5.76	692.05	0		6.62	8.88
2	2.00	4.68	4.34	0.76	674.60	0		9.08	9.51
3	2.00	0.45	0.03	0.00	618.95	0		0.92	7.97
4	2.00	2.50	2.57	0.00	610.31	0		5.11	9.03
5	2.00	3.08	3.16	0.00	675.77	0		5.98	8.83
6	2.00	1.61	1.03	0.00	666.36	0		3.14	8.23
7	2.00	4.17	3.38	2.76	651.32	0		8.25	9.47
8	2.00	0.00	0.03	0.00	545.52	0		0.00	0.00
9	2.00	5.45	5.03	1.26	618.55	0		11.07	10.26
10	2.00	0.00	0.00	0.00	679.78	0		0.00	0.00
11	2.00	5.95	6.03	0.00	641.88	0		11.86	10.27
12	2.00	0.45	0.53	0.00	633.53	0		0.91	7.87
13	2.00	0.95	1.03	0.00	633.73	0		1.91	8.12
14	2.00	1.95	1.57	0.00	699.11	0		3.72	8.18
15	2.00	3.09	2.80	0.00	646.44	0		6.13	9.04
16	2.00	5.45	5.03	0.00	660.55	4		10.70	9.93
17	2.00	0.45	0.53	0.00	654.42	0		0.90	7.74
18	2.00	0.45	0.53	0.00	680.73	0		0.88	7.59
19	2.00	0.00	0.00	0.00	704.54	0		0.00	0.00
20	2.00	0.00	0.00	0.00	682.05	0		0.00	0.00

DJH

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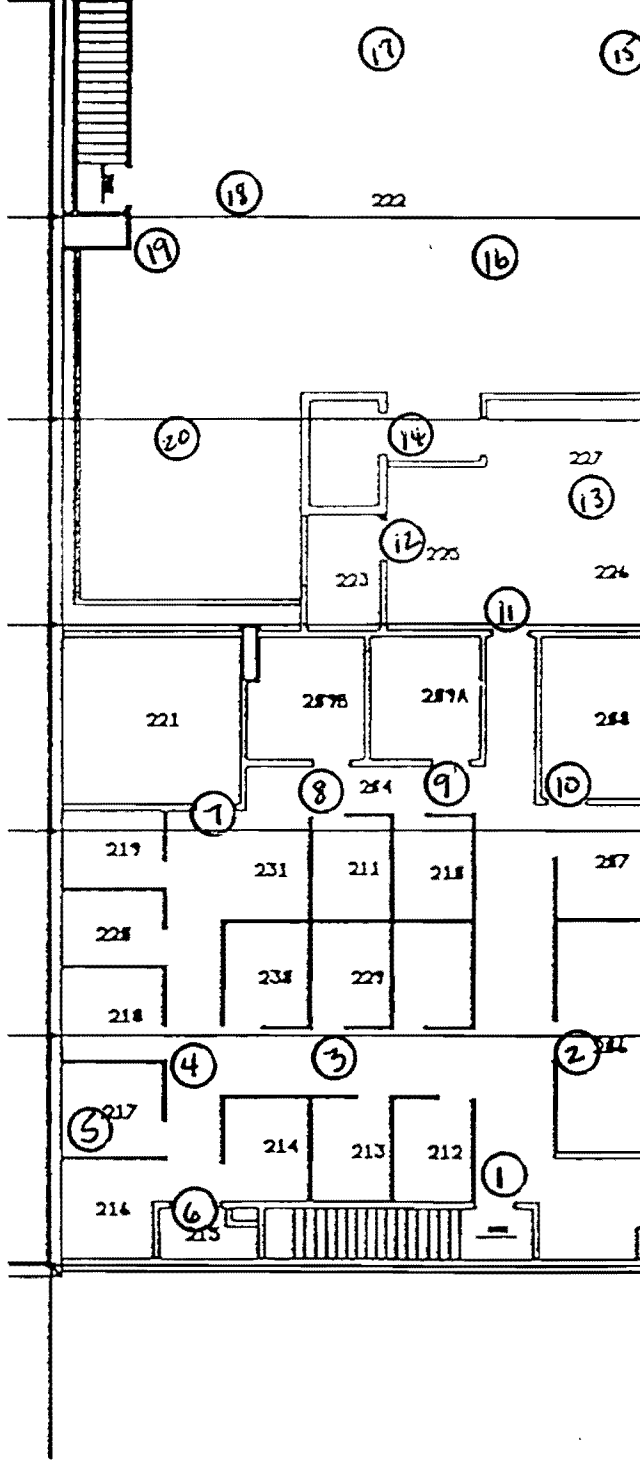
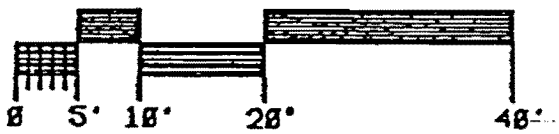


03-TF-0153



GW BLDG
SECOND FL
BLDG CODE:

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DRAWING NUMBER

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) GW BUILDING	SURVEY NO. 03-TF-0156
PURPOSE: MARSSIM SURVEY VENTILATION AND DRAINS PER SURVEY PLAN GW-01	RWP NO. N/A
	DATE: 06-28-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED RESULTS AND DRAWINGS

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	3-13-04

[redacted]	HP# 6178 5214	Date: 7-1-03
Counted by: (Signature)	HP#	Date:
Counted by: (Print) [redacted] SEE ATTACHED		
Reviewed/App[redacted]	HP# 7492	Date: 7-2-03
Reviewed/Approved by: (Print) [redacted]		

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RSDS# 03-TF-0156

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

See attached results

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

COMMENTS:

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

ML-9620

GW-BLDG CHARACTERIZATION BETA and ALPHA SURVEY VENTILATION and DRAINS

RSDS# 03-TF-0156 RCT: [illegible] RCT: [illegible]

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
exhaust 1	5833	5214	5847	1	06/28/2003	227	60	580	4	60	30
supply 2	5833	5214	5847	2	06/28/2003	167	60	280	1	60	0
exhaust 3	5833	5214	5847	3	06/28/2003	193	60	410	5	60	40
exhaust 4	5833	5214	5847	4	06/28/2003	135	60	120	6	60	50
chiller 5	5833	5214	5847	5	06/28/2003	150	60	195	0	60	-10
exhaust 6	5833	5214	5847	6	06/28/2003	196	60	425	7	60	60
supply 7	5833	5214	5847	7	06/28/2003	156	60	225	3	60	20
exhaust 8	5833	5214	5847	8	06/28/2003	160	60	245	9	60	80
supply 9	5833	5214	5847	9	06/28/2003	116	60	25	3	60	20
exhaust 10	5833	5214	5847	10	06/28/2003	127	60	80	0	60	-10
exhaust 11	5833	5214	5847	11	06/28/2003	162	60	255	9	60	80
supply 12	5833	5214	5847	12	06/28/2003	126	60	75	4	60	30
exhaust 13	5833	5214	5847	13	06/28/2003	202	60	455	2	60	10
drain 14	5833	5214	5847	14	06/28/2003	139	60	140	1	60	0
slopsink15	5833	5214	5847	15	06/28/2003	105	60	-30	2	60	10
drain 16	5833	5214	5847	16	06/28/2003	139	60	140	2	60	10
exhaust 17	5833	5214	5847	17	06/28/2003	188	60	385	9	60	80
exhaust 18	5833	5214	5847	18	06/28/2003	126	60	75	3	60	20
chiller 19	5833	5214	5847	19	06/28/2003	120	60	45	3	60	20
supply 20	5833	5214	5847	20	06/28/2003	216	60	525	3	60	20
BETA BACKGROUND (CPM) FOR 6-28-2003 WAS---------->								111			
ALPHA BACKGROUND (CPM) FOR 6-28-2003 WAS---------->								1			

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Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200306300721	**Count Date:**	6/30/2003
Group:	H	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0156 HARVEY-20 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	33	6.55	3.33	5.01	2.90
2	19	2.19	1.92	1.21	1.45
3	100	0.00	0.00	4.11	2.50
4	18	0.00	0.00	4.11	2.50
5	65	6.56	3.33	2.27	2.06
6	66	0.00	0.00	4.11	2.50
7	86	4.37	2.72	6.54	3.24
8	56	2.18	1.92	2.58	2.05
9	93	0.00	0.00	6.85	3.23
10	35	2.18	1.92	3.95	2.51
11	6	8.74	3.84	3.49	2.52
12	3	0.00	0.00	1.37	1.45
13	27	4.37	2.72	2.43	2.06
14	77	0.00	0.00	1.37	1.45
15	47	2.18	1.92	2.58	2.05
16	5	2.18	1.92	2.58	2.05
17	11	2.19	1.92	1.21	1.45
18	63	2.18	1.92	5.32	2.90
19	52	0.00	0.00	0.00	0.00
20	30	0.00	0.00	1.37	1.45
		DJH		DJH	

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	6.76
Region B:	2.0	- 18.6	0	0.0	6.56
Region C:	40.0	- 2000	0	0.0	11.00

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0156 HARVEY-20 BSB
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT2.DAT
Count Data Filename: C:\DATA\SDATA2.DAT

B J Brown

S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG
1	10.00	6.76		19.307	602.53	B
2	2.00	380.52	834.99	13.506	527.88	
3	2.00	0.00	0.00	0.000	554.58	
4	2.00	3.24	6.67	9.128	601.57	
5	2.00	0.00	0.00	0.000	499.88	
6	2.00	0.00	0.00	0.000	535.22	
7	2.00	0.00	0.00	0.000	507.11	
8	2.00	2.24	4.68	0.000	585.01	
9	2.00	0.00	0.00	0.000	602.88	
10	2.00	0.00	0.00	0.000	313.31	
11	2.00	0.00	0.00	0.000	543.45	
12	2.00	0.00	0.00	0.000	685.26	
13	2.00	0.00	0.00	0.000	424.66	
14	2.00	0.00	0.00	0.000	557.69	
15	2.00	1.24	2.36	29.692	704.50	
16	2.00	0.00	0.00	0.000	709.62	
17	2.00	0.00	0.00	0.000	708.41	
18	2.00	1.24	2.36	9.630	702.51	
19	2.00	1.74	3.31	0.000	704.95	
20	2.00	0.00	0.00	0.000	502.27	
21	2.00	2.74	5.26	26.423	691.32	
22	2.00	0.24	0.50	9.630	604.95	

Sinaftes Std of #3

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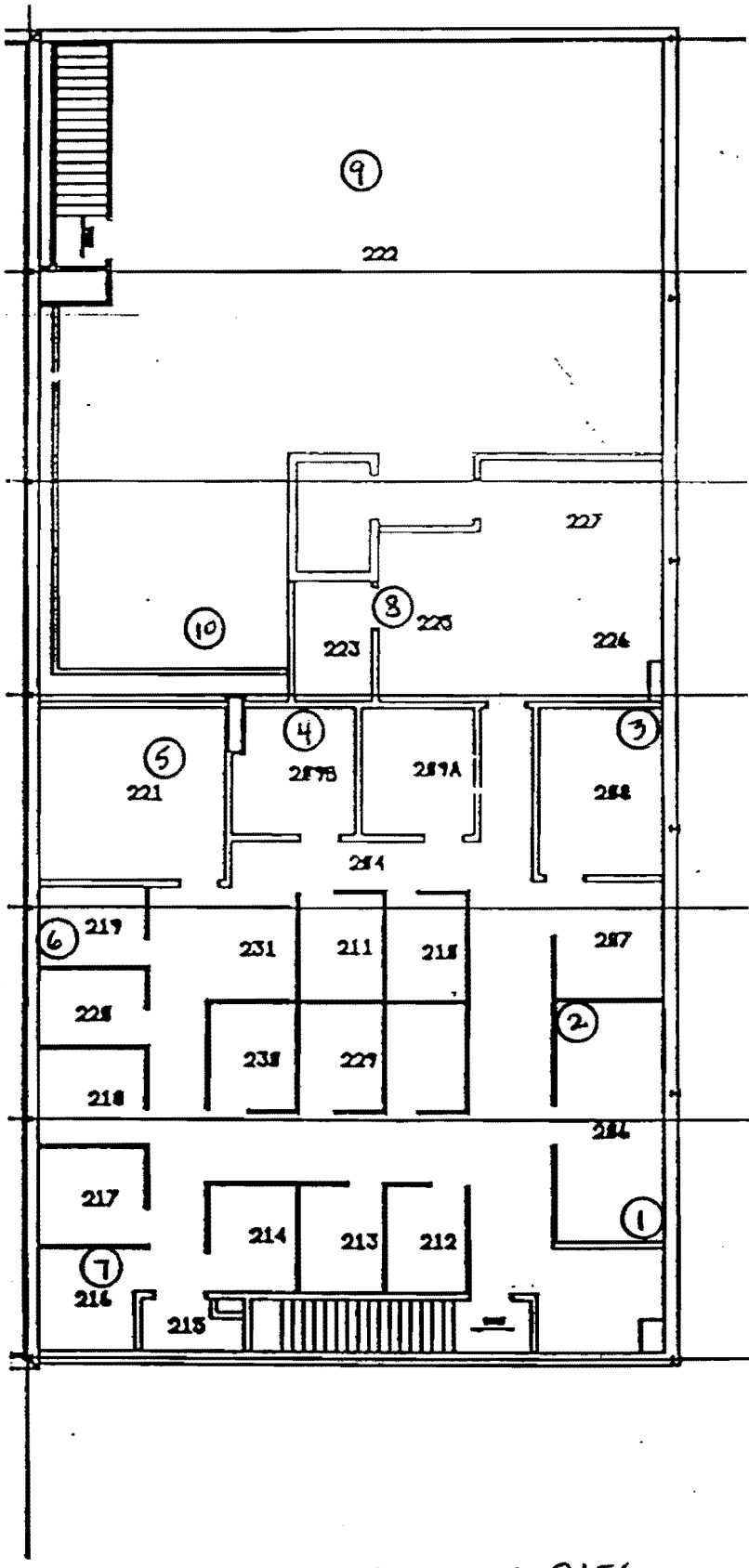
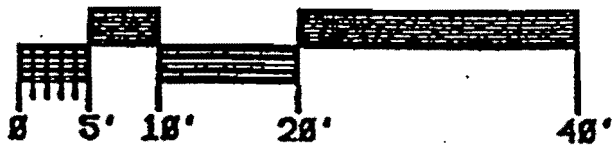


RSAS 03-TF-0156



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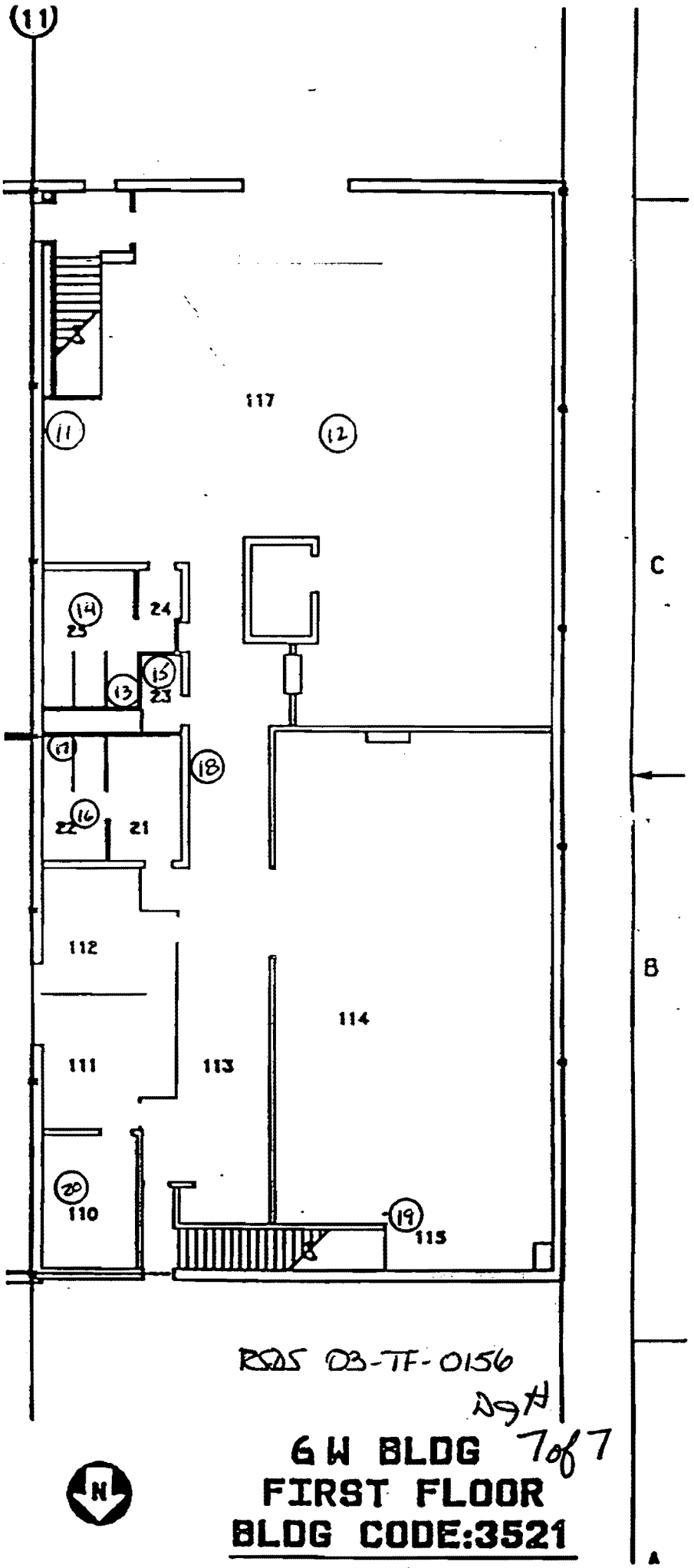
GW BLDG



RSDS 03-TF-0156

Dg H

6W BLDG 7 of 7
FIRST FLOOR
BLDG CODE:3521

FWS Rok 54

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Final Status Report
For
Building W

Prepared by: Roderick C. Case / **Date:** June 26, 2003

Reviewed by: Galen Tomlinson **Date:** 6-30-03

Approved by: A. Stephen Collas / **Date:** 6-30-03

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1.0 Historical Review

Constructed in 1948 as one of Mound's original buildings, the Warehouse, or W Building was constructed to provide a building for the general storage of plant supplies and for the storage of maintenance materials. In 1998, the Ohio Historic Preservation Office (OHPO) determined that W Building, because of its part in supporting the polonium mission at Mound, was eligible for placement on the National Register of Historic Places.

W Building was constructed as a steel frame building with brick masonry and concrete block walls, steel sash windows, a pre-cast cement tile roof and a concrete floor. The building, as constructed, was 201 foot and 9 inches long and 101 foot and 9 inches wide exclusive of the loading docks that were located on both the northern and southern sides of the building. The gross floor area of W Building, as constructed, was 20,528 square feet. Today, W Building contains 32,484 square feet of space, including the original one-story portion of the building as well as a two-story office addition on the northern end of the building. Two utility room additions that were constructed atop the roof of the original structure.

Mound's plastic production related activities began in the late 1950s, in the southeast corner of W Building, when that area was remodeled, and processing equipment to support a plastic production operation was added. The equipment added in W Building included a rolling mill to extrude the plastic, blenders, and mixers. The area was named the *Plastic Production Shop*. The *Plastic Production Shop* in W Building was used to manufacture plastic detonator components. The *Plastic Production Shop* in W Building operated through 1967, when a new building (Building 29) was constructed to house this process.

The portion of W Building that was constructed in 1948 housed Mound trades or trades related employees and their equipment. The trades related employees located in W Building include carpenters, sheet metal workers/mechanics, pipefitters/welders, electricians, and heating, ventilation and air conditioning technicians. There was also a tool crib located in W Building.

From early 1955 until August in 1955, drums of thorium ore source residues were stored in W Building, but no thorium processing or thorium processing-related activities occurred in W Building. The activities that occurred at W Building only involved the storage of, or the management of, these drums of source material, pending the use of the ores in the process in SW Building. According to a September 1955, quarterly health physics report the floors of the buildings that were used to store this material were scrubbed and decontaminated. Since it is not known precisely where this material was stored, the entire floor of the original structure and adjacent walls were considered to be impacted. Room 139 is also considered impacted since a neutron radiography source was stored in this room.

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

2.0 Survey Objectives

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building W satisfy the site release criteria. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment

found in building drains. 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. Based on historical information, 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 floor of the original structure was divided into Class 2 survey units and bounded by Class 3 survey units in accordance with Reference 2. Room 139 was given a Class 2 designation. The remainder of the building was divided into judgmental survey units.

The building was divided into survey units as follows:

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Building W Survey Units

Survey Unit Number	Survey Unit Room Designation	Area (ft^2)	Class	Data Points	Surface Scan
1-15	Floor Rooms 101,121,124,125	1000	2	15	50%
16	Floor Rooms 102-120	2750	3	15	10%
17	Floor and Walls to 6' Room 139	340	2	15	50%
18/19	North & South Interior Walls to 6'	1080	3	15	10%
20/21	East & West Interior Walls to 6'	600	3	15	10%
22	Remaining Interior Surfaces	N/A	N	Bias	Judgmental
23	Exterior Walls/Docks	N/A	N	Bias	Judgmental
24	Roof	N/A	N	Bias	Judgmental

Since the variability was expected to be small within each survey unit, the Type I error chosen is $\alpha = 0.05$ and the Type II error is $\beta = 0.05$. The number of data points was determined by calculating the relative shift (Δ/σ) from the DCGL value, the lower bound of the gray region (LBGR), and the standard deviation of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). The standard deviation was estimated to be 20 dpm/100cm^2 based on characterization surveys of similar building surfaces. The LBGR was set at one-half the release limit. The relative shift is calculated as 2.50. The decision error percentiles are obtained from Table 5.2 and the number of data points (n = 15) was calculated using Equation 5-2, Reference 2.

In the Class 2 survey units, the starting point was randomly selected and data points were placed within the survey unit using the triangular grid method. The spacing of data points in each survey unit was determined by:

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

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

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

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

Sediment samples were collected from floor drains and ventilation units. 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 Class 2 & 3 Survey Unit were averaged and compared to the $DCGL_w$. None of the fixed-point results was greater than the $DCGL_w$, therefore the Sign Test was not required. The gross alpha and beta fixed point measurements from each judgmental survey unit was collected and compared directly to the $DCGL_w$. All of the data points were found to be below the $DCGL_w$. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1.

A retrospective power curve (Attachment 2) demonstrates that the survey design had sufficient power (probability) to meet the DQO's for these survey units. The average alpha measurement is 24.4 dpm/100 cm2 ±1.5 dpm/100 cm^2 and the actual standard deviation (σ) is 14.9. The relative shift (Δ/σ) = 3.36 and Sign p (probability that a random measurement < $DCGL_w$) = 1.0. The retrospective number of data points (n) per Equation 5-2, Reference 2 is 14.

Since a large number of survey units were required to meet the criteria of Reference 2, Total Activity and Removable Activity are reported as the maximum and average per survey unit classification.

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Total Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	±	Max	Average	±
Class 2 Survey Units	66	21.4	1.4	890	480.8	21.5
Class 3 Survey Units	55	21.2	2.5	990	594.2	59.2
Judgmental Survey Units	83	42.1	5.6	4300	1214.1	292.7

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	±
Class 2 Survey Units	4.5	0.32	0.09	8.2	0.96	0.17
Class 3 Survey Units	5.7	0.17	0.17	4.8	0.81	0.25
Judgmental Survey Units	6.56	1.29	0.47	17.7	2.53	0.75

The highest removable tritium activity was 88.2 dpm/100cm2 (RSDS# 03-TF-0139). The average removable tritium was 2.8 dpm/100cm2 (±0.96).

Fifty percent of each Class 2 survey unit was scanned for alpha activity. An area 1 m^2 around each Class 3 data point (~ 10%) was scanned for alpha activity. The floors and major walkways in the remaining areas were judgmentally scanned for alpha activity. The highest activity measured was 45 dpm/100cm2 (RSDS# 03-TF-0132).

The surfaces of Room 139 and walls in adjacent areas were surveyed using a MicroRem meter to ensure no residual activation isotopes were present. The presence of typical activation isotopes (e.g. Eu-134, Fe-59, Co-60) would be observed as gamma activity above background levels. All areas were found to be <0.005 mRem/hr (RSDS# 03-TF-0151).

2.3 Sediment Sample Data

Sediment (or liquid) samples were obtained from floor drains and traps. A smear was obtained if no material was present at the sample location. Sediment and smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan (See RSDS # 03-TF-0120). No activity was observed in any sediment sample above the screening levels (Screening level for tritium = 1000 nCi/L; Screening level for gross alpha/beta = 4 dpm/ml). Direct alpha and beta measurements were taken at each sample location. The highest activity observed was 35 dpm/100cm^2 alpha and 55 dpm/100cm^2 beta.

2.4 Quality Control

Quality control measurements were taken to ensure the quality and precision of the data. Twenty-six (26) data points were selected at random from the sample group of 361 data

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points. The control data set includes the highest and lowest alpha measurements and corresponding beta measurements. Replicate measurements were taken at these locations using the same instruments and performed in the same manner as the original survey. The results of the replicate surveys are shown in the following table:

Replicate Fixed Point QC						
	alpha (dpm/100cm^2)			beta (dpm/100cm^2)		
Location #	initial	2σ	replicate	initial	2σ	replicate
QC24-01	22	9.380832	17	5	4.472136	45
QC24-07	72	16.97056	66	1770	84.14274	2065
QC23-03	83	18.22087	66	890	59.66574	855
QC23-12	22	9.380832	55	1585	79.62412	1510
QC16-12	33	11.48913	17	445	42.19005	350
QC16-05	6	4.898979	17	555	47.11688	570
QC17-10	33	11.48913	17	50	14.14214	-90
QC17-06	6	4.898979	0	160	25.29822	145
QC13-13	50	14.14214	17	585	48.37355	575
QC9-06	0	0	17	230	30.3315	325
QC11-08	0	0	22	810	56.921	670
QC12-02	66	16.24808	33	795	56.39149	815
QC8-10	0	0	11	470	43.35897	530
QC6-11	39	12.49	22	525	45.82576	395
QC3-13	44	13.2665	28	450	42.42641	435
QC1-07	0	0	17	385	39.24283	375
QC20-12	50	14.14214	44	780	55.85696	765
QC20-07	0	0	33	870	58.99152	820
QC19-05	55	14.8324	50	670	51.76872	650
QC19-03	6	4.898979	39	-10	6.324555	-35
QC21-05	28	10.58301	11	220	29.66479	455
QC21-15	6	4.898979	50	840	57.96551	885
QC18-11	33	11.48913	17	795	56.39149	930
QC18-02	6	4.898979	44	775	55.67764	825
QC22-11	11	6.63325	28	235	30.65942	105
QC22-09	61	15.6205	28	825	57.44563	865
Variance (S2) =	220.3335		304.5785	267061.5		216092
Ratio			0.723405			1.235869
Agreement			YES			YES

The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is in agreement (within a factor of two) with the variance in the replicate samples (at 95% confidence level). Negative beta values occur when the measured value is below the instrument background level. These values are used for this analysis to show the true variability of the data set. The variance of both the alpha and beta replicate measurements was in agreement with the variance of the initial data set.

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

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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 W 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 W 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 W 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-0145	Floor Room 131	6.56	20
Highest Alpha Fixed Activity	03-TF-0135	South Dock	83	100
Highest Beta Smearable Activity	03-TF-0135	North Dock	17.66	1000
Highest Beta Fixed Activity	03-TF-0133	Roof	4300	5000
Highest Tritium Smearable Activity	03-TF-0139	Interior Wall	88.2	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.

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3.0 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

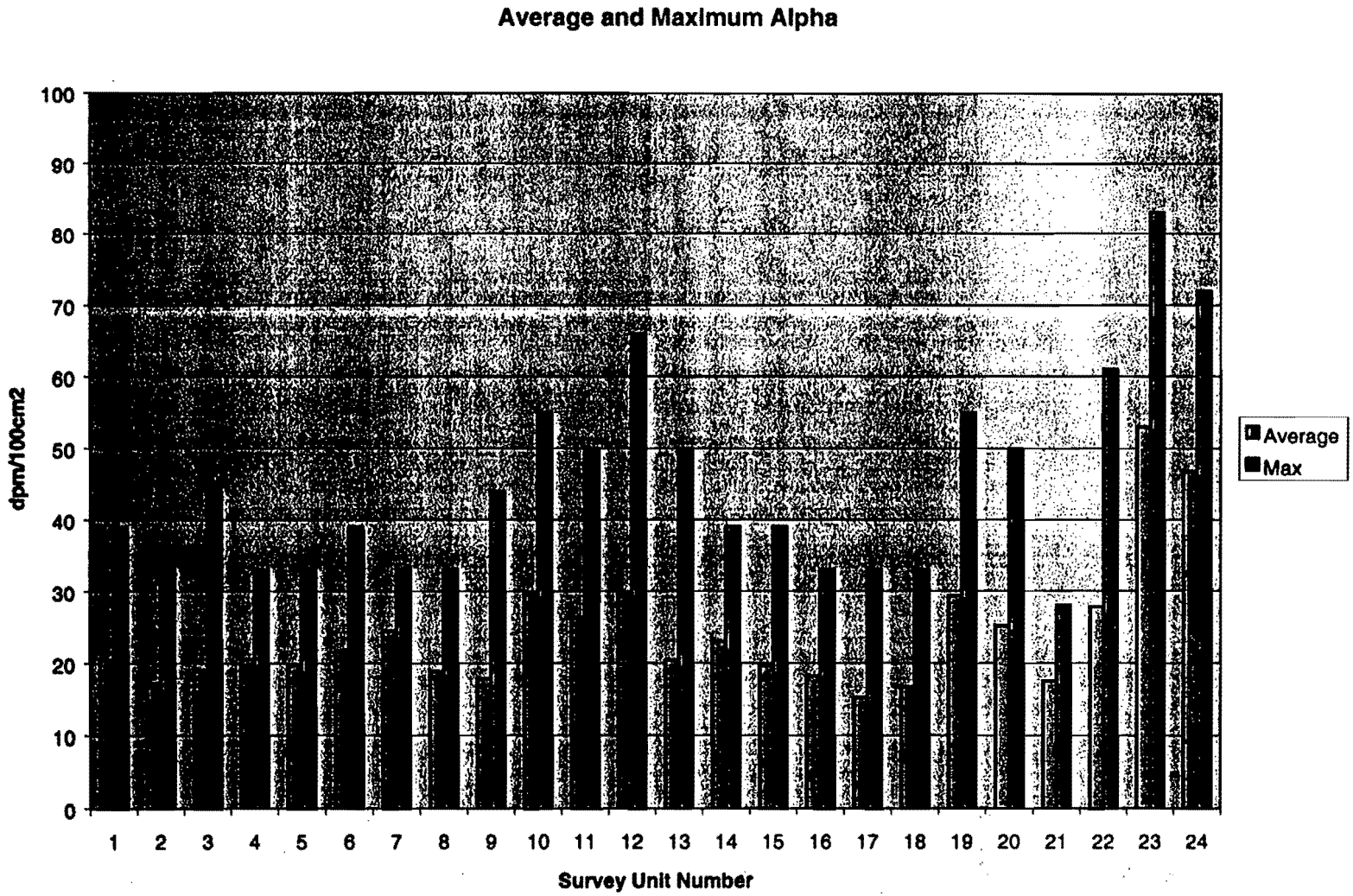
Attachment 2 – Retrospective Power Curve

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF W-01

4.0 References

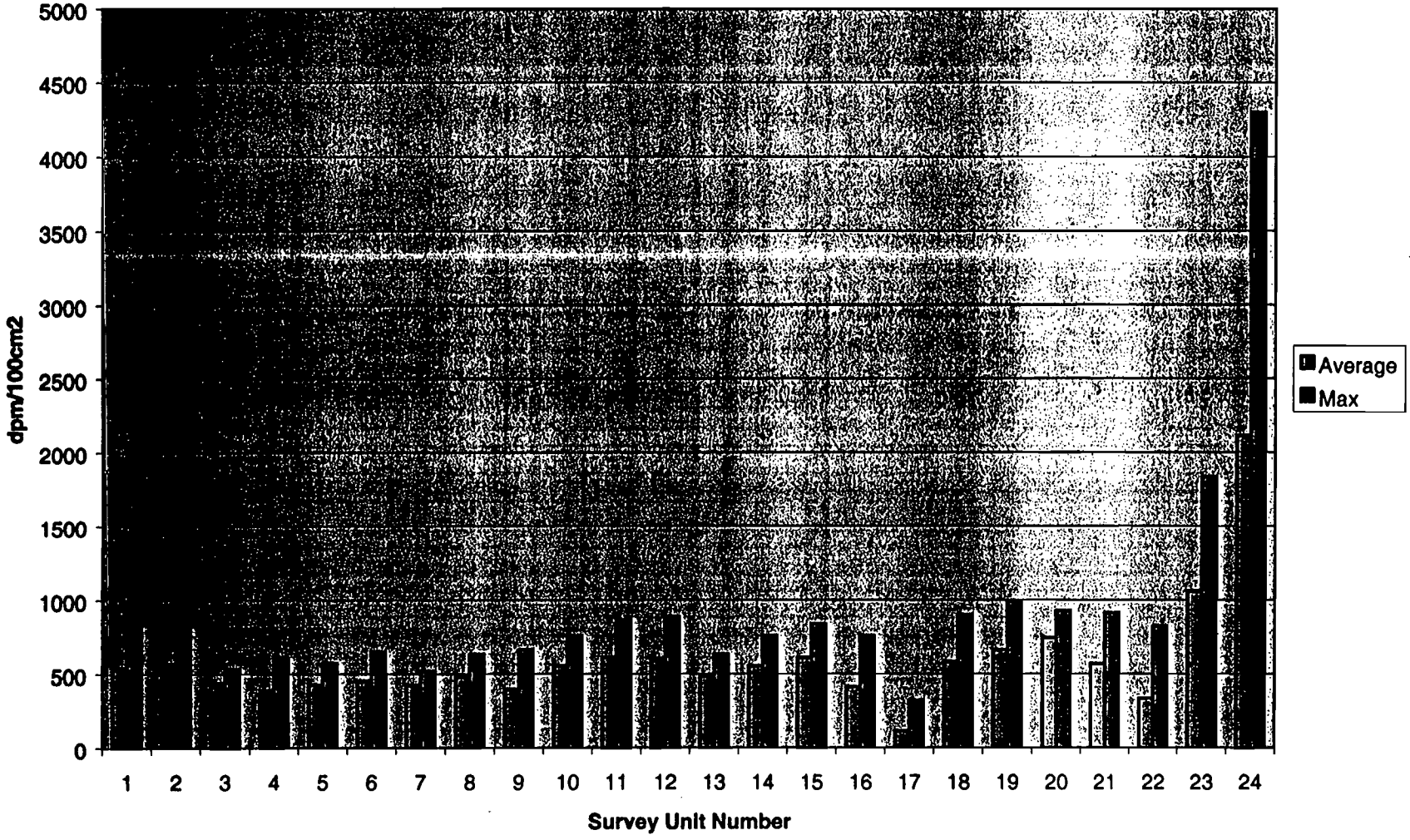
1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building W Structural History and Process History Summary Background Document, January 2003
2. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80047, 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


Average and Maximum Alpha
dpm/100cm2
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Survey Unit Number
Average
Max

Wilde 199

Building W Final Status Report
Attachment 1

Average and Maximum Beta



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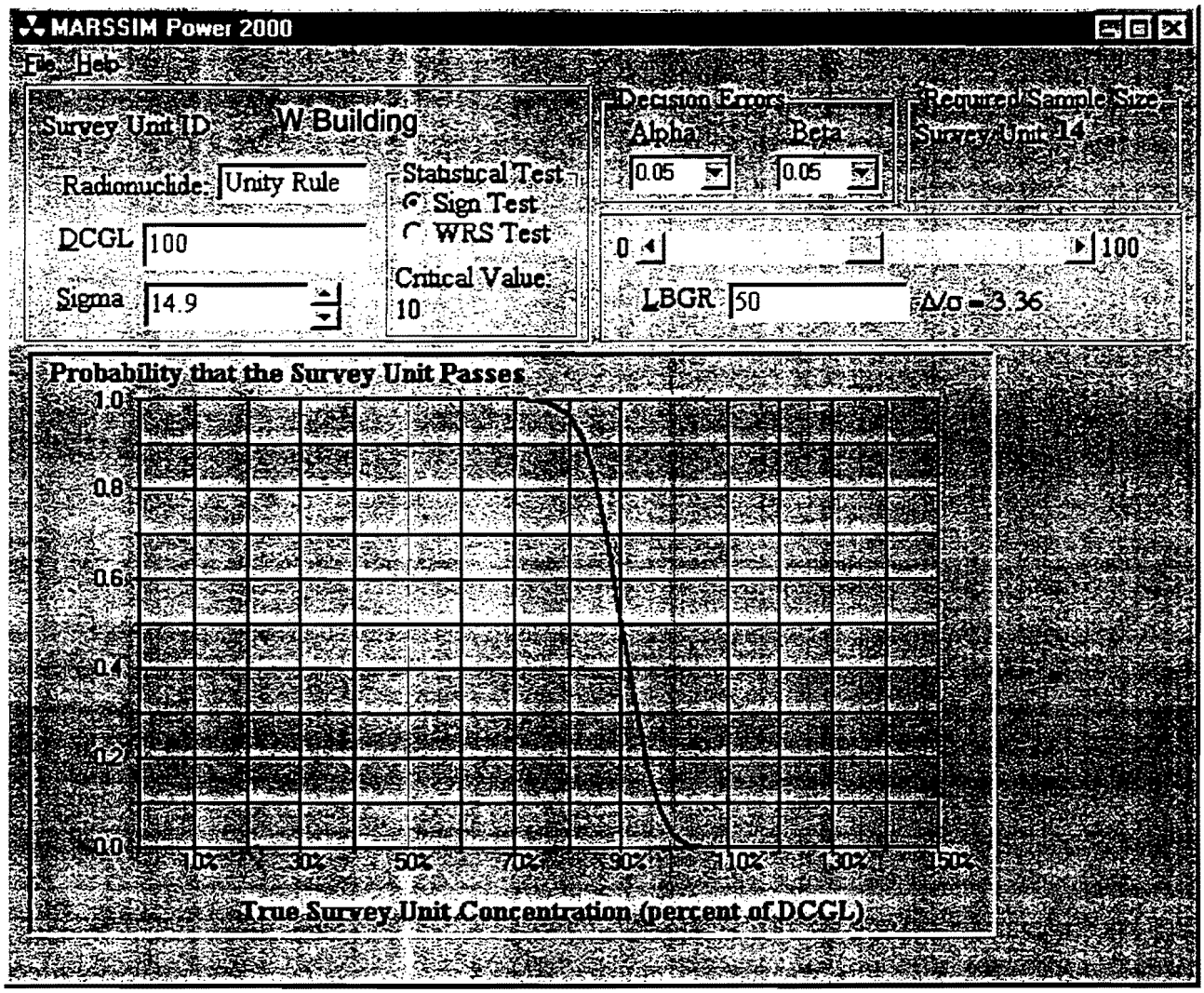
Retrospective Power Curve



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

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Building W Survey Data Collection Sheet

		Smearable			Fixed		QC
Location	RSDS#	α	β	H^3	α	β	α/β
SU1-01	0141	0	3.3	0	22	620	
SU1-02	0141	0	2.1	0	17	635	
SU1-03	0141	0.7	3.1	0	11	390	
SU1-04	0141	1.4	1.2	0	22	685	
SU1-05	0141	0	3.1	0	39	575	
SU1-06	0141	0	2.1	0	22	370	
SU1-07	0141	0	1.2	0	0	385	17/375
SU1-08	0141	1.5	0	0	28	615	
SU1-09	0141	0	0.1	0	17	500	
SU1-10	0141	0	3.1	0	17	415	
SU1-11	0141	0	1.6	0	17	475	
SU1-12	0141	0	0.6	0	28	455	
SU1-13	0141	0	4.6	0	6	540	
SU1-14	0141	1.6	1.3	0	28	660	
SU1-15	0141	0	0.5	0	33	820	
SU2-01	0141	0	0.3	0	28	405	
SU2-02	0141	0	2	0	17	600	
SU2-03	0141	1.7	1.6	0	28	515	
SU2-04	0141	0	0	0	17	575	
SU2-05	0141	0	0	0	17	595	
SU2-06	0141	0	0	0	6	500	
SU2-07	0141	1.5	3.2	0	6	570	
SU2-08	0141	0	0.1	0	22	690	
SU2-09	0141	0	0.8	0	33	630	
SU2-10	0141	0	3.6	0	22	805	
SU2-11	0141	0	3.1	0	28	410	
SU2-12	0141	0	1.6	0	11	445	
SU2-13	0141	0	0	0	6	485	
SU2-14	0141	0	2	0	0	680	
SU2-15	0141	0	0	0	17	630	
SU3-01	0141	0.6	1.5	0	28	495	
SU3-02	0141	0	1.5	0	6	455	
SU3-03	0141	0	0.4	0	17	435	
SU3-04	0141	0	1.4	0	11	435	
SU3-05	0141	0.7	0	0	17	395	
SU3-06	0141	0	0	0	6	450	
SU3-07	0141	0	3.6	0	11	265	
SU3-08	0141	1.5	0.3	0	28	490	
SU3-09	0141	0	2.4	0	28	535	
SU3-10	0141	0	0	0	11	430	
SU3-11	0141	0	0	0	28	520	
SU3-12	0141	0	1.6	0	22	485	
SU3-13	0141	0	0	0	44	450	28/435
SU3-14	0141	0	0	0	22	430	
SU3-15	0141	0	3.3	0	6	305	

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Building W Survey and Sample Data

Location	RSDS#	α	β	H^3	α	β	α/β
SU4-01	0141	0	0.1	0	28	370	
SU4-02	0141	0	0	0	6	510	
SU4-03	0141	0	0	0	33	485	
SU4-04	0141	3.7	0.3	0	17	470	
SU4-05	0141	0	0	0	11	405	
SU4-06	0141	0	0	0	28	475	
SU4-07	0141	0	0.1	0	28	615	
SU4-08	0141	0	1.8	0	33	420	
SU4-09	0141	0	0	0	28	160	
SU4-10	0141	0	0	0	22	300	
SU4-11	0141	0	1.6	0	6	335	
SU4-12	0141	0	0	0	17	365	
SU4-13	0141	0	0.6	0	17	280	
SU4-14	0141	0	2.7	0	6	320	
SU4-15	0141	0	1.7	0	28	365	
SU5-01	0142	0	0	0	17	440	
SU5-02	0142	1.7	3.2	0	11	555	
SU5-03	0142	0.7	3.1	3.03	22	375	
SU5-04	0142	0	0	6.61	11	340	
SU5-05	0142	0	8.2	0	28	390	
SU5-06	0142	1.5	0	0	28	295	
SU5-07	0142	0.9	2.3	0	28	495	
SU5-08	0142	1.5	0	0	33	465	
SU5-09	0142	0	1.3	0.58	11	485	
SU5-10	0142	0	0.6	0	11	430	
SU5-11	0142	0	2.7	0	22	435	
SU5-12	0142	0	0	1.7	6	360	
SU5-13	0142	0	0	2.96	17	575	
SU5-14	0142	1.6	0	0	33	470	
SU5-15	0142	4.5	0	0	17	350	
SU6-01	0142	0	0	0	17	455	
SU6-02	0142	0	0.7	0	22	480	
SU6-03	0142	0	0	0	17	285	
SU6-04	0142	0	3.3	0	17	290	
SU6-05	0142	0	0	0	11	605	
SU6-06	0142	0	0	1.69	22	560	
SU6-07	0142	0	0	1.78	22	385	
SU6-08	0142	0	1.2	0	17	435	
SU6-09	0142	0	0	1.7	39	655	
SU6-10	0142	0	0	2.86	17	415	
SU6-11	0142	0	0	0	39	525	22/395
SU6-12	0142	0	0	0	17	325	
SU6-13	0142	0	0.6	1.7	33	420	
SU6-14	0142	0	0.7	0	28	525	
SU6-15	0142	1.6	2.6	0	6	455	

= Class 2 = Class 3 = Judgmental

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	Smearable			Fixed	
	α	β	H^3	α	β
Survey Unit 1					
Number	15	15	15	15	15
Avg	0.346667	1.86	0	20.46667	542.6667
SD	0.624347	1.351084	0	10.15499	130.9562
Max	1.6	4.6	0	39	820
+/-	0.315963	0.683743	0	5.139134	66.27298
Survey Unit 2					
Number	15	15	15	15	15
Avg	0.213333	1.22	0	17.2	569
SD	0.564253	1.318657	0	9.843054	111.5027
Max	1.7	3.6	0	33	805
+/-	0.285551	0.667333	0	4.981273	56.42816
Survey Unit 3					
Number	15	15	15	15	15
Avg	0.186667	1.066667	0	19	438.3333
SD	0.429063	1.248237	0	10.93487	72.93996
Max	1.5	3.6	0	44	535
+/-	0.217136	0.631695	0	5.533809	36.91271
Survey Unit 4					
Number	15	15	15	15	15
Avg	0.246667	0.593333	0	20.53333	391.6667
SD	0.955336	0.893202	0	9.833374	110.6582
Max	3.7	2.7	0	33	615
+/-	0.483467	0.452022	0	4.976374	56.00078
Survey Unit 5					
Number	15	15	15	15	15
Avg	0.826667	1.426667	0.992	19.66667	430.6667
SD	1.231994	2.254984	1.891712	8.796644	79.77349
Max	4.5	8.2	6.61	33	575
+/-	0.623475	1.141179	0.957338	4.451716	40.37096
Survey Unit 6					
Number	15	15	15	15	15
Avg	0.106667	0.606667	0.648667	21.6	454.3333
SD	0.413118	1.031965	0.988237	9.485327	108.5927
Max	1.6	3.3	2.86	39	655
+/-	0.209067	0.522246	0.500117	4.800238	54.9555

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		Smearable			Fixed		QC
Location	RSDS#	α	β	H^3	α	β	α/β
SU7-01	0142	0	0	3.93	28	520	
SU7-02	0142	0	0	0	33	330	
SU7-03	0142	0	0.3	0	28	515	
SU7-04	0142	0	0.7	0	22	415	
SU7-05	0142	1.7	0.6	5.2	33	430	
SU7-06	0142	0	0	0.91	11	415	
SU7-07	0142	1.4	0	0	28	395	
SU7-08	0142	0	3.1	0	11	440	
SU7-09	0142	0	0	1.84	28	425	
SU7-10	0142	0	0.1	0	22	395	
SU7-11							
SU7-12							
SU7-13							
SU7-14							
SU7-15							
SU8-01	0142	0	0.5	0	28	635	
SU8-02	0142	0	2.6	1.71	11	575	
SU8-03	0142	0	0	0	22	545	
SU8-04	0142	0	0.8	0	33	430	
SU8-05	0142	0	2	0	11	400	
SU8-06	0142	0	0.1	0.55	17	475	
SU8-07	0142	1.6	2.9	2.92	11	570	
SU8-08	0142	0	0	4.26	28	550	
SU8-09	0142	0	0.1	0	22	515	
SU8-10	0142	0	0.8	0	0	470	11/530
SU8-11	0142	0	0	0	33	405	
SU8-12	0142	0	0	0	17	530	
SU8-13	0142	0	0	2.89	6	395	
SU8-14	0142	0	0.6	3.33	22	465	
SU8-15	0142	1.9	0	0.55	22	235	
SU9-01	0144	0	2	0	11	650	
SU9-02	0144	0	0	0	17	425	
SU9-03	0144	0.7	0.7	0	22	250	
SU9-04	0144	0	0	0	44	390	
SU9-05	0144	0	3.1	0	17	385	
SU9-06	0144	1.5	0	0	0	230	17/325
SU9-07	0144	0	0.1	0	22	195	
SU9-08	0144	1.5	0	0	17	345	
SU9-09	0144	0	0.1	0	17	325	
SU9-10	0144	0	0.7	0	6	360	
SU9-11	0144	0	5.6	0	17	435	
SU9-12	0144	0	0	0	11	615	
SU9-13	0144	0	1.7	0	17	665	
SU9-14	0144	0	0	0	11	335	
SU9-15	0144	0	0.1	0	39	395	

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Location	RSDS#	α	β	H^3	α	β	α/β
SU10-01	0143	0	2.7	0	17	465	
SU10-02	0143	0	0	0	39	760	
SU10-03	0143	0	1.5	0	28	660	
SU10-04	0143	0	0	0	39	465	
SU10-05	0143	0	0.8	0	33	675	
SU10-06	0143	0	0.8	0	6	695	
SU10-07	0143	0	1.3	0	17	445	
SU10-08	0143	0	3.1	0	17	550	
SU10-09	0143	0	2.1	0	28	580	
SU10-10	0143	0	1.2	0	33	505	
SU10-11	0143	0	3.1	0	33	435	
SU10-12	0143	0	0	0	44	475	
SU10-13	0143	0	0.6	0	33	495	
SU10-14	0143	1.2	1.5	0	22	475	
SU10-15	0143	0	0.6	0	55	665	
SU11-01	0143	0	2.8	0	33	350	
SU11-02	0143	1.5	0	0	33	485	
SU11-03	0143	0	3.3	0	50	670	
SU11-04	0143	0	2.1	0	22	785	
SU11-05	0143	0	0	0	33	675	
SU11-06	0143	0	0	0	28	865	
SU11-07	0143	0	0	0	17	725	
SU11-08	0143	0	0	0	0	810	22/670
SU11-09	0143	0.9	0	0	11	430	
SU11-10	0143	1.5	0.7	0	22	375	
SU11-11	0143	0	0	0	28	680	
SU11-12	0143	1.6	0.5	0	39	350	
SU11-13	0143	1.2	0	0	39	825	
SU11-14	0143	0	0.6	0	28	645	
SU11-15	0143	0	0.7	0	11	555	
SU12-01	0143	0	0.3	0	28	505	
Su12-02	0143	1.7	4.4	0	66	795	33/815
SU12-03	0143	1.7	0	0	28	890	
SU12-04	0143	0	0	0	17	195	
SU12-05	0143	1.4	0	0	6	660	
SU12-06	0143	0	0	0	22	680	
SU12-07	0143	0	6	0	11	480	
SU12-08	0143	0.9	0	0	50	750	
SU12-09	0143	1.5	0	0	39	735	
SU12-10	0143	0	4.8	0	39	450	
SU12-11	0143	0	0.6	0	33	485	
SU12-12	0143	0	0	0	33	855	
SU12-13	0143	0	1.7	0	28	820	
SU12-14	0143	0	0	0	28	400	
SU12-15	0143	1.6	0	0	17	370	

= Class 2 = Class 3 = Judgmental

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	Smearable			Fixed	
	α	β	H^3	α	β
Survey Unit 7					
Number	10	10	10	10	10
Avg	0.31	0.48	1.188	24.4	428
SD	0.657352	0.957775	1.90278	7.9610161	56.085253
Max	1.7	3.1	5.2	33	520
+/-	0.407431	0.593635	1.179356	4.9342889	34.762
Survey Unit 8					
Number	15	15	15	15	15
Avg	0.233333	0.693333	1.080667	18.866667	479.66667
SD	0.61837	0.995322	1.514843	9.7091023	98.605757
Max	1.9	2.9	4.26	33	635
+/-	0.312938	0.503703	0.766616	4.9134837	49.901398
Survey Unit 9					
Number	15	15	15	15	15
Avg	0.246667	0.94	0	17.866667	400
SD	0.539665	1.594992	0	11.243199	143.68865
Max	1.5	5.6	0	44	665
+/-	0.273108	0.807177	0	5.6898437	72.716491
Survey Unit 10					
Number	15	15	15	15	15
Avg	0.08	1.286667	0	29.6	556.33333
SD	0.309839	1.05956	0	12.454489	107.36231
Max	1.2	3.1	0	55	760
+/-	0.1568	0.536211	0	6.3028408	54.332828
Survey Unit 11					
Number	15	15	15	15	15
Avg	0.446667	0.713333	0	26.266667	615
SD	0.671743	1.105096	0	12.847827	179.31417
Max	1.6	3.3	0	50	865
+/-	0.339949	0.559256	0	6.5018977	90.74549
Survey Unit 12					
Number	15	15	15	15	15
Avg	0.586667	1.186667	0	29.666667	604.66667
SD	0.765195	2.080819	0	15.187714	207.36843
Max	1.7	6	0	66	890
+/-	0.387242	1.05304	0	7.6860439	104.94291

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		Smearable			Fixed		QC
Location	RSDS#	α	β	H^3	α	β	α/β
SU13-01	0144	0	1.5	0	17	495	
SU13-02	0144	0	0	0	17	500	
SU13-03	0144	1.7	0	0	22	545	
SU13-04	0144	0	0.8	0	11	460	
SU13-05	0144	0	0.1	0	11	635	
SU13-06	0144	0	0	0	28	390	
SU13-07	0144	1.5	0	0	11	375	
SU13-08	0144	0.9	2.3	0	11	440	
SU13-09	0144	0	0.8	0	17	430	
SU13-10	0144	0	1.3	0	17	470	
SU13-11	0144	0	0.6	0	11	530	
SU13-12	0144	0	0.5	0	22	450	
SU13-13	0144	0	1.7	0	50	585	17/575
SU13-14	0144	0	0.1	0	39	475	
SU13-15	0144	0	0	0	22	485	
SU14-01	0143	1.7	0	0	39	565	
SU14-02	0143	1.7	3.2	0	33	630	
SU14-03	0143	0	0	0	17	500	
SU14-04	0143	0	0	0	17	620	
SU14-05	0143	0	0.5	0	33	390	
SU14-06	0143	1.5	0.6	0	39	685	
SU14-07	0143	0	0.1	0	11	580	
SU14-08	0143	0	0	0	22	505	
SU14-09	0143	0	4.8	0	17	475	
SU14-10	0143	0	0	0	28	510	
SU14-11	0143	0	0	0	11	415	
SU14-12	0143	0	0.6	0	11	480	
SU14-13	0143	0	0	0	33	760	
SU14-14	0143	0	1.4	0	11	670	
SU14-15	0143	0.6	0	0	22	525	
SU15-01	0144	0	0	0	22	510	
SU15-02	0144	1.5	2.5	0	22	840	
SU15-03	0144	0	0	0	22	555	
SU15-04	0144	0	2.1	0	22	710	
SU15-05	0144	0.7	0	0	39	650	
SU15-06	0144	0	2.5	0	6	715	
SU15-07	0144	0	0.5	0	11	430	
SU15-08	0144	0	0	0	6	675	
SU15-09	0144	0.9	1.1	0	22	410	
SU15-10	0144	0	1.9	0	33	525	
SU15-11	0144	0	1.3	0	11	725	
SU15-12	0144	0	0	0	17	695	
SU15-13	0144	1.1	2.6	0	28	620	
SU15-14	0144	0	0	0	22	615	
SU15-15	0144	0	0	0	11	490	

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Location	RSDS#	α	β	H^3	α	β	α/β
SU16-01	0137	0	0	0	17	480	
SU16-02	0137	0	0.8	0	22	390	
SU16-03	0137	0	0	0	17	370	
SU16-04	0137	0	2.3	0	22	255	
SU16-05	0137	1.4	1.8	0	6	555	17/570
SU16-06	0137	0	0.8	0	28	395	
SU16-07	0137	0	0	0	22	325	
SU16-08	0137	0	0	0	11	760	
SU16-09	0137	0	1.3	0	11	620	
SU16-10	0137	0	0.6	0	17	400	
SU16-11	0137	0	0	0	11	175	
SU16-12	0137	0	1.7	0	33	445	17/350
SU16-13	0137	0	0	0	17	210	
SU16-14	0137	0	0.1	0	11	600	
SU16-15	0137	0	0.5	0	28	280	
SU17-01	0137	0	0	0	11	260	
SU17-02	0137	0	0	0	22	215	
SU17-03	0137	0	0.8	0	28	175	
SU17-04	0137	0	0	0	11	55	
SU17-05	0137	1.6	5.5	0	22	170	
SU17-06	0137	0	0	0	6	160	0/145
SU17-07	0137	0	0.1	0	11	325	
SU17-08	0137	3.4	0	0	6	180	
SU17-09	0137	0	1.3	0	11	-20	
SU17-10	0137	0	0	0	33	50	17/-90
SU17-11	0137	0	2.7	0	11	-35	
SU17-12	0137	0	0	0	6	-30	
SU17-13	0137	0	0	0	6	175	
SU17-14	0137	0	0.1	0	22	70	
SU17-15	0137	0	0	0	22	-25	
SU18-01	0139	0	0.6	0	28	905	
SU18-02	0139	0	0	6.58	6	775	44/825
SU18-03	0139	1.6	0	0	11	410	
SU18-04	0139	0	4	2.45	11	620	
SU18-05	0139	0	0	5.96	11	680	
SU18-06	0139	0	0.7	0	6	70	
SU18-07	0139	0	0	0	28	675	
SU18-08	0139	0	0	0	22	580	
SU18-09	0139	0	4.8	0	11	90	
SU18-10	0139	0	1.8	0	28	5	
SU18-11	0139	5.7	0.3	0	33	795	17/930
SU18-12	0139	0	0.1	0	11	805	
SU18-13	0139	0	0	0	11	735	
SU18-14	0139	0	0	0	22	770	
SU18-15	0139	0	1.9	0	11	865	

= Class 2 = Class 3 = Judgmental

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	Smearable			Fixed	
	α	β	H^3	α	β
Survey Unit 13					
Number	15	15	15	15	15
Avg	0.273333	0.646667	0	20.4	484.3333
SD	0.587326	0.744376	0	11.26182	69.07208
Max	1.7	2.3	0	50	635
+/-	0.297228	0.376706	0	5.699267	34.9553
Survey Unit 14					
Number	15	15	15	15	15
Avg	0.366667	0.746667	0	22.93333	554
SD	0.674713	1.410606	0	10.42981	103.5133
Max	1.7	4.8	0	39	760
+/-	0.341452	0.713865	0	5.278212	52.38495
Survey Unit 15					
Number	15	15	15	15	15
Avg	0.28	0.966667	0	19.6	611
SD	0.505964	1.082765	0	9.485327	121.7022
Max	1.5	2.6	0	39	840
+/-	0.256053	0.547955	0	4.800238	61.58982
Survey Unit 16					
Number	15	15	15	15	15
Avg	0.093333	0.66	0	18.2	417.3333
SD	0.361478	0.778093	0	7.636379	163.6074
Max	1.4	2.3	0	33	760
+/-	0.182933	0.393769	0	3.864541	82.79677
Survey Unit 17					
Number	15	15	15	15	15
Avg	0.333333	0.7	0	15.2	115
SD	0.943146	1.524561	0	8.833378	114.2679
Max	3.4	5.5	0	33	325
+/-	0.477298	0.771534	0	4.470306	57.82751
Survey Unit 18					
Number	15	15	15	15	15
Avg	0.486667	0.946667	0.999333	16.66667	585.3333
SD	1.499937	1.544514	2.233519	9.10782	300.211
Max	5.7	4.8	6.58	33	905
+/-	0.759073	0.781632	1.130317	4.609193	151.9277

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		Smearable			Fixed		QC
Location	RSDS#	α	β	H^3	α	β	α/β
SU19-01	0139	0	1.6	0	28	810	
SU19-02	0139	0	1.5	8	39	930	
SU19-03	0139	0	2	0	6	-10	50/-35
SU19-04	0139	0	3.4	0	22	990	
SU19-05	0139	0	0.8	0	55	670	39/650
SU19-06	0139	0	0	2.44	17	240	
SU19-07	0139	0	0	0	39	850	
SU19-08	0139	0	0	4.53	39	685	
SU19-09	0139	0	0	0	22	725	
SU19-10	0139	0.9	0	0	44	650	
SU19-11	0139	0	0.1	0.33	28	870	
SU19-12	0139	0	0	88.2	22	345	
SU19-13	0139	0	0.4	0	22	715	
SU19-14	0139	1.2	0.6	0	28	840	
SU19-15	0139						
SU20-01	0139	0	0.7	0	28	675	
Su20-02	0139	0	0	0	28	740	
SU20-03	0139	0	0	0	22	680	
SU20-04	0139	1.4	1.2	3.6	28	720	
SU20-05	0139	0	1.8	0	6	765	
SU20-06	0139	0	0	1.48	39	615	
SU20-07	0139	0	0	0	0	870	33/820
SU20-08	0139	0	1.9	0.36	11	355	
SU20-09	0139	0	0	0	28	820	
SU20-10	0139	0	3.1	0.27	17	930	
SU20-11	0139	0	1.6	0	28	820	
SU20-12	0139	0	0	0	50	780	44/765
SU20-13	0139	0	2	4.69	33	775	
SU20-14	0139	0	1.4	0	33	915	
SU20-15							
SU21-01	0139	0	0.7	0	17	915	
SU21-02	0139	0	4	4.82	22	265	
SU21-03	0139	0	0.5	0.26	6	730	
SU21-04	0139	0	1.5	0	17	620	
SU21-05	0139	0	0.7	0	28	220	11/455
SU21-06	0139	0	0.8	0	17	640	
SU21-07	0139	0	0	0	11	595	
SU21-08	0139	0	0.1	6.89	17	640	
SU21-09	0139	0	0	0.25	17	415	
SU21-10	0139	0	0	0	22	810	
SU21-11	0139	0	2.4	0	22	750	
SU21-12	0139	0	0	0	22	60	
SU21-13	0139	0	0	0	22	265	
SU21-14	0139	0	0	2.07	17	805	
SU21-15	0139	0	0.5	0	6	840	50/885

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Location	RSDS#	α	β	H^3	α	β	α/β
SU22-01	0145	2.18	2.58	8.07	11	245	
SU22-02	0145	0	0	0	22	480	
SU22-03	0145	0	4.11	0	17	390	
SU22-04	0145	0	1.37	8.44	39	280	
SU22-05	0145	0	0	0	11	130	
SU22-06	0145	0	1.37	8.47	17	155	
SU22-07	0145	6.56	2.27	0	33	215	
SU22-08	0145	0	0	0	55	310	
SU22-09	0145	2.18	2.58	0	61	825	28/865
SU22-10	0145	2.19	1.21	12.68	28	665	
SU22-11	0145	2.18	5.32	0	11	235	28/105
SU22-12	0145	0	2.74	8.11	28	600	
SU22-13	0145	0	2.74	8.88	17	525	
SU22-14	0145	0	1.37	9.7	28	215	
SU22-15	0145	4.36	9.28	8.91	39	495	
SU23-01	0135	4.37	3.8	6.61	33	570	
SU23-02	0135	2.18	5.32	48.59	77	1600	
SU23-03	0135	4.37	2.43	32.13	83	890	
SU23-04	0135	2.18	3.95	14.59	61	1520	
SU23-05	0135	0	0	18.42	72	735	
SU23-06	0135	0	1.37	37.83	83	1835	
SU23-07	0135	0	1.37	71.71	39	820	
SU23-08	0135	0	1.37	18.13	77	1570	
SU23-09	0135	0	2.74	25.75	44	765	
SU23-10	0135	0	0	26.08	61	1675	
SU23-11	0135	2.19	0	6.28	22	595	
SU23-12	0135	2.18	2.58	24.65	22	1585	
SU23-13	0135	2.17	17.66	24.22	28	845	
SU23-14	0135	0	1.37	13.66	55	250	
SU23-15	0135	4.37	5.17	30.24	39	650	
SU24-01	0133	0	2.56	4.61	22	5	17/45
SU24-02	0133	4.05	0	20.62	28	-70	
SU24-03	0133	0	1.28	62.5	61	3500	
SU24-04	0133	0	2.56	13.54	61	3240	
SU24-05	0133	0	0	23.94	66	4300	
SU24-06	0133	0	2.56	19.58	33	1440	
SU24-07	0133	2.02	0	26.35	72	1770	66/2065
SU24-08	0133	4.01	2.32	7.07	55	1095	
SU24-09	0133	0	2.56	2.97	28	3445	
SU24-10	0133	0	3.84	0	33	3085	
SU24-11	0133	1.97	3.72	9.31	50	1635	
SU24-12	0133	0	3.84	7.09	50	1985	
SU24-13	0133	2.01	1.16	20.19	61	1520	
SU24-14	0133	0	3.84	53.38	28	2435	
SU24-15	0133	0	2.56	4.45	55	2075	
SU24-16	0133	4.03	1.04	9.94	55	2600	
SU24-17	0133	0	3.84	17.64	66	1855	
SU24-18	0133	2.01	1.16	7.99	22	570	
SU24-19	0133	0	1.28	10.42	61	3250	
SU24-20	0133	0	0	2.81	28	2615	

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	Smearable			Fixed	
	α	β	H^3	α	β
Survey Unit 19					
Number	14	14	14	14	14
Avg	0.15	0.742857	7.392857	29.35714	665
SD	0.385806	1.030843	23.37761	12.62237	284.0842
Max	1.2	3.4	88.2	55	990
+/-	0.202097	0.539989	12.24594	6.612001	148.8124
Survey Unit 20					
Number	14	14	14	14	14
Avg	0.1	0.978571	0.742857	25.07143	747.1429
SD	0.374166	1.019184	1.509541	13.15274	144.4447
Max	1.4	3.1	4.69	50	930
+/-	0.196	0.533881	0.790746	6.889825	75.66479
Survey Unit 21					
Number	15	15	15	15	15
Avg	0	0.746667	0.952667	17.53333	571.3333
SD	0	1.126858	2.096015	6.092931	262.9942
Max	0	4	6.89	28	915
+/-	0	0.570269	1.06073	3.083449	133.0934
Survey Unit 22					
Number	18	18	18	18	18
Avg	1.334444	2.491667	4.639444	27.77778	338.3333
SD	2.002058	2.222371	4.878578	15.64141	230.1534
Max	6.56	9.28	12.68	61	825
+/-	0.924904	1.026683	2.253788	7.225961	106.3254
Survey Unit23					
Number	15	15	15	15	15
Avg	1.600667	3.275333	26.59267	53.06667	1060.333
SD	1.744806	4.339262	16.822	22.1439	508.7571
Max	4.37	17.66	71.71	83	1835
+/-	0.882994	2.19597	8.513105	11.20636	257.4666
Survey Unit 24					
Number	20	20	20	20	20
Avg	1.005	2.006	16.22	46.75	2117.5
SD	1.531503	1.405629	16.20262	16.89869	1179.708
Max	4.05	3.84	62.5	72	4300
+/-	0.671211	0.616044	7.10111	7.406178	517.03

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		Floor Drains and Vents						
		Smearable			Fixed		H2O Sample	
Location	RSDS#	α	β	H^3	α	β	H3 nCi/L	α dpm/ml
1	0120	0.0	0.0	0.0	20.0	-310.0		
2	0120	0.0	0.0	0.0	30.0	-245.0		
3	0120	0.0	0.0	0.0	10.0	-280.0		
4	0120	0.0	1.3	0.0	20.0	-200.0		
5	0120	0.0	0.0	0.0	20.0	-155.0		
6	0120	0.0	0.0	0.0	5.0	-93.0		
7	0120	0.0	0.1	0.0	5.0	-360.0		
8	0120	0.0	0.0	0.0	20.0	-95.0		
9	0120	0.0	0.1	0.0	25.0	-325.0		
10	0120	0.0	0.6	0.0	20.0	-288.0		
11	0120	0.0	1.6	0.0	35.0	-283.0		
12	0120	0.0	0.0	0.0	5.0	-368.0		
13	0120	0.0	0.0	0.0	15.0	-258.0		
14	0120	0.0	0.1	0.0	20.0	-170.0		
15	0120	0.6	1.5	0.0	20.0	-55.0		
16	0120	0.0	1.5	0.0	25.0	-148.0		
17	0120	1.7	0.5	0.0	5.0	-260.0		
18	0120	0.0	4.7	0.0	20.0	-218.0		
19	0120	0.0	0.0	0.0	10.0	-308.0	35.4	<.6
20	0120	3.4	0.0	0.0	-10.0	-165.0		
21	0120	0.0	3.1	0.0	-5.0	-268.0		
22	0120	0.0	8.0	0.0	-5.0	-343.0	11.2	<.6
23	0120	0.0	0.1	0.0	-5.0	-278.0		
24	0120	0.0	0.0	0.0	0.0	-435.0		
25	0120	0.0	0.0	0.0	5.0	-485.0		
26	0120	0.0	0.6	0.0	-10.0	55.0		
27	0120	0.0	0.0	0.0	-10.0	-213.0		
28	0120	0.0	0.6	0.0	5.0	-258.0		
29	0120	1.9	0.0	0.0	35.0	-25.0		
30	0120	0.0	0.1	0.0	15.0	-178.0		
31	0120	0.0	1.6	0.0	5.0	-238.0		
32	0120	0.0	1.5	0.0	0.0	-178.0		
33	0120	0.0	2.0	0.0	5.0	-168.0		
34	0120	0.0	0.0	0.0	5.0	-263.0		
35	0120	0.0	4.5	0.0	10.0	-213.0		
	Ave	0.2	1.0	0.0	10.6	-230.6		
	SD	0.7	1.7	0.0	12.4	110.5		
	Max	3.4	8.0	0.0	35.0	55.0		
	Conf	0.1	0.2		1.4	12.6		

W-15 Cs-137 0.09 pCi/g RSDS 0120

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Alpha Scans

Location	RSDS	a
FSU-01	0132	10
FSU-02	0132	6
FSU-03	0132	34
FSU-04	0132	19
FSU-05	0132	14
FSU-06	0132	16
FSU-07	0132	45
FSU-08	0132	10
FSU-09	0132	13
FSU-10	0132	19
FSU-11	0132	6
FSU-12	0132	7
FSU-13	0132	10
FSU-14	0132	10
FSU-15	0132	14
FU-16		
FU-17	0137	31
FU-18		
FU-19		
FU-20		
FU-21		
FU-22		
FU-23		
FU-24		
FU-25		

SU 22 Continued

Location	RSDS#	α	β	H^3	α	β
SU22-16	0145	0	2.74	0	50	-60
SU22-17	0145	0	1.37	0	22	0
SU22-18	0145	4.37	3.8	10.25	11	385

= Class 2 = Class 3 = Judgmental

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Survey Unit TOTAL					
	Smearable			Fixed	
	α	β	H^3	α	β
Number	361	361	361	361	361
Avg	0.429446	1.158172	2.777507	24.39335	611.3712
SD	0.996165	1.699811	9.290736	14.86048	516.78
Max	6.56	17.66	88.2	83	4300
+/-	0.10276	0.175345	0.958394	1.532945	53.30887
Var	0.992345	2.889356	86.31778	220.8337	267061.5

Class 2 Survey Units					
	Smearable			Fixed	
	α	β	H^3	α	β
Number	235	235	235	235	235
Avg	0.317872	0.955745	0.224255	21.39149	480.766
SD	0.694437	1.363504	0.850765	11.14243	168.0769
Max	4.5	8.2	6.61	66	890
+/-	0.088786	0.174329	0.108774	1.424602	21.48926
Var	0.482243	1.859144	0.723801	124.1538	28249.84

Class 3 Survey Units					
	Smearable			Fixed	
	α	β	H^3	α	β
Number	73	73	73	73	73
Avg	0.167123	0.813699	1.96137	21.20548	594.2466
SD	0.737687	1.106209	10.39917	10.93155	258.2294
Max	5.7	4.8	88.2	55	990
+/-	0.169222	0.25376	2.38553	2.507656	59.23681
Var	0.544182	1.223699	108.1428	119.4989	66682.41

Judgmental Survey Units					
	Smearable			Fixed	
	α	β	H^3	α	β
Number	53	53	53	53	53
Avg	1.285472	2.530189	15.22264	42.09434	1214.057
SD	1.7455	2.769898	16.01047	20.74503	1087.069
Max	6.56	17.66	71.71	83	4300
+/-	0.469926	0.745716	4.31036	5.585005	292.6622
Var	3.046771	7.672337	256.3351	430.3563	1181719

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Ventilation System

Location	RSDS#	α	β	H^3	α	β
1	0138	0.0	0.0	0.0	0.0	295.0
2	0138	0.0	0.8	0.0	10.0	245.0
3	0138	0.7	1.9	0.0	10.0	270.0
4	0138	0.0	0.0	0.6	10.0	295.0
5	0138	0.0	5.6	0.0	-10.0	295.0
6	0138	0.0	0.0	0.0	-10.0	-110.0
7	0138	0.9	1.1	0.0	0.0	550.0
8	0138	1.5	0.0	0.0	-10.0	115.0
9	0138	0.0	1.3	0.0	-10.0	140.0
10	0138	0.0	0.7	0.0	50.0	1645.0
11	0138	1.6	0.5	0.0	10.0	230.0
12	0138	0.0	2.7	0.0	10.0	120.0
13	0138	0.0	6.3	0.0	-10.0	285.0
14	0138	0.0	0.0	0.0	20.0	750.0
15	0138	1.6	2.6	0.0	0.0	160.0
16	0138	2.5	0.0	0.0	0.0	520.0
17	0138	0.0	1.5	0.0	-10.0	285.0
18	0138	1.7	0.5	0.0	10.0	300.0
19	0138	0.0	4.7	0.0	0.0	345.0
20	0138	0.0	2.0	0.0	0.0	100.0
21	0138	0.0	0.0	0.0	20.0	195.0
22	0138	0.0	0.5	0.0	40.0	285.0
23	0138	0.0	0.8	0.0	20.0	265.0
24	0138	0.0	1.2	0.0	40.0	270.0
25	0138	0.0	1.9	0.0	40.0	330.0
26	0138	0.0	4.8	0.0	10.0	400.0
27	0138	1.6	0.5	0.0	20.0	310.0
28	0138	0.0	0.0	0.0	40.0	300.0
29	0138	0.0	0.6	0.0	30.0	305.0
30	0138	0.0	0.1	0.0	0.0	580.0
31	0138	4.5	0.0	0.0	20.0	275.0
32	0138	0.0	0.3	0.0	10.0	280.0
33	0138	0.0	0.0	0.0	30.0	285.0
34	0138	1.7	0.0	0.0	20.0	530.0
35	0138	0.0	0.0	0.0	30.0	65.0
36	0138	0.0	0.0	0.0	70.0	230.0
	Ave	0.5	1.2	0.0	12.6	328.9
	SD	1.0	1.7	0.1	17.0	278.5
	Max	4.5	6.3	0.6	50.0	1645.0
	Conf	0.1	0.2	0.0	1.9	31.7

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Replicate Fixed Point QC						
	alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	initial	2s	replicate	initial	2s	replicate
QC24-01	22	9.380832	17	5	4.472136	45
QC24-07	72	16.97056	66	1770	84.14274	2065
QC23-03	83	18.22087	66	890	59.66574	855
QC23-12	22	9.380832	55	1585	79.62412	1510
QC16-12	33	11.48913	17	445	42.19005	350
QC16-05	6	4.898979	17	555	47.11688	570
QC17-10	33	11.48913	17	50	14.14214	-90
QC17-06	6	4.898979	0	160	25.29822	145
QC13-13	50	14.14214	17	585	48.37355	575
QC9-06	0	0	17	230	30.3315	325
QC11-08	0	0	22	810	56.921	670
QC12-02	66	16.24808	33	795	56.39149	815
QC8-10	0	0	11	470	43.35897	530
QC6-11	39	12.49	22	525	45.82576	395
QC3-13	44	13.2665	28	450	42.42641	435
QC1-07	0	0	17	385	39.24283	375
QC20-12	50	14.14214	44	780	55.85696	765
QC20-07	0	0	33	870	58.99152	820
QC19-05	55	14.8324	50	670	51.76872	650
QC19-03	6	4.898979	39	-10	6.324555	-35
QC21-05	28	10.58301	11	220	29.66479	455
QC21-15	6	4.898979	50	840	57.96551	885
QC18-11	33	11.48913	17	795	56.39149	930
QC18-02	6	4.898979	44	775	55.67764	825
QC22-11	11	6.63325	28	235	30.65942	105
QC22-09	61	15.6205	28	825	57.44563	865
Variance (S2) =	220.3335		304.5785	267061.5		216092
Ratio			0.723405			1.235869
Agreement			YES			YES

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Instrument Data

	Inst	SN	CDD	RSDS	α Bkg(cpm	β Bkg(cpm)	
1	L2350	5856/5148	5/12/04	0133	1.8		
2	L2360	5833/5847	3/13/04	0133		159	
3	L2360	5833/5847	3/13/04	0120	1	173	drains
4	L2350	5856/5148	5/12/04	0135	1.8		
5	L2360	5833/5847	3/13/04	0135		166	
6	L2360	5833/5847	3/13/04	0137		161	
7	L2350	5856/5148	5/12/04	0137	6.6		
8	L2360	5833/5847	3/13/04	0144		167	
9	L2350	5856/5148	5/12/04	0144	1.6		
10	L2350	5856/5148	5/12/04	0141	1.6		
11	L2360	5833/5847	3/13/04	0141		167	
12	L2360	5833/5847	3/13/04	0138	1	156	
13	L2350	5856/5675	5/12/04	0132	6.6		
14	L2350	5673/5676	8/13/03	0132	3.6		
15	L2350	5856/5675	5/12/04	0137	6.6		
16	L2350	5856/5148	5/12/04	0137	6.6		
17	L2360	5833/5847	3/13/04	0137		161	
18	MicroR	3933	9/9/03	0151			Rm 139

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SURVEY PLAN FORM

SP NUMBER	W-01	**DATE OF REQUEST**	June 5, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building W		
PURPOSE	The purpose of this SP is to characterize Building W to support decisions on final disposition.		
SURVEY UNIT # 1-15	**Floor Rooms 101,121,124,125**	**SURVEY UNIT # 20/21**	**East & West Interior Walls to 6'**
SURVEY UNIT # 16	**Floor Rooms 102-120**	**SURVEY UNIT # 22**	**Remaining Interior Surfaces**
SURVEY UNIT # 17	**Floor and Walls to 6' Room 139**	**SURVEY UNIT # 23**	**Exterior Walls/Docks**
SURVEY UNIT # 18/19	**North & South Interior Walls to 6'**	**SURVEY UNIT # 24**	**Roof**

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** **PROBE TYPE**	L-2350 43-37 Floor Probe or 43-20/68 Hand Probe	**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
STATIC MEASURE-MENT	☐ BETA ☐ Gamma ☒ ALPHA	**INST. TYPE** **PROBE TYPE**	L-2350 43-20 Hand Probe	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Perform 1 minute counts at specified locations not more than ¼" from surface
STATIC MEASURE-MENT	☒ BETA ☐ Gamma ☐ ALPHA	**INST. TYPE** **PROBE TYPE**	L 2360 (or equivalent) L 43-93 (or equivalent)	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Issue 29, Op. No. 30031, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator*, Section 6.3
SURFACE SCAN	☐ BETA ☐ Gamma ☐ ALPHA	**INST. TYPE** **PROBE TYPE**		**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	

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.

Loose Surface Contamination surveys shall be performed in accordance with MD-80036, Operation 1002.

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SP NUMBER	W-01	DATE OF REQUEST	June 5, 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.

Scan Measurements using a Ludlum 2350 with 43-37 probe or 43-20/68 probe

1. Set the Ludlum 2350-1 datalogger to alarm at 75dpm/100cm^2 in the alpha ratemeter mode.
2. Perform an alpha surface scan of 50% of Class 2 Survey Units.
3. Perform an alpha surface scan of at least 10% of Class 3 Survey Units.
4. Perform an alpha surface scan of major walkways in non-impacted survey units.
5. 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.
6. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

Data Point Location

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

Static Measurements using L 2350 with 43-20/68 probe and L 2360 with 43-93 probe (or equivalent)

1. Perform an alpha and beta measurement on fifteen (15) data points in each class 2 and 3 survey unit.
2. Perform an alpha and beta measurement on at least fifteen (15) data points in non-impacted survey units. Data points are selected by the surveyor and should be broadly representative of the entire survey unit.
3. Perform an alpha and beta measurement on at least fifteen (15) data points on the roof areas. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit.
4. Perform an alpha and beta measurement on at least fifteen (15) data points on the building exterior walls and docks. Data points are randomly selected by the surveyor and should be broadly representative of the entire survey unit
5. Record location, material type (e.g. concrete, steel, brick, etc.), and results on RSDS map in accordance with Mound Rad Con procedures.
6. 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, sump, roof gutter and any other area where debris has accumulated.
2. Collect a sample (approx. 100ml) of any standing water in floor drains or sumps.

Continued Next Page

3. If insufficient material is present at these sample locations, obtain a representative smear of the location.
4. Document sample information and description of material on Attachment 1.
5. Label sample container with sample number, date and time of collection, and location in accordance with Mound procedures.
6. Show sample location on the RSDS map.
7. Submit sediment samples to laboratory for isotopic analysis. Submit smears for gross alpha and beta analysis.
8. Additional intrusive samples may be collected in areas of elevated activity as determined by the MARSSIM engineer.

Quality Control

1. QC measurements will be performed by re-surveying 15 data points. Data points selected for resurvey should include the highest and lowest readings in the data set.
2. Sediment samples or smears with measured activity above the MDA may be resubmitted for replicate analysis. Ensure alpha and beta smear results are obtained prior to 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**	June 5, 2003
Technical Reviewer	GALEN TOMLINSON	**DATE**	6-10-03
Rad Con Manager	Steve Collins	**DATE**	6-11-03
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	**DATE**	6-26-03
Technical Reviewer	G. TOMLINSON	**DATE**	6-30-03
Rad Con Manager	AS Collins	**DATE**	6-30-03

COMMENTS

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Attachment 1

Field Sample Data Collection Sheet

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
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									

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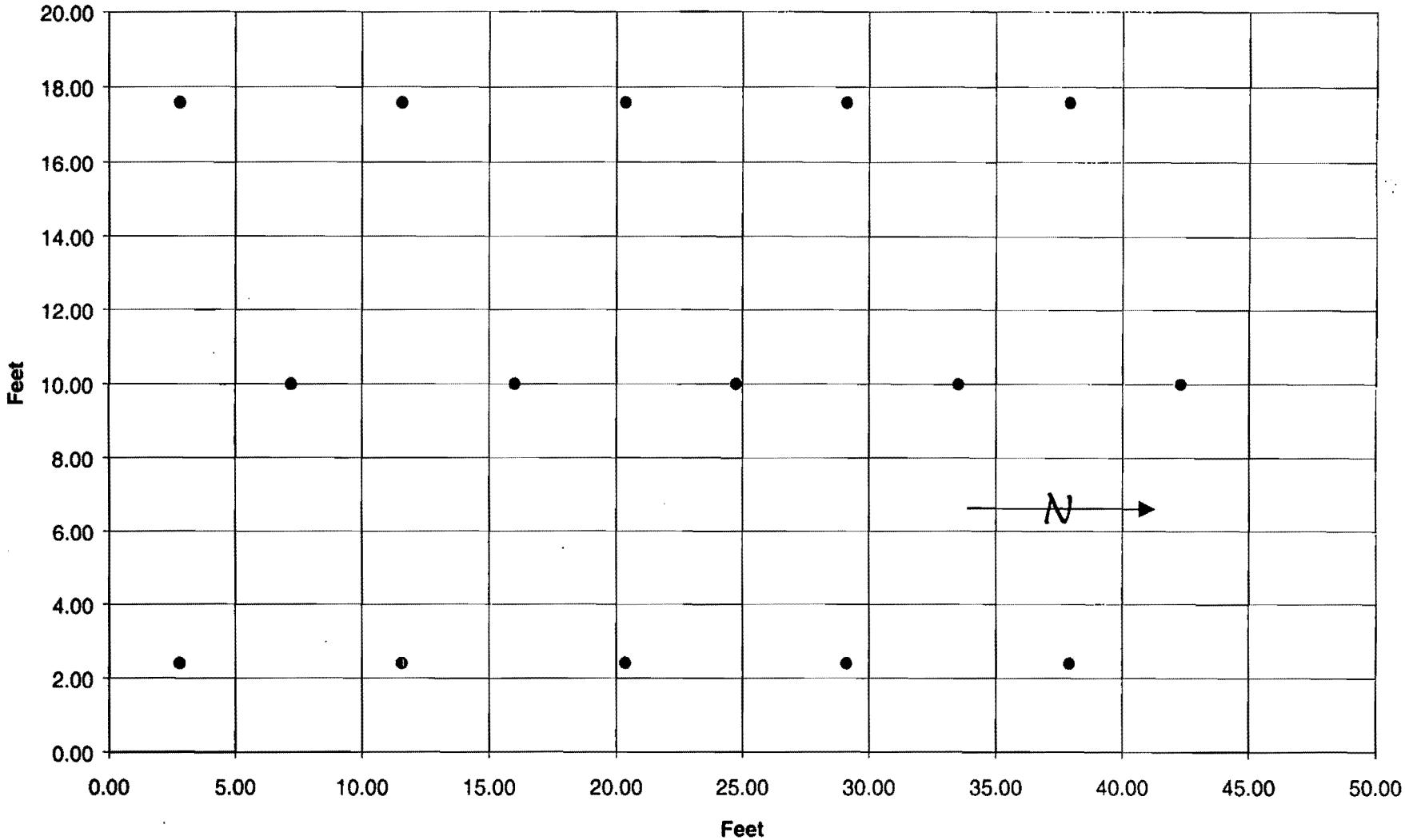
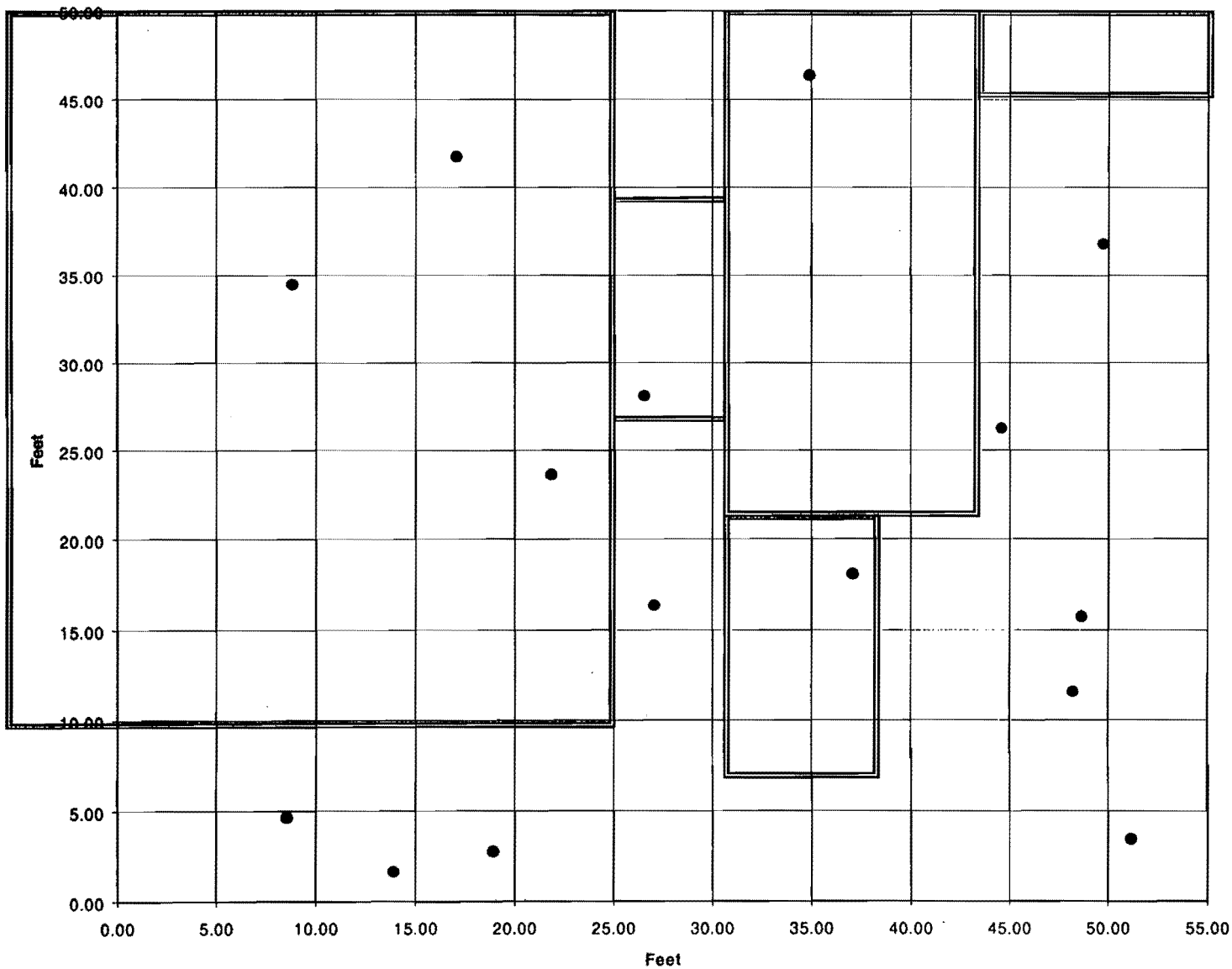
Survey Units 1 to 15



W37ab 199

Attachment 2

Survey Unit 16



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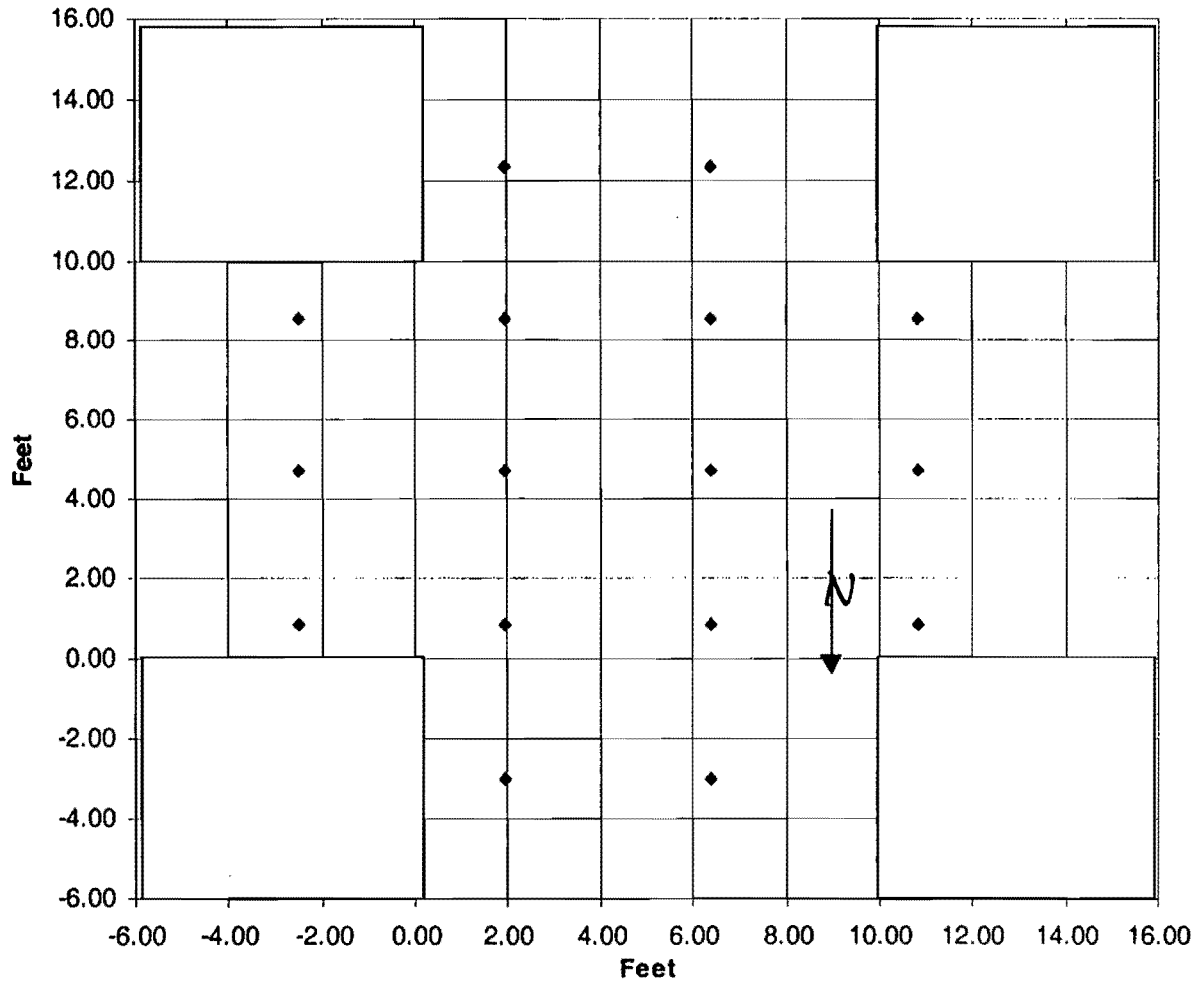
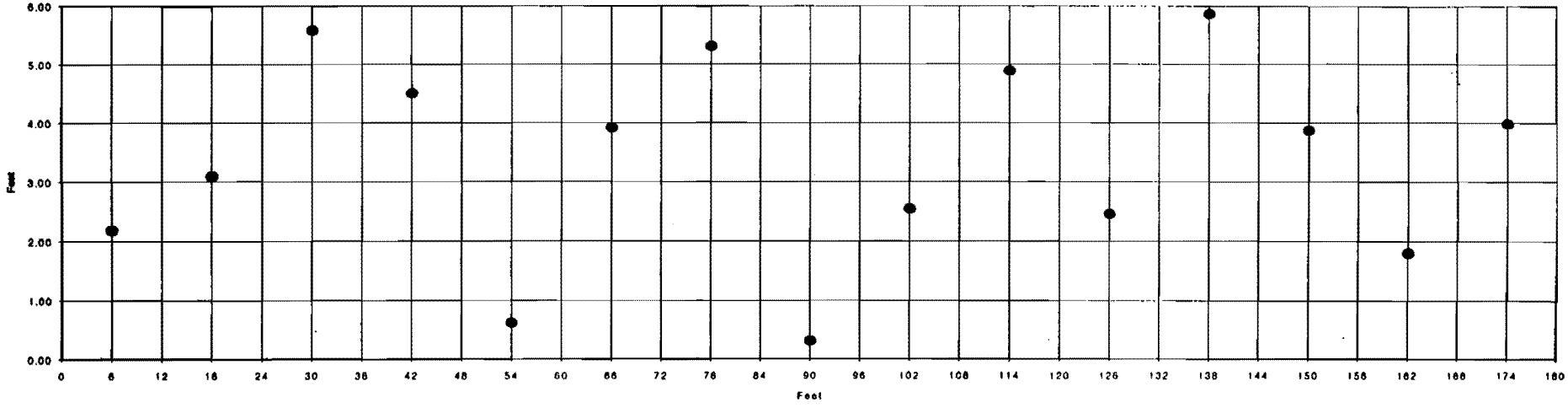
Survey Unit 17 Room 139 Floor and Walls to 6'

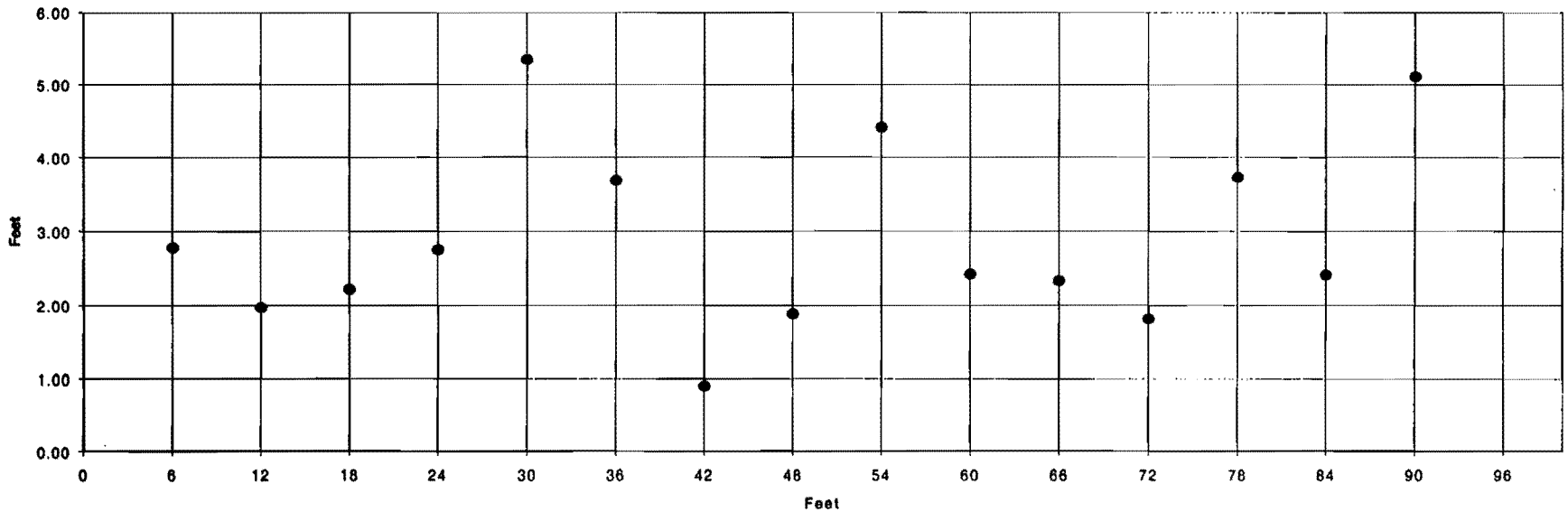


Attachment 2

SU 18 & 19 North & South Interior Walls



Surevy Units 20 & 21 East & West Interior Walls



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Survey Unit Coordinates

Class 2 Survey Units 1-15	
X	Y
50.00	20.0
2.80	2.4
11.57	2.4
20.35	2.4
29.12	2.4
37.90	2.4
7.20	10.0
15.97	10.0
24.75	10.0
33.52	10.0
42.30	10.0
2.80	17.6
11.57	17.6
20.35	17.6
29.12	17.6
37.90	17.6

Class 3 Survey Unit 16	
X	Y
8.8	34.5
26.5	28.1
18.9	2.8
27.0	16.3
48.6	15.7
37.1	18.1
44.6	26.2
49.7	36.8
21.9	23.6
17.0	41.7
13.9	1.6
51.1	3.5
34.9	46.4
48.2	11.6
8.5	4.6

Class 2 Survey Unit 17	
X	Y
0.5	2.4
3.3	2.4
6.0	2.4
8.8	2.4
0.5	4.8
3.3	4.8
6.0	4.8
8.8	4.8
0.5	7.2
3.3	7.2
6.0	7.2
8.8	7.2
0.5	9.6
3.3	9.6
6.0	9.6
8.8	9.6

Class 3 Survey Units 20/21	
Y	Y
6	2.8
12	2.0
18	2.2
24	2.7
30	5.3
36	3.7
42	0.9
48	1.9
54	4.4
60	2.4
66	2.3
72	1.8
78	3.7
84	2.4
90	5.1

Class 3 Survey Units 18/19	
X	Y
6.0	2.2
18.0	3.1
30.0	5.6
42.0	4.5
54.0	0.6
66.0	3.9
78.0	5.3
90.0	0.3
102.0	2.5
114.0	4.9
126.0	2.5
138.0	5.9
150.0	3.9
162.0	1.8
174.0	4.0

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) W-DRAINS	SURVEY NO. 03-TF-0120
PURPOSE: MARISSM SURVEY PLAN W-01 FLOOR DRAINS	RWP NO. N/A
	DATE: 6-4-03
	TIME: 1430

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
2360	5833/5847	3-13-04
	N/A	

[redacted] HP# 6178 5214 Date: 6-11-03

Counted by: (Signature) SEE ATTACHED HP# Date:

Counted by: (Print Name)

Reviewed/Appro[redacted] HP# 7492 Date: 6-11-03

Reviewed/Approved by: (Print Na[redacted]

ML-9620 (2-98)

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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 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)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR001
Batch Ended: 6/5/03 8:52

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0120 (35) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.3	
A2	2	0.0	2.2		0.0	1.3	
A3	3	0.0	2.0		0.0	1.2	
A4	4	0.0	2.0		1.3	2.1	
B1	5	0.0	1.9		0.0	1.3	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.0	2.0		0.1	1.2	
B4	8	0.0	1.9		0.0	1.6	
C1	9	0.0	2.0		0.1	1.7	
C2	10	0.0	2.0		0.6	1.8	
C3	11	0.0	1.9		1.6	2.0	
C4	12	0.0	1.9		0.0	1.2	
D1	13	0.0	2.3		0.0	1.3	
D2	14	0.0	2.1		0.1	1.8	
D3	15	0.6	2.0		1.5	2.0	
D4	16	0.0	2.0		1.5	2.1	
A1	17	1.7	2.1		0.5	1.8	
A2	18	0.0	2.2		4.7	2.9	
A3	19	0.0	2.0		0.0	1.2	
A4	20	3.4	2.7		0.0	1.7	
B1	21	0.0	2.0		3.1	2.9	
B2	22	0.0	2.1		0.8	1.9	
B3	23	0.0	2.0		0.1	1.2	
B4	24	0.0	1.9		0.0	1.2	
C1	25	0.0	1.9		0.0	1.2	
C2	26	0.0	2.0		0.6	1.8	
C3	27	0.0	1.9		0.0	1.1	
C4	28	0.0	1.9		0.6	1.6	
D1	29	1.9	2.3		0.0	1.3	
D2	30	0.0	2.1		0.1	1.8	
D3	31	0.0	2.0		1.6	2.0	

29 #

29 #

6-11-03

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR001
Batch Ended: 6/5/03 8:52

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0120 (35) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D4	32	0.0	2.0		1.5	2.1	
A1	33	0.0	2.1		2.0	2.3	
A2	34	0.0	2.2		0.0	1.3	
A3	35	0.0	2.0		4.5	2.7	

DJH DJH

Carol G. Robinson

W4696197

Protocol #: 2 Name:PW H3 #87267 05-Jun-2003 09:45
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
HARVEY 03-TF-0120 (I1-I35) CYR
Conventional DPM
Nuclide 1 = 208682
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	4	B	12.10	11.30	4.80	606.		0.00
0	2.00	1		324.90	311.70	2.20	453.	767.27	90.99
1	2.00	12		0.00	0.00	0.00	615.	0.00	0.00
2	2.00	0		0.00	0.00	0.00	593.	0.00	0.00
3	2.00	22		0.00	0.00	1.20	596.	0.00	0.00
4	2.00	15		0.00	0.00	1.20	566.	0.00	0.00
5	2.00	0		0.00	0.00	0.00	337.	0.00	0.00
6	2.00	0		0.00	0.00	1.70	565.	0.00	0.00
7	2.00	12		0.00	0.00	0.00	476.	0.00	0.00
8	2.00	0		0.00	0.00	2.70	617.	0.00	0.00
9	2.00	0		0.00	0.00	0.00	570.	0.00	0.00
10	2.00	12		0.00	0.00	0.00	615.	0.00	0.00
11	2.00	0		0.00	0.00	2.20	513.	0.00	0.00
12	2.00	12		0.00	0.00	0.00	593.	0.00	0.00
13	2.00	0		0.00	0.00	0.00	473.	0.00	0.00
14	2.00	0		0.00	0.00	0.00	349.	0.00	0.00
15	2.00	0		0.00	0.00	0.00	517.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	558.	0.00	0.00
17	2.00	17		0.00	0.00	0.00	394.	0.00	0.00
18	2.00	0		0.00	0.00	0.00	595.	0.00	0.00
19	2.00	0		0.00	0.00	1.20	431.	0.00	0.00
20	2.00	0		0.00	0.00	0.00	564.	0.00	0.00
21	2.00	0		0.00	0.00	0.20	567.	0.00	0.00
22	2.00	0		0.00	0.00	0.70	494.	0.00	0.00
23	2.00	10		0.00	0.00	1.20	409.	0.00	0.00
24	2.00	12		0.00	0.00	0.00	584.	0.00	0.00
25	2.00	0		0.00	0.00	0.00	495.	0.00	0.00
26	2.00	40		0.00	0.00	0.00	563.	0.00	0.00
27	2.00	0		0.00	0.00	0.00	511.	0.00	0.00
28	2.00	0		0.00	0.00	1.70	333.	0.00	0.00
29	2.00	0		0.00	0.00	0.00	434.	0.00	0.00
30	2.00	15		0.00	0.00	0.00	562.	0.00	0.00
31	2.00	0		0.00	0.00	1.20	478.	0.00	0.00
32	2.00	0		0.00	0.00	0.70	553.	0.00	0.00
33	2.00	0		0.00	0.00	0.20	539.	0.00	0.00
34	2.00	0		0.00	0.00	1.70	500.	0.00	0.00
35	2.00	0		0.00	0.00	1.20	540.	0.00	0.00

DJH
Carol G. Robinson

W-BLDG CHARACTERIZATION ALPHA-BETA DRAINS

RSDS# 03-TF-0120 RCT: DJH RCT: JKP

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	6178	5847	1	6/4/03	222	120	-310	6	120	20
2	5833	6178	5847	2	6/4/03	248	120	-245	8	120	30
3	5833	6178	5847	3	6/4/03	234	120	-280	4	120	10
4	5833	6178	5847	4	6/4/03	266	120	-200	6	120	20
5	5833	6178	5847	5	6/4/03	284	120	-155	6	120	20
6	5833	6178	5847	6	6/4/03	309	120	-93	3	120	5
7	5833	6178	5847	7	6/4/03	202	120	-360	3	120	5
8	5833	6178	5847	8	6/4/03	308	120	-95	6	120	20
9	5833	6178	5847	9	6/4/03	216	120	-325	7	120	25
10	5833	6178	5847	10	6/4/03	231	120	-288	6	120	20
11	5833	6178	5847	11	6/4/03	233	120	-283	9	120	35
12	5833	6178	5847	12	6/4/03	199	120	-368	3	120	5
13	5833	6178	5847	13	6/4/03	243	120	-258	5	120	15
14	5833	6178	5847	14	6/4/03	278	120	-170	6	120	20
15	5833	6178	5847	15	6/4/03	324	120	-55	6	120	20
16	5833	6178	5847	16	6/4/03	287	120	-148	7	120	25
17	5833	6178	5847	17	6/4/03	242	120	-260	3	120	5
18	5833	6178	5847	18	6/4/03	259	120	-218	6	120	20
19	5833	6178	5847	19	6/4/03	223	120	-308	4	120	10
20	5833	6178	5847	20	6/4/03	280	120	-165	0	120	-10
21	5833	6178	5847	21	6/4/03	239	120	-268	1	120	-5
22	5833	6178	5847	22	6/4/03	209	120	-343	1	120	-5
23	5833	6178	5847	23	6/4/03	235	120	-278	1	120	-5
24	5833	6178	5847	24	6/4/03	172	120	-435	2	120	0
25	5833	6178	5847	25	6/4/03	152	120	-485	3	120	5

W480 199

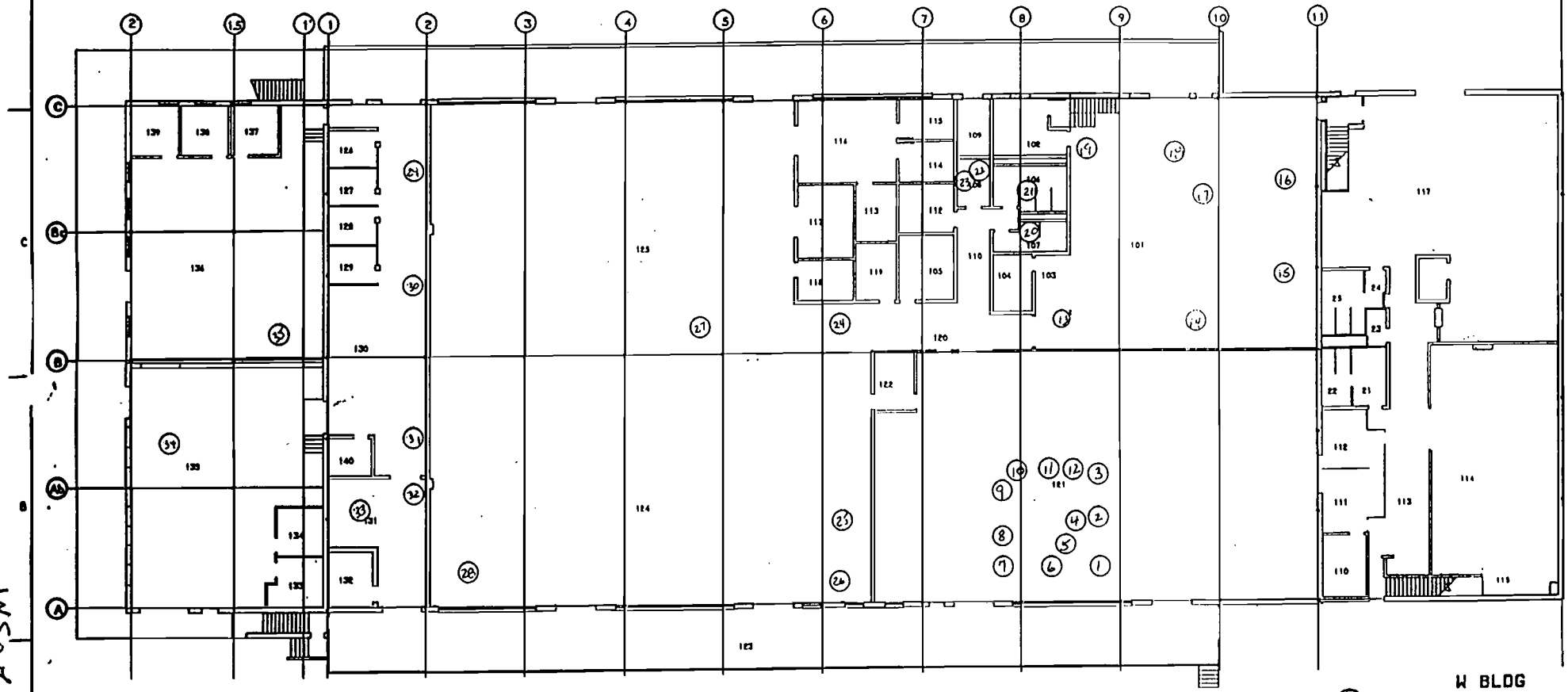
W-BLDG CHARACTERIZATION ALPHA-BETA DRAINS

RSDS# 03-TF-0120 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
26	5833	6178	5847	26	6/4/03	368	120	55	0	120	-10
27	5833	6178	5847	27	6/4/03	261	120	-213	0	120	-10
28	5833	6178	5847	28	6/4/03	243	120	-258	3	120	5
29	5833	6178	5847	29	6/4/03	336	120	-25	9	120	35
30	5833	6178	5847	30	6/4/03	275	120	-178	5	120	15
31	5833	6178	5847	31	6/4/03	251	120	-238	3	120	5
32	5833	6178	5847	32	6/4/03	275	120	-178	2	120	0
33	5833	6178	5847	33	6/4/03	279	120	-168	3	120	5
34	5833	6178	5847	34	6/4/03	241	120	-263	3	120	5
35	5833	6178	5847	35	6/4/03	261	120	-213	4	120	10
BETA BACKGROUND FOR 6-4--2003 WAS---------->								173			
ALPHA BACKGROUND FOR 6-4-2003 WAS---------->								1			

W4662 199

ISS	DATE	REVISION	BY	CHK	CHD	UNCC	APVD	R
B	12/12/91	ADDUILT ISSUE	DCW				DVD	



W BLDG
FIRST FLOOR
BLOG CODE:3521

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

SHEET	1	2	3	4	5	6	TITLE	(U) TITLE CLASSIFICATION
ISSUE	B	B					W BLDG FLOOR PLANS	
PART CLASSIFICATION								
DRAWING CLASSIFICATION: UNCLASSIFIED	SIZE: D	DRAWING NUMBER: FSD911326	JOB NUMBER: 12335					
DWG TYPE: GFP	PRIM: W BLDG	CADD: 14865	SCALE: AS NOTED	SHEET 1 OF 2				
STATUS: MO-CHK-12/12/91	ORIGIN: MO-BRJ-V3.8							

USDOE 199

03-TF-0
294

8 of 11

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
06-04-03	WATER	DAN HARVEY	2
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
SMAP/TFV	DAN HARVEY 3163		QSW 4
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
	06-04-03	03-TF-0120	

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS ^3H	RESULTS Gross Alpha
0306269	WJ	19	35.37 nci/l	< 0.60 DM/mL
270	WJ	22	11.15 nci/l	< 0.60 DM/mL
	DRAINS			

COMMENTS:

03-TF-0120 DGH 9 of 11

ANALYZED BY: Martha Anderson

DATE: 06/05/03

ML-5222 (1-01)

WS1 of 199

GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15601
File ID: 25000001.S0
Priority: Yes

Description\Location
Drain W-15

Collector: 6178
Date Received: 6/ 4/03
Date Collected: 6/ 4/03

Radionuclide	Activity (pCi/g)	MDA
K-40	3.87	1.42
Cs-137	0.09	0.06

Comments

03-TF-0120

10 of 11

Date: 5/20/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

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Attachment 1

Field Sample Data Collection Sheet

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
W-01- 15	06-04-03			DRAIN SEDIMENT	[illegible]	06-04-03	1345	[illegible]	GB
W-01- 19	06-04-03			DRAIN WATER	[illegible]	06-04-03	1320	[illegible]	HCH
W-01- 22	06-04-03			DRAIN WATER	[illegible]	06-04-03	1320	[illegible]	HCH
W-01-									
W-01-									
W-01-									
W-01-									
W-01-				N/A					
W-01-									
W-01-									
W-01-									
W-01-									
W-01-									

W532 199

03-TF-0

DG # 11811

DGH 6-11-03

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RADIOLOGICAL SURVEY DATA SHEET

1 of 8

LOCATION: (BLDG./AREA/ROOM) W	SURVEY NO. 03-TF-0132-
PURPOSE: MARSSIM SURVEY PLAN W-01 FLOOR SCAN UNITS 1-15	RWP NO N/A
	DATE: 6-13-03
	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
2350	5856/5675	5-12-04
2350	5673/5676	8-13-03
	N/A	

[redacted]

HP #6178 5214	Date: 6-23-03	
Counted by: (Signature) N/A	HP #	Date:
Counted by: (Print Name) N/A		
Reviewed/Appr[redacted]	HP # 7492	Date: 6-24-03
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98)

WSSAB 199

Survey No. 03-TF-0132

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
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-9620A (4-98)

WS606 199

W BUILDING CHARACTERIZATION ALPHA FLOOR SCAN SURVEY UNITS 1,3,5,7,13 15

RSDS# 03-TF-0132 RCT: ZJA RCT: JKR

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
[redacted] BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	5214	5675	1		06/13/2003	7:46	34	300	12
SRC CHECK	5856	5214	5675	1		06/13/2003	7:57	2112	60	3616
SRC CHECK	5856	5214	5675	1		06/13/2003	7:59	2080	60	3562
SRC CHECK	5856	5214	5675	1		06/13/2003	8:01	2156	60	3692
SRC CHECK	5856	5214	5675	1		06/13/2003	8:02	2126	60	3640
SRC CHECK	5856	5214	5675	1		06/13/2003	8:05	2133	60	3652
SRC CHECK	5856	5214	5675	1		06/13/2003	8:07	2123	60	3635
FSU-1 01	5856	5214	5675	1		06/13/2003	13:53	3	30	10
FSU-3 01	5856	5214	5675	1		06/13/2003	14:38	10	30	34
SRC BKG	5856	5214	5675	1		06/14/2003	6:22	35	300	12
SRCCHECK	5856	5214	5675	1		06/14/2003	6:28	2090	60	3579
SRCCHECK	5856	5214	5675	1		06/14/2003	6:31	2153	60	3687
SRCCHECK	5856	5214	5675	1		06/14/2003	6:32	2140	60	3664
SRCCHECK	5856	5214	5675	1		06/14/2003	6:34	2084	60	3568
SRCCHECK	5856	5214	5675	1		06/14/2003	6:36	2171	60	3717
SRCCHECK	5856	5214	5675	1		06/14/2003	6:37	2156	60	3692
FSU-5 01	5856	5214	5675	1		06/14/2003	7:10	4	30	14
FSU-7 01	5856	5214	5675	1		06/14/2003	8:07	13	30	45
FU-13 01	5856	5214	5675	1		06/14/2003	8:45	3	30	10
FU-15 01	5856	5214	5675	1		06/14/2003	10:25	4	30	14

WS78 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 2

RSDS# 03-TF-0132 RCT: DJH RCT: SK

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
[redacted] BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	6178	5676	3		06/13/2003	7:42	19	300	6
SRC CHECK	5673	6178	5676	3		06/13/2003	7:47	2099	60	3391
SRC CHECK	5673	6178	5676	3		06/13/2003	7:48	1982	60	3202
SRC CHECK	5673	6178	5676	3		06/13/2003	7:50	2261	60	3652
SRC CHECK	5673	6178	5676	3		06/13/2003	7:51	2117	60	3420
SRC CHECK	5673	6178	5676	3		06/13/2003	7:53	2143	60	3462
SRC CHECK	5673	6178	5676	3		06/13/2003	7:54	2196	60	3547
FSU-2 01	5673	6178	5676	3	1	06/13/2003	13:17	2	30	6

WS86 199

W BUILDING CHARACTERIZATION ALPHA FLOOR SCAN SURVEY UNITS 4,6,8 9

RSDS# 03-TF-0132 RCT: DJH RCT: SKP

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	6178	5676	3		06/14/2003	6:25	23	300	7
SRC CHECK	5673	6178	5676	3		06/14/2003	6:44	1947	60	3145
SRC CHECK	5673	6178	5676	3		06/14/2003	6:46	1933	60	3123
SRC CHECK	5673	6178	5676	3		06/14/2003	6:48	2021	60	3265
SRC CHECK	5673	6178	5676	3		06/14/2003	6:49	1982	60	3202
SRC CHECK	5673	6178	5676	3		06/14/2003	6:51	1991	60	3216
SRC CHECK	5673	6178	5676	3		06/14/2003	6:52	2094	60	3383
FSU-4 01	5673	6178	5676	3		06/14/2003	6:59	6	30	19
FSU-6 01	5673	6178	5676	3		06/14/2003	8:07	5	30	16
FSU-8 01	5673	6178	5676	3		06/14/2003	8:28	3	30	10
FSU-9 01	5673	6178	5676	3		06/14/2003	9:58	4	30	13

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNITS 10 and 11

RSDS# 03-TF-0132 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
[redacted] 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	6178	5676	3		06/16/2003	7:28	21	300	7
SRC CHECK	5673	6178	5676	3		06/16/2003	8:06	1923	60	3106
SRC CHECK	5673	6178	5676	3		06/16/2003	8:07	1902	60	3072
SRC CHECK	5673	6178	5676	3		06/16/2003	8:09	2073	60	3349
SRC CHECK	5673	6178	5676	3		06/16/2003	8:11	1975	60	3190
SRC CHECK	5673	6178	5676	3		06/16/2003	8:13	2030	60	3279
SRC CHECK	5673	6178	5676	3		06/16/2003	8:15	1986	60	3208
FU-10 01	5673	6178	5676	3		06/16/2003	8:51	6	30	19
FU-11 01	5673	6178	5676	3		06/16/2003	10:19	2	30	6

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 14 and 12

RSDS# 03-TF-0132 RCT: DJA RCT: SK

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	6178	5675	1		06/16/2003	7:22	0	300	0
SRC BKG	5856	6178	5675	1		06/16/2003	7:36	44	300	15
SRC CHECK	5856	6178	5675	1		06/16/2003	7:50	2082	60	3565
SRC CHECK	5856	6178	5675	1		06/16/2003	7:52	1980	60	3390
SRC CHECK	5856	6178	5675	1		06/16/2003	7:54	2240	60	3836
SRC CHECK	5856	6178	5675	1		06/16/2003	7:55	2115	60	3622
SRC CHECK	5856	6178	5675	1		06/16/2003	7:57	2092	60	3582
SRC CHECK	5856	6178	5675	1		06/16/2003	7:59	2127	60	3642
FU-14 01	5856	6178	5675	1		06/16/2003	9:41	3	30	10
FU-12 01	5856	6178	5675	1		06/16/2003	10:09	2	30	7

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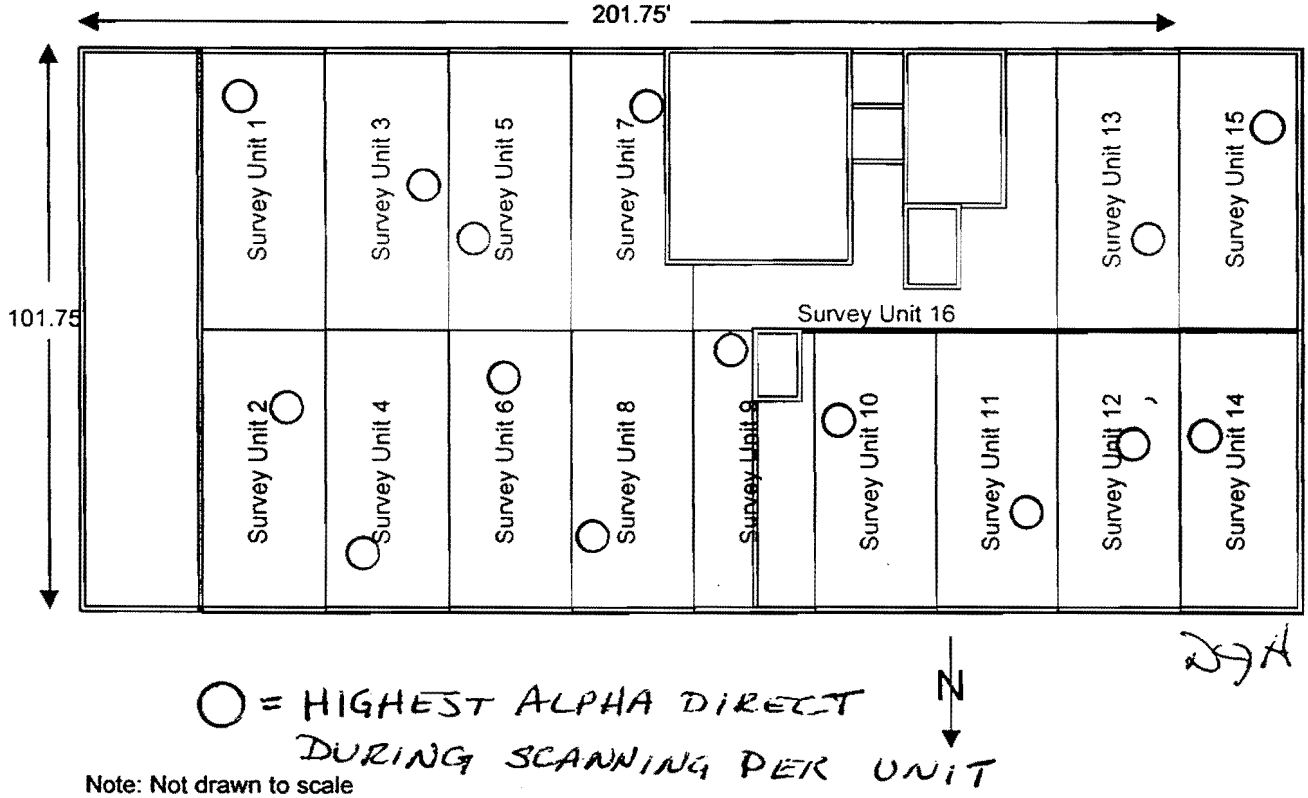
Attachment 2

Building W Survey Units



○ = HIGHEST ALPHA DIRECT DURING SCANNING PER UNIT

Note: Not drawn to scale

03-TF-0132

8 of 8

RADIOLOGICAL SURVEY DATA SHEET

1 of 1

LOCATION: (BLDG./AREA/ROOM) W	SURVEY NO 03-TF-0133
PURPOSE: MARSSM SURVEY PLAN W-01 ROOF AND PENTHOUSES	RWP NO N/A
	DATE: 6-16-03
	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
2350	5856/5148	5-12-04
2360	5833/5847	3-13-04
	N/A	

ML-9620 (2-98)

[redacted]	HP # 6178 5214	Date 6-24-03 6-25-03 6-24-03
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approve[redacted]	HP # 7492	Date: 6-24-03
Reviewed/Approved by: (Print Nam[redacted]		

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Survey No. 03-TF-0133

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Commer
		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 result are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 24

RSDS# 03-TF-0133 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/16/03	13:11	9	300	10	
SRCCHECK	5856	6178	5148	2		6/16/03	13:13	2087	60	11530	
SRCCHECK	5856	6178	5148	2		6/16/03	13:15	2058	60	11370	
SRCCHECK	5856	6178	5148	2		6/16/03	13:17	2264	60	12508	
SRCCHECK	5856	6178	5148	2		6/16/03	13:19	2166	60	11967	
U-24 01	5856	6178	5148	2	1	6/16/03	13:27	4	60	22	
U-24 02	5856	6178	5148	2	2	6/16/03	13:34	5	60	28	
U-24 03	5856	6178	5148	2	3	6/16/03	13:38	11	60	61	
U-24 04	5856	6178	5148	2	4	6/16/03	13:43	11	60	61	
U-24 05	5856	6178	5148	2	5	6/16/03	13:47	12	60	66	
U-24 06	5856	6178	5148	2	6	6/16/03	13:58	6	60	33	
U-24 07	5856	6178	5148	2	7	6/16/03	14:00	13	60	72	
U-24 08	5856	6178	5148	2	8	6/16/03	14:02	10	60	55	
U-24 09	5856	6178	5148	2	9	6/16/03	14:04	5	60	28	
U-24 10	5856	6178	5148	2	10	6/16/03	14:06	6	60	33	
U-24 11	5856	6178	5148	2	11	6/16/03	14:07	9	60	50	
U-24 12	5856	6178	5148	2	12	6/16/03	14:09	9	60	50	
U-24 13	5856	6178	5148	2	13	6/16/03	14:11	11	60	61	
U-24 14	5856	6178	5148	2	14	6/16/03	14:15	5	60	28	
U-24 15	5856	6178	5148	2	15	6/16/03	14:19	10	60	55	
U-24 16	5856	6178	5148	2	16	6/16/03	14:21	10	60	55	
U-24 17	5856	6178	5148	2	17	6/16/03	14:23	12	60	66	
U-24 18	5856	6178	5148	2	18	6/16/03	14:27	4	60	22	
U-24 19	5856	6178	5148	2	19	6/16/03	14:35	11	60	61	
U-24 20	5856	6178	5148	2	20	6/16/03	14:37	5	60	28	
QC 01	5856	6178	5148	2		6/16/03	14:41	3	60	17	
QC 07	5856	6178	5148	2		6/16/03	14:44	12	60	66	

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 24

RSDS# 03-TF-0133 RCT: DJH RCT: DJR

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-24 01	5833	5214	5847	1	6/16/03	160	60	5
U-24 02	5833	5214	5847	2	6/16/03	145	60	-70
U-24 03	5833	5214	5847	3	6/16/03	859	60	3500
U-24 04	5833	5214	5847	4	6/16/03	807	60	3240
U-24 05	5833	5214	5847	5	6/16/03	1019	60	4300
U-24 06	5833	5214	5847	6	6/16/03	447	60	1440
U-24 07	5833	5214	5847	7	6/16/03	513	60	1770
U-24 08	5833	5214	5847	8	6/16/03	378	60	1095
U-24 09	5833	5214	5847	9	6/16/03	848	60	3445
U-24 10	5833	5214	5847	10	6/16/03	776	60	3085
U-24 11	5833	5214	5847	11	6/16/03	486	60	1635
U-24 12	5833	5214	5847	12	6/16/03	556	60	1985
U-24 13	5833	5214	5847	13	6/16/03	463	60	1520
U-24 14	5833	5214	5847	14	6/16/03	646	60	2435
U-24 15	5833	5214	5847	15	6/16/03	574	60	2075
U-24 16	5833	5214	5847	16	6/16/03	679	60	2600
U-24 17	5833	5214	5847	17	6/16/03	530	60	1855
U-24 18	5833	5214	5847	18	6/16/03	273	60	570
U-24 19	5833	5214	5847	19	6/16/03	809	60	3250
U-24 20	5833	5214	5847	20	6/16/03	682	60	2615
QC 01	5833	5214	5847		6/16/03	168	60	45
QC 07	5833	5214	5847		6/16/03	572	60	2065
BETA BACKGROUND (CPM) FOR 6-16-2003 WAS---------->								159

W 66 of 199

Batch ID:	Smear Unit 2 - 200306171518	**Count Date:**	6/17/2003
Group:	G	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0133 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	34	0.00	0.02	2.56	2.10
2	39	4.05	2.67	0.00	0.20
3	11	0.00	0.02	1.28	1.48
4	39	0.00	0.02	2.56	2.10
5	42	0.00	0.00	0.00	0.00
6	4	0.00	0.02	2.56	2.10
7	86	2.02	1.89	0.00	0.14
8	21	4.01	2.67	2.32	2.11
9	10	0.00	0.02	2.56	2.10
10	6	0.00	0.03	3.84	2.57
11	17	1.97	1.89	3.72	2.58
12	12	0.00	0.03	3.84	2.57
13	56	2.01	1.89	1.16	1.49
14	25	0.00	0.03	3.84	2.57
15	97	0.00	0.02	2.56	2.10
16	55	4.03	2.67	1.04	1.50
17	49	0.00	0.03	3.84	2.57
18	48	2.01	1.89	1.16	1.49
19	8	0.00	0.02	1.28	1.48
20	45	0.00	0.00	0.00	0.00
		29 A		29 A	

B A Brown

8 Jun 2003 06:45 ALPHA/BETA - 1.09 Page #1
'rotocol #: 3 Pw H3 405828 User : 526

'ime: 2.00
'ata Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
'ackground Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
'egion A:	0.5	- 18.6	0	0.0	6.13
'egion B:	2.0	- 18.6	0	0.0	5.74
'egion C:	40.0	- 2000	0	0.0	13.35

'uench Indicator: tSIE/AEC
Ext Std Terminator: Count
~~H3-TF-0133 HARVEY-20 BSB~~
'uminescence Correction On
'oincidence Time(ns): 18
'elay Before Burst(ns): Normal
'rotocol Data Filename: c:\data\PROT3.DAT
'ount Data Filename: c:\data\SDATA3.DAT
'pectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.13	5.74	0	B	510.95		0.00	13.35
0	2.00	244.11	229.20	0		463.39	557.81	66.51	0.15
1	2.00	2.37	1.93	0		632.57	4.61	8.58	0.00
2	2.00	10.44	9.94	0		613.13	20.62	11.89	4.28
3	2.00	28.43	28.27	0		491.40	62.50	19.20	32.15
4	2.00	6.81	6.42	0		605.41	13.54	10.63	0.65
5	2.00	12.38	12.27	0		639.39	23.94	12.28	5.74
6	2.00	9.89	9.99	0		610.03	19.58	11.72	4.15
7	2.00	13.15	13.04	0		595.77	26.35	12.99	7.65
8	2.00	3.37	2.92	0		543.04	7.07	9.73	0.00
9	2.00	1.37	1.66	0		505.59	2.97	9.06	0.65
10	2.00	0.00	0.00	0		390.51	0.00	0.00	3.15
11	2.00	4.37	4.62	0		524.77	9.31	10.35	0.65
12	2.00	3.37	3.76	0		538.73	7.09	9.77	0.00
13	2.00	8.55	7.48	0		441.07	20.16	13.39	4.42
14	2.00	11.50	11.71	0		198.22	53.38	28.79	16.26
15	2.00	1.58	1.66	0		346.14	4.45	11.90	1.65
16	2.00	3.87	3.87	0		387.05	9.94	12.20	0.00
17	2.00	8.37	7.94	0		537.34	17.64	11.90	0.00
18	2.00	3.32	3.25	0		427.65	7.99	11.13	6.15
19	2.00	5.09	5.48	0		570.79	10.42	10.24	0.00
20	2.00	1.37	1.76	0		566.93	2.81	8.58	0.00
~~50 MISSING TUBE(S)~~									
~~71~~	~~2.00~~	~~1.37~~	~~1.76~~	~~0~~		~~582.53~~	~~2.75~~	~~8.40~~	~~0.00~~
~~72~~	~~2.00~~	~~500.13~~	~~526.39~~	~~0~~		~~400.98~~	~~1252.10~~	~~121.11~~	~~2.48~~

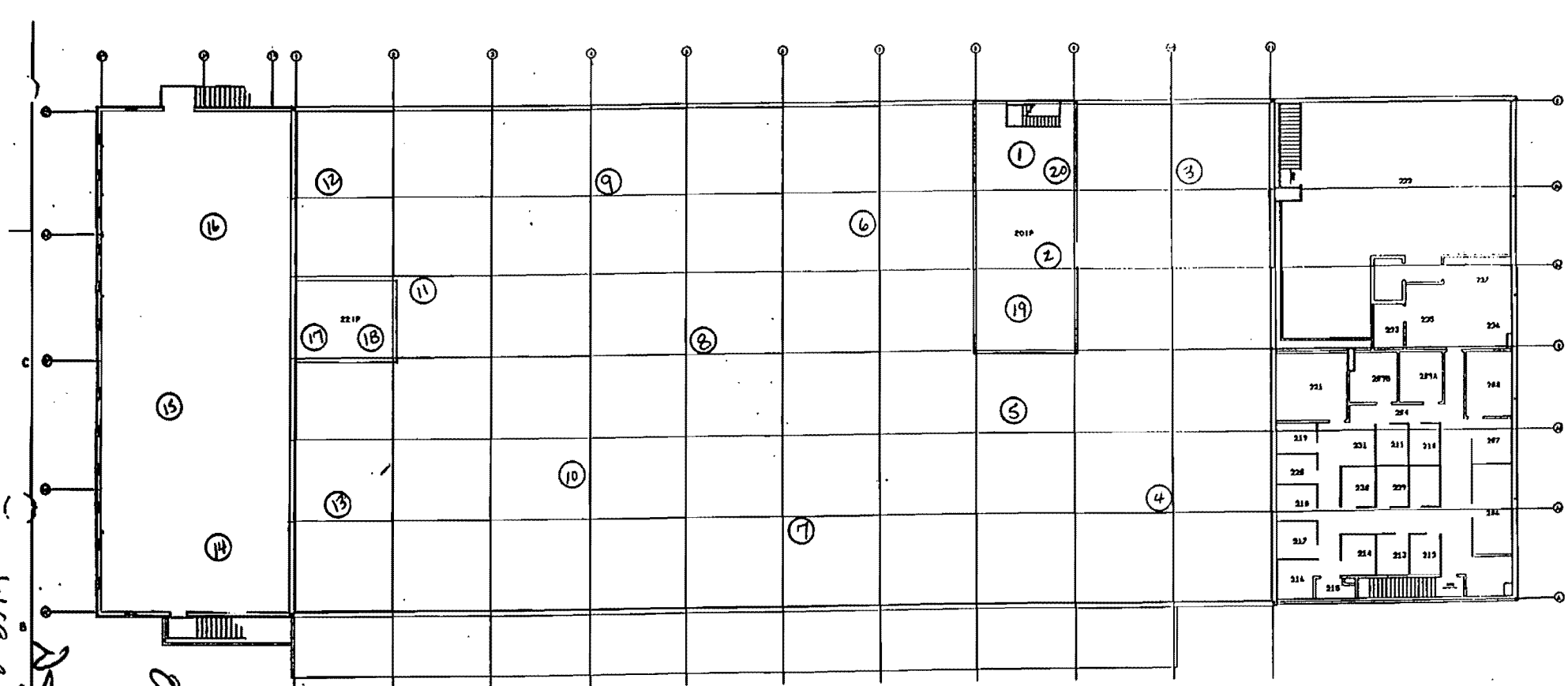
DJH 6-24-03

6/18/03 [illegible]

6 of 7

[illegible]

WG8 of 199



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

W BLDG
SECOND FLOOR
BLDG CODE:3621

DRAWING NUMBER FSD911326	LAS NUMBER 13335
CLASSIFICATION UNCLASSIFIED	
SIZE D	CAD: 14645 SCALE AS NOTED
	SHEET 2
STATUS MD-REL-12/12/91	

03-TF-0133

DSA 7 of 7

W69 of 199

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RADIOLOGICAL SURVEY DATA SHEET

1 of 1

LOCATION: (BLDG./AREA/ROOM) W	SURVEY NO 03-TF-0135
PURPOSE: MARSSIM SURVEY PLAN W-01 EXTERIOR WALLS AND DOCKS	RWP NO. N/A
	DATE: 6-17-03
	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
2350	5856/5148	5-12-04
2360	5833/5847	3-13-04
	N/A	

[redacted]	HP # 6178 5214	Date: 6-24-03
[redacted] SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approve[redacted]	HP # 7492	Date: 6-24-03
Reviewed/Approved by: ([redacted]		

ML-9620 (2-98)

W7 of 199

Survey No. 03-TF-0135

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTACHED		DOCK
2	↓	↓	↓	WALL
3				DOCK
4				WALL
5				DOCK
6				WALL
7				DOCK
8				WALL
9				DOCK
10				WALL
11				DOCK
12				WALL
13				DOCK
14				WALL
15	↓	↓	↓	DOCK
		N	A	

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Commen
		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 resul are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

W72 of 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 23

RSDS# 03-TF-0135 RCT: DJA RCT: SK

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/17/03	7:33	9	300	10	
SRC CHECK	5856	6178	5148	2		6/17/03	7:37	2095	60	11575	
SRC CHECK	5856	6178	5148	2		6/17/03	7:38	2081	60	11497	
SRC CHECK	5856	6178	5148	2		6/17/03	7:40	2047	60	11309	
SRC CHECK	5856	6178	5148	2		6/17/03	7:41	2098	60	11591	
U-23 01	5856	6178	5148	2	1	6/17/03	13:11	6	60	33	
U-23 02	5856	6178	5148	2	2	6/17/03	13:14	14	60	77	
U-23 03	5856	6178	5148	2	3	6/17/03	13:16	15	60	83	
U-23 04	5856	6178	5148	2	4	6/17/03	13:17	11	60	61	
U-23 05	5856	6178	5148	2	5	6/17/03	13:21	13	60	72	
U-23 06	5856	6178	5148	2	6	6/17/03	13:26	15	60	83	
U-23 07	5856	6178	5148	2	7	6/17/03	13:27	7	60	39	
U-23 08	5856	6178	5148	2	8	6/17/03	13:29	14	60	77	
U-23 09	5856	6178	5148	2	9	6/17/03	13:30	8	60	44	
U-23 10	5856	6178	5148	2	10	6/17/03	13:32	11	60	61	
U-23 11	5856	6178	5148	2	11	6/17/03	13:35	4	60	22	
U-23 12	5856	6178	5148	2	12	6/17/03	13:37	4	60	22	
U-23 13	5856	6178	5148	2	13	6/17/03	13:38	5	60	28	
U-23 14	5856	6178	5148	2	14	6/17/03	13:40	10	60	55	
U-23 15	5856	6178	5148	2	15	6/17/03	13:42	7	60	39	
QC 03	5856	6178	5148	2		6/17/03	13:46	12	60	66	
QC 12	5856	6178	5148	2		6/17/03	13:54	10	60	55	

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W-BLDG CHARACTERIZATION BETA SURVEY UNIT 23

RSDS# 03-TF-0135 RCT: DJH RCT: DK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U23 01	5833	5214	5847	1	6/17/03	280	60	570
U23 02	5833	5214	5847	2	6/17/03	486	60	1600
U23 03	5833	5214	5847	3	6/17/03	344	60	890
U23 04	5833	5214	5847	4	6/17/03	470	60	1520
U23 05	5833	5214	5847	5	6/17/03	313	60	735
U23 06	5833	5214	5847	6	6/17/03	533	60	1835
U23 07	5833	5214	5847	7	6/17/03	330	60	820
U23 08	5833	5214	5847	8	6/17/03	480	60	1570
U23 09	5833	5214	5847	9	6/17/03	319	60	765
U23 10	5833	5214	5847	10	6/17/03	501	60	1675
U23 11	5833	5214	5847	11	6/17/03	285	60	595
U23 12	5833	5214	5847	12	6/17/03	483	60	1585
U23 13	5833	5214	5847	13	6/17/03	335	60	845
U23 14	5833	5214	5847	14	6/17/03	216	60	250
U23 15	5833	5214	5847	15	6/17/03	296	60	650
QC 03	5833	5214	5847		6/17/03	337	60	855
QC 12	5833	5214	5847		6/17/03	468	60	1510
BETA BACKGROUND (CPM) FOR 6-17-2003 WAS---------->								166

W7406 199

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200306171456	**Count Date:**	6/17/2003
Group:	D	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0135 HARVEY-15 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	21	4.37	2.72	3.80	2.51
2	5	2.18	1.92	5.32	2.90
3	27	4.37	2.72	2.43	2.06
4	51	2.18	1.92	3.95	2.51
5	37	0.00	0.00	0.00	0.00
6	15	0.00	0.00	1.37	1.45
7	75	0.00	0.00	1.37	1.45
8	35	0.00	0.00	1.37	1.45
9	68	0.00	0.00	2.74	2.04
10	65	0.00	0.00	0.00	0.00
11	13	2.19	1.92	0.00	0.16
12	2	2.18	1.92	2.58	2.05
13	52	2.17	1.92	17.66	5.21
14	14	0.00	0.00	1.37	1.45
15	43	4.37	2.72	5.17	2.90
		DJH		DJH	

CB Brown

Batch ID: 03-TF-0135 HARVEY-15 BSB

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~~Page 1 of 1~~

DJH 6-24-03

W7506 199

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

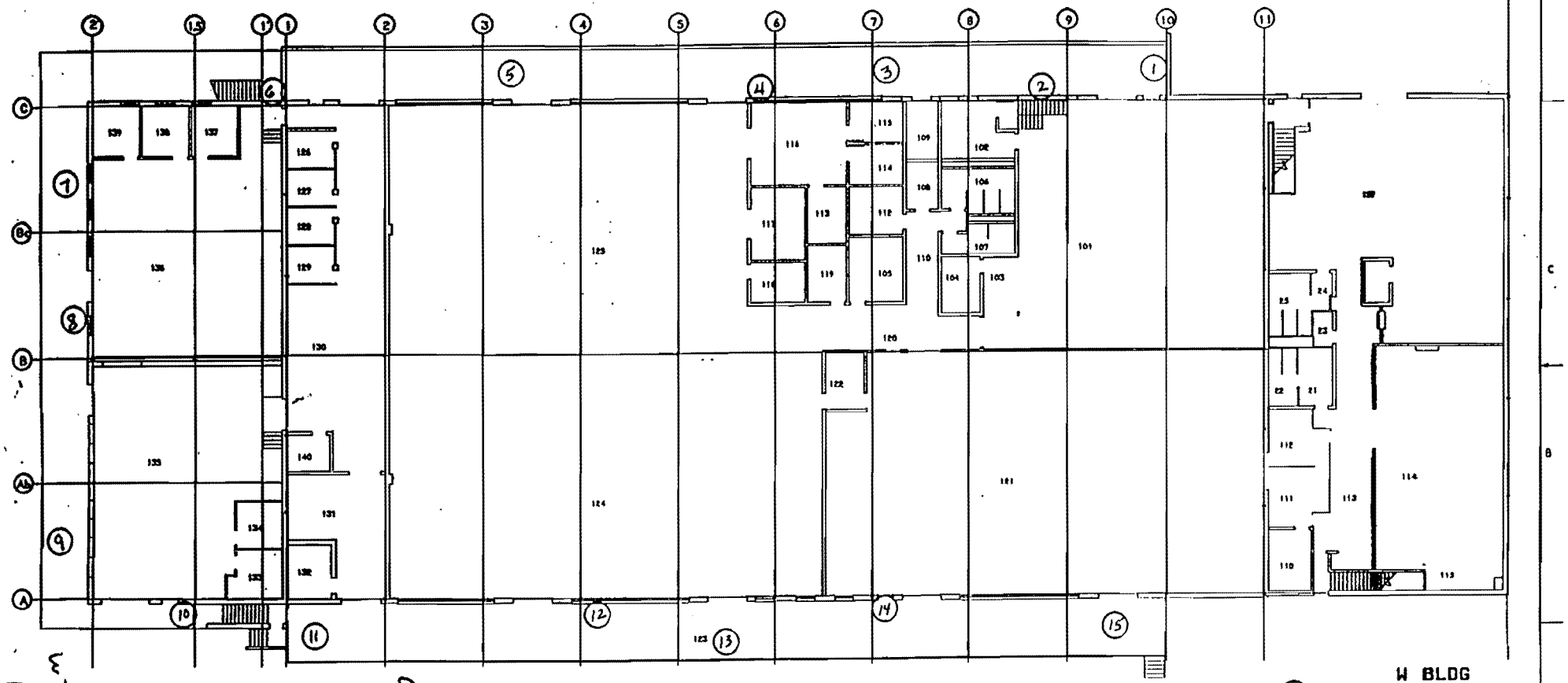
	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	4.80
Region B:	2.0 -	18.6	0	0.0	4.54
Region C:	40.0 -	2000	0	0.0	11.31

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
~~03-TF-013335~~ HARVEY-15 BSB 03-17-0135 6/18/03
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
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	4.80	4.54	0	B	488.49		0.000	11.31
0	2.00	604.72	566.53	0		470.82	1267.78	98.552	0.00
1	2.00	3.70	3.96	0		658.08	6.61	7.782	2.69
2	2.00	26.13	24.97	0		604.88	48.59	15.064	11.19
3	2.00	17.80	16.35	0		644.21	32.13	12.505	1.69
4	2.00	8.20	8.46	0		664.61	14.59	9.429	4.19
5	2.00	10.20	9.25	0		644.04	18.42	10.247	11.69
6	2.00	21.20	19.93	0		660.08	37.83	13.251	24.69
7	2.00	37.39	34.49	0		582.92	70.71	17.948	39.69
8	2.00	10.20	9.96	0		665.99	18.13	10.084	0.00
9	2.00	14.43	12.53	0		659.94	25.75	11.419	7.69
10	2.00	14.20	13.46	0		621.37	26.08	11.682	11.19
11	2.00	3.45	3.04	0		631.01	6.28	7.830	0.00
12	2.00	13.44	13.38	0		623.13	24.65	11.437	15.19
13	2.00	13.20	12.33	0		622.30	24.22	11.371	1.40
14	2.00	7.70	7.06	0		668.14	13.66	9.233	3.69
15	2.00	15.41	13.64	0		535.94	30.24	12.865	24.52

Sig #

REV	DATE	REVISION	BY	CHKD	ENG	UNIT	APVD	R
B	12/12/91	ASBUILT ISSUE	DCM				DVD	



W BLDG
FIRST FLOOR
BLDG CODE:3521

UNCLASSIFIED & NON-SENSITIVE
Reviewed by Mound Declassification Office. Reviewer Initials: [illegible]

8 5' 16' 28' 48'

SHEET	1	2	3	4	5	6
TOTAL	8	8				

TITLE: W BLDG FLOOR PLANS

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE: D | DRAWING NUMBER: FSD911326 | JOB NUMBER: 12335

03-TF-0135

W778 199

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION (BLDG/AREA/ROOM): W BUILDING	SURVEY NO: 03-TF-0137
PURPOSE: MARSSIM SURVEY PLAN W-01 UNITS 17 AND 16	RWP NO: N/A
	DATE: 06-18-03
	TIME: 1530

MAP / DRAWING

SEE ATTACHED DATA AND RESULTS

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
2350	5856	5-12-04
2360/43-93	5833/5847	3-13-04
	N/A	

[redacted] HP# 6178 5214 Date: 06-24-0

Counted by: (Signature) HP# Date:

Counted by: (Print Name) [redacted] ATTACHED

Reviewed/Approve[redacted] HP# 7492 Date: 6-24-03

Reviewed/Approved by: (Print Na[redacted]

Survey No. 03-TF-0137

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-16	SEE ATTACHED RESULTS			UNIT 17
17-31				UNIT 16
		N/A		

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

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 17

RSDS# 03-TF-0137 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5675	1		6/18/03	7:23	34	300	12	
SRC CHECK	5856	6178	5675	1		6/18/03	7:34	2059	60	3526	
SRC CHECK	5856	6178	5675	1		6/18/03	7:35	2052	60	3514	
SRC CHECK	5856	6178	5675	1		6/18/03	7:37	2163	60	3704	
SRC CHECK	5856	6178	5675	1		6/18/03	7:38	2018	60	3455	
SRC CHECK	5856	6178	5675	1		6/18/03	7:40	2067	60	3539	
SRC CHECK	5856	6178	5675	1		6/18/03	7:41	2174	60	3723	
SRC BKG	5856	6178	5148	2		6/18/03	7:47	6	300	7	
SRC CHECK	5856	6178	5148	2		6/18/03	7:50	2132	60	11779	
SRC CHECK	5856	6178	5148	2		6/18/03	7:51	2145	60	11851	
SRC CHECK	5856	6178	5148	2		6/18/03	7:54	2053	60	11343	
SRC CHECK	5856	6178	5148	2		6/18/03	7:55	2162	60	11945	
FU-17 01	5856	6178	5675	1		6/18/03	9:39	9	30	31	
U-17 01	5856	6178	5148	2	1	6/18/03	9:42	2	60	11	
U-17 02	5856	6178	5148	2	2	6/18/03	9:43	4	60	22	
U-17 03	5856	6178	5148	2	3	6/18/03	9:44	5	60	28	
U-17 04	5856	6178	5148	2	4	6/18/03	9:46	2	60	11	
U-17 05	5856	6178	5148	2	5	6/18/03	9:47	4	60	22	
U-17 06	5856	6178	5148	2	6	6/18/03	9:48	1	60	6	
U-17 07	5856	6178	5148	2	7	6/18/03	9:49	2	60	11	
U-17 08	5856	6178	5148	2	8	6/18/03	9:51	1	60	6	
U-17 09	5856	6178	5148	2	9	6/18/03	9:52	2	60	11	
U-17 10	5856	6178	5148	2	10	6/18/03	9:53	6	60	33	
U-17 11	5856	6178	5148	2	11	6/18/03	9:55	2	60	11	
U-17 12	5856	6178	5148	2	12	6/18/03	9:56	1	60	6	
U-17 13	5856	6178	5148	2	13	6/18/03	9:57	1	60	6	
U-17 14	5856	6178	5148	2	14	6/18/03	10:00	4	60	22	
U-17 15	5856	6178	5148	2	15	6/18/03	10:01	4	60	22	
U-17 16	5856	6178	5148	2	16	6/18/03	10:02	2	60	11	
QC 10	5856	6178	5148	2		6/18/03	10:06	3	60	17	

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 17

RSDS# 03-TF-0137 RCT: [illegible] RCT: [illegible]

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
QC 06	5856	6178	5148	2		6/18/03	10:07	0	60	0

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 16

RSDS# 03-TF-0137 RCT: ATJ RCT: DB

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5675	1		6/18/03	7:23	34	300	12	
SRC CHECK	5856	6178	5675	1		6/18/03	7:34	2059	60	3526	
SRC CHECK	5856	6178	5675	1		6/18/03	7:35	2052	60	3514	
SRC CHECK	5856	6178	5675	1		6/18/03	7:37	2163	60	3704	
SRC CHECK	5856	6178	5675	1		6/18/03	7:38	2018	60	3455	
SRC CHECK	5856	6178	5675	1		6/18/03	7:40	2067	60	3539	
SRC CHECK	5856	6178	5675	1		6/18/03	7:41	2174	60	3723	
SRC BKG	5856	6178	5148	2		6/18/03	7:47	6	300	7	
SRC CHECK	5856	6178	5148	2		6/18/03	7:50	2132	60	11779	
SRC CHECK	5856	6178	5148	2		6/18/03	7:51	2145	60	11851	
SRC CHECK	5856	6178	5148	2		6/18/03	7:54	2053	60	11343	
SRC CHECK	5856	6178	5148	2		6/18/03	7:55	2162	60	11945	
FU-16 01	5856	6178	5675	1		6/18/03	9:15	3	30	10	
U-16 01	5856	6178	5148	2	17	6/18/03	12:49	3	60	17	
U-16 02	5856	6178	5148	2	18	6/18/03	12:50	4	60	22	
U-16 03	5856	6178	5148	2	19	6/18/03	12:52	3	60	17	
U-16 04	5856	6178	5148	2	20	6/18/03	12:54	4	60	22	
U-16 05	5856	6178	5148	2	21	6/18/03	12:55	1	60	6	
U-16 06	5856	6178	5148	2	22	6/18/03	12:57	5	60	28	
U-16 07	5856	6178	5148	2	23	6/18/03	12:58	4	60	22	
U-16 08	5856	6178	5148	2	24	6/18/03	13:00	2	60	11	
U-16 09	5856	6178	5148	2	25	6/18/03	13:02	2	60	11	
U-16 10	5856	6178	5148	2	26	6/18/03	13:04	3	60	17	
U-16 11	5856	6178	5148	2	27	6/18/03	13:06	2	60	11	
U-16 12	5856	6178	5148	2	28	6/18/03	13:07	6	60	33	
U-16 13	5856	6178	5148	2	29	6/18/03	13:09	3	60	17	
U-16 14	5856	6178	5148	2	30	6/18/03	13:11	2	60	11	
U-16 15	5856	6178	5148	2	31	6/18/03	13:12	5	60	28	
QC 12	5856	6178	5148	2		6/18/03	13:15	3	60	17	
QC 05	5856	6178	5148	2		6/18/03	13:17	3	60	17	

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W-BLDG CHARACTERIZATION BETA SURVEY UNIT 17

RSDS# 03-TF-0137 RCT: DJM RCT: SK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-17 01	5833	5214	5847	1	6/18/03	213	60	260
U-17 02	5833	5214	5847	2	6/18/03	204	60	215
U-17 03	5833	5214	5847	3	6/18/03	196	60	175
U-17 04	5833	5214	5847	4	6/18/03	172	60	55
U-17 05	5833	5214	5847	5	6/18/03	195	60	170
U-17 06	5833	5214	5847	6	6/18/03	193	60	160
U-17 07	5833	5214	5847	7	6/18/03	226	60	325
U-17 08	5833	5214	5847	8	6/18/03	197	60	180
U-17 09	5833	5214	5847	9	6/18/03	157	60	-20
U-17 10	5833	5214	5847	10	6/18/03	171	60	50
U-17 11	5833	5214	5847	11	6/18/03	154	60	-35
U-17 12	5833	5214	5847	12	6/18/03	155	60	-30
U-17 13	5833	5214	5847	13	6/18/03	196	60	175
U-17 14	5833	5214	5847	14	6/18/03	175	60	70
U-17 15	5833	5214	5847	15	6/18/03	156	60	-25
U-17 16	5833	5214	5847	16	6/18/03	190	60	145
QC 10	5833	5214	5847		6/18/03	143	60	-90
QC 06	5833	5214	5847		6/18/03	190	60	145
BETA BACKGROUND (CPM) FOR 6-18-2003 WAS								161

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 16

RSDS# 03-TF-0137 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-16 01	5833	5214	5847	17	6/18/03	257	60	480
U-16 02	5833	5214	5847	18	6/18/03	239	60	390
U-16 03	5833	5214	5847	19	6/18/03	235	60	370
U-16 04	5833	5214	5847	20	6/18/03	212	60	255
U-16 05	5833	5214	5847	21	6/18/03	272	60	555
U-16 06	5833	5214	5847	22	6/18/03	240	60	395
U-16 07	5833	5214	5847	23	6/18/03	226	60	325
U-16 08	5833	5214	5847	24	6/18/03	313	60	760
U-16 09	5833	5214	5847	25	6/18/03	285	60	620
U-16 10	5833	5214	5847	26	6/18/03	241	60	400
U-16 11	5833	5214	5847	27	6/18/03	196	60	175
U-16 12	5833	5214	5847	28	6/18/03	250	60	445
U-16 13	5833	5214	5847	29	6/18/03	203	60	210
U-16 14	5833	5214	5847	30	6/18/03	261	60	500
U-16 15	5833	5214	5847	31	6/18/03	217	60	280
QC 12	5833	5214	5847		6/18/03	231	60	350
QC 05	5833	5214	5847		6/18/03	275	60	570
BETA BACKGROUND (CPM) FOR 6-18-2003 WAS								161

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR008
Batch Ended: 6/19/03 15:47

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0137 (31) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.3	
A2	2	0.0	2.2		0.0	1.3	
A3	3	0.0	2.0		0.8	1.7	
A4	4	0.0	1.9		0.0	1.2	
B1	5	1.6	2.0		5.5	3.4	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.0	2.0		0.1	1.2	
B4	8	3.4	2.7		0.0	1.2	
C1	9	0.0	2.0		1.3	2.0	
C2	10	0.0	2.0		0.0	1.3	
C3	11	0.0	1.9		2.7	2.3	
C4	12	0.0	1.9		0.0	1.2	
D1	13	0.0	2.3		0.0	1.3	
D2	14	0.0	2.1		0.1	1.8	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	2.1		0.0	1.3	
A2	18	0.0	2.2		0.8	1.8	
A3	19	0.0	2.0		0.0	1.2	
A4	20	1.4	2.0		2.3	2.4	
B1	21	0.0	2.0		1.8	2.6	
B2	22	0.0	2.1		0.8	1.9	
B3	23	0.0	2.0		0.0	1.2	
B4	24	0.0	1.9		0.0	1.2	
C1	25	0.0	2.0		1.3	2.0	
C2	26	0.0	2.0		0.6	1.8	
C3	27	0.0	1.9		0.0	1.1	
C4	28	0.0	1.9		1.7	2.0	
D1	29	0.0	2.3		0.0	1.3	
D2	30	0.0	2.1		0.1	1.8	
D3	31	0.0	2.0		0.5	1.7	

SR SR

W82 199 0580 11

Protocol #: 4 Name:Pw-H3 #401387 20-Jun-2003 07:31
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
~~Time = 2.00 QIP = tSIE/AEC~~ ES Terminator = Count
~~HARVEY 03-TF-0137 (J1-J31) AG~~
Conventional DPM
Nuclide 1 = 208074
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	11.19	10.23	5.15	B	2	624.		18.91
0	2.00	31.62	31.35	2.85		7	516.	64.44	32.08
1	2.00	0.00	0.00	0.00		0	530.	0.00	0.00
2	2.00	0.00	0.00	1.85		0	538.	0.00	0.00
3	2.00	0.00	0.00	2.35		0	589.	0.00	0.00
4	2.00	0.00	0.00	0.00		16	659.	0.00	0.00
5	2.00	0.00	0.00	0.00		14	660.	0.00	0.00
6	2.00	0.00	0.00	0.35		0	541.	0.00	0.00
7	2.00	0.00	0.00	0.00		0	571.	0.00	0.00
8	2.00	0.00	0.00	0.00		0	608.	0.00	0.00
9	2.00	0.00	0.00	0.00		0	667.	0.00	0.00
10	2.00	0.00	0.00	0.35		0	660.	0.00	0.00
11	2.00	0.00	0.00	0.00		0	657.	0.00	0.00
12	2.00	0.00	0.00	0.00		0	658.	0.00	0.00
13	2.00	0.00	0.00	0.00		11	647.	0.00	0.00
14	2.00	0.00	0.00	1.35		0	656.	0.00	0.00
15	2.00	0.00	0.00	2.85		0	662.	0.00	0.00
16	2.00	0.00	0.00	0.85		27	668.	0.00	0.00
17	2.00	0.00	0.00	0.85		72	569.	0.00	0.00
18	2.00	0.00	0.00	0.35		0	482.	0.00	0.00
19	2.00	0.00	0.00	0.00		0	515.	0.00	0.00
20	2.00	0.00	0.00	2.35		14	558.	0.00	0.00
21	2.00	0.00	0.00	3.35		12	558.	0.00	0.00
22	2.00	0.00	0.00	0.00		0	569.	0.00	0.00
23	2.00	0.00	0.00	0.35		0	443.	0.00	0.00
24	2.00	0.00	0.00	0.00		0	528.	0.00	0.00
25	2.00	0.00	0.00	0.00		18	520.	0.00	0.00
26	2.00	0.00	0.00	0.00		0	539.	0.00	0.00
27	2.00	0.00	0.00	0.00		0	626.	0.00	0.00
28	2.00	0.00	0.00	0.00		0	586.	0.00	0.00
29	2.00	0.00	0.00	0.00		0	583.	0.00	0.00
30	2.00	0.00	0.00	0.00		16	684.	0.00	0.00
31	2.00	0.00	0.00	0.00		27	690.	0.00	0.00

DR

Albert Hibbs
6/20/03

RSDS 03-TF-0137

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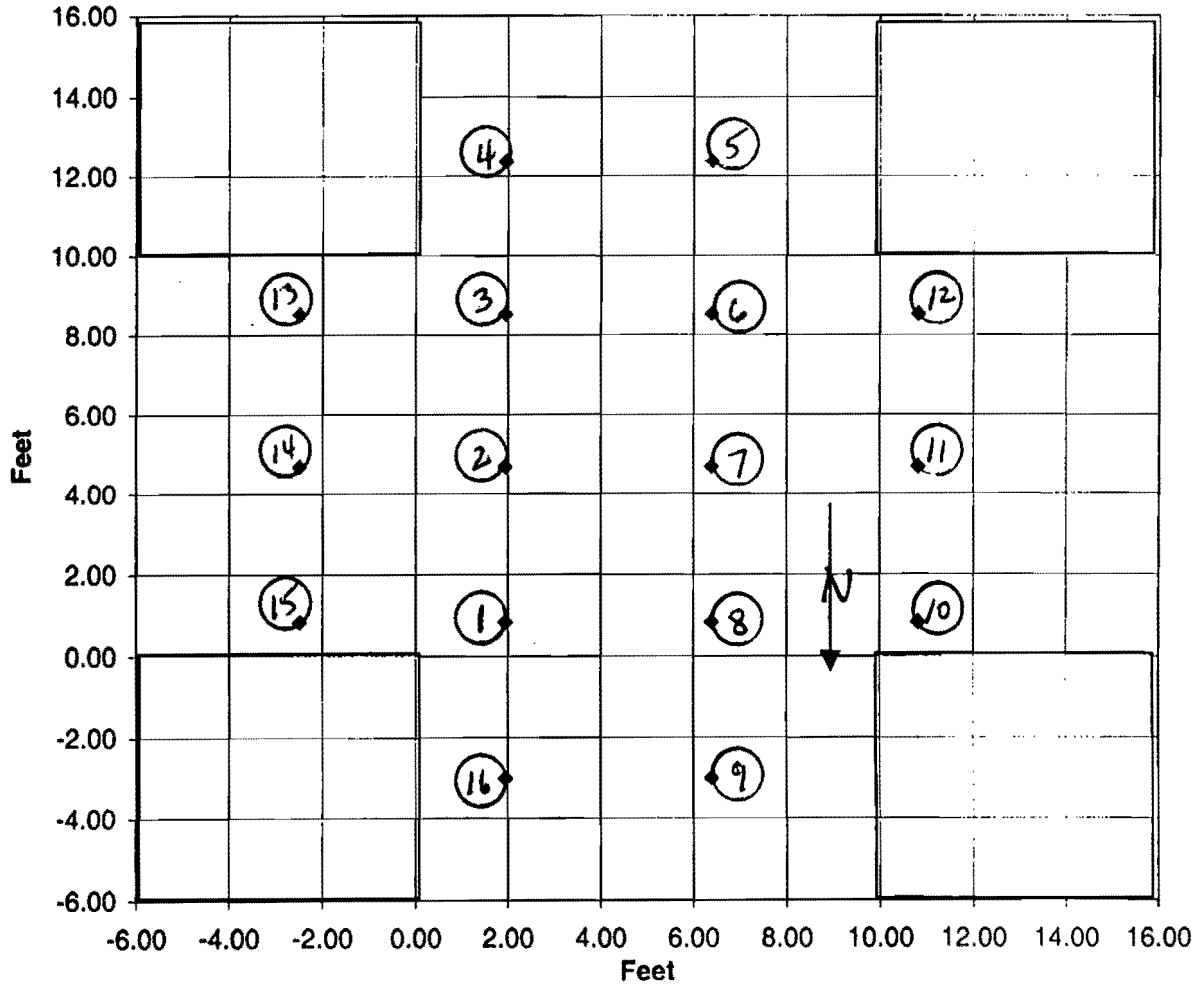
Survey Unit 17 Room 139



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#9A

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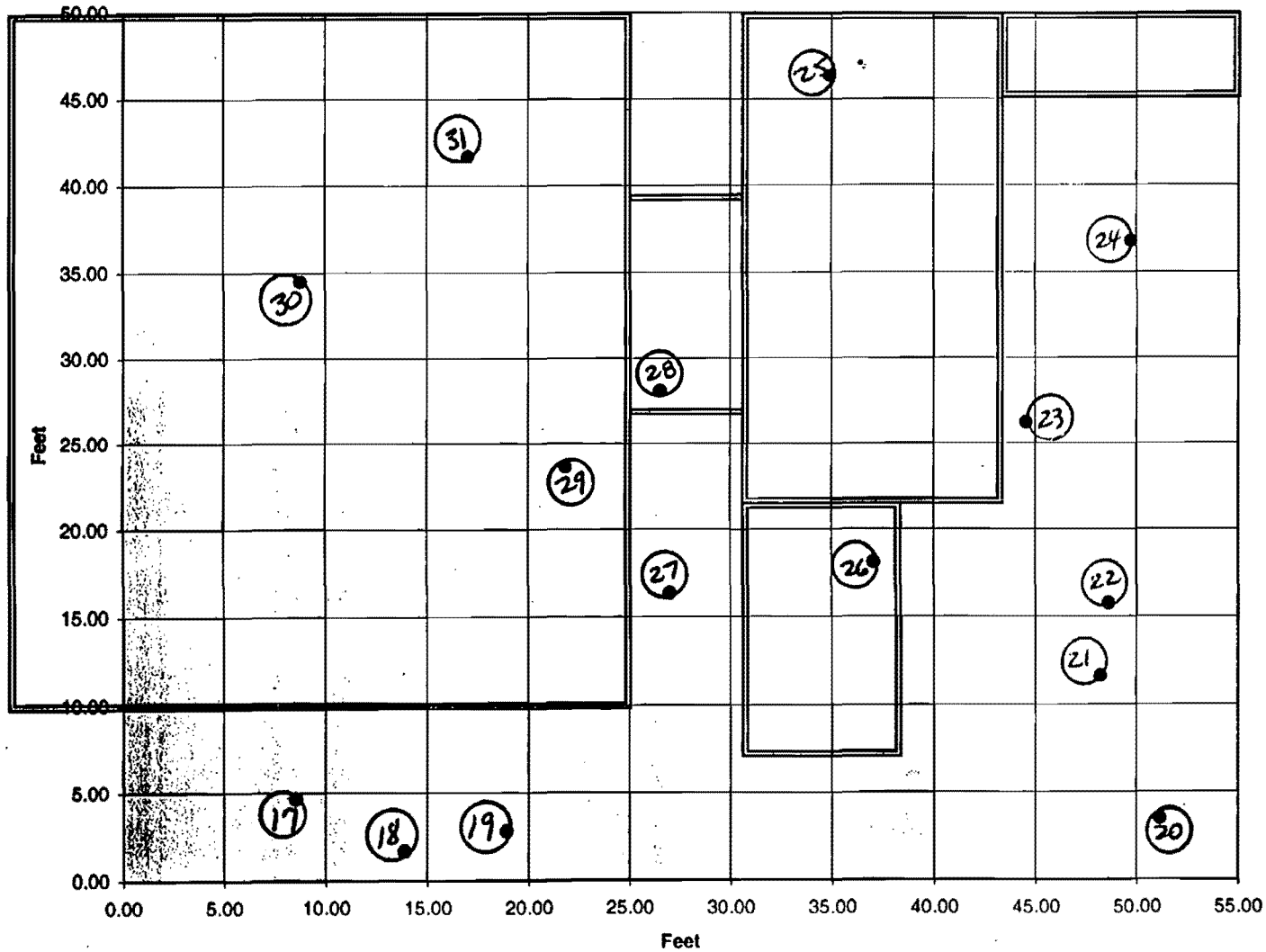
Survey Unit 16



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) W	SURVEY NO 03-TF-0138
PURPOSE: MARSSIM SURVEY PLAN W-01 VENTILATION SYSTEM	RWP NO. N/A
	DATE: 6-18-03
	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) = α/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

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

ML-9620 (2-98)

[redacted]	HP # 6178 5214	Date: 6-24-03
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/App[redacted]	HP # 7492	Date: 6-24-03
Reviewed/Approved by: (P[redacted]		

Survey No. 03-TF-0138

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36	SEE	ATTACHED		FAN
		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-9620A (4-98)

W-BLDG CHARACTERIZATION ALPHA-BETA SURVEY

RSDS# 03-TF-0138 RCT: [illegible] RCT: [illegible]

						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	6/18/03	220	60	295	1	60	0
2	5833	5214	5847	2	6/18/03	210	60	245	2	60	10
3	5833	5214	5847	3	6/18/03	215	60	270	2	60	10
4	5833	5214	5847	4	6/18/03	220	60	295	2	60	10
5	5833	5214	5847	5	6/18/03	220	60	295	0	60	-10
6				6							
7	5833	5214	5847	7	6/18/03	271	60	550	1	60	0
8				8							
9				9							
10	5833	5214	5847	10	6/18/03	490	60	1645	6	60	50
11	5833	5214	5847	11	6/18/03	207	60	230	2	60	10
12	5833	5214	5847	12	6/18/03	185	60	120	2	60	10
13	5833	5214	5847	13	6/18/03	218	60	285	0	60	-10
14	5833	5214	5847	14	6/18/03	311	60	750	3	60	20
15	5833	5214	5847	15	6/18/03	193	60	160	1	60	0
16	5833	5214	5847	16	6/18/03	265	60	520	1	60	0
17	5833	5214	5847	17	6/18/03	218	60	285	0	60	-10
18	5833	5214	5847	18	6/18/03	221	60	300	2	60	10
19	5833	5214	5847	19	6/18/03	230	60	345	1	60	0
20	5833	5214	5847	20	6/18/03	181	60	100	1	60	0
21	5833	5214	5847	21	6/18/03	200	60	195	3	60	20
22	5833	5214	5847	22	6/18/03	218	60	285	5	60	40
23	5833	5214	5847	23	6/18/03	214	60	265	3	60	20
24	5833	5214	5847	24	6/18/03	215	60	270	5	60	40
25	5833	5214	5847	25	6/18/03	227	60	330	5	60	40
26	5833	5214	5847	26	6/18/03	241	60	400	2	60	10

UG 3d/199

W-BLDG CHARACTERIZATION ALPHA-BETA SURVEY

RSDS# 03-TF-0138 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
[redacted]								161			
[redacted]								1			

W4yg 199

W-BLDG CHARACTERIZATION ALPHA-BETA SURVEY VENTILATION

RSDS# 03-TF-0138 RCT: DJH RCT: DEP

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
6	5833	5214	5847	1	06/19/2003	134	60	-110	0	60	-10
8	5833	5214	5847	2	06/19/2003	179	60	115	0	60	-10
9	5833	5214	5847	3	06/19/2003	184	60	140	0	60	-10
27	5833	5214	5847	4	06/19/2003	218	60	310	3	60	20
28	5833	5214	5847	5	06/19/2003	216	60	300	5	60	40
29	5833	5214	5847	6	06/19/2003	217	60	305	4	60	30
30	5833	5214	5847	7	06/19/2003	272	60	580	1	60	0
31	5833	5214	5847	8	06/19/2003	211	60	275	3	60	20
32	5833	5214	5847	9	06/19/2003	212	60	280	2	60	10
33	5833	5214	5847	10	06/19/2003	213	60	285	4	60	30
34	5833	5214	5847	11	06/19/2003	262	60	530	3	60	20
35	5833	5214	5847	12	06/19/2003	169	60	65	4	60	30
36	5833	5214	5847	13	06/19/2003	202	60	230	8	60	70
BETA BACKGROUND (CPM) FOR 6-19-2003 WAS---------->								156			
ALPHA BACKGROUND (CPM) FOR 6-19-2003 WAS---------->								1			

W5Sd 199

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR009
Batch Ended: 6/19/03 15:57

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0138 (36) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.3	
A2	2	0.0	2.2		0.8	1.8	
A3	3	0.7	2.0		1.9	2.1	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.0		5.6	3.4	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.9	2.0		1.1	1.7	
B4	8	1.5	1.9		0.0	1.2	
C1	9	0.0	2.0		1.3	2.0	
D1	9	0.0	2.3		0.7	1.9	
C2	10	1.6	2.0		0.5	1.8	
C3	11	0.0	1.9		2.7	2.3	
C4	12	0.0	2.0		6.3	3.0	
D1	13	0.0	2.3		0.0	1.3	
D2	14	1.6	2.1		2.6	2.6	
D3	15	2.5	2.8		0.0	1.2	
D4	16	0.0	2.0		1.5	2.1	
A1	17	1.7	2.1		0.5	1.8	
A2	18	0.0	2.2		4.7	2.9	
A3	19	0.0	2.0		2.0	2.1	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	1.9		0.5	2.3	
B2	22	0.0	2.1		0.8	1.9	
B3	23	0.0	2.0		1.2	1.7	
B4	24	0.0	2.0		1.9	2.3	
C1	25	0.0	2.0		4.8	2.9	
C2	26	1.6	2.0		0.5	1.8	
C3	27	0.0	1.9		0.0	1.1	
C4	28	0.0	1.9		0.6	1.6	
D2	30	0.0	2.1		0.1	1.8	
D3	31	4.5	3.4		0.0	1.2	

W26d 179

DJH DJH

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR009
Batch Ended: 6/19/03 15:57

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0138 (36) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D4	32	0.0	2.0		0.3	1.7	
A1	33	0.0	2.1		0.0	1.3	
A2	34	1.7	2.2		0.0	1.3	
A3	35	0.0	2.0		0.0	1.2	
A4	36	0.0	1.9		0.0	1.2	

AGH AGH

W7Ld 199

Albert Gibson 6/20/03

AGH 6-24-03

Time: 2.00
Data Mode: DPM Nuclide: SMGL02 Quench Set: SMGL02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5	- 18.6	0	0.0	10.22
Region B:	2.0	- 18.6	0	0.0	9.77
Region C:	40.0	- 2000	0	0.0	5.40

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
HARVEY 03-TF-0138 (L1-L36) CYR
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	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	10.22	0	B	641.36		0.00	5.40
0	2.00	169.04	0		416.52	409.90	52.32	2.10
1	2.00	0.00	0		550.10	0.00	0.00	0.00
2	2.00	0.00	0		568.96	0.00	0.00	1.10
3	2.00	0.00	0		496.73	0.00	0.00	0.00
4	2.00	0.28	0		507.55	0.60	10.77	0.60
5	2.00	0.00	0		424.47	0.00	0.00	1.47
6	2.00	0.00	0		602.93	0.00	0.00	0.00
7	2.00	0.00	0		472.71	0.00	0.00	0.10
8	2.00	0.00	0		532.12	0.00	0.00	0.10
9	2.00	0.00	0		598.64	0.00	0.00	0.00
10	2.00	0.00	0		380.92	0.00	0.00	1.60
11	2.00	0.00	0		433.15	0.00	0.00	0.60
12	2.00	0.00	0		490.54	0.00	0.00	0.00
13	2.00	0.00	0		457.44	0.00	0.00	0.00
14	2.00	0.00	0		522.05	0.00	0.00	0.00
15	2.00	0.00	0		566.97	0.00	0.00	0.00
16	2.00	0.00	0		488.39	0.00	0.00	0.00
17	2.00	0.00	0		620.66	0.00	0.00	0.00
18	2.00	0.00	0		396.94	0.00	0.00	0.00
19	2.00	0.00	0		534.08	0.00	0.00	0.00
20	2.00	0.00	0		402.59	0.00	0.00	0.00
21	2.00	0.00	0		512.98	0.00	0.00	1.10
22	2.00	0.00	0		425.93	0.00	0.00	0.60
23	2.00	0.00	0		343.88	0.00	0.00	0.00
24	2.00	0.00	0		456.34	0.00	0.00	0.00
25	2.00	0.00	0		413.11	0.00	0.00	0.00
26	2.00	0.00	0		437.22	0.00	0.00	2.10
27	2.00	0.00	0		374.11	0.00	0.00	1.10
28	2.00	0.00	0		385.37	0.00	0.00	1.10
29	2.00	0.00	0		392.66	0.00	0.00	0.00
30	2.00	0.00	0		380.56	0.00	0.00	0.00
31	2.00	0.00	0		502.93	0.00	0.00	0.00
32	2.00	0.00	0		484.36	0.00	0.00	0.00
33	2.00	0.00	0		336.44	0.00	0.00	1.60
34	2.00	0.00	0		387.37	0.00	0.00	1.60

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DGH W98 of 199

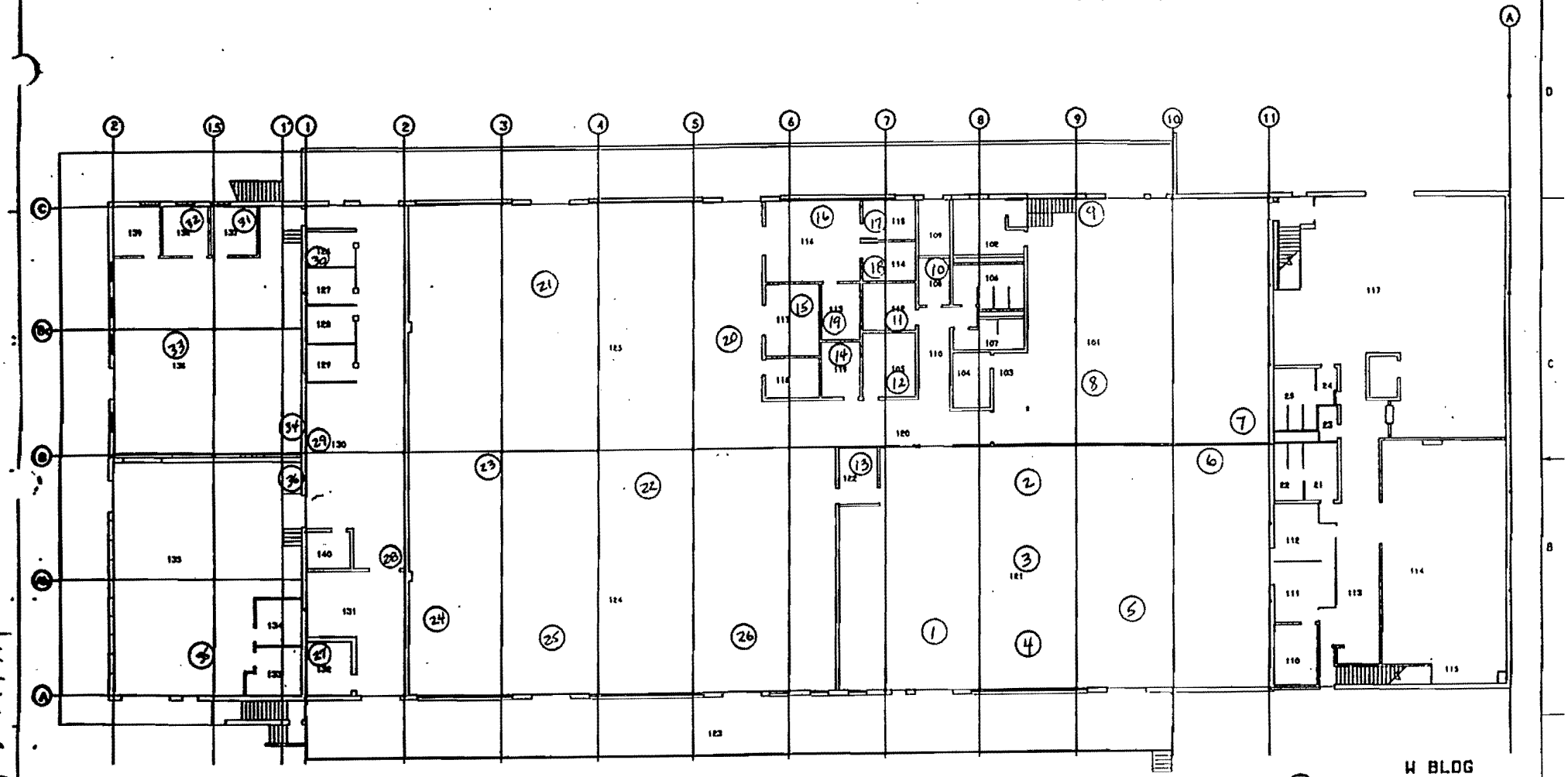
S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
35	2.00	0.00	0		407.43	0.00	0.00	0.00
36	2.00	0.00	0		449.25	0.00	0.00	2.10

DJH

03-TF-0138

Albert Helm
6/20/03

REV	DATE	REVISION	BY	CHKD	CHD	UNCD	APVD	R
0	12/12/91	AS-BUILT ISSUE	DCB				DVD	



W BLDG
FIRST FLOOR
BLDG CODE:3521

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

SHEET	1	2	3	4	5	6
ISSUE	0	0				

TITLE (U) TITLE CLASSIFICATION
W BLDG
FLOOR PLANS

PART CLASSIFICATION

CHARGING CLASSIFICATION: UNCLASSIFIED
SIZE: D
DRAWING NUMBER: FSD911326
JOB NUMBER: 12333
DWG TYPE: GFP
PRIM: W BLDG
CODE: 14845
SCALE: AS NOTED
SHEET 1 OF 2
STATUS: MD-CHK-12/12/91
ORIGIN: MD-SR3-V3.8

DESIGN END | PROJ MGR | SPONS | END MGR | LP & EE | MGR REV | CHD MGR | APVD | DATE

W100d 199

03-F-01

2 of 4

10/21/

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) W BUILDING	SURVEY NO. 03-TF-0139
PURPOSE: MARSSIM SURVEY PLAN W-01 UNITS 18, 19, 20 AND 21	RWP NO. N/A
	DATE: 06-19-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED DATA AND RESULTS

SURVEY INCLUDES 10% WALL AREA SCAN WITH NO ALARMS DETECTED.

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	5856	5-12-04
2360/43-93	5833/5847	3-13-04
	N/A	

[redacted]

	HP # 6178 5214	Date: 06-23-03
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Appro[redacted]	HP # 7492	Date: 6-24-03
Reviewed/Approved by: (Print N[redacted]		

ML-9620 (2-98)

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Survey No. 03-TF-0139

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				U-20 01
2				U-20 02
3				U-20 03
4				U-20 04
5				U-20 05
6				U-20 06
7				U-20 07
8				U-20 08
9				U-20 09
10				U-20 10
11				U-20 11
12				U-20 12
13				U-20 13
14				U-20 14
15				U-19 01
16				U-19 02
17				U-19 03
18				U-19 04
19				U-19 05
20				U-19 06
21				U-19 07
22				U-19 08
23				U-19 09
24				U-19 10
25				U-19 11
26				U-19 12
27				U-19 13
28				U-19 14
29				U-21 01
30				U-21 02
31				U-21 03
32				U-21 04
33				U-21 05
34				U-21 06
35				U-21 07

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comme
36				U-21
37				U-21
38				U-21
39				U-21
40				U-21
41				U-21
42				U-21
43				U-21
44				U-18
45				U-18
46				U-18
47				U-18
48				U-18
49				U-18
50				U-18
51				U-18
52				U-18
53				U-18
54				U-18
55				U-18
56				U-18
57				U-18
58				U-18

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-9620A (4-98)

W102 of 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 18,19,20 AND 21

RSDS# 03-TF-0139 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
[redacted] BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		06/19/2003	7:16	5	300	6	
SRC CHECK	5856	6178	5148	2		06/19/2003	7:24	2103	60	11619	
SRC CHECK	5856	6178	5148	2		06/19/2003	7:26	2056	60	11359	
SRC CHECK	5856	6178	5148	2		06/19/2003	7:27	2167	60	11972	
SRC CHECK	5856	6178	5148	2		06/19/2003	7:30	2102	60	11613	
U-20 01	5856	6178	5148	2	1	06/19/2003	8:32	5	60	28	
U-20 02	5856	6178	5148	2	2	06/19/2003	8:47	5	60	28	
U-20 03	5856	6178	5148	2	3	06/19/2003	8:50	4	60	22	
U-20 04	5856	6178	5148	2	4	06/19/2003	8:53	5	60	28	
U-20 05	5856	6178	5148	2	5	06/19/2003	8:55	1	60	6	
U-20 06	5856	6178	5148	2	6	06/19/2003	8:59	7	60	39	
U-20 07	5856	6178	5148	2	7	06/19/2003	9:04	0	60	0	
U-20 08	5856	6178	5148	2	8	06/19/2003	9:07	2	60	11	
U-20 09	5856	6178	5148	2	9	06/19/2003	9:11	5	60	28	
U-20 10	5856	6178	5148	2	10	06/19/2003	9:16	3	60	17	
U-20 11	5856	6178	5148	2	11	06/19/2003	9:18	5	60	28	
U-20 12	5856	6178	5148	2	12	06/19/2003	9:22	9	60	50	
U-20 13	5856	6178	5148	2	13	06/19/2003	9:25	6	60	33	
U-20 14	5856	6178	5148	2	14	06/19/2003	9:28	6	60	33	
QC 12	5856	6178	5148	2		06/19/2003	9:31	8	60	44	
QC 07	5856	6178	5148	2		06/19/2003	9:34	6	60	33	
U-19 01	5856	6178	5148	2	15	06/19/2003	9:38	5	60	28	

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 18,19,20 AND 21

RSDS# 03-TF-0139 RCT: DSH RCT: SCR

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-19 02	5856	6178	5148	2	16	06/19/2003	9:41	7	60	39
U-19 03	5856	6178	5148	2	17	06/19/2003	9:44	1	60	6
U-19 04	5856	6178	5148	2	18	06/19/2003	9:47	4	60	22
U-19 05	5856	6178	5148	2	19	06/19/2003	9:50	10	60	55
U-19 06	5856	6178	5148	2	20	06/19/2003	9:54	3	60	17
U-19 07	5856	6178	5148	2	21	06/19/2003	9:57	7	60	39
U-19 08	5856	6178	5148	2	22	06/19/2003	10:01	7	60	39
U-19 09	5856	6178	5148	2	23	06/19/2003	10:05	4	60	22
U-19 10	5856	6178	5148	2	24	06/19/2003	10:07	8	60	44
U-19 11	5856	6178	5148	2	25	06/19/2003	10:10	5	60	28
U-19 12	5856	6178	5148	2	26	06/19/2003	10:13	4	60	22
U-19 13	5856	6178	5148	2	27	06/19/2003	10:16	4	60	22
U-19 14	5856	6178	5148	2	28	06/19/2003	10:20	5	60	28
QC 05	5856	6178	5148	2		06/19/2003	10:23	9	60	50
QC 03	5856	6178	5148	2		06/19/2003	10:26	7	60	39
U-21 01	5856	6178	5148	2	29	06/19/2003	12:31	3	60	17
U-21 02	5856	6178	5148	2	30	06/19/2003	12:34	4	60	22
U-21 03	5856	6178	5148	2	31	06/19/2003	12:37	1	60	6
U-21 04	5856	6178	5148	2	32	06/19/2003	12:40	3	60	17
U-21 05	5856	6178	5148	2	33	06/19/2003	12:43	5	60	28
U-21 06	5856	6178	5148	2	34	06/19/2003	12:45	3	60	17
U-21 07	5856	6178	5148	2	35	06/19/2003	12:48	2	60	11
U-21 08	5856	6178	5148	2	36	06/19/2003	12:51	3	60	17
U-21 09	5856	6178	5148	2	37	06/19/2003	12:54	3	60	17
U-21 10	5856	6178	5148	2	38	06/19/2003	12:57	4	60	22
U-21 11	5856	6178	5148	2	39	06/19/2003	13:00	4	60	22

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 18,19,20 AND 21

RSDS# 03-TF-0139 RCT: DJH RCT: DR

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-21 12	5856	6178	5148	2	40	06/19/2003	13:03	4	60	22
U-21 13	5856	6178	5148	2	41	06/19/2003	13:05	4	60	22
U-21 14	5856	6178	5148	2	42	06/19/2003	13:09	3	60	17
U-21 15	5856	6178	5148	2	43	06/19/2003	13:12	1	60	6
QC 05	5856	6178	5148	2		06/19/2003	13:18	2	60	11
QC 15	5856	6178	5148	2		06/19/2003	13:22	9	60	50
U-18 01	5856	6178	5148	2	44	06/19/2003	13:27	5	60	28
U-18 02	5856	6178	5148	2	45	06/19/2003	13:36	1	60	6
U-18 03	5856	6178	5148	2	46	06/19/2003	13:39	2	60	11
U-18 04	5856	6178	5148	2	47	06/19/2003	13:42	2	60	11
U-18 05	5856	6178	5148	2	48	06/19/2003	13:45	2	60	11
U-18 06	5856	6178	5148	2	49	06/19/2003	13:48	1	60	6
U-18 07	5856	6178	5148	2	50	06/19/2003	13:51	5	60	28
U-18 08	5856	6178	5148	2	51	06/19/2003	13:55	4	60	22
U-18 09	5856	6178	5148	2	52	06/19/2003	13:58	2	60	11
U-18 10	5856	6178	5148	2	53	06/19/2003	14:05	5	60	28
U-18 11	5856	6178	5148	2	54	06/19/2003	14:12	6	60	33
U-18 12	5856	6178	5148	2	55	06/19/2003	14:17	2	60	11
U-18 13	5856	6178	5148	2	56	06/19/2003	14:20	2	60	11
U-18 14	5856	6178	5148	2	57	06/19/2003	14:25	4	60	22
U-18 15	5856	6178	5148	2	58	06/19/2003	14:28	2	60	11
QC 11	5856	6178	5148	2		06/19/2003	14:33	3	60	17
QC 02	5856	6178	5148	2		06/19/2003	14:39	8	60	44

W105d 199

W-BLDG MARSSIM SURVEY PLAN W-01 BETA SURVEY UNIT 20

RSDS# 03-TF-0139 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-20 01	5833	5214	5847	1	6/19/03	291	60	675
U-20 02	5833	5214	5847	2	6/19/03	304	60	740
U-20 03	5833	5214	5847	3	6/19/03	292	60	680
U-20 04	5833	5214	5847	4	6/19/03	300	60	720
U-20 05	5833	5214	5847	5	6/19/03	309	60	765
U-20 06	5833	5214	5847	6	6/19/03	279	60	615
U-20 07	5833	5214	5847	7	6/19/03	330	60	870
U-20 08	5833	5214	5847	8	6/19/03	227	60	355
U-20 09	5833	5214	5847	9	6/19/03	320	60	820
U-20 10	5833	5214	5847	10	6/19/03	342	60	930
U-20 11	5833	5214	5847	11	6/19/03	340	60	920
U-20 12	5833	5214	5847	12	6/19/03	312	60	780
U-20 13	5833	5214	5847	13	6/19/03	311	60	775
U-20 14	5833	5214	5847	14	6/19/03	339	60	915
QC-12	5833	5214	5847		6/19/03	309	60	765
QC-7	5833	5214	5847		6/19/03	320	60	820
BETA BACKGROUND (CPM) FOR 6-19-2003 WAS								156

W 106 of 199

W-BLDG MARSSIM SURVEY PLAN W-01 BETA SURVEY UNIT 19

RSDS# 03-TF-0139 RCT: DJH RCT: SKR

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-19 01	5833	5214	5847	15	6/19/03	318	60	810
U-19 02	5833	5214	5847	16	6/19/03	342	60	930
U-19 03	5833	5214	5847	17	6/19/03	154	60	-10
U-19 04	5833	5214	5847	18	6/19/03	354	60	990
U-19 05	5833	5214	5847	19	6/19/03	290	60	670
U-19 06	5833	5214	5847	20	6/19/03	204	60	240
U-19 07	5833	5214	5847	21	6/19/03	326	60	850
U-19 08	5833	5214	5847	22	6/19/03	293	60	685
U-19 09	5833	5214	5847	23	6/19/03	301	60	725
U-19 10	5833	5214	5847	24	6/19/03	286	60	650
U-19 11	5833	5214	5847	25	6/19/03	330	60	870
U-19 12	5833	5214	5847	26	6/19/03	225	60	345
U-19 13	5833	5214	5847	27	6/19/03	299	60	715
U-19 14	5833	5214	5847	28	6/19/03	324	60	840
QC-5	5833	5214	5847		6/19/03	286	60	650
QC-3	5833	5214	5847		6/19/03	149	60	-35
BETA BACKGROUND (CPM) FOR 6-19-2003 WAS --->								156

W1078 199

W-BLDG MARSSIM SURVEY PLAN W-01 BETA SURVEY UNIT 21

RSDS# 03-TF-0139 RCT: DSH RCT: SK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-21 01	5833	5214	5847	29	6/19/03	339	60	915
U-21 02	5833	5214	5847	30	6/19/03	209	60	265
U-21 03	5833	5214	5847	31	6/19/03	302	60	730
U-21 04	5833	5214	5847	32	6/19/03	280	60	620
U-21 05	5833	5214	5847	33	6/19/03	200	60	220
U-21 06	5833	5214	5847	34	6/19/03	284	60	640
U-21 07	5833	5214	5847	35	6/19/03	275	60	595
U-21 08	5833	5214	5847	36	6/19/03	284	60	640
U-21 09	5833	5214	5847	37	6/19/03	239	60	415
U-21 10	5833	5214	5847	38	6/19/03	318	60	810
U-21 11	5833	5214	5847	39	6/19/03	306	60	750
U-21 12	5833	5214	5847	40	6/19/03	168	60	60
U-21 13	5833	5214	5847	41	6/19/03	209	60	265
U-21 14	5833	5214	5847	42	6/19/03	317	60	805
U-21 15	5833	5214	5847	43	6/19/03	324	60	840
QC-5	5833	5214	5847		6/19/03	247	60	455
QC-15	5833	5214	5847		6/19/03	333	60	885
BETA BACKGROUND (CPM) FOR 6-19-2003 WAS								156

W108 of 199

W-BLDG MARSSIM SURVEY PLAN W-01 BETA SURVEY UNIT 18

RSDS# 03-TF-0139 RCT: DJA RCT: SL

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-18 01	5833	5214	5847	44	6/19/03	337	60	905
U-18 02	5833	5214	5847	45	6/19/03	311	60	775
U-18 03	5833	5214	5847	46	6/19/03	238	60	410
U-18 04	5833	5214	5847	47	6/19/03	280	60	620
U-18 05	5833	5214	5847	48	6/19/03	292	60	680
U-18 06	5833	5214	5847	49	6/19/03	170	60	70
U-18 07	5833	5214	5847	50	6/19/03	291	60	675
U-18 08	5833	5214	5847	51	6/19/03	272	60	580
U-18 09	5833	5214	5847	52	6/19/03	174	60	90
U-18 10	5833	5214	5847	53	6/19/03	157	60	5
U-18 11	5833	5214	5847	54	6/19/03	315	60	795
U-18 12	5833	5214	5847	55	6/19/03	317	60	805
U-18 13	5833	5214	5847	56	6/19/03	303	60	735
U-18 14	5833	5214	5847	57	6/19/03	310	60	770
U-18 15	5833	5214	5847	58	6/19/03	329	60	865
QC-11	5833	5214	5847		6/19/03	342	60	930
QC-2	5833	5214	5847		6/19/03	321	60	825
BETA BACKGROUND (CPM) FOR 6-19-2003 WAS								156

W109 of 199

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR010
Batch Ended: 6/19/03 16:06

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0139 (58) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.7	1.8	
A2	2	0.0	2.2		0.0	1.3	
A3	3	0.0	2.0		0.0	1.2	
A4	4	1.4	2.0		1.2	2.1	
B1	5	0.0	2.0		1.8	2.6	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.0	2.0		0.0	1.2	
B4	8	0.0	2.0		1.9	2.3	
C1	9	0.0	1.9		0.0	1.2	
C2	10	0.0	2.0		3.1	2.5	
C3	11	0.0	1.9		1.6	2.0	
C4	12	0.0	1.9		0.0	1.2	
D1	13	0.0	2.3		2.0	2.3	
D2	14	0.0	2.1		1.4	2.3	
D3	15	0.0	2.0		1.6	2.0	
D4	16	0.0	2.0		1.5	2.1	
A1	17	0.0	2.1		2.0	2.3	
A2	18	0.0	2.2		3.4	2.6	
A3	19	0.0	2.0		0.8	1.7	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	1.9		0.0	1.3	
B2	22	0.0	2.1		0.0	1.3	
B3	23	0.9	2.0		0.0	1.2	
B4	24	0.0	1.9		0.0	1.2	
C1	25	0.0	2.0		0.1	1.7	
C2	26	0.0	2.0		0.0	1.3	
C3	27	1.2	1.9		0.4	1.6	
C4	28	0.0	1.9		0.6	1.6	
D1	29	0.0	2.3		0.7	1.9	
D2	30	0.0	2.1		4.0	2.9	
D3	31	0.0	2.0		0.5	1.7	

SKR SKR

W1108 19
R10 817

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR010
Batch Ended: 6/19/03 16:06

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0139 (58) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D4	32	0.0	2.0		1.5	2.1	
A1	33	0.0	2.1		0.7	1.8	
A2	34	0.0	2.2		0.8	1.8	
A3	35	0.0	2.0		0.0	1.2	
A4	36	0.0	2.0		0.1	1.7	
B1	37	0.0	1.9		0.0	1.9	
B2	38	0.0	2.1		0.0	1.3	
B3	39	0.0	2.0		2.4	2.1	
B4	40	0.0	1.9		0.0	1.2	
C1	41	0.0	1.9		0.0	1.2	
C2	42	0.0	2.0		0.0	1.3	
C3	43	0.0	1.9		0.5	1.6	
C4	44	0.0	1.9		0.6	1.6	
D1	45	0.0	2.3		0.0	1.3	
D2	46	1.6	2.1		0.0	1.3	
D3	47	0.0	2.0		4.0	2.6	
D4	48	0.0	2.0		0.0	1.2	
A1	49	0.0	2.1		0.7	1.8	
A2	50	0.0	2.2		0.0	1.3	
A3	51	0.0	2.0		0.0	1.2	
A4	52	0.0	2.0		4.8	2.9	
B1	53	0.0	2.0		1.8	2.6	
B2	54	5.7	3.6		0.3	1.9	
B3	55	0.0	2.0		0.1	1.2	
B4	56	0.0	1.9		0.0	1.2	
C1	57	0.0	1.9		0.0	1.2	
C2	58	0.0	2.0		1.9	2.2	

Albert Hibbard
6/20/03

~~Page 2 of 2~~ 06-23-03

Protocol #: 6 Name:Pw H3 #401393 20-Jun-2003 07:30
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
HARVEY 03-T-0139 (I1-I58) AG
Conventional DPM
Nuclide 1 = 800
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
-1	10.00	7	B	4.35	4.20	5.80	636.		30.31
0	2.00	1		385.75	373.79	0.00	493.	990.35	7.29
1	2.00	14		0.00	0.00	0.00	602.	0.00	0.00
2	2.00	0		0.00	0.00	0.00	622.	0.00	0.00
3	2.00	16		0.00	0.00	0.00	634.	0.00	0.00
4	2.00	0		1.65	1.48	0.00	632.	3.60	225.1
5	2.00	0		0.00	0.00	0.70	624.	0.00	0.00
6	2.00	0		0.65	0.80	0.00	589.	1.48	529.9
7	2.00	54		0.00	0.00	0.20	608.	0.00	0.00
8	2.00	0		0.15	0.00	0.00	539.	0.36	2234.
9	2.00	12		0.00	0.00	3.70	590.	0.00	0.00
10	2.00	11		0.12	0.06	0.00	572.	0.27	3109.
11	2.00	0		0.00	0.00	0.00	605.	0.00	0.00
12	2.00	16		0.00	0.00	0.00	646.	0.00	0.00
13	2.00	14		2.08	2.61	0.00	603.	4.69	208.4
14	2.00	12		0.00	0.00	0.00	606.	0.00	0.00
15	2.00	31		0.00	0.00	0.00	617.	0.00	0.00
16	2.00	0		3.43	3.37	0.00	571.	8.00	121.2
17	2.00	47		0.00	0.00	0.20	596.	0.00	0.00
18	2.00	16		0.00	0.00	0.00	581.	0.00	0.00
19	2.00	18		0.00	0.00	1.70	604.	0.00	0.00
20	2.00	9		1.12	0.30	0.00	632.	2.44	344.8
21	2.00	36		0.00	0.00	0.00	641.	0.00	0.00
22	2.00	8		2.12	2.64	1.20	653.	4.53	193.7
23	2.00	47		0.00	0.00	0.00	555.	0.00	0.00
24	2.00	14		0.00	0.00	0.00	583.	0.00	0.00
25	2.00	0		0.14	0.00	0.00	537.	0.33	2379.
26	2.00	15		39.83	37.27	16.76	619.	88.20	27.73
27	2.00	0		0.00	0.00	0.35	617.	0.00	0.00
28	2.00	65		0.00	0.00	0.00	624.	0.00	0.00
29	2.00	16		0.00	0.00	0.00	607.	0.00	0.00
30	2.00	0		2.15	2.03	0.00	605.	4.82	178.9
31	2.00	0		0.12	0.00	0.00	643.	0.26	2679.
32	2.00	0		0.00	0.00	0.00	648.	0.00	0.00
33	2.00	62		0.00	0.00	0.00	647.	0.00	0.00
34	2.00	65		0.00	0.00	2.20	598.	0.00	0.00
35	2.00	0		0.00	0.00	0.00	609.	0.00	0.00
36	2.00	0		3.09	2.96	0.20	613.	6.89	132.0
37	2.00	11		0.12	0.00	0.00	628.	0.25	3087.
38	2.00	22		0.00	0.00	0.00	622.	0.00	0.00
39	2.00	47		0.00	0.00	0.00	646.	0.00	0.00
40	2.00	0		0.00	0.00	0.70	592.	0.00	0.00
41	2.00	16		0.00	0.00	0.00	633.	0.00	0.00
42	2.00	0		0.81	0.96	0.00	495.	2.07	429.4
43	2.00	72		0.00	0.00	0.70	663.	0.00	0.00

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PSDS 03-TF-0139

Ps 12 of 17

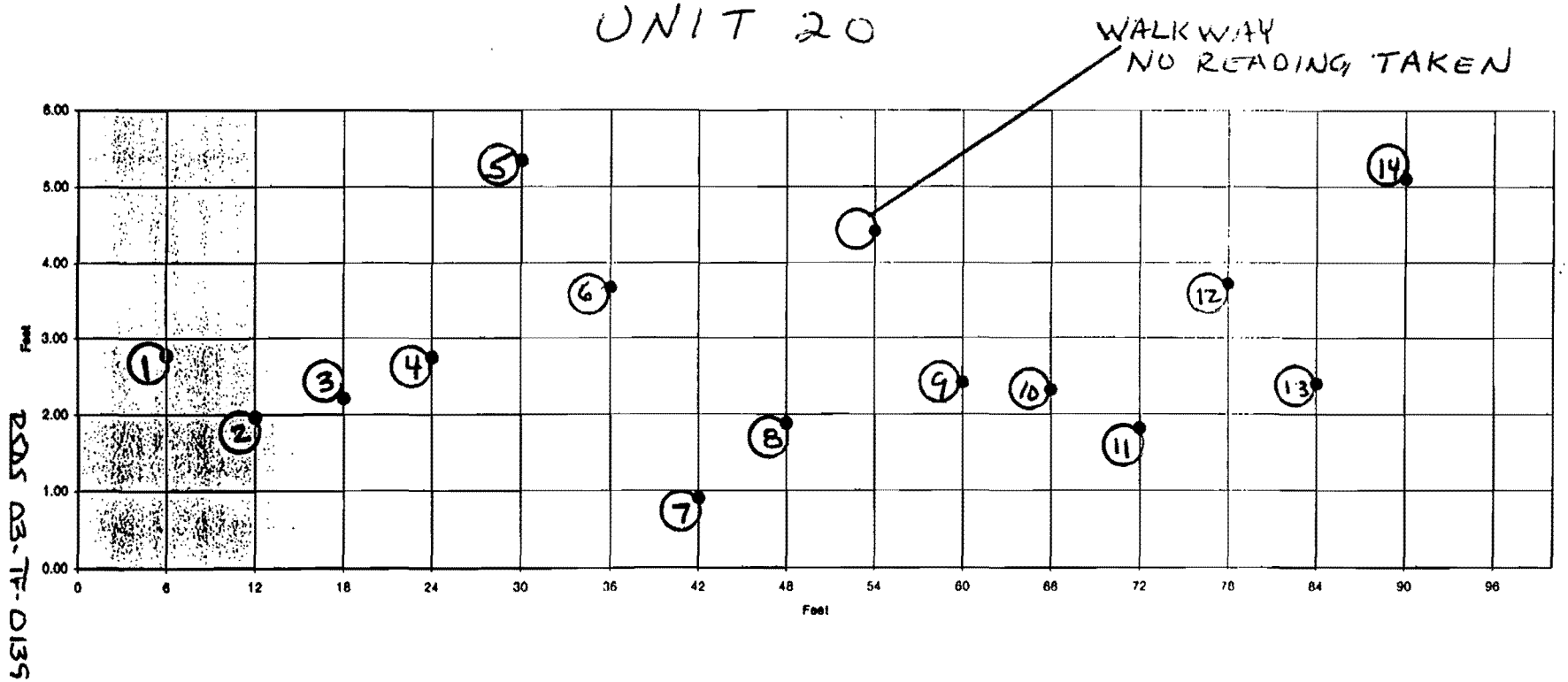
SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
44	2.00	0		0.00	0.00	3.20	585.	0.00	0.00
45	2.00	13		3.09	0.52	0.00	658.	6.58	148.0
46	2.00	0		0.00	0.00	0.00	650.	0.00	0.00
47	2.00	0		1.15	0.93	0.00	656.	2.45	311.3
48	2.00	0		2.65	2.80	0.00	603.	5.96	149.9
49	2.00	0		0.00	0.00	0.00	606.	0.00	0.00
50	2.00	0		0.00	0.00	0.00	597.	0.00	0.00
51	2.00	18		0.00	0.00	0.00	618.	0.00	0.00
52	2.00	0		0.00	0.00	0.00	627.	0.00	0.00
53	2.00	13		0.00	0.00	0.70	603.	0.00	0.00
54	2.00	87		0.00	0.00	0.70	591.	0.00	0.00
55	2.00	22		0.00	0.00	1.70	595.	0.00	0.00
56	2.00	27		0.00	0.00	0.00	584.	0.00	0.00
57	2.00	18		0.00	0.00	0.00	551.	0.00	0.00
58	2.00	27		0.00	0.00	1.20	504.	0.00	0.00

Allen A Hibbs
6/20/03

DGH 6-23-03

Surevy Units 20 ~~& 21~~ East & ~~West~~ Interior Walls

UNIT 20



BDS 03-TF-0135

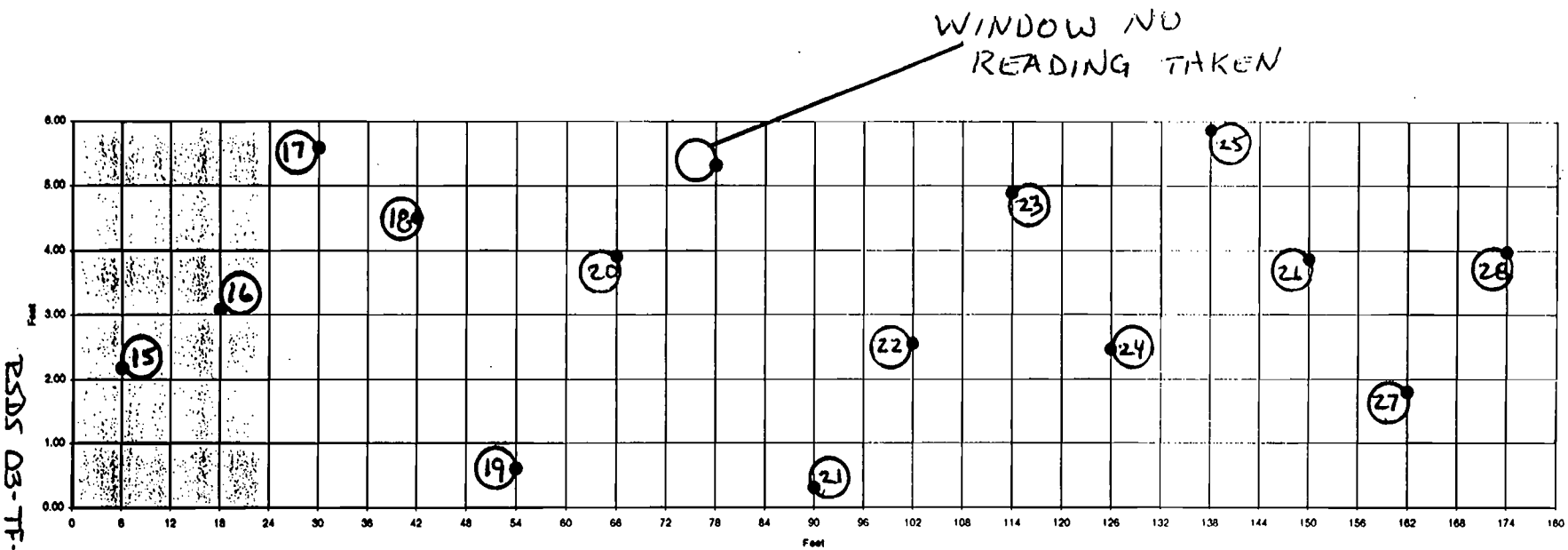
Willard 199

R 1 of 17

~~29~~ #6-23-03

SU ~~18~~ & 19 ~~North~~ & South Interior Walls

UNIT 19



RSDS 03-TF-0139

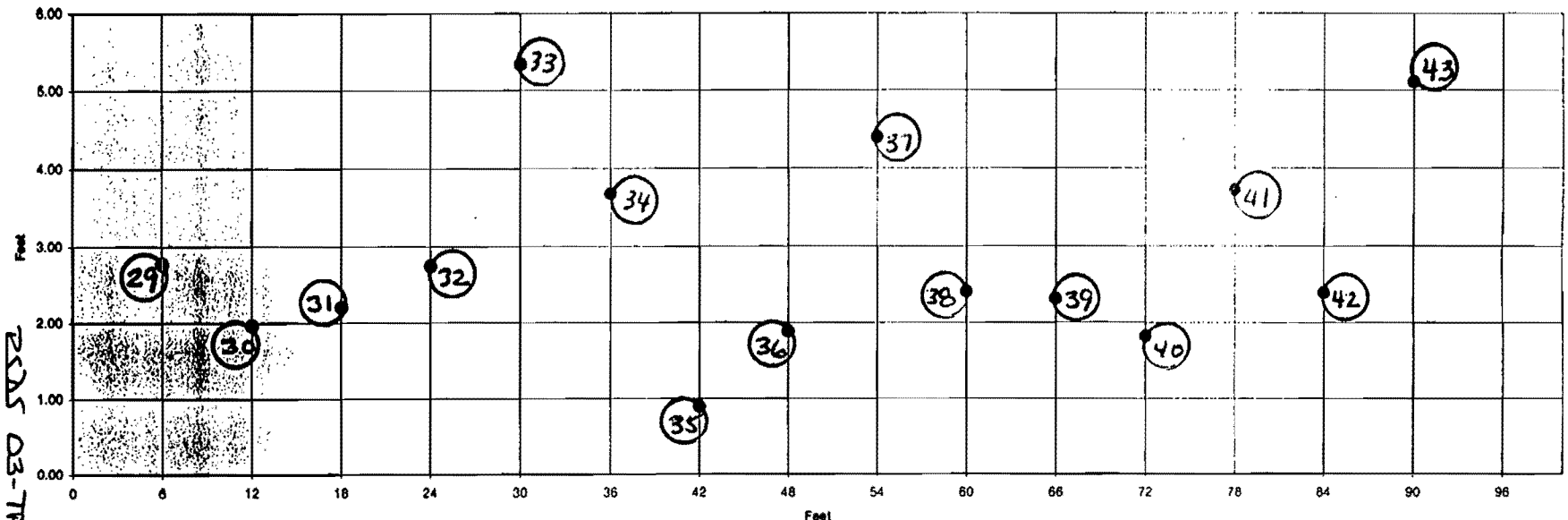
WUSD 199

Pg 15 of 17

DJA 6-23-03

Surevy Units ~~20~~ & 21 ~~East~~ & West Interior Walls

UNIT 21



DSS 03-TF-0139

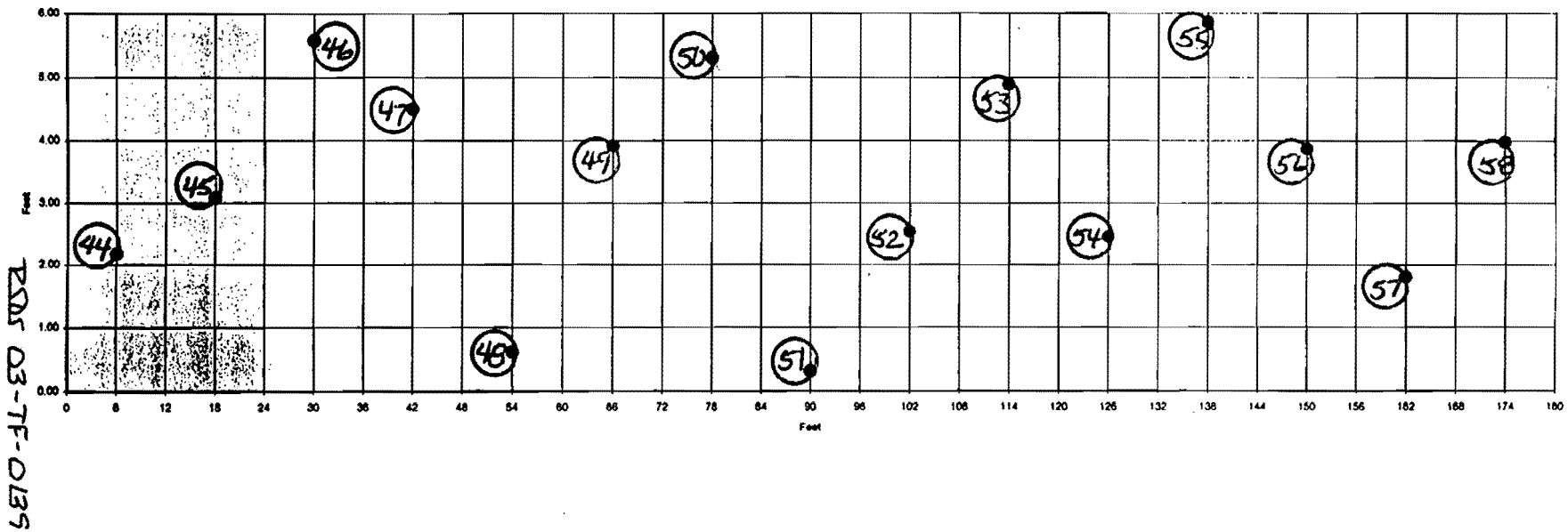
WL6 of 196

R 16217

29# 6-23-03

SU 18 & ~~19~~ North & ~~South~~ Interior Walls

UNIT 18



RDS 03-TF-039

unit 19

R 1/8/17

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RADIOLOGICAL SURVEY DATA SHEET

106

LOCATION: (BLDG./AREA/ROOM) W	SURVEY NO. 03-TF-0141
PURPOSE: MARSSIM SURVEY PLAN W-01 UNITS 1-4	RWP NO. N/A
	DATE: 6-20-03
	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
2350	5856/5148	6-12-04
2360	5833/5847	3-13-04
	N/A	

[redacted] HP #6178 5214 Date: 6-23-03

[redacted] HP # Date:

Counted by: (Print Name) SEE ATTACHED

Reviewed/Appro[redacted] HP # 7492 Date: 6-24-03

Reviewed/Approved by: (Print Name) [redacted]

ML-9620 (2-98)

W119 of 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2,3 and 4

RSDS# 03-TF-0141 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
[redacted] 43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	6178	5148	2	0	06/20/2003	7:49	8	300	9
SRC CHECK	5856	6178	5148	2	1	06/20/2003	8:21	2063	60	11398
SRC CHECK	5856	6178	5148	2	2	06/20/2003	8:22	2133	60	11785
SRC CHECK	5856	6178	5148	2	3	06/20/2003	8:24	2118	60	11702
SRC CHECK	5856	6178	5148	2	4	06/20/2003	8:25	2031	60	11221
U-01 01	5856	6178	5148	2	1	06/20/2003	8:40	4	60	22
U-01 02	5856	6178	5148	2	2	06/20/2003	8:42	3	60	17
U-01 03	5856	6178	5148	2	3	06/20/2003	8:44	2	60	11
U-01 04	5856	6178	5148	2	4	06/20/2003	8:45	4	60	22
U-01 05	5856	6178	5148	2	5	06/20/2003	8:47	7	60	39
U-01 06	5856	6178	5148	2	6	06/20/2003	8:48	4	60	22
U-01 07	5856	6178	5148	2	7	06/20/2003	9:13	0	60	0
U-01 08	5856	6178	5148	2	8	06/20/2003	9:15	5	60	28
U-01 09	5856	6178	5148	2	9	06/20/2003	9:16	3	60	17
U-01 10	5856	6178	5148	2	10	06/20/2003	9:19	3	60	17
U-01 11	5856	6178	5148	2	11	06/20/2003	9:21	3	60	17
U-01 12	5856	6178	5148	2	12	06/20/2003	9:22	5	60	28
U-01 13	5856	6178	5148	2	13	06/20/2003	9:24	1	60	6
U-01 14	5856	6178	5148	2	14	06/20/2003	9:25	5	60	28
U-01 15	5856	6178	5148	2	15	06/20/2003	9:27	6	60	33
U-2 01	5856	6178	5148	2	16	06/20/2003	9:29	5	60	28
U-2 02	5856	6178	5148	2	17	06/20/2003	9:30	3	60	17

W121d 159

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2,3 and 4

RSDS# 03-TF-0141 RCT: 29A RCT: SR

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-2 03	5856	6178	5148	2	18	06/20/2003	9:32	5	60	28
U-2 04	5856	6178	5148	2	19	06/20/2003	9:33	3	60	17
U-2 05	5856	6178	5148	2	20	06/20/2003	9:34	3	60	17
U-2 06	5856	6178	5148	2	21	06/20/2003	9:35	1	60	6
U-2 07	5856	6178	5148	2	22	06/20/2003	9:37	1	60	6
U-2 08	5856	6178	5148	2	23	06/20/2003	9:38	4	60	22
U-2 09	5856	6178	5148	2	24	06/20/2003	9:39	6	60	33
U-2 10	5856	6178	5148	2	25	06/20/2003	9:41	4	60	22
U-2 11	5856	6178	5148	2	26	06/20/2003	9:42	5	60	28
U-2 12	5856	6178	5148	2	27	06/20/2003	9:44	2	60	11
U-2 13	5856	6178	5148	2	28	06/20/2003	9:46	1	60	6
U-2 14	5856	6178	5148	2	29	06/20/2003	9:47	0	60	0
U-2 15	5856	6178	5148	2	30	06/20/2003	9:48	3	60	17
U-3 01	5856	6178	5148	2	31	06/20/2003	9:51	5	60	28
U-3 02	5856	6178	5148	2	32	06/20/2003	9:53	1	60	6
U-3 03	5856	6178	5148	2	33	06/20/2003	9:55	3	60	17
U-3 04	5856	6178	5148	2	34	06/20/2003	9:56	2	60	11
U-3 05	5856	6178	5148	2	35	06/20/2003	9:58	3	60	17
U-3 06	5856	6178	5148	2	36	06/20/2003	9:59	1	60	6
U-3 07	5856	6178	5148	2	37	06/20/2003	10:00	2	60	11
U-3 08	5856	6178	5148	2	38	06/20/2003	10:02	5	60	28
U-3 09	5856	6178	5148	2	39	06/20/2003	10:03	5	60	28
U-3 10	5856	6178	5148	2	40	06/20/2003	10:05	2	60	11
U-3 11	5856	6178	5148	2	41	06/20/2003	10:06	5	60	28
U-3 12	5856	6178	5148	2	42	06/20/2003	10:07	4	60	22
U-3 13	5856	6178	5148	2	43	06/20/2003	10:09	8	60	44

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2,3 and 4

RSDS# 03-TF-0141 RCT: DJH RCT: SEK

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-3 14	5856	6178	5148	2	44	06/20/2003	10:10	4	60	22
U-3 15	5856	6178	5148	2	45	06/20/2003	10:11	1	60	6
U-4 01	5856	6178	5148	2	46	06/20/2003	10:13	5	60	28
U-4 02	5856	6178	5148	2	47	06/20/2003	10:14	1	60	6
U-4 03	5856	6178	5148	2	48	06/20/2003	10:16	6	60	33
U-4 04	5856	6178	5148	2	49	06/20/2003	10:17	3	60	17
U-4 05	5856	6178	5148	2	50	06/20/2003	10:18	2	60	11
U-4 06	5856	6178	5148	2	51	06/20/2003	10:20	5	60	28
U-4 07	5856	6178	5148	2	52	06/20/2003	10:21	5	60	28
U-4 08	5856	6178	5148	2	53	06/20/2003	10:22	6	60	33
U-4 09	5856	6178	5148	2	54	06/20/2003	10:23	5	60	28
U-4 10	5856	6178	5148	2	55	06/20/2003	10:25	4	60	22
U-4 11	5856	6178	5148	2	56	06/20/2003	10:26	1	60	6
U-4 12	5856	6178	5148	2	57	06/20/2003	10:27	3	60	17
U-4 13	5856	6178	5148	2	58	06/20/2003	10:29	3	60	17
U-4 14	5856	6178	5148	2	59	06/20/2003	10:30	1	60	6
U-4 15	5856	6178	5148	2	60	06/20/2003	10:31	5	60	28
QCU-3 13	5856	6178	5148	2		06/20/2003	10:34	5	60	28
QCU-1 07	5856	6178	5148	2		06/20/2003	10:36	3	60	17

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W-BLDG CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0141 RCT: 1694 RCT: SKR

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 1 01	5833	5214	5847	1	06/21/2003	291	60	620
Unit - 1 02	5833	5214	5847	2	06/21/2003	294	60	635
Unit - 1 03	5833	5214	5847	3	06/21/2003	245	60	390
Unit - 1 04	5833	5214	5847	4	06/21/2003	304	60	685
Unit - 1 05	5833	5214	5847	5	06/21/2003	282	60	575
Unit - 1 06	5833	5214	5847	6	06/21/2003	241	60	370
Unit - 1 07	5833	5214	5847	7	06/21/2003	244	60	385
Unit - 1 08	5833	5214	5847	8	06/21/2003	290	60	615
Unit - 1 09	5833	5214	5847	9	06/21/2003	267	60	500
Unit - 1 10	5833	5214	5847	10	06/21/2003	250	60	415
Unit - 1 11	5833	5214	5847	11	06/21/2003	262	60	475
Unit - 1 12	5833	5214	5847	12	06/21/2003	258	60	455
Unit - 1 13	5833	5214	5847	13	06/21/2003	275	60	540
Unit - 1 14	5833	5214	5847	14	06/21/2003	299	60	660
Unit - 1 15	5833	5214	5847	15	06/21/2003	331	60	820
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS---------->								167

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Survey No. 03-TF-0141

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-15	SEE	ATTACHED		UNIT 1
16-30	↓	↓	↓	UNIT 2
31-45	↓	↓	↓	UNIT 3
46-60	↓	↓	↓	UNIT 4
		N	A	

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Commer
		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 result are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2,3 and 4

RSDS# 03-TF-0141 RCT: RCT:

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
[redacted] 43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	6178	5148	2	0	06/20/2003	7:49	8	300	9
SRC CHECK	5856	6178	5148	2	1	06/20/2003	8:21	2063	60	11398
SRC CHECK	5856	6178	5148	2	2	06/20/2003	8:22	2133	60	11785
SRC CHECK	5856	6178	5148	2	3	06/20/2003	8:24	2118	60	11702
SRC CHECK	5856	6178	5148	2	4	06/20/2003	8:25	2031	60	11221
U-01 01	5856	6178	5148	2	1	06/20/2003	8:40	4	60	22
U-01 02	5856	6178	5148	2	2	06/20/2003	8:42	3	60	17
U-01 03	5856	6178	5148	2	3	06/20/2003	8:44	2	60	11
U-01 04	5856	6178	5148	2	4	06/20/2003	8:45	4	60	22
U-01 05	5856	6178	5148	2	5	06/20/2003	8:47	7	60	39
U-01 06	5856	6178	5148	2	6	06/20/2003	8:48	4	60	22
U-01 07	5856	6178	5148	2	7	06/20/2003	9:13	0	60	0
U-01 08	5856	6178	5148	2	8	06/20/2003	9:15	5	60	28
U-01 09	5856	6178	5148	2	9	06/20/2003	9:16	3	60	17
U-01 10	5856	6178	5148	2	10	06/20/2003	9:19	3	60	17
U-01 11	5856	6178	5148	2	11	06/20/2003	9:21	3	60	17
U-01 12	5856	6178	5148	2	12	06/20/2003	9:22	5	60	28
U-01 13	5856	6178	5148	2	13	06/20/2003	9:24	1	60	6
U-01 14	5856	6178	5148	2	14	06/20/2003	9:25	5	60	28
U-01 15	5856	6178	5148	2	15	06/20/2003	9:27	6	60	33
U-2 01	5856	6178	5148	2	16	06/20/2003	9:29	5	60	28
U-2 02	5856	6178	5148	2	17	06/20/2003	9:30	3	60	17

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W-BLDG CHARACTERIZATION BETA SURVEY UNIT 1

RSDS# 03-TF-0141 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 1 01	5833	5214	5847	1	06/21/2003	291	60	620
Unit - 1 02	5833	5214	5847	2	06/21/2003	294	60	635
Unit - 1 03	5833	5214	5847	3	06/21/2003	245	60	390
Unit - 1 04	5833	5214	5847	4	06/21/2003	304	60	685
Unit - 1 05	5833	5214	5847	5	06/21/2003	282	60	575
Unit - 1 06	5833	5214	5847	6	06/21/2003	241	60	370
Unit - 1 07	5833	5214	5847	7	06/21/2003	244	60	385
Unit - 1 08	5833	5214	5847	8	06/21/2003	290	60	615
Unit - 1 09	5833	5214	5847	9	06/21/2003	267	60	500
Unit - 1 10	5833	5214	5847	10	06/21/2003	250	60	415
Unit - 1 11	5833	5214	5847	11	06/21/2003	262	60	475
Unit - 1 12	5833	5214	5847	12	06/21/2003	258	60	455
Unit - 1 13	5833	5214	5847	13	06/21/2003	275	60	540
Unit - 1 14	5833	5214	5847	14	06/21/2003	299	60	660
Unit - 1 15	5833	5214	5847	15	06/21/2003	331	60	820
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS →								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 2

RSDS# 03-TF-0141 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 2 01	5833	5214	5847	16	06/21/2003	248	60	405
Unit - 2 02	5833	5214	5847	17	06/21/2003	287	60	600
Unit - 2 03	5833	5214	5847	18	06/21/2003	270	60	515
Unit - 2 04	5833	5214	5847	19	06/21/2003	282	60	575
Unit - 2 05	5833	5214	5847	20	06/21/2003	286	60	595
Unit - 2 06	5833	5214	5847	21	06/21/2003	267	60	500
Unit - 2 07	5833	5214	5847	22	06/21/2003	281	60	570
Unit - 2 08	5833	5214	5847	23	06/21/2003	245	60	390
Unit - 2 09	5833	5214	5847	24	06/21/2003	293	60	630
Unit - 2 10	5833	5214	5847	25	06/21/2003	328	60	805
Unit - 2 11	5833	5214	5847	26	06/21/2003	249	60	410
Unit - 2 12	5833	5214	5847	27	06/21/2003	256	60	445
Unit - 2 13	5833	5214	5847	28	06/21/2003	266	60	495
Unit - 2 14	5833	5214	5847	29	06/21/2003	303	60	680
Unit - 2 15	5833	5214	5847	30	06/21/2003	293	60	630
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS——————>								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 3

RSDS# 03-TF-0141 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 3 01	5833	5214	5847	31	06/21/2003	266	60	495
Unit - 3 02	5833	5214	5847	32	06/21/2003	258	60	455
Unit - 3 03	5833	5214	5847	33	06/21/2003	254	60	435
Unit - 3 04	5833	5214	5847	34	06/21/2003	254	60	435
Unit - 3 05	5833	5214	5847	35	06/21/2003	246	60	395
Unit - 3 06	5833	5214	5847	36	06/21/2003	257	60	450
Unit - 3 07	5833	5214	5847	37	06/21/2003	220	60	265
Unit - 3 08	5833	5214	5847	38	06/21/2003	265	60	490
Unit - 3 09	5833	5214	5847	39	06/21/2003	274	60	535
Unit - 3 10	5833	5214	5847	40	06/21/2003	253	60	430
Unit - 3 11	5833	5214	5847	41	06/21/2003	271	60	520
Unit - 3 12	5833	5214	5847	42	06/21/2003	264	60	485
Unit - 3 13	5833	5214	5847	43	06/21/2003	257	60	450
Unit - 3 14	5833	5214	5847	44	06/21/2003	253	60	430
Unit - 3 15	5833	5214	5847	45	06/21/2003	228	60	305
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS---------->								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 4

RSDS# 03-TF-0141 RCT: DJH RCT: DKR

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 4 01	5833	5214	5847	46	06/21/2003	241	60	370
Unit - 4 02	5833	5214	5847	47	06/21/2003	269	60	510
Unit - 4 03	5833	5214	5847	48	06/21/2003	264	60	485
Unit - 4 04	5833	5214	5847	49	06/21/2003	261	60	470
Unit - 4 05	5833	5214	5847	50	06/21/2003	248	60	405
Unit - 4 06	5833	5214	5847	51	06/21/2003	262	60	475
Unit - 4 07	5833	5214	5847	52	06/21/2003	290	60	615
Unit - 4 08	5833	5214	5847	53	06/21/2003	251	60	420
Unit - 4 09	5833	5214	5847	54	06/21/2003	259	60	460
Unit - 4 10	5833	5214	5847	55	06/21/2003	227	60	300
Unit - 4 11	5833	5214	5847	56	06/21/2003	234	60	335
Unit - 4 12	5833	5214	5847	57	06/21/2003	240	60	365
Unit - 4 13	5833	5214	5847	58	06/21/2003	223	60	280
Unit - 4 14	5833	5214	5847	59	06/21/2003	231	60	320
Unit - 4 15	5833	5214	5847	60	06/21/2003	240	60	365
QC Unit-1 07	5833	5214	5847		06/21/2003	242	60	375
QC ~~Unit-1~~ 13	5833	5214	5847		06/21/2003	254	60	435
UNIT-3 DJH 6-24-03								
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS---------->								167

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR014
Batch Ended: 6/20/03 9:45

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0141 (60) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		3.3	2.6	
A2	2	0.0	2.2		2.1	2.3	
A3	3	0.7	2.0		3.1	2.4	
A4	4	1.4	2.0		1.2	2.1	
B1	5	0.0	2.0		3.1	2.9	
B2	6	0.0	2.1		2.1	2.3	
B3	7	0.0	2.0		1.2	1.7	
B4	8	1.5	1.9		0.0	1.2	
C1	9	0.0	2.0		0.1	1.7	
C2	10	0.0	2.0		3.1	2.5	
C3	11	0.0	1.9		1.6	2.0	
C4	12	0.0	1.9		0.6	1.6	
D1	13	0.0	2.4		4.6	3.0	
D2	14	1.6	2.1		1.3	2.3	
D3	15	0.0	2.0		0.5	1.7	
D4	16	0.0	2.0		0.3	1.7	
A1	17	0.0	2.1		2.0	2.3	
A2	18	1.7	2.2		1.9	2.3	
A3	19	0.0	2.0		0.0	1.2	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	1.9		0.0	1.3	
B2	22	1.5	2.1		3.2	2.6	
B3	23	0.0	2.0		0.1	1.2	
B4	24	0.0	2.0		0.8	2.0	
C1	25	0.0	2.0		3.6	2.6	
C2	26	0.0	2.0		3.1	2.5	
C3	27	0.0	1.9		1.6	2.0	
C4	28	0.0	1.9		0.0	1.2	
D1	29	0.0	2.3		2.0	2.3	
D2	30	0.0	2.1		0.0	1.3	
D3	31	0.6	2.0		1.5	2.0	

DJH DJH

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR014
Batch Ended: 6/20/03 9:45

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0141 (60) CYR

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

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
D4	32	0.0	2.0		1.5	2.1	
A1	33	0.0	2.1		0.7	1.8	
A2	34	0.0	2.2		4.7	2.9	
A3	35	0.7	2.0		0.0	1.2	
A4	36	0.0	1.9		0.0	1.2	
B1	37	0.0	2.0		6.9	3.7	
B2	38	1.5	2.1		0.6	1.9	
B3	39	0.0	2.0		2.4	2.1	
B4	40	0.0	1.9		0.0	1.6	
C1	41	0.0	1.9		0.0	1.2	
C2	42	0.0	2.0		1.9	2.2	
C3	43	0.0	1.9		0.0	1.1	
C4	44	0.0	1.9		0.0	1.2	
D1	45	0.0	2.4		3.3	2.6	
D2	46	0.0	2.1		0.1	1.8	
D3	47	0.0	2.0		0.0	1.2	
D4	48	0.0	2.0		0.0	1.2	
A1	49	3.7	2.9		0.3	1.8	
A2	50	0.0	2.2		0.0	1.3	
A3	51	0.0	2.0		0.0	1.2	
A4	52	0.0	2.0		0.1	1.7	
B1	53	0.0	2.0		1.8	2.6	
B2	54	0.0	2.1		0.0	1.3	
B3	55	0.0	2.0		0.0	1.2	
B4	56	0.0	2.0		1.9	2.3	
C1	57	0.0	1.9		0.0	1.2	
C2	58	0.0	2.0		0.6	1.8	
C3	59	0.0	1.9		2.7	2.3	
C4	60	0.0	1.9		1.7	2.0	

DGH DGH

Carol G. Robinson

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DGH 6-23-03

Protocol #: 4 Name:Pw-H3 #401387 20-Jun-2003 12:11
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
HARVEY 03-TF-0141 (P1-P60) AG
Conventional DPM
Nuclide 1 = 208074
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	9.63	9.00	5.50	B	0	627.		20.38
0	2.00	38.49	36.63	0.00		3	519.	78.17	26.81
1	2.00	0.00	0.00	0.00		0	532.	0.00	0.00
2	2.00	0.00	0.00	0.00		0	560.	0.00	0.00
3	2.00	0.00	0.00	0.00		0	551.	0.00	0.00
4	2.00	0.00	0.00	0.50		0	538.	0.00	0.00
5	2.00	0.00	0.00	0.00		0	587.	0.00	0.00
6	2.00	0.00	0.00	0.00		0	530.	0.00	0.00
7	2.00	0.00	0.00	0.00		0	459.	0.00	0.00
8	2.00	0.00	0.00	0.05		0	530.	0.00	0.00
9	2.00	0.00	0.00	0.00		14	500.	0.00	0.00
10	2.00	0.00	0.00	0.00		0	577.	0.00	0.00
11	2.00	0.00	0.00	0.00		0	487.	0.00	0.00
12	2.00	0.00	0.00	0.00		0	541.	0.00	0.00
13	2.00	0.00	0.00	0.00		16	529.	0.00	0.00
14	2.00	0.00	0.00	0.00		31	551.	0.00	0.00
15	2.00	0.00	0.00	0.50		0	525.	0.00	0.00
16	2.00	0.00	0.00	1.50		16	509.	0.00	0.00
17	2.00	0.00	0.00	0.00		0	553.	0.00	0.00
18	2.00	0.00	0.00	0.00		0	527.	0.00	0.00
19	2.00	0.00	0.00	0.00		31	414.	0.00	0.00
20	2.00	0.00	0.00	1.50		0	505.	0.00	0.00
21	2.00	0.00	0.00	0.00		11	524.	0.00	0.00
22	2.00	0.00	0.00	0.00		0	469.	0.00	0.00
23	2.00	0.00	0.00	0.50		0	502.	0.00	0.00
24	2.00	0.00	0.00	0.50		0	469.	0.00	0.00
25	2.00	0.00	0.00	0.00		22	477.	0.00	0.00
26	2.00	0.00	0.00	2.50		0	538.	0.00	0.00
27	2.00	0.00	0.00	0.00		0	367.	0.00	0.00
28	2.00	0.00	0.00	2.50		22	440.	0.00	0.00
29	2.00	0.00	0.00	0.00		0	480.	0.00	0.00
30	2.00	0.00	0.00	3.00		36	319.	0.00	0.00
31	2.00	0.00	0.00	2.00		0	561.	0.00	0.00
32	2.00	0.00	0.00	0.00		0	449.	0.00	0.00
33	2.00	0.00	0.00	0.00		16	548.	0.00	0.00
34	2.00	0.00	0.00	0.00		0	502.	0.00	0.00
35	2.00	0.00	0.00	0.00		14	543.	0.00	0.00
36	2.00	0.00	0.00	0.00		0	478.	0.00	0.00
37	2.00	0.00	0.00	0.00		0	524.	0.00	0.00
38	2.00	0.00	0.00	0.00		0	595.	0.00	0.00
39	2.00	0.00	0.00	0.00		36	530.	0.00	0.00
40	2.00	0.00	0.00	0.00		26	559.	0.00	0.00
41	2.00	0.00	0.00	0.00		0	505.	0.00	0.00
42	2.00	0.00	0.00	0.00		0	536.	0.00	0.00
43	2.00	0.00	0.00	0.00		0	496.	0.00	0.00

DJH

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
44	2.00	0.00	0.00	0.00		0	498.	0.00	0.00
45	2.00	0.00	0.00	0.00		0	566.	0.00	0.00
46	2.00	0.00	0.00	0.00		0	487.	0.00	0.00
47	2.00	0.00	0.00	0.00		0	368.	0.00	0.00
48	2.00	0.00	0.00	0.00		0	571.	0.00	0.00
49	2.00	0.00	0.00	0.00		54	483.	0.00	0.00
50	2.00	0.00	0.00	0.00		0	526.	0.00	0.00
51	2.00	0.00	0.00	0.00		0	533.	0.00	0.00
52	2.00	0.00	0.00	0.00		7	470.	0.00	0.00
53	2.00	0.00	0.00	0.00		0	506.	0.00	0.00
54	2.00	0.00	0.00	0.00		22	511.	0.00	0.00
55	2.00	0.00	0.00	2.00		36	549.	0.00	0.00
56	2.00	0.00	0.00	0.00		0	551.	0.00	0.00
57	2.00	0.00	0.00	1.50		0	544.	0.00	0.00
58	2.00	0.00	0.00	0.00		0	301.	0.00	0.00
59	2.00	0.00	0.00	1.00		36	412.	0.00	0.00
60	2.00	0.00	0.00	0.50		0	476.	0.00	0.00

LOST PIN POS

Carol G. Robinson

DJH

03-TF-0141

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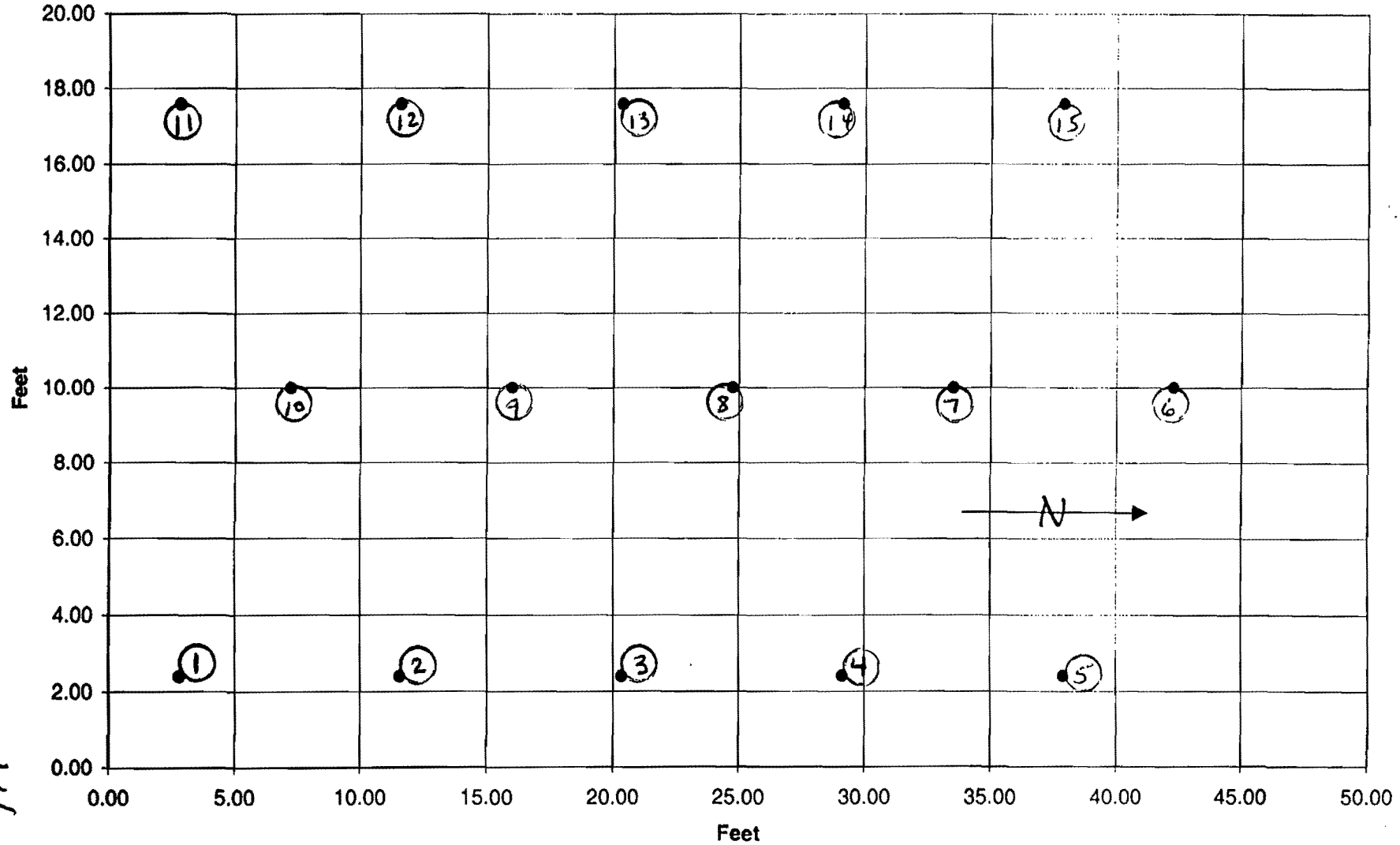
Survey Units 1



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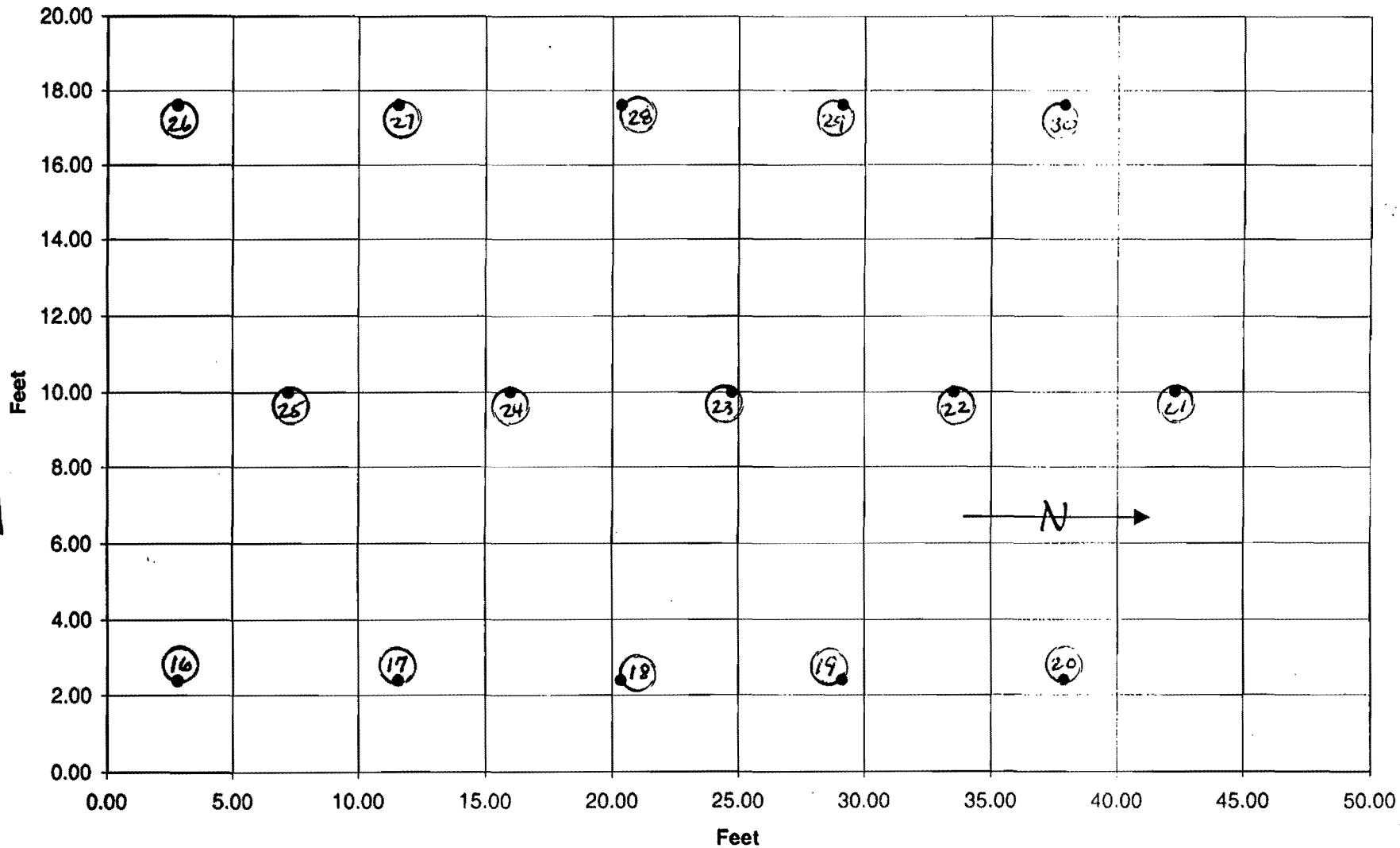
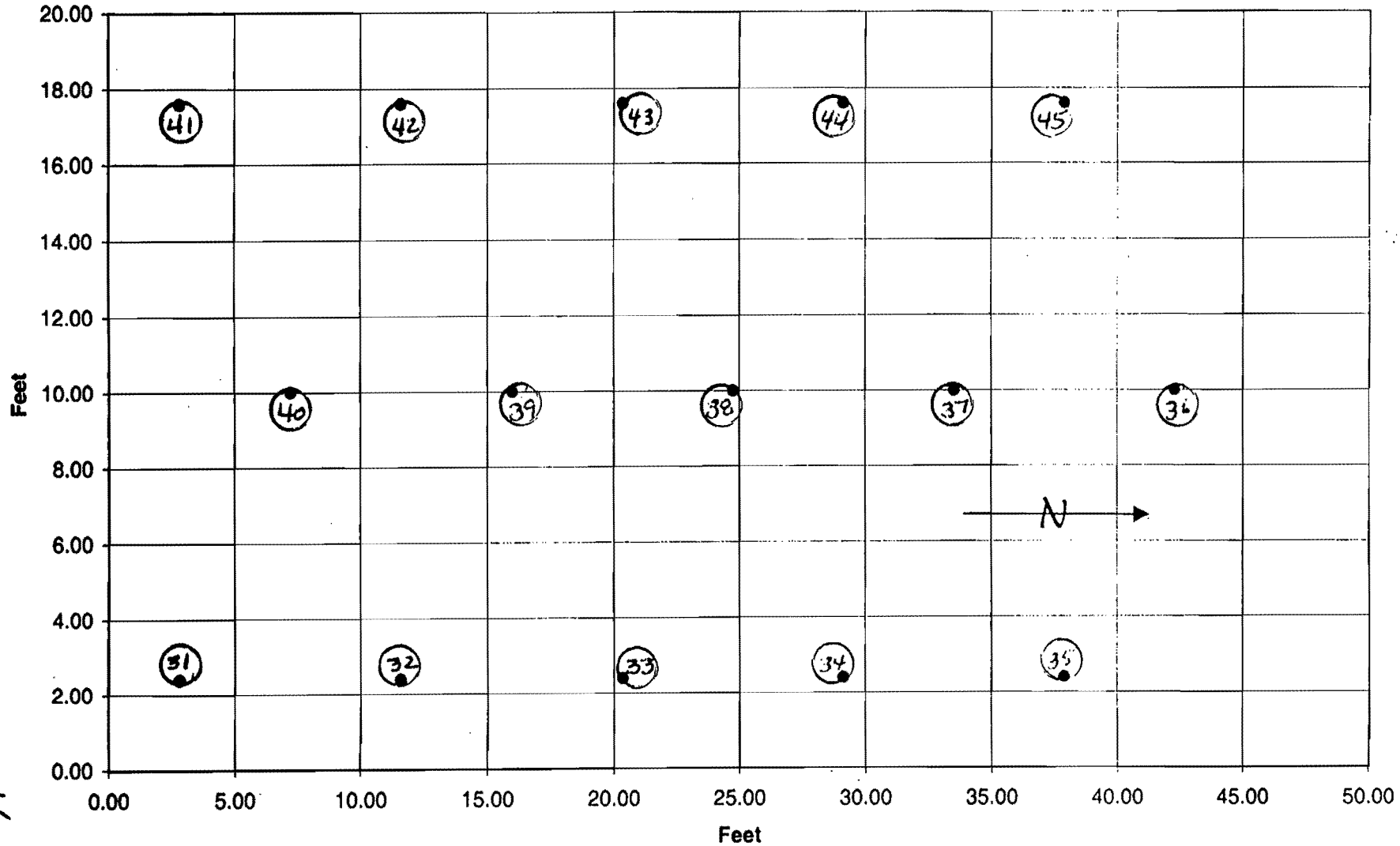
Survey Units 2



24

Survey Units 3



03-TE-0141 16 of 17

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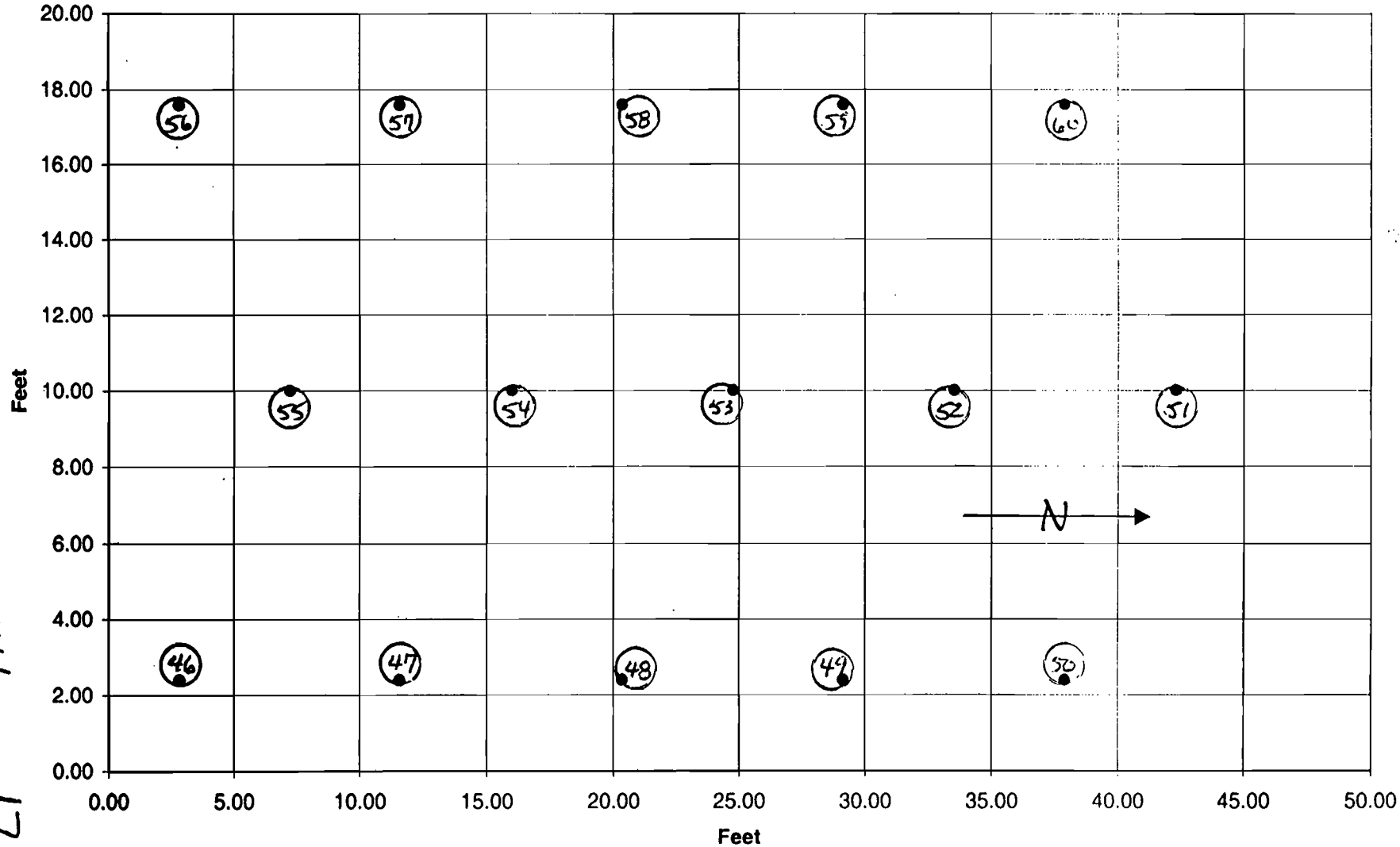
Survey Units 4



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03-TC-0141
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#9

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) W-BUILDING	SURVEY NO 03 TF-0142
PURPOSE: MARSSIM SURVEY PLAN W-01 UNITS 5, 6, 8 AND 7	RWP NO N/A
	DATE: 06-20-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED DATA AND RESULTS

COPY

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact

△# = mrem/hr neutron

[#] = air sample number

(#) = swipe number

(#/α) or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5856	5-12-04
2360/43-93	5833/5847	3-13-04
	N/A	

ML-9620 (2-98)

[redacted]

	HP # 6178 5214	Date: 06-23-03
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Appr[redacted]	HP # 7492	Date: 6-24-03
Reviewed/Approved by: (Print Name) [redacted]		

W13786 199

Survey No. 03-TF-0142

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-15				UNIT 5
16-30				UNIT 6
31-45				UNIT 8
46-55				UNIT 7

ATTACHED RESULTS SEE

N/A

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

N/A

COMMENTS: NONE

NOTES:
1. See MD-60036 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-9620A (4-98)

W138886 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 5,6,7 and 8

RSDS# 03-TF-0142 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		06/20/2003	7:49	8	300	9	
SRC CHECK	5856	6178	5148	2		06/20/2003	8:21	2063	60	11398	
SRC CHECK	5856	6178	5148	2		06/20/2003	8:22	2133	60	11785	
SRC CHECK	5856	6178	5148	2		06/20/2003	8:24	2118	60	11702	
SRC CHECK	5856	6178	5148	2		06/20/2003	8:25	2031	60	11221	
U-5 01	5856	6178	5148	2	1	06/20/2003	12:21	3	60	17	
U-5 02	5856	6178	5148	2	2	06/20/2003	12:22	2	60	11	
U-5 03	5856	6178	5148	2	3	06/20/2003	12:24	4	60	22	
U-5 04	5856	6178	5148	2	4	06/20/2003	12:25	2	60	11	
U-5 05	5856	6178	5148	2	5	06/20/2003	12:26	5	60	28	
U-5 06	5856	6178	5148	2	6	06/20/2003	12:28	5	60	28	
U-5 07	5856	6178	5148	2	7	06/20/2003	12:29	5	60	28	
U-5 08	5856	6178	5148	2	8	06/20/2003	12:31	6	60	33	
U-5 09	5856	6178	5148	2	9	06/20/2003	12:32	2	60	11	
U-5 10	5856	6178	5148	2	10	06/20/2003	12:34	2	60	11	
U-5 11	5856	6178	5148	2	11	06/20/2003	12:35	4	60	22	
U-5 12	5856	6178	5148	2	12	06/20/2003	12:36	1	60	6	
U-5 13	5856	6178	5148	2	13	06/20/2003	12:38	3	60	17	
U-5 14	5856	6178	5148	2	14	06/20/2003	12:39	6	60	33	
U-5 15	5856	6178	5148	2	15	06/20/2003	12:41	3	60	17	
U-6 01	5856	6178	5148	2	16	06/20/2003	12:42	3	60	17	
U-6 02	5856	6178	5148	2	17	06/20/2003	12:44	4	60	22	

U1392 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 5,6,7 and 8

RSDS# 03-TF-0142 RCT: RST RCT: SK

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-6 03	5856	6178	5148	2	18	06/20/2003	12:45	3	60	17
U-6 04	5856	6178	5148	2	19	06/20/2003	12:47	3	60	17
U-6 05	5856	6178	5148	2	20	06/20/2003	12:48	2	60	11
U-6 06	5856	6178	5148	2	21	06/20/2003	12:49	4	60	22
U-6 07	5856	6178	5148	2	22	06/20/2003	12:51	4	60	22
U-6 08	5856	6178	5148	2	23	06/20/2003	12:52	3	60	17
U-6 09	5856	6178	5148	2	24	06/20/2003	12:53	7	60	39
U-6 10	5856	6178	5148	2	25	06/20/2003	12:55	3	60	17
U-6 11	5856	6178	5148	2	26	06/20/2003	12:56	7	60	39
U-6 12	5856	6178	5148	2	27	06/20/2003	12:58	3	60	17
U-6 13	5856	6178	5148	2	28	06/20/2003	12:59	6	60	33
U-6 14	5856	6178	5148	2	29	06/20/2003	13:01	5	60	28
U-6 15	5856	6178	5148	2	30	06/20/2003	13:02	1	60	6
U-8 01	5856	6178	5148	2	31	06/20/2003	13:04	5	60	28
U-8 02	5856	6178	5148	2	32	06/20/2003	13:06	2	60	11
U-8 03	5856	6178	5148	2	33	06/20/2003	13:07	4	60	22
U-8 04	5856	6178	5148	2	34	06/20/2003	13:08	6	60	33
U-8 05	5856	6178	5148	2	35	06/20/2003	13:10	2	60	11
U-8 06	5856	6178	5148	2	36	06/20/2003	13:11	3	60	17
U-8 07	5856	6178	5148	2	37	06/20/2003	13:13	2	60	11
U-8 08	5856	6178	5148	2	38	06/20/2003	13:14	5	60	28
U-8 09	5856	6178	5148	2	39	06/20/2003	13:15	4	60	22
U-8 10	5856	6178	5148	2	40	06/20/2003	13:17	0	60	0
U-8 11	5856	6178	5148	2	41	06/20/2003	13:18	6	60	33
U-8 12	5856	6178	5148	2	42	06/20/2003	13:20	3	60	17
U-8 13	5856	6178	5148	2	43	06/20/2003	13:21	1	60	6

W1629 179

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 5,6,7 and 8

RSDS# 03-TF-0142 RCT: DSH RCT: DKR

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-8 14	5856	6178	5148	2	44	06/20/2003	13:23	4	60	22
U-8 15	5856	6178	5148	2	45	06/20/2003	13:24	4	60	22
U-7 01	5856	6178	5148	2	46	06/20/2003	13:26	5	60	28
U-7 02	5856	6178	5148	2	47	06/20/2003	13:27	6	60	33
U-7 03	5856	6178	5148	2	48	06/20/2003	13:29	5	60	28
U-7 04	5856	6178	5148	2	49	06/20/2003	13:30	4	60	22
U-7 05	5856	6178	5148	2	50	06/20/2003	13:31	6	60	33
U-7 06	5856	6178	5148	2	51	06/20/2003	13:33	2	60	11
U-7 07	5856	6178	5148	2	52	06/20/2003	13:34	5	60	28
U-7 08	5856	6178	5148	2	53	06/20/2003	13:36	2	60	11
U-7 09	5856	6178	5148	2	54	06/20/2003	13:38	5	60	28
U-7 10	5856	6178	5148	2	55	06/20/2003	13:39	4	60	22
QCU-8 10	5856	6178	5148	2		06/20/2003	13:41	2	60	11
QCU-6 11	5856	6178	5148	2		06/20/2003	13:43	4	60	22

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 5

RSDS# 03-TF-0142 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 5 01	5833	5214	5847	1	06/21/2003	255	60	440
Unit - 5 02	5833	5214	5847	2	06/21/2003	278	60	555
Unit - 5 03	5833	5214	5847	3	06/21/2003	242	60	375
Unit - 5 04	5833	5214	5847	4	06/21/2003	235	60	340
Unit - 5 05	5833	5214	5847	5	06/21/2003	245	60	390
Unit - 5 06	5833	5214	5847	6	06/21/2003	226	60	295
Unit - 5 07	5833	5214	5847	7	06/21/2003	266	60	495
Unit - 5 08	5833	5214	5847	8	06/21/2003	260	60	465
Unit - 5 09	5833	5214	5847	9	06/21/2003	264	60	485
Unit - 5 10	5833	5214	5847	10	06/21/2003	253	60	430
Unit - 5 11	5833	5214	5847	11	06/21/2003	254	60	435
Unit - 5 12	5833	5214	5847	12	06/21/2003	239	60	360
Unit - 5 13	5833	5214	5847	13	06/21/2003	282	60	575
Unit - 5 14	5833	5214	5847	14	06/21/2003	261	60	470
Unit - 5 15	5833	5214	5847	15	06/21/2003	237	60	350
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS ——————>								167

W 14206 199

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 6

RSDS# 03-TF-0142 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 6 01	5833	5214	5847	16	06/21/2003	258	60	455
Unit - 6 02	5833	5214	5847	17	06/21/2003	263	60	480
Unit - 6 03	5833	5214	5847	18	06/21/2003	224	60	285
Unit - 6 04	5833	5214	5847	19	06/21/2003	225	60	290
Unit - 6 05	5833	5214	5847	20	06/21/2003	288	60	605
Unit - 6 06	5833	5214	5847	21	06/21/2003	279	60	560
Unit - 6 07	5833	5214	5847	22	06/21/2003	244	60	385
Unit - 6 08	5833	5214	5847	23	06/21/2003	254	60	435
Unit - 6 09	5833	5214	5847	24	06/21/2003	298	60	655
Unit - 6 10	5833	5214	5847	25	06/21/2003	250	60	415
Unit - 6 11	5833	5214	5847	26	06/21/2003	272	60	525
Unit - 6 12	5833	5214	5847	27	06/21/2003	232	60	325
Unit - 6 13	5833	5214	5847	28	06/21/2003	251	60	420
Unit - 6 14	5833	5214	5847	29	06/21/2003	272	60	525
Unit - 6 15	5833	5214	5847	30	06/21/2003	258	60	455
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS——————>								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 8

RSDS# 03-TF-0142 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 8 01	5833	5214	5847	31	06/21/2003	294	60	635
Unit - 8 02	5833	5214	5847	32	06/21/2003	282	60	575
Unit - 8 03	5833	5214	5847	33	06/21/2003	276	60	545
Unit - 8 04	5833	5214	5847	34	06/21/2003	253	60	430
Unit - 8 05	5833	5214	5847	35	06/21/2003	247	60	400
Unit - 8 06	5833	5214	5847	36	06/21/2003	262	60	475
Unit - 8 07	5833	5214	5847	37	06/21/2003	281	60	570
Unit - 8 08	5833	5214	5847	38	06/21/2003	277	60	550
Unit - 8 09	5833	5214	5847	39	06/21/2003	270	60	515
Unit - 8 10	5833	5214	5847	40	06/21/2003	261	60	470
Unit - 8 11	5833	5214	5847	41	06/21/2003	248	60	405
Unit - 8 12	5833	5214	5847	42	06/21/2003	273	60	530
Unit - 8 13	5833	5214	5847	43	06/21/2003	246	60	395
Unit - 8 14	5833	5214	5847	44	06/21/2003	260	60	465
Unit - 8 15	5833	5214	5847	45	06/21/2003	214	60	235
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS---------->								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 7

RSDS# 03-TF-0142 RCT: DJH RCT: DK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 7 01	5833	5214	5847	46	06/21/2003	271	60	520
Unit - 7 02	5833	5214	5847	47	06/21/2003	233	60	330
Unit - 7 03	5833	5214	5847	48	06/21/2003	270	60	515
Unit - 7 04	5833	5214	5847	49	06/21/2003	250	60	415
Unit - 7 05	5833	5214	5847	50	06/21/2003	253	60	430
Unit - 7 06	5833	5214	5847	51	06/21/2003	250	60	415
Unit - 7 07	5833	5214	5847	52	06/21/2003	246	60	395
Unit - 7 08	5833	5214	5847	53	06/21/2003	255	60	440
Unit - 7 09	5833	5214	5847	54	06/21/2003	252	60	425
Unit - 7 10	5833	5214	5847	55	06/21/2003	246	60	395
QC U-8 10	5833	5214	5847		06/21/2003	273	60	530
QC U-6 11	5833	5214	5847		06/21/2003	246	60	395
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS---------->								167

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR013
Batch Ended: 6/20/03 9:29

Crosstalk correction performed.

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

Batch ID: HARVEY 03-TF-0142 (55) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.3	
A2	2	1.7	2.2		3.2	2.6	
A3	3	0.7	2.0		3.1	2.4	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.0		8.2	3.9	
B2	6	1.5	2.1		0.0	1.3	
B3	7	0.9	2.0		2.3	2.1	
B4	8	1.5	1.9		0.0	1.2	
C1	9	0.0	2.0		1.3	2.0	
C2	10	0.0	2.0		0.6	1.8	
C3	11	0.0	1.9		2.7	2.3	
C4	12	0.0	1.9		0.0	1.2	
D1	13	0.0	2.3		0.0	1.3	
D2	14	1.6	2.1		0.0	1.3	
D3	15	4.5	3.4		0.0	1.2	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	2.1		0.7	1.8	
A2	18	0.0	2.2		0.0	1.3	
A3	19	0.0	2.0		3.3	2.4	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	1.9		0.0	1.9	
B2	22	0.0	2.1		0.0	1.3	
B3	23	0.0	2.0		1.2	1.7	
B4	24	0.0	1.9		0.0	1.6	
C1	25	0.0	1.9		0.0	1.2	
C2	26	0.0	2.0		0.0	1.3	
C3	27	0.0	1.9		0.0	1.1	
C4	28	0.0	1.9		0.6	1.6	
D1	29	0.0	2.3		0.7	1.9	
D2	30	1.6	2.1		2.6	2.6	
D3	31	0.0	2.0		0.5	1.7	

Uncl 199
R 10617

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR013
Batch Ended: 6/20/03 9:29

Crosstalk correction performed.

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

Batch ID: HARVEY 03-TF-0142 (55) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D4	32	0.0	2.0		2.6	2.4	
A1	33	0.0	2.1		0.0	1.3	
A2	34	0.0	2.2		0.8	1.8	
A3	35	0.0	2.0		2.0	2.1	
A4	36	0.0	2.0		0.1	1.7	
B1	37	1.6	2.0		2.9	2.9	
B2	38	0.0	2.1		0.0	1.3	
B3	39	0.0	2.0		0.1	1.2	
B4	40	0.0	2.0		0.8	2.0	
C1	41	0.0	1.9		0.0	1.2	
C2	42	0.0	2.0		0.0	1.3	
C3	43	0.0	1.9		0.0	1.1	
C4	44	0.0	1.9		0.6	1.6	
D1	45	1.9	2.3		0.0	1.3	
D2	46	0.0	2.1		0.0	1.3	
D3	47	0.0	2.0		0.0	1.2	
D4	48	0.0	2.0		0.3	1.7	
A1	49	0.0	2.1		0.7	1.8	
A2	50	1.7	2.2		0.6	1.8	
A3	51	0.0	2.0		0.0	1.2	
A4	52	1.4	2.0		0.0	1.7	
B1	53	0.0	2.0		3.1	2.9	
B2	54	0.0	2.1		0.0	1.3	
B3	55	0.0	2.0		0.1	1.2	

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R 11819

Protocol #: 4 Name:Pw H3 #401393 20-Jun-2003 10:34
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
HARVEY 03-TF-0142 (01-055) AG
Conventional DPM
Nuclide 1 = 800
Luminescence Correction On
Data/Application Drive & Path = c:\data

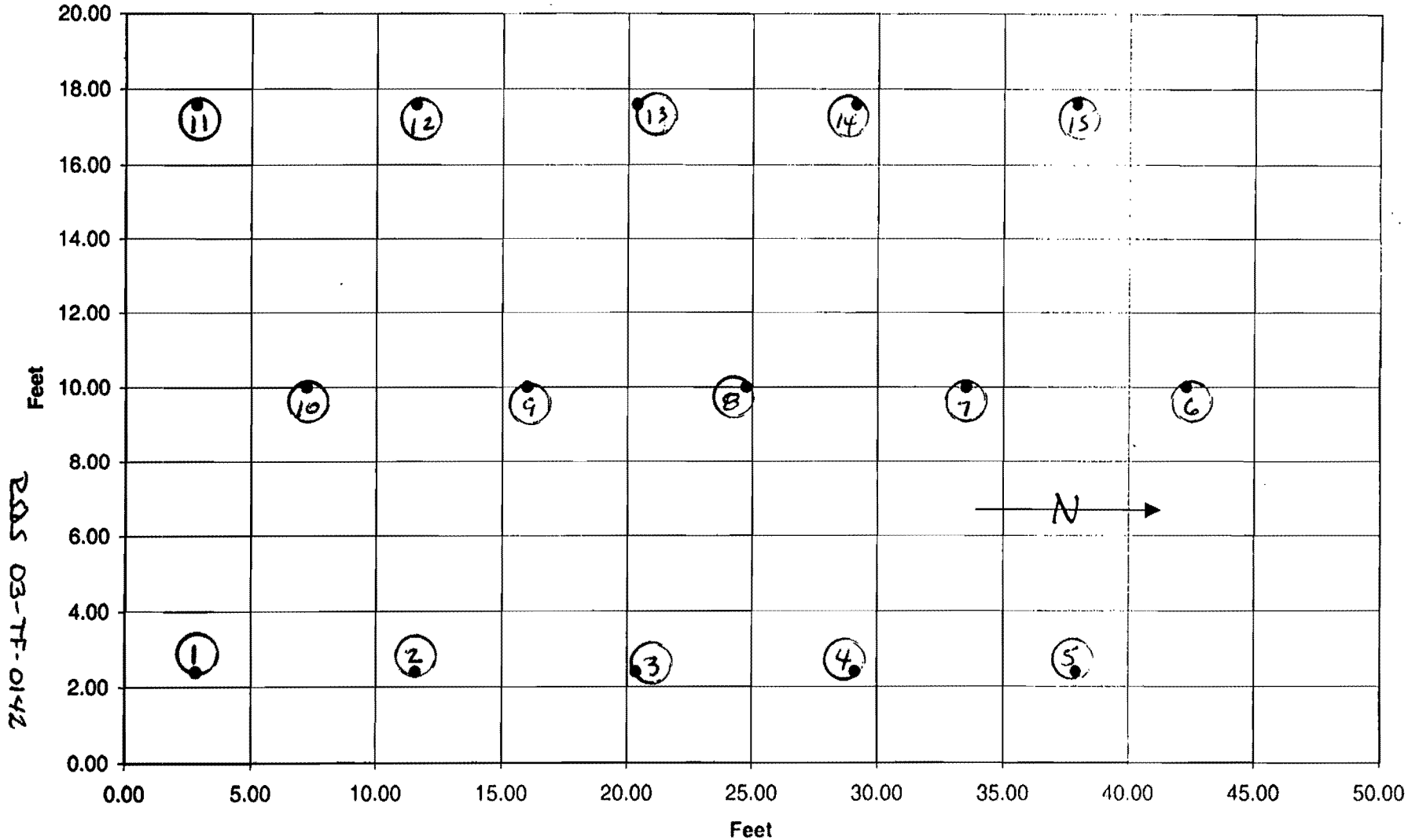
SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
-1	10.00	17	B	3.26	3.31	4.80	683.		35.01
0	2.00	0		808.50	772.90	0.70	549.	1934.65	5.00
1	2.00	0		0.00	0.00	0.00	568.	0.00	0.00
2	2.00	0		0.00	0.00	0.00	495.	0.00	0.00
3	2.00	0		1.24	0.00	0.00	528.	3.03	259.7
4	2.00	8		2.93	2.43	1.70	600.	6.61	135.8
5	2.00	0		0.00	0.00	0.20	547.	0.00	0.00
6	2.00	0		0.00	0.00	3.20	583.	0.00	0.00
7	2.00	22		0.00	0.00	0.00	529.	0.00	0.00
8	2.00	18		0.00	0.00	0.00	552.	0.00	0.00
9	2.00	0		0.24	0.00	0.00	531.	0.58	1221.
10	2.00	0		0.00	0.00	0.00	515.	0.00	0.00
11	2.00	0		0.00	0.00	0.00	489.	0.00	0.00
12	2.00	0		0.74	0.47	0.00	581.	1.70	414.5
13	2.00	11		1.20	0.50	0.20	525.	2.96	292.2
14	2.00	16		0.00	0.00	0.00	547.	0.00	0.00
15	2.00	0		0.00	0.00	1.38	354.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	551.	0.00	0.00
17	2.00	55		0.00	0.00	0.00	549.	0.00	0.00
18	2.00	27		0.00	0.00	0.31	543.	0.00	0.00
19	2.00	18		0.00	0.00	0.70	415.	0.00	0.00
20	2.00	0		0.00	0.00	0.00	554.	0.00	0.00
21	2.00	12		0.70	0.00	0.00	545.	1.69	479.0
22	2.00	0		0.74	0.19	0.00	540.	1.78	414.5
23	2.00	31		0.00	0.00	0.20	538.	0.00	0.00
24	2.00	22		0.67	1.11	3.70	501.	1.70	546.4
25	2.00	11		1.20	1.26	3.70	555.	2.86	292.1
26	2.00	22		0.00	0.00	0.06	489.	0.00	0.00
27	2.00	0		0.00	0.00	0.00	504.	0.00	0.00
28	2.00	0		0.74	0.46	0.00	581.	1.70	414.5
29	2.00	0		0.00	0.00	0.70	533.	0.00	0.00
30	2.00	0		0.00	0.00	3.70	486.	0.00	0.00
31	2.00	0		0.00	0.00	0.00	469.	0.00	0.00
32	2.00	12		0.70	0.77	0.00	539.	1.71	479.0
33	2.00	43		0.00	0.00	0.20	528.	0.00	0.00
34	2.00	0		0.00	0.00	0.00	560.	0.00	0.00
35	2.00	0		0.00	0.00	1.72	562.	0.00	0.00
36	2.00	0		0.24	0.00	3.01	568.	0.55	1221.
37	2.00	11		1.20	0.77	0.00	536.	2.92	292.2
38	2.00	0		1.74	1.69	0.00	528.	4.26	193.7
39	2.00	0		0.00	0.00	0.00	533.	0.00	0.00
40	2.00	34		0.00	0.00	0.20	491.	0.00	0.00
41	2.00	0		0.00	0.00	0.00	567.	0.00	0.00
42	2.00	0		0.00	0.00	0.00	561.	0.00	0.00
43	2.00	0		1.24	0.49	0.20	568.	2.89	259.7

RDS 03-TF-0142

SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
44	2.00	0		1.35	0.81	0.70	526.	3.33	240.1
45	2.00	0		0.24	0.00	0.00	568.	0.55	1221.
46	2.00	0		1.74	1.44	0.00	597.	3.93	193.7
47	2.00	0		0.00	0.00	0.00	540.	0.00	0.00
48	2.00	0		0.00	0.00	0.00	523.	0.00	0.00
49	2.00	0		0.00	0.00	0.00	562.	0.00	0.00
50	2.00	0		2.24	2.19	0.00	573.	5.20	156.9
51	2.00	0		0.24	0.19	0.00	300.	0.91	1221.
52	2.00	16		0.00	0.00	0.00	587.	0.00	0.00
53	2.00	22		0.00	0.00	0.00	501.	0.00	0.00
54	2.00	0		0.74	0.69	1.70	511.	1.84	414.5
55	2.00	16		0.00	0.00	0.70	509.	0.00	0.00

Carol G. Robinson

Survey Units 5



RAS 03-TF-0142

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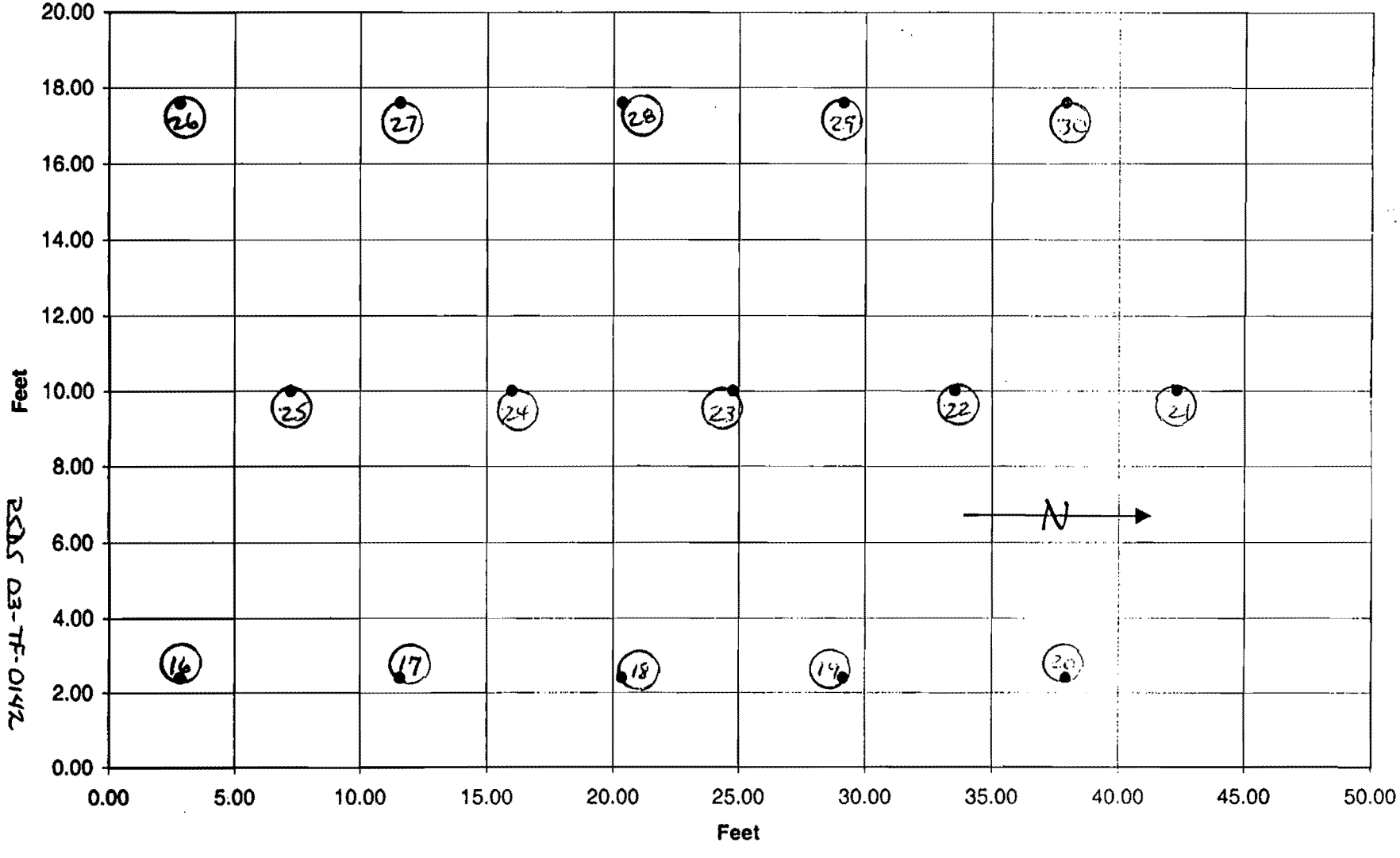
Survey Units 6



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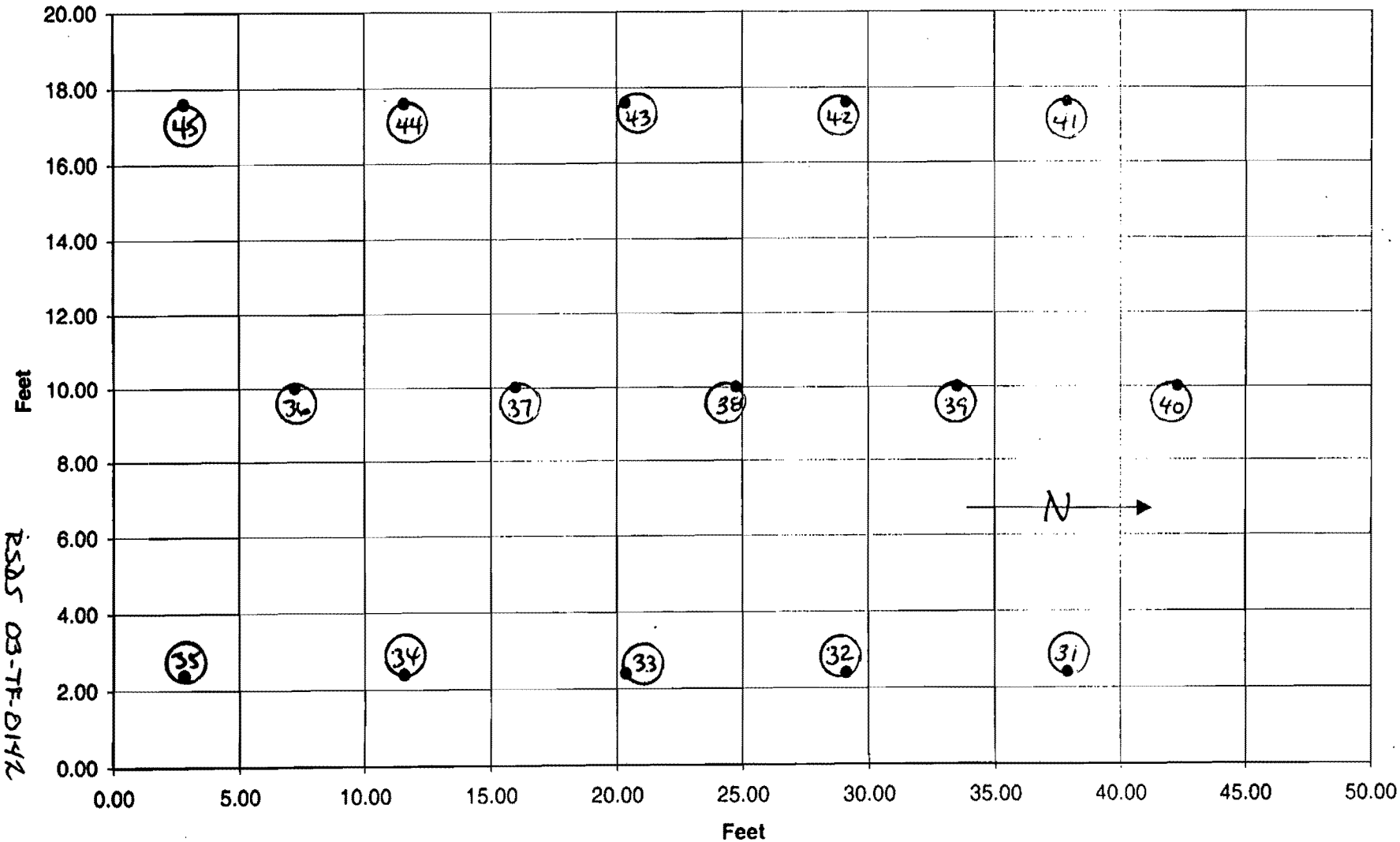
Survey Units 8



RSDS 03-TF-0142

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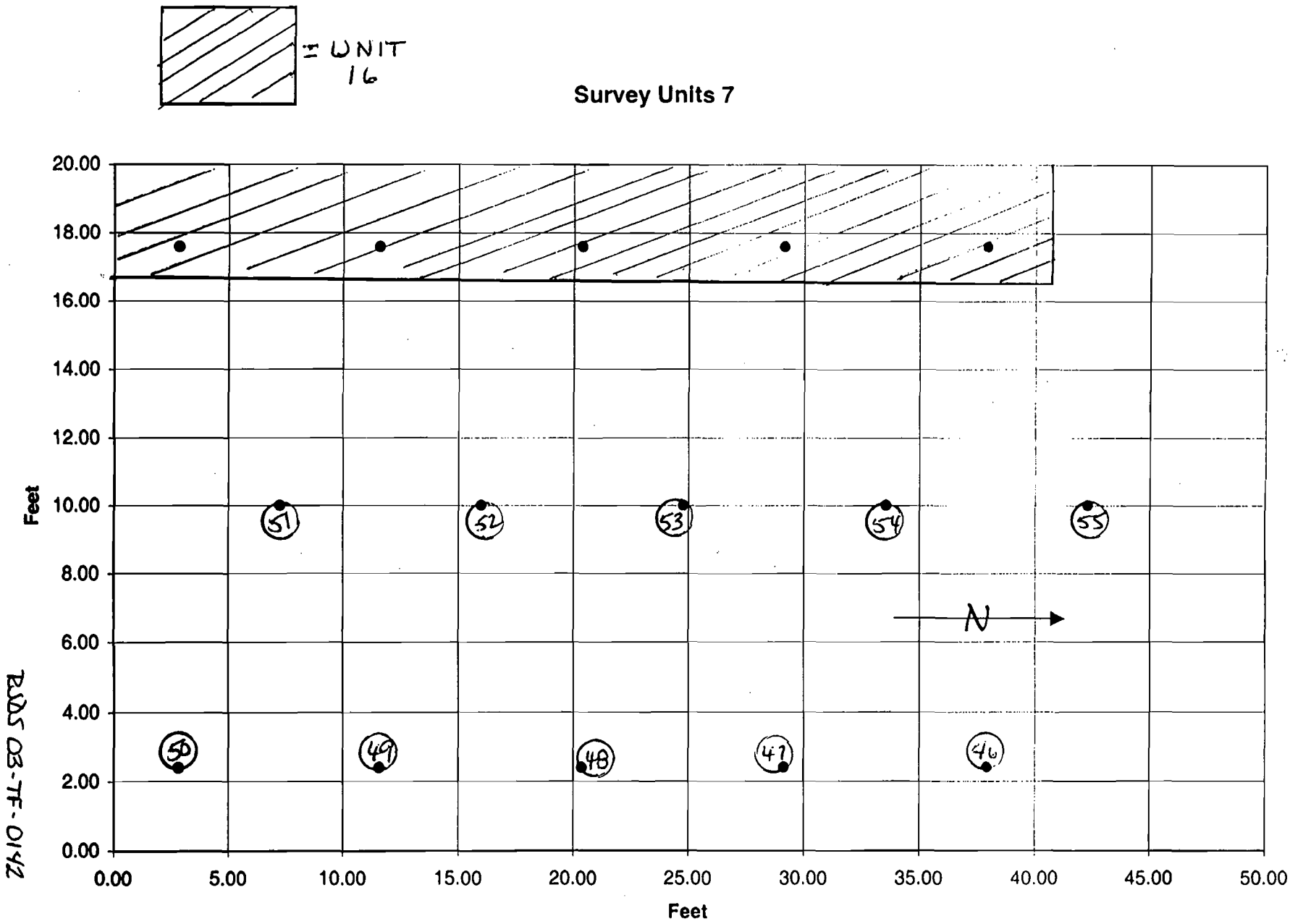

RDS 03-TF-0142

Wissa 199

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RADIOLOGICAL SURVEY DATA SHEET

1 of 1

LOCATION: (BLDG./AREA/ROOM) W	SURVEY NO. 03-TF-0143
PURPOSE: MARSSIM SURVEY PLAN W-01	RWP NO. N/A
	DATE: 6-21-03
	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
2350	5856/5148	5-12-04
2360	5833/5847	3-13-04
	N/A	

ML-9620 (2-98)

[redacted]	HP # 5214	Date: 6-23-03
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Appro[redacted]	HP # 7492	Date: 6-24-03
Reviewed/Approved by: (Print Name) [redacted]		

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Survey No. 03-TF-0143

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-15	SEE	ATTACHED		UNIT 14
16-30				UNIT 12
31-45				UNIT 11
46-60				UNIT 10
		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 resu are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 10,11.12 AND 14

RSDS# 03-TF-0143 RCT: ZJA RCT: SK

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		06/21/2003	7:44	12	300	13	
SRC CHECK	5856	6178	5148	2		06/21/2003	7:50	2163	60	11950	
SRC CHECK	5856	6178	5148	2		06/21/2003	7:51	2109	60	11652	
SRC CHECK	5856	6178	5148	2		06/21/2003	7:53	2006	60	11083	
SRC CHECK	5856	6178	5148	2		06/21/2003	7:56	2082	60	11503	
U-14 01	5856	6178	5148	2	1	06/21/2003	8:00	7	60	39	
U-14 02	5856	6178	5148	2	2	06/21/2003	8:01	6	60	33	
U-14 03	5856	6178	5148	2	3	06/21/2003	8:02	3	60	17	
U-14 04	5856	6178	5148	2	4	06/21/2003	8:03	3	60	17	
U-14 05	5856	6178	5148	2	5	06/21/2003	8:05	6	60	33	
U-14 06	5856	6178	5148	2	6	06/21/2003	8:06	7	60	39	
U-14 07	5856	6178	5148	2	7	06/21/2003	8:07	2	60	11	
U-14 08	5856	6178	5148	2	8	06/21/2003	8:09	4	60	22	
U-14 09	5856	6178	5148	2	9	06/21/2003	8:10	3	60	17	
U-14 10	5856	6178	5148	2	10	06/21/2003	8:13	5	60	28	
U-14 11	5856	6178	5148	2	11	06/21/2003	8:14	2	60	11	
U-14 12	5856	6178	5148	2	12	06/21/2003	8:15	2	60	11	
U-14 13	5856	6178	5148	2	13	06/21/2003	8:16	6	60	33	
U-14 14	5856	6178	5148	2	14	06/21/2003	8:18	2	60	11	
U-14 15	5856	6178	5148	2	15	06/21/2003	8:19	4	60	22	
U-12 01	5856	6178	5148	2	16	06/21/2003	8:21	5	60	28	
U-12 02	5856	6178	5148	2	17	06/21/2003	8:22	12	60	66	

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 10,11.12 AND 14

RSDS# 03-TF-0143 RCT: DJA RCT: SKR

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-12 03	5856	6178	5148	2	18	06/21/2003	8:24	5	60	28
U-12 04	5856	6178	5148	2	19	06/21/2003	8:25	3	60	17
U-12 05	5856	6178	5148	2	20	06/21/2003	8:26	1	60	6
U-12 06	5856	6178	5148	2	21	06/21/2003	8:28	4	60	22
U-12 07	5856	6178	5148	2	22	06/21/2003	8:29	2	60	11
U-12 08	5856	6178	5148	2	23	06/21/2003	8:30	9	60	50
U-12 09	5856	6178	5148	2	24	06/21/2003	8:32	7	60	39
U-12 10	5856	6178	5148	2	25	06/21/2003	8:33	7	60	39
U-12 11	5856	6178	5148	2	26	06/21/2003	8:34	6	60	33
U-12 12	5856	6178	5148	2	27	06/21/2003	8:36	6	60	33
U-12 13	5856	6178	5148	2	28	06/21/2003	8:37	5	60	28
U-12 14	5856	6178	5148	2	29	06/21/2003	8:39	5	60	28
U-12 15	5856	6178	5148	2	30	06/21/2003	8:40	3	60	17
U-11 01	5856	6178	5148	2	31	06/21/2003	8:42	6	60	33
U-11 02	5856	6178	5148	2	32	06/21/2003	8:44	6	60	33
U-11 03	5856	6178	5148	2	33	06/21/2003	8:45	9	60	50
U-11 04	5856	6178	5148	2	34	06/21/2003	8:46	4	60	22
U-11 05	5856	6178	5148	2	35	06/21/2003	8:47	6	60	33
U-11 06	5856	6178	5148	2	36	06/21/2003	8:49	5	60	28
U-11 07	5856	6178	5148	2	37	06/21/2003	8:50	3	60	17
U-11 08	5856	6178	5148	2	38	06/21/2003	8:51	0	60	0
U-11 09	5856	6178	5148	2	39	06/21/2003	8:53	2	60	11
U-11 10	5856	6178	5148	2	40	06/21/2003	8:54	4	60	22
U-11 11	5856	6178	5148	2	41	06/21/2003	8:56	5	60	28
U-11 12	5856	6178	5148	2	42	06/21/2003	8:57	7	60	39
U-11 13	5856	6178	5148	2	43	06/21/2003	8:58	7	60	39

W1582 P85 1M 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 10,11.12 AND 14

RSDS# 03-TF-0143 RCT: DJH RCT: SK

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-11 14	5856	6178	5148	2	44	06/21/2003	9:00	5	60	28
U-11 15	5856	6178	5148	2	45	06/21/2003	9:02	2	60	11
U-10 01	5856	6178	5148	2	46	06/21/2003	9:04	3	60	17
U-10 02	5856	6178	5148	2	47	06/21/2003	9:05	7	60	39
U-10 03	5856	6178	5148	2	48	06/21/2003	9:07	5	60	28
U-10 04	5856	6178	5148	2	49	06/21/2003	9:08	7	60	39
U-10 05	5856	6178	5148	2	50	06/21/2003	9:09	6	60	33
U-10 06	5856	6178	5148	2	51	06/21/2003	9:10	1	60	6
U-10 07	5856	6178	5148	2	52	06/21/2003	9:12	3	60	17
U-10 08	5856	6178	5148	2	53	06/21/2003	9:13	3	60	17
U-10 09	5856	6178	5148	2	54	06/21/2003	9:14	5	60	28
U-10 10	5856	6178	5148	2	55	06/21/2003	9:16	6	60	33
U-10 11	5856	6178	5148	2	56	06/21/2003	9:17	6	60	33
U-10 12	5856	6178	5148	2	57	06/21/2003	9:18	8	60	44
U-10 13	5856	6178	5148	2	58	06/21/2003	9:19	6	60	33
U-10 14	5856	6178	5148	2	59	06/21/2003	9:21	4	60	22
U-10 15	5856	6178	5148	2	60	06/21/2003	9:22	10	60	55
QCU11 08	5856	6178	5148	2		06/21/2003	9:25	4	60	22
QCU12 02	5856	6178	5148	2		06/21/2003	9:28	6	60	33

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W-BLDG CHARACTERIZATION BETA SURVEY UNIT 14

RSDS# 03-TF-0143 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-14 01	5833	5214	5847	1	06/21/2003	280	60	565
U-14 02	5833	5214	5847	2	06/21/2003	293	60	630
U-14 03	5833	5214	5847	3	06/21/2003	267	60	500
U-14 04	5833	5214	5847	4	06/21/2003	291	60	620
U-14 05	5833	5214	5847	5	06/21/2003	245	60	390
U-14 06	5833	5214	5847	6	06/21/2003	304	60	685
U-14 07	5833	5214	5847	7	06/21/2003	283	60	580
U-14 08	5833	5214	5847	8	06/21/2003	268	60	505
U-14 09	5833	5214	5847	9	06/21/2003	262	60	475
U-14 10	5833	5214	5847	10	06/21/2003	269	60	510
U-14 11	5833	5214	5847	11	06/21/2003	250	60	415
U-14 12	5833	5214	5847	12	06/21/2003	263	60	480
U-14 13	5833	5214	5847	13	06/21/2003	313	60	730
U-14 14	5833	5214	5847	14	06/21/2003	301	60	670
U-14 15	5833	5214	5847	15	06/21/2003	272	60	525
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS ——————>								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 12

RSDS# 03-TF-0143 RCT: DJA RCT: SKR

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-12 01	5833	5214	5847	16	06/21/2003	268	60	505
U-12 02	5833	5214	5847	17	06/21/2003	326	60	795
U-12 03	5833	5214	5847	18	06/21/2003	345	60	890
U-12 04	5833	5214	5847	19	06/21/2003	266	60	495
U-12 05	5833	5214	5847	20	06/21/2003	233	60	330
U-12 06	5833	5214	5847	21	06/21/2003	243	60	380
U-12 07	5833	5214	5847	22	06/21/2003	263	60	480
U-12 08	5833	5214	5847	23	06/21/2003	317	60	750
U-12 09	5833	5214	5847	24	06/21/2003	314	60	735
U-12 10	5833	5214	5847	25	06/21/2003	257	60	450
U-12 11	5833	5214	5847	26	06/21/2003	264	60	485
U-12 12	5833	5214	5847	27	06/21/2003	338	60	855
U-12 13	5833	5214	5847	28	06/21/2003	331	60	820
U-12 14	5833	5214	5847	29	06/21/2003	247	60	400
U-12 15	5833	5214	5847	30	06/21/2003	241	60	370
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS——————>								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 11

RSDS# 03-TF-0143 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-11 01	5833	5214	5847	31	06/21/2003	237	60	350
U-11 02	5833	5214	5847	32	06/21/2003	264	60	485
U-11 03	5833	5214	5847	33	06/21/2003	301	60	670
U-11 04	5833	5214	5847	34	06/21/2003	324	60	785
U-11 05	5833	5214	5847	35	06/21/2003	302	60	675
U-11 06	5833	5214	5847	36	06/21/2003	340	60	865
U-11 07	5833	5214	5847	37	06/21/2003	312	60	725
U-11 08	5833	5214	5847	38	06/21/2003	329	60	810
U-11 09	5833	5214	5847	39	06/21/2003	253	60	430
U-11 10	5833	5214	5847	40	06/21/2003	242	60	375
U-11 11	5833	5214	5847	41	06/21/2003	243	60	380
U-11 12	5833	5214	5847	42	06/21/2003	237	60	350
U-11 13	5833	5214	5847	43	06/21/2003	332	60	825
U-11 14	5833	5214	5847	44	06/21/2003	296	60	645
U-11 15	5833	5214	5847	45	06/21/2003	278	60	555
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS ——————>								167

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 10

RSDS# 03-TF-0143 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-10 01	5833	5214	5847	46	06/21/2003	260	60	465
U-10 02	5833	5214	5847	47	06/21/2003	313	60	730
U-10 03	5833	5214	5847	48	06/21/2003	299	60	660
U-10 04	5833	5214	5847	49	06/21/2003	260	60	465
U-10 05	5833	5214	5847	50	06/21/2003	242	60	375
U-10 06	5833	5214	5847	51	06/21/2003	246	60	395
U-10 07	5833	5214	5847	52	06/21/2003	256	60	445
U-10 08	5833	5214	5847	53	06/21/2003	277	60	550
U-10 09	5833	5214	5847	54	06/21/2003	283	60	580
U-10 10	5833	5214	5847	55	06/21/2003	268	60	505
U-10 11	5833	5214	5847	56	06/21/2003	254	60	435
U-10 12	5833	5214	5847	57	06/21/2003	262	60	475
U-10 13	5833	5214	5847	58	06/21/2003	266	60	495
U-10 14	5833	5214	5847	59	06/21/2003	262	60	475
U-10 15	5833	5214	5847	60	06/21/2003	300	60	665
QC U-11 08	5833	5214	5847		06/21/2003	301	60	670
QC U-12 02	5833	5214	5847		06/21/2003	330	60	815
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS——————>								167

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR012
Batch Ended: 6/20/03 9:12

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0143 (60) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	1.7	2.1		0.0	1.3	
A2	2	1.7	2.2		3.2	2.6	
A3	3	0.0	2.0		0.0	1.2	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	1.9		0.5	2.3	
B2	6	1.5	2.1		0.6	1.9	
B3	7	0.0	2.0		0.1	1.2	
B4	8	0.0	1.9		0.0	1.2	
C1	9	0.0	2.0		4.8	2.9	
C2	10	0.0	2.0		0.0	1.3	
C3	11	0.0	1.9		0.0	1.1	
C4	12	0.0	1.9		0.6	1.6	
D1	13	0.0	2.3		0.0	1.3	
D2	14	0.0	2.1		1.4	2.3	
D3	15	0.6	2.0		0.0	1.2	
D4	16	0.0	2.0		0.3	1.7	
A1	17	1.7	2.1		4.4	2.9	
A2	18	1.7	2.2		0.0	1.3	
A3	19	0.0	2.0		0.0	1.2	
A4	20	1.4	1.9		0.0	1.2	
B1	21	0.0	1.9		0.0	1.3	
B2	22	0.0	2.1		6.0	3.2	
B3	23	0.9	2.0		0.0	1.2	
B4	24	1.5	1.9		0.0	1.6	
C1	25	0.0	2.0		4.8	2.9	
C2	26	0.0	2.0		0.6	1.8	
C3	27	0.0	1.9		0.0	1.1	
C4	28	0.0	1.9		1.7	2.0	
D1	29	0.0	2.3		0.0	1.3	
D2	30	1.6	2.1		0.0	1.8	
D3	31	0.0	2.0		2.8	2.3	

DJH DJH

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR012
Batch Ended: 6/20/03 9:12

Crosstalk correction performed.

Batch ID: HARVEY 03-TF-0143 (60) CYR

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D4	32	1.5	2.0		0.0	1.2	
A1	33	0.0	2.1		3.3	2.6	
A2	34	0.0	2.2		2.1	2.3	
A3	35	0.0	2.0		0.0	1.2	
A4	36	0.0	1.9		0.0	1.2	
B1	37	0.0	1.9		0.0	1.3	
B2	38	0.0	2.1		0.0	1.3	
B3	39	0.9	2.0		0.0	1.2	
B4	40	1.5	2.0		0.7	2.0	
C1	41	0.0	1.9		0.0	1.2	
C2	42	1.6	2.0		0.5	1.8	
C3	43	1.2	1.9		0.0	1.1	
C4	44	0.0	1.9		0.6	1.6	
D1	45	0.0	2.3		0.7	1.9	
D2	46	0.0	2.1		2.7	2.6	
D3	47	0.0	2.0		0.0	1.2	
D4	48	0.0	2.0		1.5	2.1	
A1	49	0.0	2.1		0.0	1.3	
A2	50	0.0	2.2		0.8	1.8	
A3	51	0.0	2.0		0.8	1.7	
A4	52	0.0	2.0		1.3	2.1	
B1	53	0.0	2.0		3.1	2.9	
B2	54	0.0	2.1		2.1	2.3	
B3	55	0.0	2.0		1.2	1.7	
B4	56	0.0	2.0		3.1	2.6	
C1	57	0.0	1.9		0.0	1.2	
C2	58	0.0	2.0		0.6	1.8	
C3	59	1.2	1.9		1.5	2.0	
C4	60	0.0	1.9		0.6	1.6	

DJH DJH

Carol G. Robinson

W1659 199

1106 17

DJH 6-23-03

Time: 2.00
Data Mode: DPM Nuclide: SMGL02 Quench Set: SMGL02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	10.82
Region B:	2.0 -	18.6	0	0.0	10.04
Region C:	40.0 -	2000	0	0.0	5.50

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
HARVEY 03-TF-0143 (N1-N60) AG
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA7.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	10.82	1	B	614.32		0.00	5.50
0	2.00	848.56	0		548.55	1760.90	136.38	0.00
1	2.00	0.00	0		561.31	0.00	0.00	1.50
2	2.00	0.00	0		561.82	0.00	0.00	1.50
3	2.00	0.00	0		527.39	0.00	0.00	0.50
4	2.00	0.00	0		482.90	0.00	0.00	0.00
5	2.00	0.00	0		541.03	0.00	0.00	0.00
6	2.00	0.00	0		510.98	0.00	0.00	0.00
7	2.00	0.00	0		507.09	0.00	0.00	0.00
8	2.00	0.00	0		523.64	0.00	0.00	0.00
9	2.00	0.00	0		553.55	0.00	0.00	0.50
10	2.00	0.00	0		468.45	0.00	0.00	2.50
11	2.00	0.00	0		505.62	0.00	0.00	0.00
12	2.00	0.00	0		431.67	0.00	0.00	0.00
13	2.00	0.00	0		542.01	0.00	0.00	0.00
14	2.00	0.00	0		531.58	0.00	0.00	0.00
15	2.00	0.00	0		437.59	0.00	0.00	0.50
16	2.00	0.00	0		490.56	0.00	0.00	0.00
17	2.00	0.00	0		480.56	0.00	0.00	0.00
18	2.00	0.00	0		448.19	0.00	0.00	0.00
19	2.00	0.00	0		510.85	0.00	0.00	0.00
20	2.00	0.00	0		504.51	0.00	0.00	0.00
21	2.00	0.00	0		434.37	0.00	0.00	0.00
22	2.00	0.00	0		479.09	0.00	0.00	0.50
23	2.00	0.00	0		331.88	0.00	0.00	0.00
24	2.00	0.00	0		558.15	0.00	0.00	1.50
25	2.00	0.00	0		492.67	0.00	0.00	0.00
26	2.00	0.00	0		494.33	0.00	0.00	0.00
27	2.00	0.00	0		474.35	0.00	0.00	0.00
28	2.00	0.00	0		449.23	0.00	0.00	0.00
29	2.00	0.00	0		455.53	0.00	0.00	0.00
30	2.00	0.00	0		542.13	0.00	0.00	0.00
31	2.00	0.00	0		503.07	0.00	0.00	1.51
32	2.00	0.00	0		497.57	0.00	0.00	0.00
33	2.00	0.00	0		490.42	0.00	0.00	1.00
34	2.00	0.00	0		525.97	0.00	0.00	0.00

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S#	TIME	CPMA	LUM FLAG	tSIE	DPM1	2Sigma	CPMC
35	2.00	0.00	0	497.98	0.00	0.00	0.50
36	2.00	0.00	0	454.13	0.00	0.00	0.00
37	2.00	0.00	0	409.71	0.00	0.00	0.00
38	2.00	0.00	0	433.27	0.00	0.00	0.00
39	2.00	0.00	0	483.63	0.00	0.00	0.00
40	2.00	0.00	0	462.96	0.00	0.00	0.00
41	2.00	0.00	0	483.03	0.00	0.00	0.00
42	2.00	0.00	0	458.06	0.00	0.00	0.00
43	2.00	0.00	0	480.33	0.00	0.00	0.00
44	2.00	0.00	0	496.97	0.00	0.00	1.00
45	2.00	0.00	0	499.52	0.00	0.00	0.00
46	2.00	0.00	0	466.06	0.00	0.00	2.00
47	2.00	0.00	0	472.92	0.00	0.00	0.00
48	2.00	0.00	0	496.18	0.00	0.00	0.00
49	2.00	0.00	0	407.88	0.00	0.00	0.00
50	2.00	0.00	0	498.49	0.00	0.00	2.00
51	2.00	0.00	0	508.45	0.00	0.00	0.00
52	2.00	0.00	0	487.90	0.00	0.00	0.00
53	2.00	0.00	0	435.40	0.00	0.00	0.00
54	2.00	0.00	0	483.95	0.00	0.00	0.00
55	2.00	0.00	0	547.10	0.00	0.00	0.50
56	2.00	0.00	0	445.42	0.00	0.00	0.00
57	2.00	0.00	0	506.78	0.00	0.00	0.00
58	2.00	0.00	0	524.30	0.00	0.00	0.00
59	2.00	0.00	0	430.48	0.00	0.00	0.00
60	2.00	0.00	0	556.95	0.00	0.00	0.00

AgA

Carol G. Robinson

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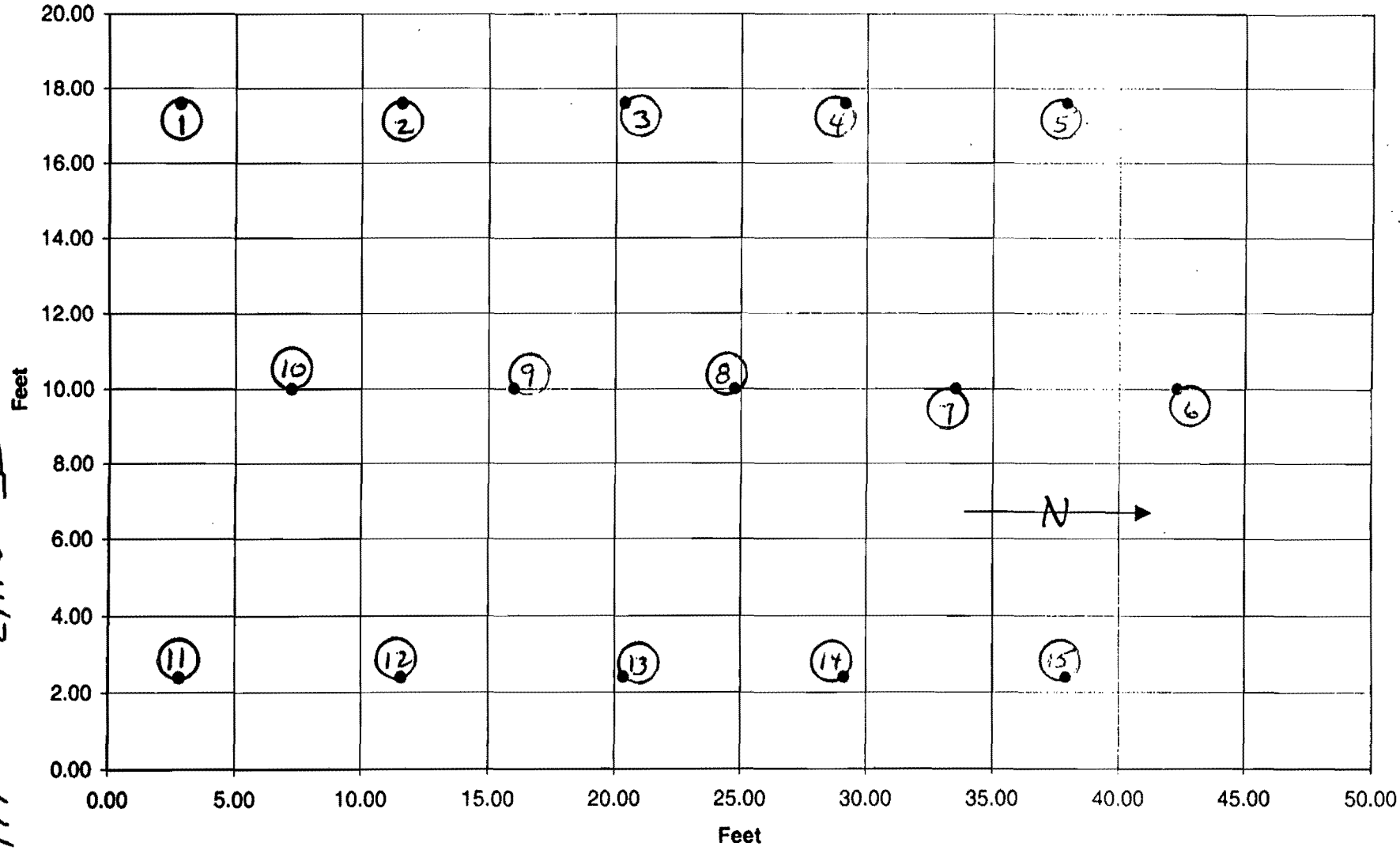
Survey Units 14



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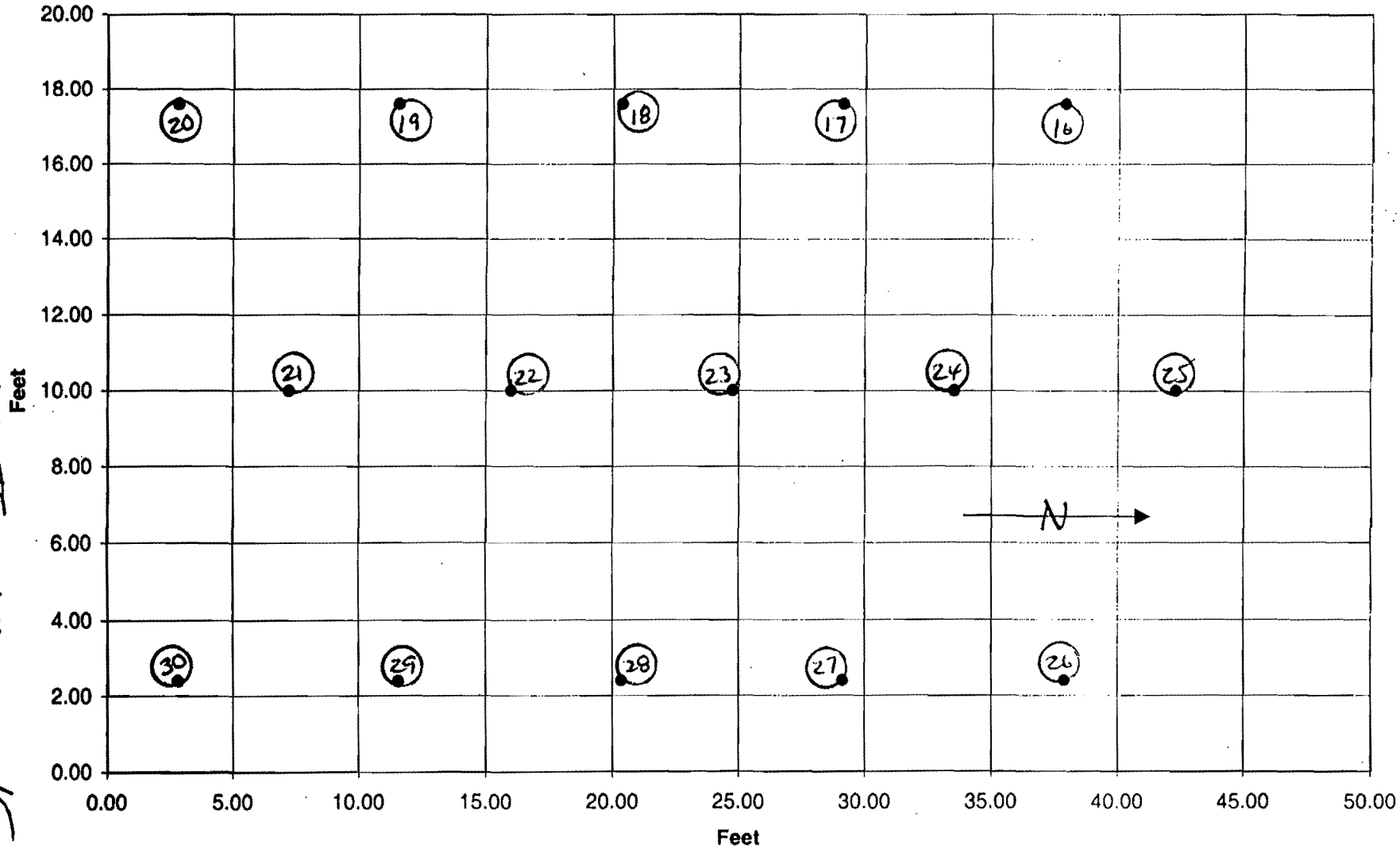
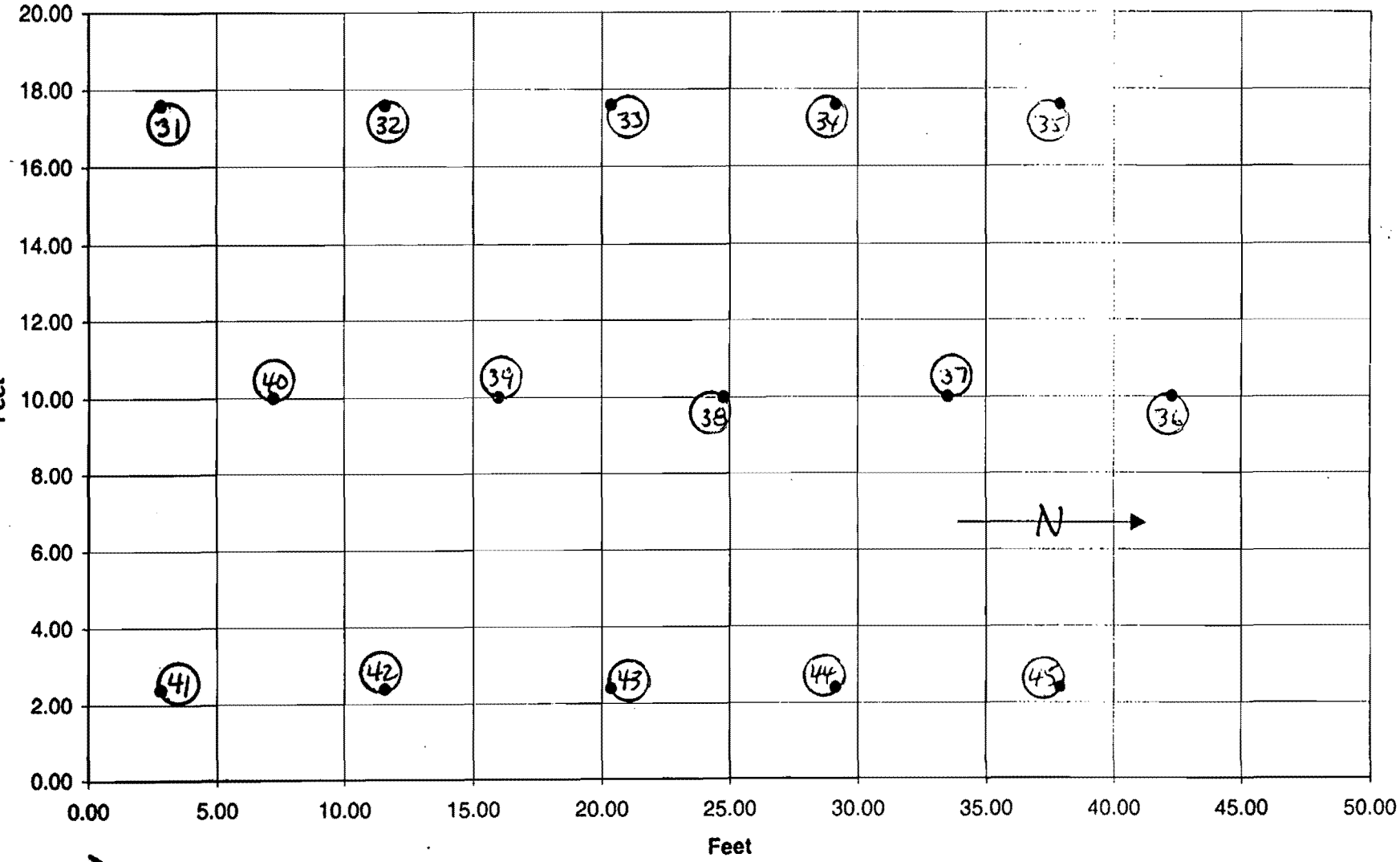
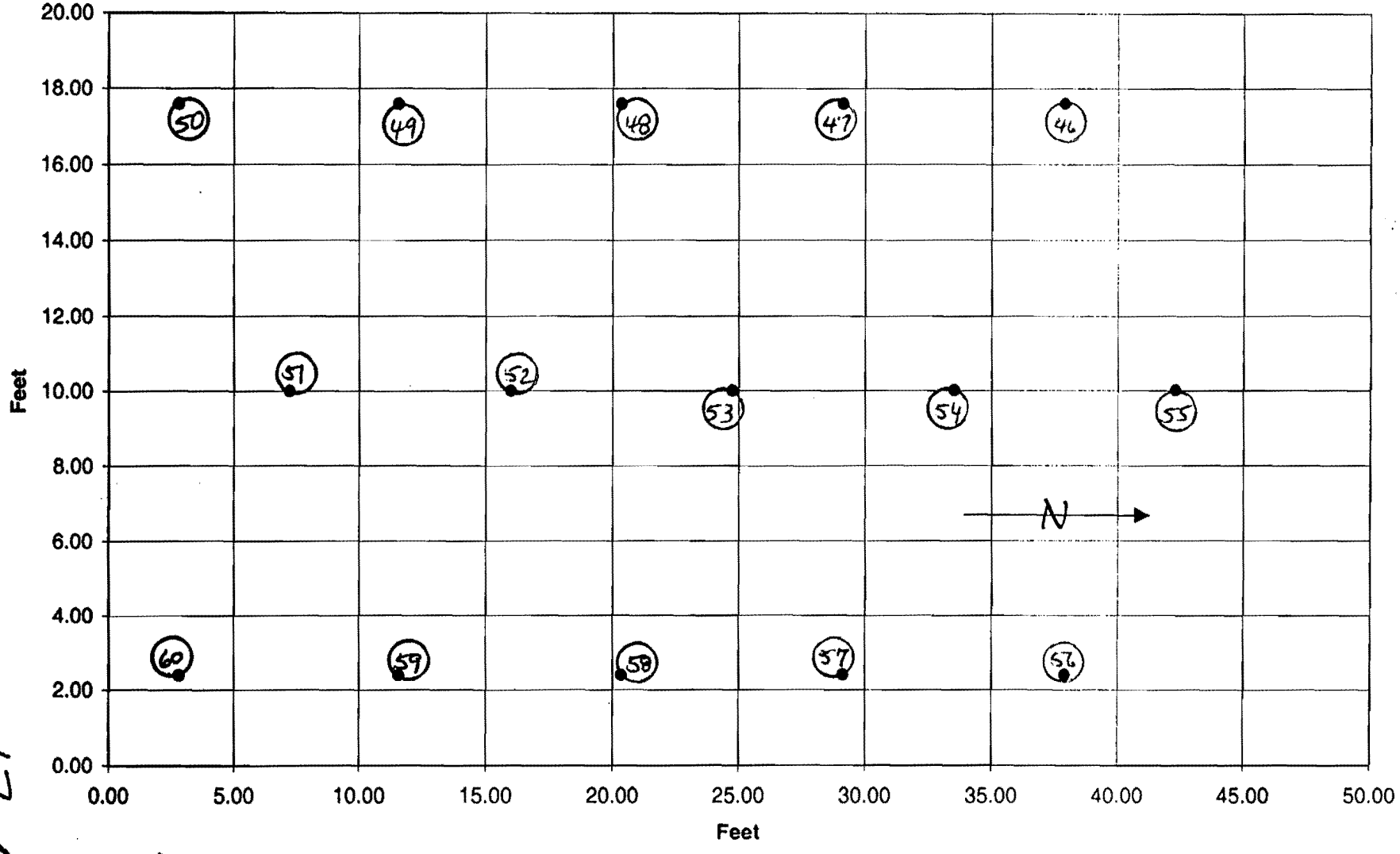
Survey Units 12



Survey Units 11



Survey Units 10



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Wind 199

#8

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) W BUILDING	SURVEY NO 03-TF-0144
PURPOSE: MARSSIM SURVEY PLAN W-01 UNITS 9, 13 AND 15	RWP NO N/A
	DATE: 06-20-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED DATA AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5856	5-12-04
2360/43-93	5833/5847	3-13-04
	N/A	

[redacted] HP # 6178 5214 Date: 06-23-03

Counted by: (Signature) HP # Date:

Counted by: (Print Name) SEE ATTACHED

Reviewed/App[redacted] HP # 7492 Date: 6-24-03

Reviewed/Approved by: (Print Nam[redacted]

ML-9620 (2-98)

Survey No. 03-TF-0144

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-15				UNIT 9
16-30				UNIT 13
31-45	SEE ATTACHED RESULTS			UNIT 15
			NA	

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

COMMENTS: NONE

NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of 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-9620A (4-98)

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W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 9,13 and 15

RSDS# 03-TF-0144 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5856	6178	5148	2		06/20/2003	7:49	8	300	9
SRC CHECK	5856	6178	5148	2		06/20/2003	8:21	2063	60	11398
SRC CHECK	5856	6178	5148	2		06/20/2003	8:22	2133	60	11785
SRC CHECK	5856	6178	5148	2		06/20/2003	8:24	2118	60	11702
SRC CHECK	5856	6178	5148	2		06/20/2003	8:25	2031	60	11221
U-9 01	5856	6178	5148	2	1	06/20/2003	13:47	2	60	11
U-9 02	5856	6178	5148	2	2	06/20/2003	13:48	3	60	17
U-9 03	5856	6178	5148	2	3	06/20/2003	13:49	4	60	22
U-9 04	5856	6178	5148	2	4	06/20/2003	13:51	8	60	44
U-9 05	5856	6178	5148	2	5	06/20/2003	13:52	3	60	17
U-9 06	5856	6178	5148	2	6	06/20/2003	13:53	0	60	0
U-9 07	5856	6178	5148	2	7	06/20/2003	13:55	4	60	22
U-9 08	5856	6178	5148	2	8	06/20/2003	13:56	3	60	17
U-9 09	5856	6178	5148	2	9	06/20/2003	13:58	3	60	17
U-9 10	5856	6178	5148	2	10	06/20/2003	14:00	1	60	6
U-9 11	5856	6178	5148	2	11	06/20/2003	14:01	3	60	17
U-9 12	5856	6178	5148	2	12	06/20/2003	14:02	2	60	11
U-9 13	5856	6178	5148	2	13	06/20/2003	14:04	3	60	17
U-9 14	5856	6178	5148	2	14	06/20/2003	14:05	2	60	11
U-9 15	5856	6178	5148	2	15	06/20/2003	14:07	7	60	39
U-13 01	5856	6178	5148	2	16	06/20/2003	14:09	3	60	17

W1526199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 9,13 and 15

RSDS# 03-TF-0144 RCT: [illegible] RCT: SK

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-13 02	5856	6178	5148	2	17	06/20/2003	14:11	3	60	17
U-13 03	5856	6178	5148	2	18	06/20/2003	14:12	4	60	22
U-13 04	5856	6178	5148	2	19	06/20/2003	14:13	2	60	11
U-13 05	5856	6178	5148	2	20	06/20/2003	14:15	2	60	11
U-13 06	5856	6178	5148	2	21	06/20/2003	14:17	5	60	28
U-13 07	5856	6178	5148	2	22	06/20/2003	14:19	2	60	11
U-13 08	5856	6178	5148	2	23	06/20/2003	14:20	2	60	11
U-13 09	5856	6178	5148	2	24	06/20/2003	14:21	3	60	17
U-13 10	5856	6178	5148	2	25	06/20/2003	14:23	3	60	17
U-13 11	5856	6178	5148	2	26	06/20/2003	14:24	2	60	11
U-13 12	5856	6178	5148	2	27	06/20/2003	14:26	4	60	22
U-13 13	5856	6178	5148	2	28	06/20/2003	14:27	9	60	50
U-13 14	5856	6178	5148	2	29	06/20/2003	14:28	7	60	39
U-13 15	5856	6178	5148	2	30	06/20/2003	14:30	4	60	22
U-15 01	5856	6178	5148	2	31	06/20/2003	14:32	4	60	22
U-15 02	5856	6178	5148	2	32	06/20/2003	14:33	4	60	22
U-15 03	5856	6178	5148	2	33	06/20/2003	14:34	4	60	22
U-15 04	5856	6178	5148	2	34	06/20/2003	14:36	4	60	22
U-15 05	5856	6178	5148	2	35	06/20/2003	14:37	7	60	39
U-15 06	5856	6178	5148	2	36	06/20/2003	14:38	1	60	6
U-15 07	5856	6178	5148	2	37	06/20/2003	14:41	2	60	11
U-15 08	5856	6178	5148	2	38	06/20/2003	14:43	1	60	6
U-15 09	5856	6178	5148	2	39	06/20/2003	14:44	4	60	22
U-15 10	5856	6178	5148	2	40	06/20/2003	14:46	6	60	33
U-15 11	5856	6178	5148	2	41	06/20/2003	14:48	2	60	11
U-15 12	5856	6178	5148	2	42	06/20/2003	14:49	3	60	17

W1766179

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 9,13 and 15

RSDS# 03-TF-0144 RCT: DJH RCT: DKP

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-15 13	5856	6178	5148	2	43	6/20/03	14:50	5	60	28
U-15 14	5856	6178	5148	2	44	6/20/03	14:52	4	60	22
U-15 15	5856	6178	5148	2	45	6/20/03	14:53	2	60	11
QCU13 13	5856	6178	5148	2		6/20/03	14:56	3	60	17
QCU-9 06	5856	6178	5148	2		6/20/03	14:58	3	60	17

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 9

RSDS# 03-TF-0144 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 9 01	5833	5214	5847	1	06/21/2003	297	60	650
Unit - 9 02	5833	5214	5847	2	06/21/2003	252	60	425
Unit - 9 03	5833	5214	5847	3	06/21/2003	217	60	250
Unit - 9 04	5833	5214	5847	4	06/21/2003	245	60	390
Unit - 9 05	5833	5214	5847	5	06/21/2003	244	60	385
Unit - 9 06	5833	5214	5847	6	06/21/2003	213	60	230
Unit - 9 07	5833	5214	5847	7	06/21/2003	206	60	195
Unit - 9 08	5833	5214	5847	8	06/21/2003	236	60	345
Unit - 9 09	5833	5214	5847	9	06/21/2003	232	60	325
Unit - 9 10	5833	5214	5847	10	06/21/2003	239	60	360
Unit - 9 11	5833	5214	5847	11	06/21/2003	254	60	435
Unit - 9 12	5833	5214	5847	12	06/21/2003	290	60	615
Unit - 9 13	5833	5214	5847	13	06/21/2003	300	60	665
Unit - 9 14	5833	5214	5847	14	06/21/2003	234	60	335
Unit - 9 15	5833	5214	5847	15	06/21/2003	246	60	395
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS——————>								167

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W-BLDG CHARACTERIZATION BETA SURVEY UNIT 13

RSDS# 03-TF-0144 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 13 01	5833	5214	5847	16	06/21/2003	266	60	495
Unit - 13 02	5833	5214	5847	17	06/21/2003	267	60	500
Unit - 13 03	5833	5214	5847	18	06/21/2003	276	60	545
Unit - 13 04	5833	5214	5847	19	06/21/2003	259	60	460
Unit - 13 05	5833	5214	5847	20	06/21/2003	294	60	635
Unit - 13 06	5833	5214	5847	21	06/21/2003	245	60	390
Unit - 13 07	5833	5214	5847	22	06/21/2003	242	60	375
Unit - 13 08	5833	5214	5847	23	06/21/2003	255	60	440
Unit - 13 09	5833	5214	5847	24	06/21/2003	253	60	430
Unit - 13 10	5833	5214	5847	25	06/21/2003	261	60	470
Unit - 13 11	5833	5214	5847	26	06/21/2003	273	60	530
Unit - 13 12	5833	5214	5847	27	06/21/2003	257	60	450
Unit - 13 13	5833	5214	5847	28	06/21/2003	284	60	585
Unit - 13 14	5833	5214	5847	29	06/21/2003	262	60	475
Unit - 13 15	5833	5214	5847	30	06/21/2003	264	60	485
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS ——————>								167

 W179J6 199

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 15

RSDS# 03-TF-0144 RCT: DJA RCT: SK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
Unit - 15 01	5833	5214	5847	31	06/21/2003	269	60	510
Unit - 15 02	5833	5214	5847	32	06/21/2003	335	60	840
Unit - 15 03	5833	5214	5847	33	06/21/2003	278	60	555
Unit - 15 04	5833	5214	5847	34	06/21/2003	309	60	710
Unit - 15 05	5833	5214	5847	35	06/21/2003	297	60	650
Unit - 15 06	5833	5214	5847	36	06/21/2003	310	60	715
Unit - 15 07	5833	5214	5847	37	06/21/2003	253	60	430
Unit - 15 08	5833	5214	5847	38	06/21/2003	302	60	675
Unit - 15 09	5833	5214	5847	39	06/21/2003	249	60	410
Unit - 15 10	5833	5214	5847	40	06/21/2003	272	60	525
Unit - 15 11	5833	5214	5847	41	06/21/2003	312	60	725
Unit - 15 12	5833	5214	5847	42	06/21/2003	246	60	395
Unit - 15 13	5833	5214	5847	43	06/21/2003	291	60	620
Unit - 15 14	5833	5214	5847	44	06/21/2003	290	60	615
Unit - 15 15	5833	5214	5847	45	06/21/2003	265	60	490
QC Unit-13 13	5833	5214	5847		06/21/2003	282	60	575
QC Unit-9 06	5833	5214	5847		06/21/2003	232	60	325
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS---------->								167

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR011
Batch Ended: 6/20/03 9:00

Crosstalk correction performed.

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

Batch ID: HARVEY 03-TF-0144 (45) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		2.0	2.3	
A2	2	0.0	2.2		0.0	1.3	
A3	3	0.7	2.0		0.7	1.7	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.0		3.1	2.9	
B2	6	1.5	2.1		0.0	1.3	
B3	7	0.0	2.0		0.1	1.2	
B4	8	1.5	1.9		0.0	1.6	
C1	9	0.0	2.0		0.1	1.7	
D1	9	0.0	2.3		0.7	1.9	
C2	10	0.0	2.1		5.6	3.1	
C3	11	0.0	1.9		0.0	1.1	
C4	12	0.0	1.9		1.7	2.0	
D1	13	0.0	2.3		0.0	1.3	
D2	14	0.0	2.1		0.1	1.8	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		1.5	2.1	
A1	17	0.0	2.1		0.0	1.3	
A2	18	1.7	2.2		0.0	1.3	
A3	19	0.0	2.0		0.8	1.7	
A4	20	0.0	2.0		0.1	1.7	
B1	21	0.0	1.9		0.0	1.9	
B2	22	1.5	2.1		0.0	1.3	
B3	23	0.9	2.0		2.3	2.1	
B4	24	0.0	2.0		0.8	2.0	
C1	25	0.0	2.0		1.3	2.0	
C2	26	0.0	2.0		0.6	1.8	
C3	27	0.0	1.9		0.5	1.6	
C4	28	0.0	1.9		1.7	2.0	
D2	30	0.0	2.1		0.1	1.8	
D3	31	0.0	2.0		0.0	1.2	

SK SK

 SK 06 23 03

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR011
Batch Ended: 6/20/03 9:00

Crosstalk correction performed.

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

Batch ID: HARVEY 03-TF-0144 (45) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D4	32	1.5	2.0		2.5	2.4	
A1	33	0.0	2.1		0.0	1.3	
A2	34	0.0	2.2		2.1	2.3	
A3	35	0.7	2.0		0.0	1.2	
A4	36	0.0	2.0		2.5	2.4	
B1	37	0.0	1.9		0.5	2.3	
B2	38	0.0	2.1		0.0	1.3	
B3	39	0.9	2.0		1.1	1.7	
B4	40	0.0	2.0		1.9	2.3	
C1	41	0.0	2.0		1.3	2.0	
C2	42	0.0	2.0		0.0	1.3	
C3	43	1.1	1.9		2.6	2.3	
C4	44	0.0	1.9		0.0	1.2	
D1	45	0.0	2.3		0.0	1.3	

SK SK

Carol G. Robinson

W182281 m

6/20/03

Protocol #: 2 Name:Pw-H3 #401387 20-Jun-2003 09:46
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
HARVEY 03-TF-0144 (M1-M45) AG
Conventional DPM
Nuclide 1 = 208074
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	7.88	7.51	5.35	B	1	640.		22.53
0	2.00	704.47	676.33	0.00		0	503.	1456.83	5.38
1	2.00	0.00	0.00	2.15		0	588.	0.00	0.00
2	2.00	0.00	0.00	0.00		0	587.	0.00	0.00
3	2.00	0.00	0.00	0.15		0	527.	0.00	0.00
4	2.00	0.00	0.00	0.00		0	544.	0.00	0.00
5	2.00	0.00	0.00	1.15		12	575.	0.00	0.00
6	2.00	0.00	0.00	0.00		0	655.	0.00	0.00
7	2.00	0.00	0.00	1.15		0	577.	0.00	0.00
8	2.00	0.00	0.00	0.00		0	613.	0.00	0.00
9	2.00	0.00	0.00	1.65		0	632.	0.00	0.00
10	2.00	0.00	0.00	0.15		0	587.	0.00	0.00
11	2.00	0.00	0.00	0.00		0	585.	0.00	0.00
12	2.00	0.00	0.00	0.00		8	517.	0.00	0.00
13	2.00	0.00	0.00	0.00		0	585.	0.00	0.00
14	2.00	0.00	0.00	0.00		0	580.	0.00	0.00
15	2.00	0.00	0.00	0.00		0	614.	0.00	0.00
16	2.00	0.00	0.00	0.00		0	617.	0.00	0.00
17	2.00	0.00	0.00	0.00		0	543.	0.00	0.00
18	2.00	0.00	0.00	0.00		18	556.	0.00	0.00
19	2.00	0.00	0.00	0.65		0	564.	0.00	0.00
20	2.00	0.00	0.00	0.00		0	611.	0.00	0.00
21	2.00	0.00	0.00	0.00		0	579.	0.00	0.00
22	2.00	0.00	0.00	1.10		0	595.	0.00	0.00
23	2.00	0.00	0.00	0.00		0	566.	0.00	0.00
24	2.00	0.00	0.00	0.00		0	567.	0.00	0.00
25	2.00	0.00	0.00	0.00		12	534.	0.00	0.00
26	2.00	0.00	0.00	0.65		0	548.	0.00	0.00
27	2.00	0.00	0.00	1.15		0	598.	0.00	0.00
28	2.00	0.00	0.00	2.15		14	611.	0.00	0.00
29	2.00	0.00	0.00	3.15		0	592.	0.00	0.00
30	2.00	0.00	0.00	0.00		0	503.	0.00	0.00
31	2.00	0.00	0.00	0.65		0	531.	0.00	0.00
32	2.00	0.00	0.00	0.00		16	429.	0.00	0.00
33	2.00	0.00	0.00	0.00		0	567.	0.00	0.00
34	2.00	0.00	0.00	0.00		10	602.	0.00	0.00
35	2.00	0.00	0.00	0.00		0	543.	0.00	0.00
36	2.00	0.00	0.00	0.15		0	606.	0.00	0.00
37	2.00	0.00	0.00	0.00		0	608.	0.00	0.00
38	2.00	0.00	0.00	1.15		0	547.	0.00	0.00
39	2.00	0.00	0.00	0.65		0	596.	0.00	0.00
40	2.00	0.00	0.00	1.65		0	556.	0.00	0.00
41	2.00	0.00	0.00	0.00		0	562.	0.00	0.00
42	2.00	0.00	0.00	0.15		0	572.	0.00	0.00
43	2.00	0.00	0.00	0.00		0	567.	0.00	0.00

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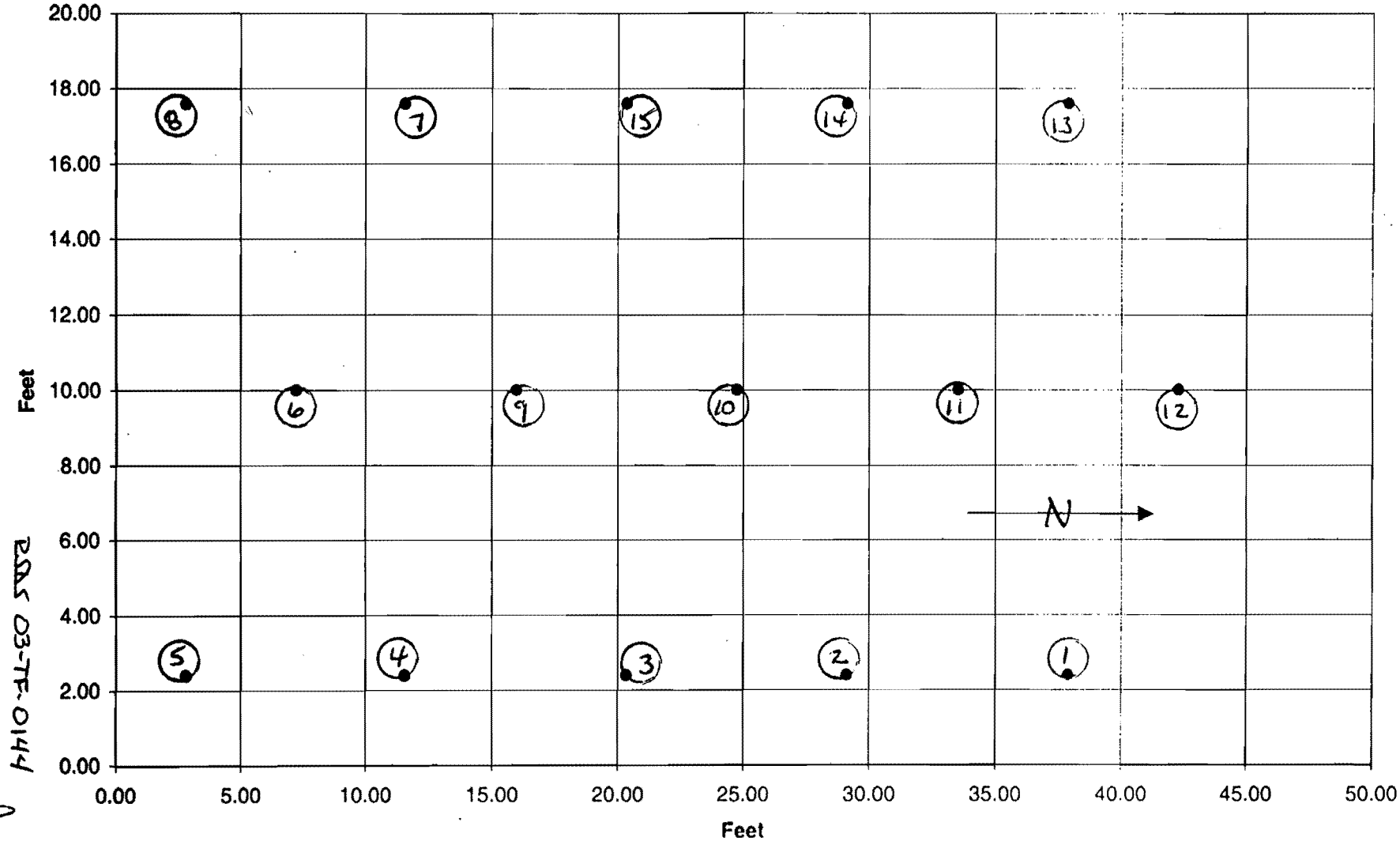
SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
44	2.00	0.00	0.00	0.00		31	618.	0.00	0.00
45	2.00	0.00	0.00	0.00		0	534.	0.00	0.00

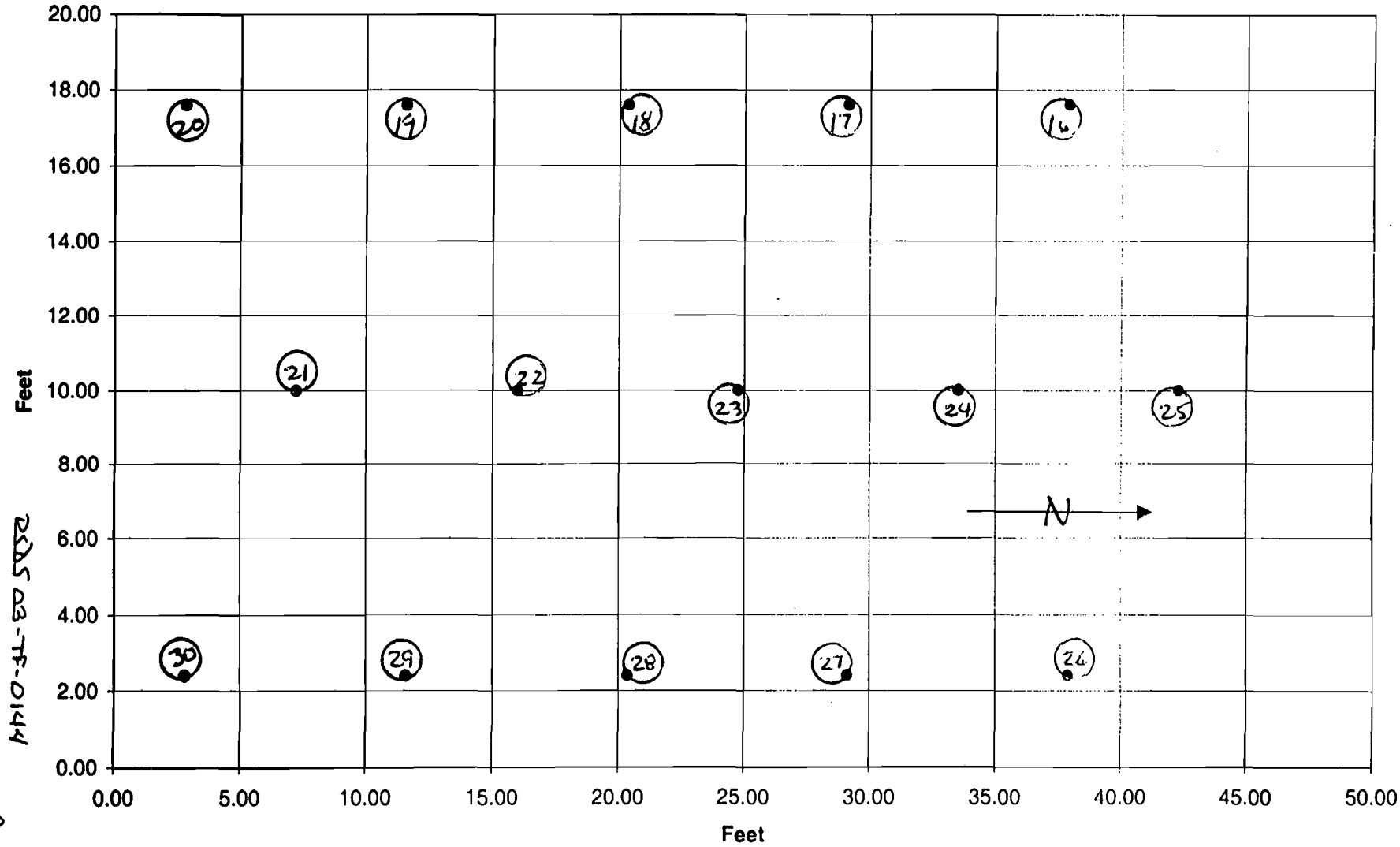
Carol G. Robinson

RSDS 03-TF-0144

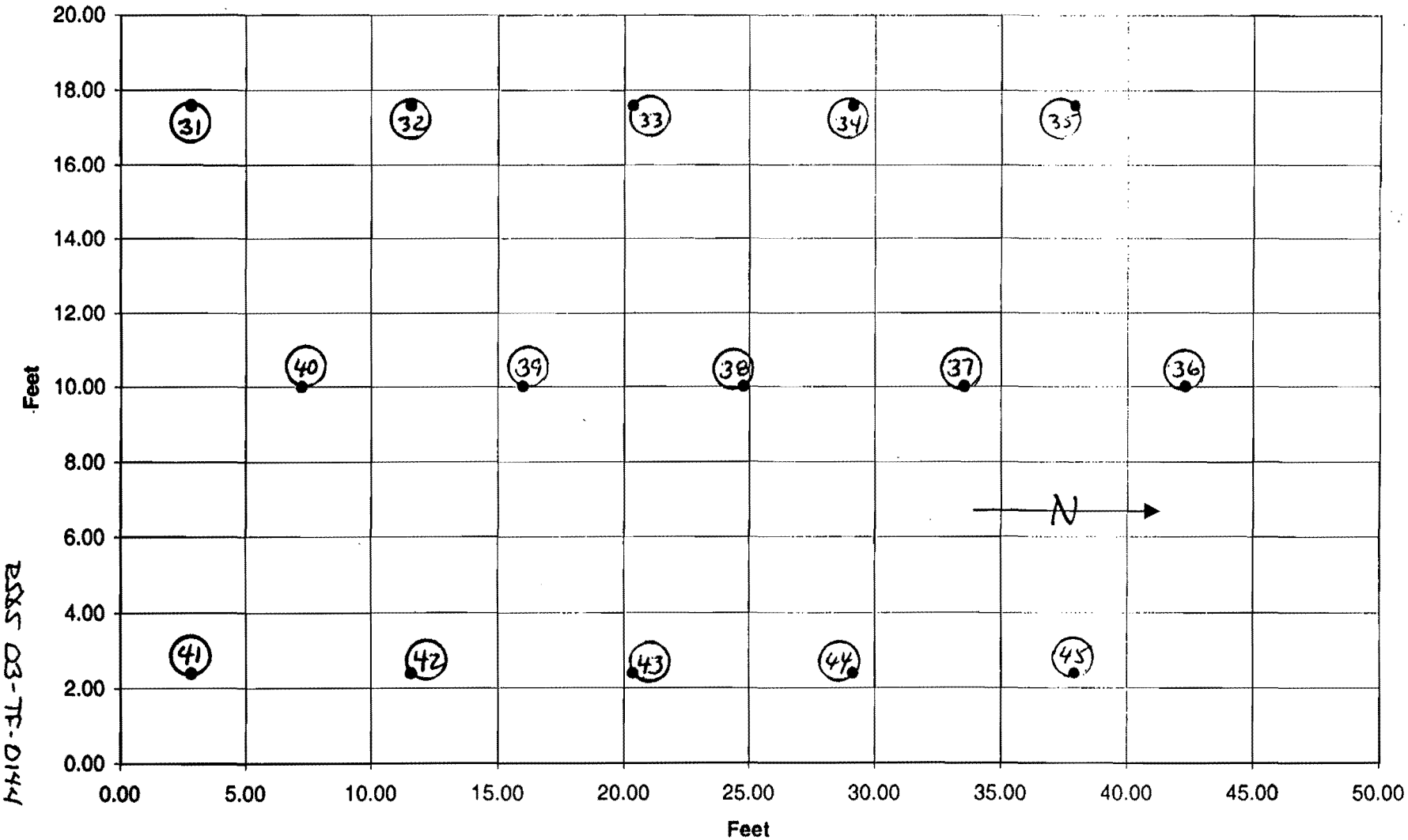
Survey Units 9



Survey Units 13



Survey Units 15



PASS 03-TF-0144
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W188d 199

RADIOLOGICAL SURVEY DATA SHEET

LOCATION (BLDG/AREA/ROOM): W BUILDING	SURVEY NO: 03-TF-0145
PURPOSE: MARSSIM SURVEY PLAN W-01 UNIT 22	RWP NO: N/A
	DATE: 06-21-03
	TIME: 1530

MAP / DRAWING

SEE ATTACHED DATA AND RESULTS

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
2350	5856	5-12-04
2360/43-93	5833/5847	3-13-04
	N/A	

[redacted] HP# 6123 5214 Date: 06-24-0

Counted by: (Signature) HP# Date:

Counted by: (Print Name) SEE ATTACHED

Reviewed/Approved [redacted] HP# 7462 Date: 6-24-03

Reviewed/Approved by: (Print Name) [redacted]

Survey No. 03-TF-0145

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-18	SEE ATTACHED RESULTS			UNIT 22
		N/A		

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

W190% 199

W BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 22

RSDS# 03-TF-0145 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.2	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	1
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5856	6178	5148	2		6/21/03	7:44	12	300	13	
SRC CHECK	5856	6178	5148	2		6/21/03	7:50	2163	60	11950	
SRC CHECK	5856	6178	5148	2		6/21/03	7:51	2109	60	11652	
SRC CHECK	5856	6178	5148	2		6/21/03	7:53	2006	60	11083	
SRC CHECK	5856	6178	5148	2		6/21/03	7:56	2082	60	11503	
U-22 01	5856	6178	5148	2	1	6/21/03	9:48	2	60	11	
U-22 02	5856	6178	5148	2	2	6/21/03	9:51	4	60	22	
U-22 03	5856	6178	5148	2	3	6/21/03	9:54	3	60	17	
U-22 04	5856	6178	5148	2	4	6/21/03	9:58	7	60	39	
U-22 05	5856	6178	5148	2	5	6/21/03	10:00	2	60	11	
U-22 06	5856	6178	5148	2	6	6/21/03	10:04	3	60	17	
U-22 07	5856	6178	5148	2	7	6/21/03	10:07	6	60	33	
U-22 08	5856	6178	5148	2	8	6/21/03	10:09	10	60	55	
U-22 09	5856	6178	5148	2	9	6/21/03	10:11	11	60	61	
U-22 10	5856	6178	5148	2	10	6/21/03	10:13	5	60	28	
U-22 11	5856	6178	5148	2	11	6/21/03	10:17	2	60	11	
U-22 12	5856	6178	5148	2	12	6/21/03	10:18	5	60	28	
U-22 13	5856	6178	5148	2	13	6/21/03	10:20	3	60	17	
U-22 14	5856	6178	5148	2	14	6/21/03	10:22	5	60	28	
U-22 15	5856	6178	5148	2	15	6/21/03	10:26	7	60	39	
U-22 16	5856	6178	5148	2	16	6/21/03	10:31	9	60	50	
U-22 17	5856	6178	5148	2	17	6/21/03	10:32	4	60	22	
U-22 18	5856	6178	5148	2	18	6/21/03	10:34	2	60	11	
QCU22 11	5856	6178	5148	2		6/21/03	10:41	5	60	28	
QCU22 09	5856	6178	5148	2		6/21/03	10:44	5	60	28	

W-BLDG CHARACTERIZATION BETA SURVEY UNIT 22

RSDS# 03-TF-0145 RCT: DJA RCT: SK

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-22 01	5833	5214	5847	1	6/21/03	216	60	245
U-22 02	5833	5214	5847	2	6/21/03	263	60	480
U-22 03	5833	5214	5847	3	6/21/03	245	60	390
U-22 04	5833	5214	5847	4	6/21/03	223	60	280
U-22 05	5833	5214	5847	5	6/21/03	193	60	130
U-22 06	5833	5214	5847	6	6/21/03	198	60	155
U-22 07	5833	5214	5847	7	6/21/03	210	60	215
U-22 08	5833	5214	5847	8	6/21/03	229	60	310
U-22 09	5833	5214	5847	9	6/21/03	332	60	825
U-22 10	5833	5214	5847	10	6/21/03	300	60	665
U-22 11	5833	5214	5847	11	6/21/03	214	60	235
U-22 12	5833	5214	5847	12	6/21/03	287	60	600
U-22 13	5833	5214	5847	13	6/21/03	272	60	525
U-22 14	5833	5214	5847	14	6/21/03	210	60	215
U-22 15	5833	5214	5847	15	6/21/03	266	60	495
U-22 16	5833	5214	5847	16	6/21/03	155	60	-60
U-22 17	5833	5214	5847	17	6/21/03	167	60	0
U-22 18	5833	5214	5847	18	6/21/03	244	60	385
QCU-22 11	5833	5214	5847		6/21/03	188	60	105
QCU-22 09	5833	5214	5847		6/21/03	340	60	865
BETA BACKGROUND (CPM) FOR 6-21-2003 WAS →								167

 W19206 199

Batch ID:	Smear Unit 1 - 200306231010	**Count Date:**	6/23/2003
Group:	F	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0145 RILEY-18 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	15	2.18	1.92	2.58	2.05
2	37	0.00	0.00	0.00	0.00
3	52	0.00	0.00	4.11	2.50
4	69	0.00	0.00	1.37	1.45
5	18	0.00	0.00	0.00	0.00
6	72	0.00	0.00	1.37	1.45
7	43	6.56	3.33	2.27	2.06
8	14	0.00	0.00	0.00	0.00
9	2	2.18	1.92	2.58	2.05
10	13	2.19	1.92	1.21	1.45
11	65	2.18	1.92	5.32	2.90
12	30	0.00	0.00	2.74	2.04
13	40	0.00	0.00	2.74	2.04
14	29	0.00	0.00	1.37	1.45
15	93	4.36	2.72	9.28	3.83
16	61	0.00	0.00	2.74	2.04
17	79	0.00	0.00	1.37	1.45
18	3	4.37	2.72	3.80	2.51

BJ Brown

Batch ID: 03-TF-0145 RILEY-18 BSB

~~Page 1 of 1~~ 6/24/03

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Ps 568

:5 Jun 2003 06:26 ALPHA/BETA - 1.09 ~~Page #1~~
'rotocol #: 3 Pw H3 405828 User : 52

'ime: 2.00
)ata Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
;ackground Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
'egion A:	0.5 -	18.6	0	0.0	6.37
'egion B:	2.0 -	18.6	0	0.0	6.07
'egion C:	40.0 -	2000	0	0.0	14.10

)uench Indicator: tSIE/AEC
Ext Std Terminator: Count
)3-TF-0145 RILEY-18 BSB
,uminescence Correction On
:oincidence Time(ns): 18
)elay Before Burst(ns): Normal
'rotocol Data Filename: c:\data\PROT3.DAT
:ount Data Filename: c:\data\SDATA3.DAT
;pectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.37	6.07	0	B	451.74		0.00	14.10
0	2.00	77.63	73.92	0		472.09	175.25	32.35	0.40
1	2.00	1.13	0.23	0		643.96	2.17	8.07	0.00
2	2.00	0.00	0.00	0		567.26	0.00	0.00	0.00
3	2.00	0.00	0.00	0		350.07	0.00	0.00	0.00
4	2.00	1.13	0.93	0		589.51	2.27	8.44	0.40
5	2.00	0.00	0.00	0		300.32	0.00	0.00	0.90
6	2.00	1.63	1.43	0		618.84	3.20	8.47	0.00
7	2.00	0.00	0.00	0		352.35	0.00	0.00	0.00
8	2.00	0.00	0.00	0		309.11	0.00	0.00	0.00
9	2.00	0.00	0.00	0		525.18	0.00	0.00	0.00
10	2.00	1.13	1.43	0		316.17	3.41	12.68	0.90
11	2.00	0.00	0.00	0		542.78	0.00	0.00	0.00
12	2.00	1.13	1.09	0		638.06	2.18	8.11	0.00
13	2.00	1.63	1.73	0		562.80	3.36	8.88	0.00
14	2.00	0.81	0.63	0		441.22	1.91	9.70	0.00
15	2.00	0.63	0.93	0		495.13	1.38	8.91	0.00
16	2.00	0.00	0.00	0		416.69	0.00	0.00	0.00
17	2.00	0.00	0.00	0		390.01	0.00	0.00	0.00
18	2.00	5.13	4.93	0		584.95	10.37	10.25	0.00

BJB

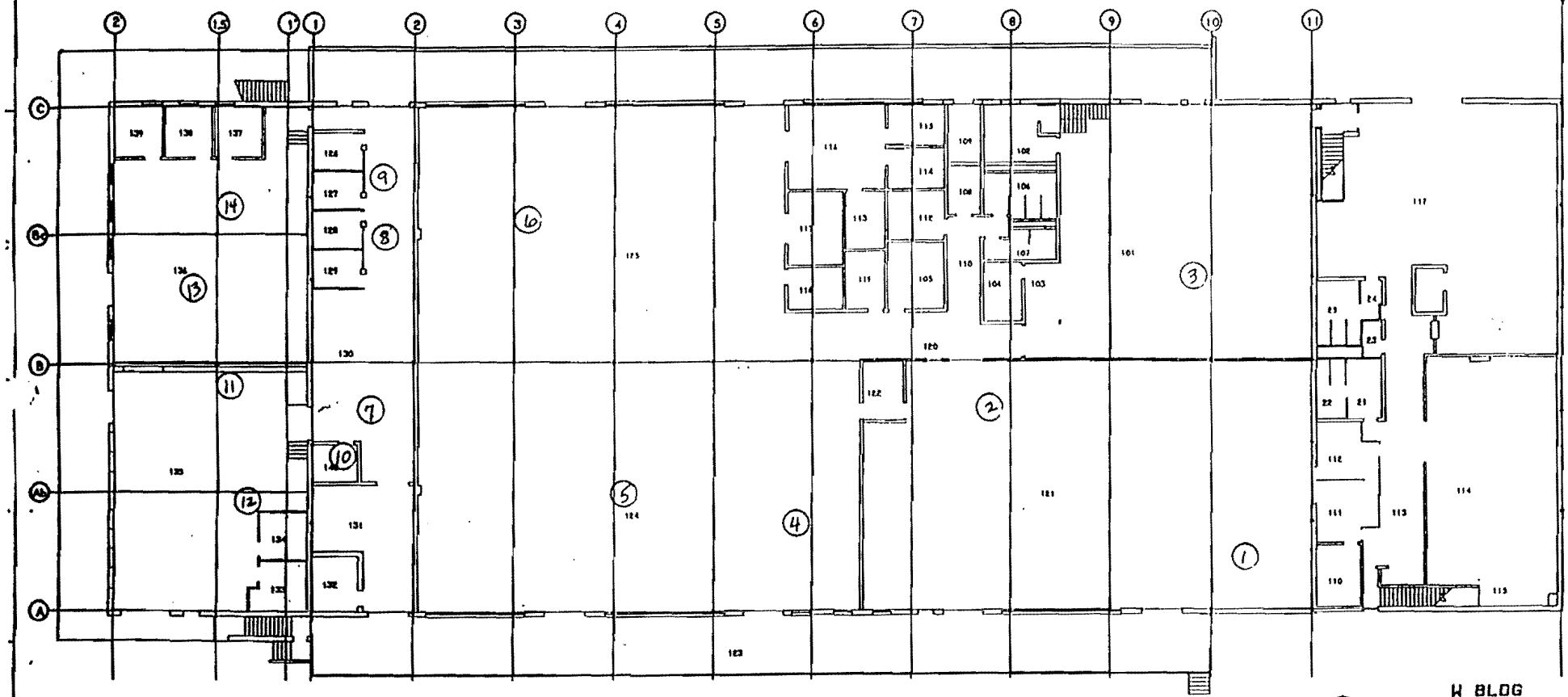
BJBrown

RDS 03-TF-0145

W194 of 199

B 66

REV	DATE	REVISION	BY	CHKD	DWN	CHSED	APVD	R
B	12/12/91	AS BUILT ISSUE	DCV				DVD	



W BLDG
FIRST FLOOR
BLOG CODE:3521

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

SHEET	1	2	3	4	5	6
ISSUE	B	B				

TITLE: W BLDG FLOOR PLANS

(U) TITLE CLASSIFICATION

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE: D | DRAWING NUMBER: FSD911326 | JOB NUMBER: 12333

DWG TYPE: GFP | PART: W BLDG | CAMEL: 14865 | SCALE/AS NOTED | SHEET 1 OF 2

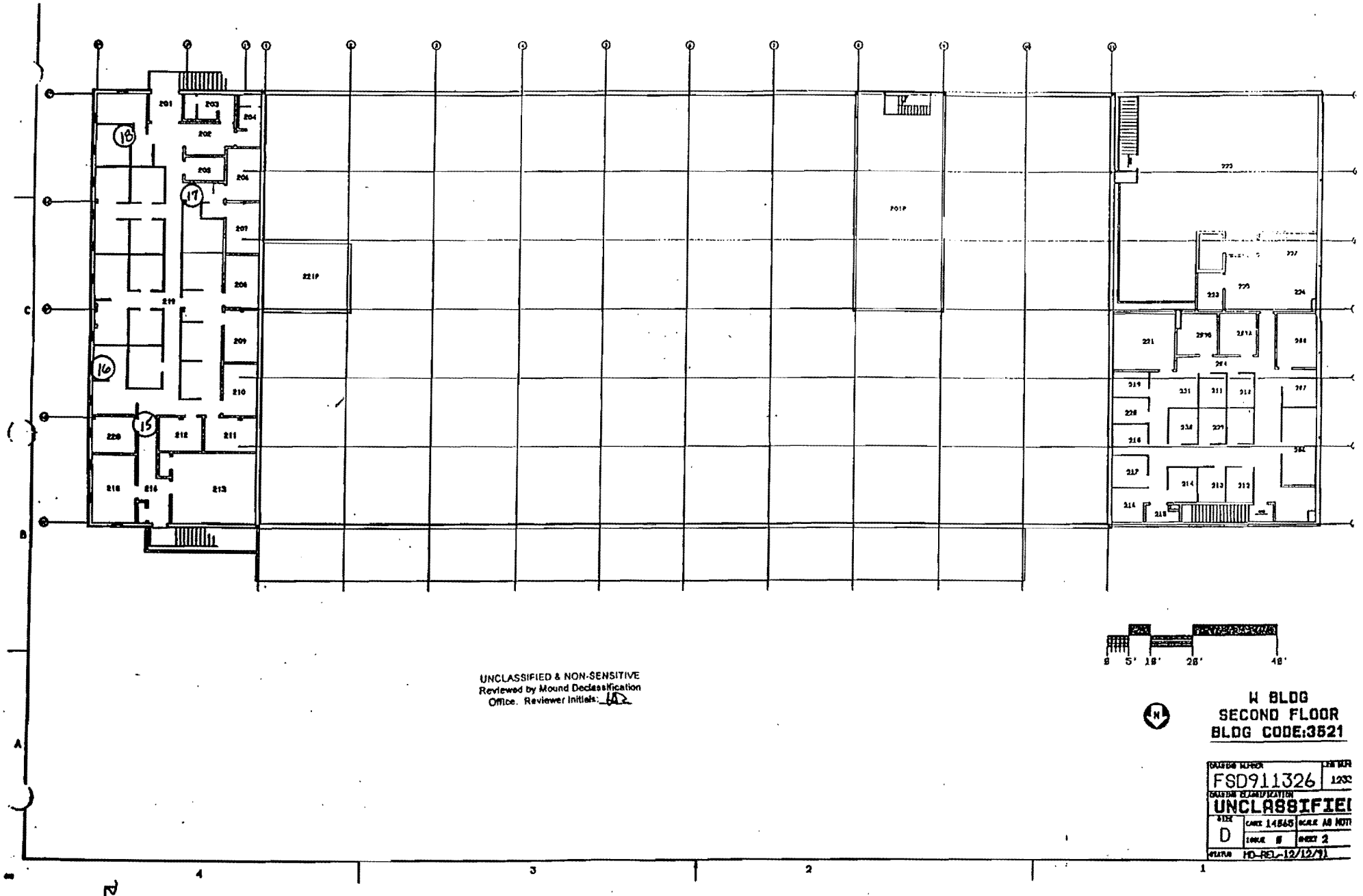
STATUS: MD-CHK-12/12/91 | ORIGIN: MD-BRJ-V3.B

DATE:

UNCLASSIFIED

ESOS 03-TT-014

PS 7968



W1966 199

RS 8 9

RSDS 03-TF-

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) W BUILDING	SURVEY NO. 03-TF-0151
PURPOSE: MARSSIM MICRO-REM SURVEY OF ROOMS W-139 AND ADJACENT AREAS	RWP NO. N/A
	DATE: 06-25-03
	TIME: 1600

MAP / DRAWING

SEE ATTACHED MAP

COPY

SURVEYED W-139 AND SHADED ADJACENT AREAS WITH ALL AREAS INDICATING <0.005 mREM/HR.

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

(#/β) = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
BICRON MICRO-REM	3933	09-09-03

Completed by: (Signature) [redacted]	HP# 5214	Date: 06-26-03
Completed by: (Print Name) [redacted]		
Counted by: (Signature)	HP#	Date:
Counted by: (Print Name) N/A		
Reviewed/Approved by: [redacted]	HP# 5781	Date: 06-26-03
Reviewed/Approved by: (Print Name) [redacted]		

Survey No. 03-TF-0151

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

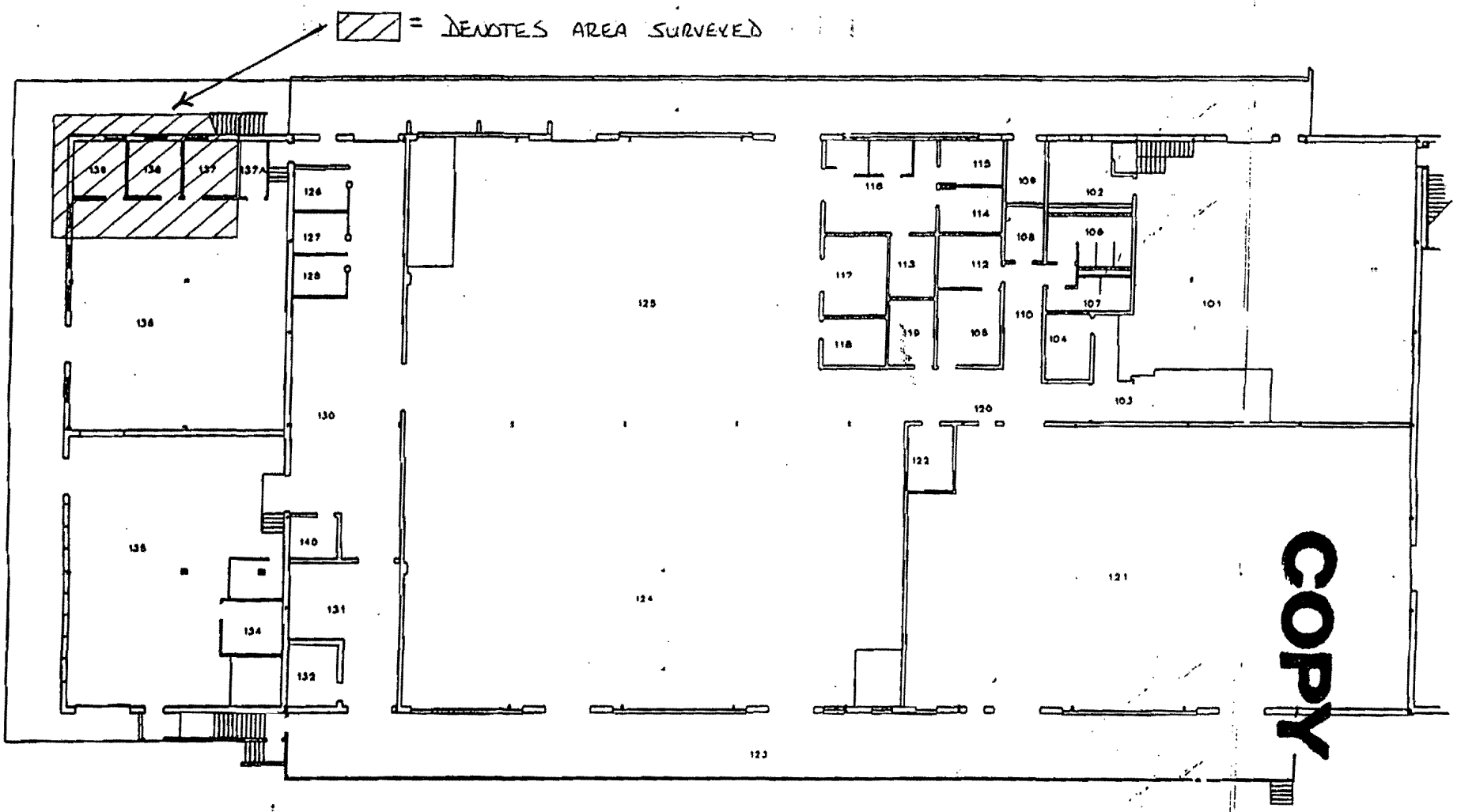
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Commen

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 needed, mark N/A.

ML-9620A (4-98)

W19806 199



PSDS 03-TF-0151

W BLDG
FIRST FLOOR
CLASS: UNCL

D-3 of 3

W198819

Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

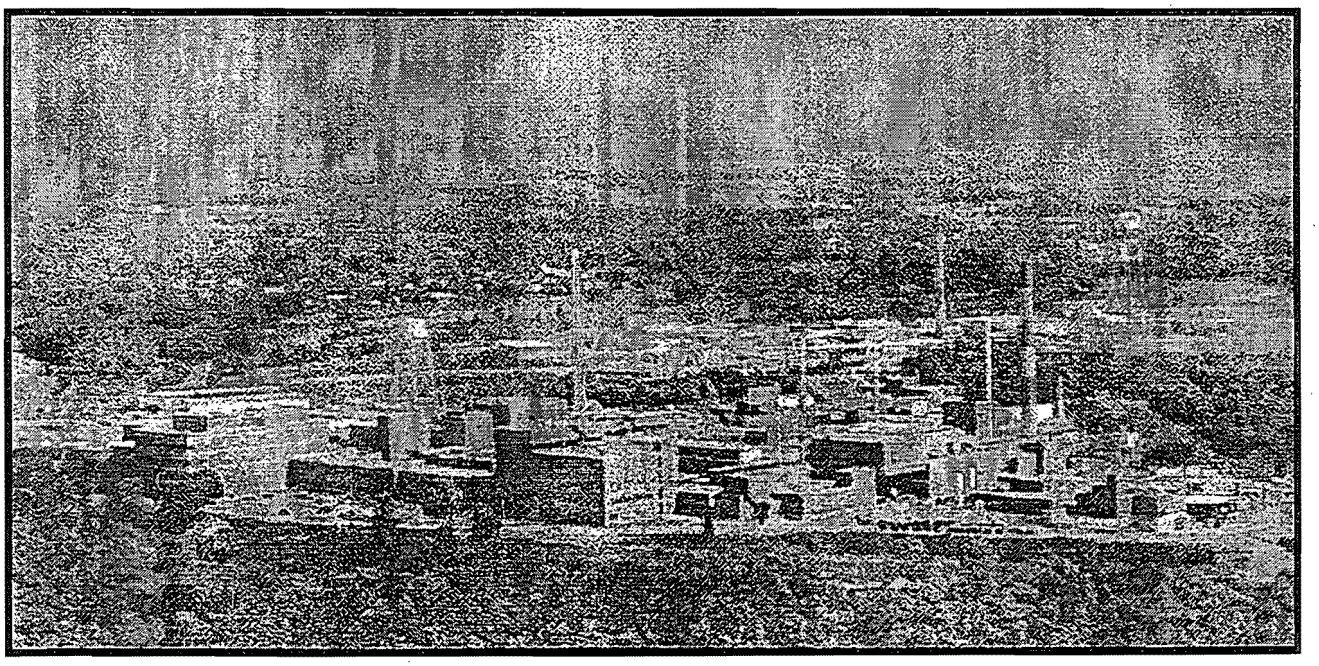
G-GW-W Buildings

(Demolition)

Final

September 2003

Volume 3 of 3 (Appendix H through Appendix O)



Due to the document size, the final version of the G-GW-W Buildings BDP is printed in three volumes: Volume 1 of 3 contains the text through Appendix F, Volume 2 of 3 contains Appendix G, and Volume 3 of 3 contains Appendix H through Appendix O.

Appendix H

Radon Information

UNC Geotech

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

April 12, 1990

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

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

...ed	Bldg	Bldg Description	Room	pCi/l	pCi/l	Manid	Dupid	Date	Date	Comments
	21		ABOVE AIR SAMPLER	161.1	125.0	1670055	1666782	12/14/89	2/16/90	MET - OLD THORIUM STO
	21		ABOVE AIR SAMPLERS	116.7		1668508		12/14/89	2/16/90	MET - OLD THORIUM STO
		SM	19 MID EAST WALL	4.0		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED R
	48		114 B CLOSET ON SPRINKLER PIPE	3.2		1671282		12/12/89	2/19/90	
	19		ROOM 1	2.6		1670051		12/13/89	2/19/90	
		OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661555		12/14/89	2/19/90	
	55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/18/89	2/19/90	
	57		ROOM 1	1.8		1661565		12/12/89	2/19/90	
	87		143	1.5		1661563		12/13/89	2/19/90	
	990	FIRE STATION	ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654460		12/12/89	2/19/90	
	24		ROOM 1 PLANT NORTH WALL	1.3		1672087		12/12/89	2/19/90	
		PAINT SHOP	PS 4	1.2		1661516		12/12/89	2/16/90	*
	30		ROOM 3 EAST	1.1		1671262		12/12/89	2/16/90	
	100		103 MIDDLE OF NORTH WALL	1.0		1670060		12/12/89	2/19/90	
	37		6 NORTH WALL	1.0		1670044		12/12/89	2/19/90	
	34		34 A WEST WALL	.9	.6	1672062	1672042	12/12/89	2/16/90	MET
	102		123	.9		1661577		12/14/89	2/19/90	
	61		RM 221 MIDDLE OF NORTH WALL	.9		1661545		12/13/89	2/19/90	
	67		101 N	.9		1670029		12/12/89	2/19/90	
→	G-13	LOG	G-514 WEST WALL	.9		1661544		12/12/89	2/16/90	
		T	CORRIDOR 24	.8		1670039		1/15/90	2/19/90	
		T	153	.8		1670067		1/15/90	2/19/90	
		T	24	.8		1670077		1/15/90	2/19/90	
		T	30	.8		1661546		1/15/90	2/19/90	
	105	PARTS MACHINING BUILDING	STAIRWELL NEXT TO ROOM 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		1670049		12/12/89	2/19/90	
		A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/89	2/16/90	
		C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL RM2	.8		1672052		12/12/89	2/16/90	
		R BUILDING	60 NORTH WALL	.8		1670068		12/13/89	2/16/90	
		SM	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
		MO BLDG	MO 8	.8		1670045		12/18/89	2/16/90	
	87		124	.8		1670032		12/12/89	2/19/90	
	80		ROOM 116 ON NORHT WALL RIGHT OF CEN	.7	.5	1661524	1661635	12/12/89	2/19/90	
	89		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666703	1660532	12/15/89	2/19/90	
	22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1670070		12/13/89	2/19/90	
	56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1670066		12/12/89	2/19/90	
		E ANNEX	E 225 EAST WALL	.7		1661552		12/18/89	2/16/90	
		POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1670040		12/12/89	2/19/90	
	→	M BLDG	M-135	.7		1661553		12/12/89	2/16/90	
	26		ROOM 84 SOUTH WEST WALL	.6	.5	1672040	1667158	12/13/89	2/16/90	
	69		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/89	2/19/90	
	26		ROOM 84 SOUTH WEST WALL	.6		1671270		12/13/89	2/16/90	
	35		RM 7	.6		1654459		12/14/89	2/19/90	
	38	PP BLDG	PP CORR 136	.6		1670016		12/14/89	2/19/90	
	72		ON OVERHEAD DOOR BEAM	.6		1672069		1/03/90	2/19/90	
	93		HALLWAY 107 (MIDWAY)	.6		1661629		12/13/89	2/20/90	
	98	FIRE STATION	ROOM 114 DORM	.6		1661507		12/12/89	2/19/90	
		COS	RM STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/89	2/19/90	
		OSM	120 C	.6		1661573		12/12/89	2/16/90	
		SM	150 WEST EXO GAS BOX	.6		1670043		12/11/89	2/16/90	
		A	34 EAST WALL	.5	.7	1672075	1672051	12/14/89	2/16/90	
	47		102 MIDDLE OF EAST WALL	.5	.5	1658110	1666819	12/12/89	2/16/90	

Row	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		R1 EAST WALL	.4		1672078		12/12/89	2/19/90	
	49		WALL OUTSIDE RM 125	.4		1618020		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		1678070		12/14/89	2/19/90	
	65		ROOM 10 CONFERANCE ROOM	.4		1671284		12/14/89	2/19/90	
	66		OFFICE AREA	.4		1681554		12/12/89	2/19/90	
	68		EAST WALL CENTER BEAM	.4		1681555		12/14/89	2/19/90	
	69		RM 10A	.4		1681576		12/12/89	2/19/90	
	70		170 MEETING ROOM CENTER WALL	.4		1678041		12/12/89	2/19/90	
	88		ROOM 116	.4		1671295		12/12/89	2/19/90	
	95	SK/PP	95- BLD-ROOM41	.4		1661531		12/12/89	2/20/90	
		DS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/12/89	2/19/90	
		I	I HALLWAY	.4		1667194		12/12/89	2/19/90	
		H BUILDING	H 21 WEST WALL	.4		1678057		12/15/89	2/20/90	
		POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1678035		12/12/89	2/19/90	
		R BUILDING	12 SOUTH WALL	.4		1681566		12/12/89	2/19/90	
	34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
	61		RM 151			1681567		12/12/89		MISSING

Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	R BUILDING	143 NEXT TO NORTH WALL	.5	.5	1666533	1666016	12/13/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671288		12/12/89	2/19/90	
	"B" 115	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
		ELECTRICAL PANEL BX IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
36		100	.5		1654480		12/13/89	2/16/90	
40		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
43		ON BULLETIN BOARD	.5		1678043		12/12/89	2/16/90	
44		102 MIDDLE OF EAST WALL	.5		1678050		12/12/89	2/16/90	
47		CELL 113	.5		1681582		12/13/89	2/19/90	
50		CENTRAL HALLWAY WEST OF DOOR TO RMT	.5		1681605		12/18/89	2/16/90	
78		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
89		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1681513		12/15/89	2/16/90	
91		HALLWAY RIGHT OFF ROOM 6	.5		1661509		12/12/89	2/19/90	
92		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
94		215 WEST WALL	.5		1681572		12/14/89	2/16/90	
	A	1040 WEST WALL	.5		1681580		12/14/89	2/16/90	
	A	119 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	319 WALL CABINET TO RIGHT OF SINK	.5		1681590		12/12/89	2/19/90	
	COS	150 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.5		1678072		12/14/89	2/16/90	
	E BUILDING	E 212 NORTH WALL	.5		1681587		12/18/89	2/16/90	
	E-ANNEX	ROOM 2	.5		1678065		12/12/89	2/16/90	
	GN BUILDING	1A MIDDLE OF WEST WALL	.5		1678054		12/12/89	2/19/90	
	GP 81	ROOM 127	.5		1681571		12/12/89	2/16/90	
	H BLDG	MH-8	.5		1671269		12/18/89	2/19/90	
	MH	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	E BUILDING	H 108	.5		1678056		12/15/89	2/19/90	
	H BUILDING	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSE	4NT FLOOR	.5		1678028		12/12/89	2/16/90	
	OSN	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSE	319	.5		1678069		12/13/89	2/16/90	
	OSN	2ND FLOOR	.5		1681611		12/12/89	2/16/90	
	OSN	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	POWER HOUSE PH-1	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	R BUILDING	128 OVER LARGE METAL FLOOR DISC	.5		1678019		12/12/89	2/16/90	
	SN/R TRITIUM COMPLEX	W135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
→	W BLDG	WOA 110	.5		1671301		12/18/89	2/16/90	
	WO BLDG	EAST WALL	.5		1667189		12/12/89	2/16/90	
	"B" 124	113 BULLETIN BOARD OPPOSITE ELEVATO	.5		1678027		12/15/89	2/16/90	
	OSE	114 EAST WALL CENTER OF ROOM	.4		1678064		12/12/89	2/19/90	
TF-2		MH-24	.4		1667187		12/14/89	2/19/90	
	MH	CORRIDOR 7 NEXT TO ROOM 216	.4		1661514		12/13/89	2/19/90	
	OS BUILDING	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
	GP 81	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	CELL 8 - WALL	.4		1681583		12/12/89	2/19/90	
27		101	.4		1672061		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	HALLWAY	.4		1672105		12/14/89	2/19/90	
29		3-315	.4		1672036		12/12/89	2/19/90	
	TEST FIRE BUILDING 3	PP CORR 16/BAY 2 WALL	.4		1681578		12/14/89	2/19/90	
30	PP BLDG	BREAK RM	.4		1678050		12/14/89	2/19/90	
39		101 B EAST WALL	.4		1678031		12/13/89	2/19/90	
42									

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 6/18/03 12:55PM
Subject: Building G/GW/W

Val -

For Buildings G/GW/W asbestos and lead paint concerns, the following is provided for your use:

Asbestos

An asbestos survey was completed in June of 2003 by Cole & Associates Training & Consulting, Inc. in accordance with EPA NESHAP requirements prior to demolition. Three types of materials were found to contain asbestos which must be removed prior to demolition; these materials included 4,540 linear feet of various pipe insulations throughout, 15 square feet of table top cement board lining in Room W-136, and 3 exhaust gaskets in Room W-121. The roofing (approximately 37,200 square feet) is of a built-up asphalt variety and is assumed to contain asbestos as is the floor tile (approximately 8,355 square feet) within the building - being classified as EPA Nonfriable Category I types of materials, the removal of roofing and floor tile is not necessary prior to demolition by normal heavy-duty means. A copy of the survey report is being forwarded.

Lead

No previous lead surveys or sampling data could be found for Buildings G/GW/W. 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.

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Kehler, Kurt; Kramer, Donald

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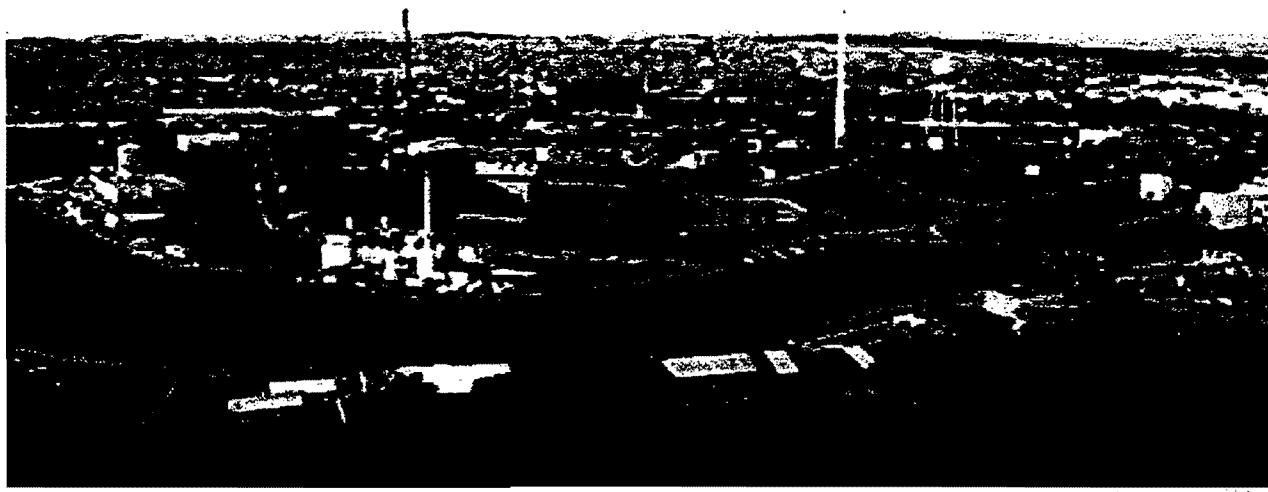
MOUND

Miamisburg Closure Project



ASBESTOS SURVEYS OF BUILDINGS G, W and GW

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-03-365-01
6 / 2 – 3 / 03

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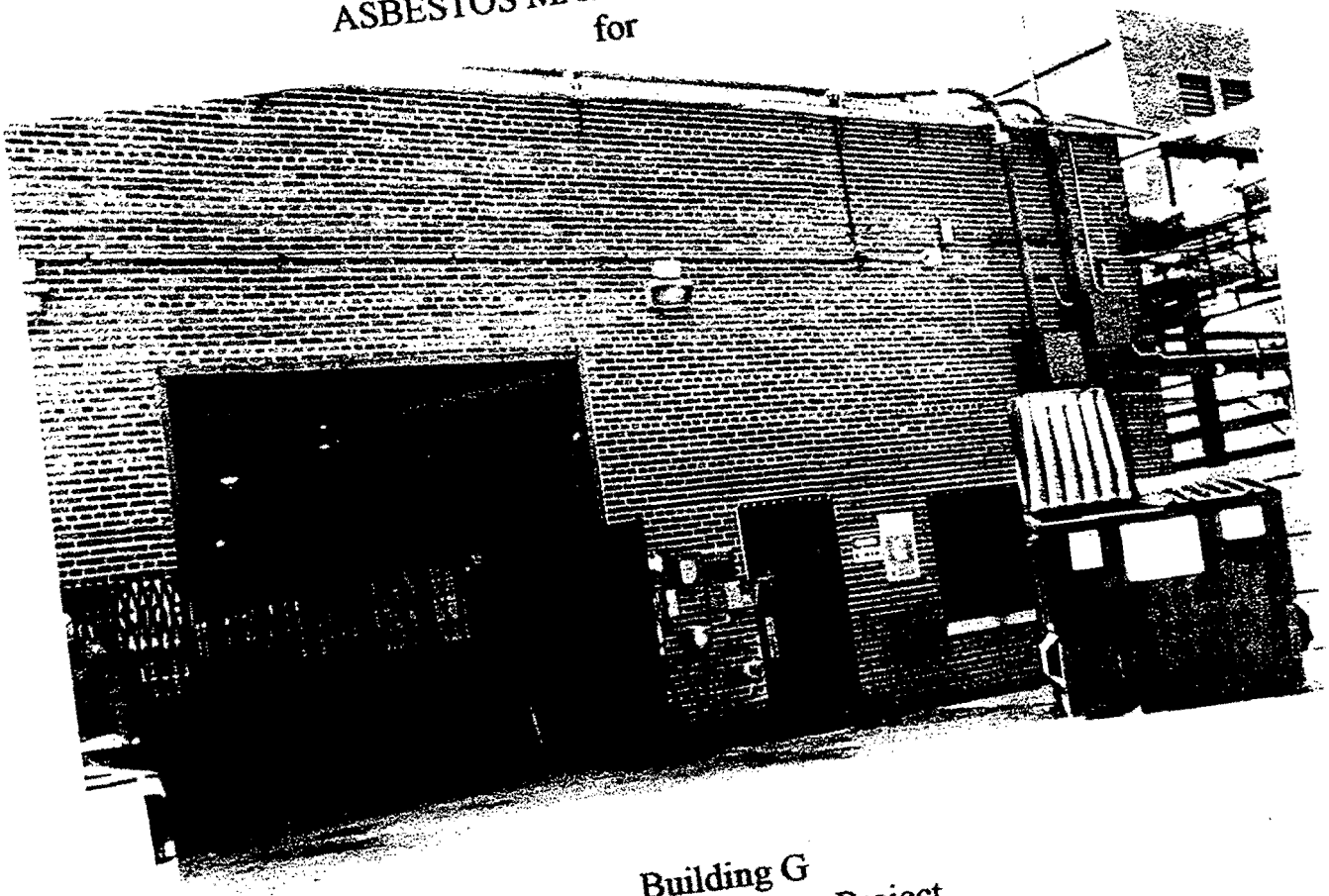
ASBESTOS MATERIALS REPORT
for



Building G
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-03-365-01

6 / 9 / 03

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D - LABORATORY CERTIFICATE OF ACCREDITATION
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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 G, 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 May 27, 2003.

The subject structure consists of a one-story 7,518 square foot concrete block building with brick facing and a metal built up membrane roof constructed in 1948.

This survey was conducted on June 2nd, 2003. The survey encompassed the interior and the exterior of the building. Suspect materials were looked for and sampled by Robert Parsons and Reed T. Terry.

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 G, 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 May 27, 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 Reed Terry, both EPA Certified Asbestos Building Inspectors and Ohio Department of Health Certified Asbestos Hazard Evaluation Specialists. An initial facility "preliminary walkthrough" 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 walkthrough 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.

I 9 26 111

During this walkthrough, 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 walkthrough, 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 G was built in 1948 with a brick facade, concrete flat roofing panels covered in layered rolled roofing material. Total square footage of this building is 7,518.

During this building survey asbestos containing building materials were not identified within this structure other than those materials which have already been identified during previous building surveys.

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 G, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 2 Jun 2003	
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-01)	Type of Material	Asbestos	
				Type	%
1	Rooms 1 & 3 Ceiling Area	Sampled during previous inspection	Pipe Wrap (TSI)	Identified during previous inspection	
2	Rooms 4 & 5 Ceiling	CTC-03-365-01-02G	White 2' x 4' Tile Fissures & Dots (Miscellaneous)	---	ND
3	Rooms 4 & 5 Ceiling & Walls	CTC-03-365-01-01G	White 12" x 12" Tile Fissures & Dots w/mastic (Miscellaneous)	---	ND
4	Rooms 2, 4, 5, 5a Floor	Not included in Scope of Work	Tan 12" x 12" Tile (Miscellaneous)	Assumed	
5	Rooms 1 & 3 Ceiling Area	Sampled during previous inspection	Mudded Joints (TSI)	Identified during previous inspection	
6	Rooms 2, 4, & 5 Lower Walls	CTC-03-365-01-03G	Black Cove Base w/mastic (Miscellaneous)	---	ND
7	Room 3 Walls	CTC-03-365-01-06G CTC-03-365-01-07G	Tan 12" x 6" Ceramic Wall Block w/grout (Miscellaneous)	---	ND
8	Room 5a Floor	Not included in Scope of Work	Tan/Brown 12" x 12" Tile (Miscellaneous)	Assumed	
9	Rooms 1, 3 & 4 Windows	CTC-03-365-01-17W	Gray Window Glazing	Chrysotile	<1
Building Inspectors: Robert Parsons Reed Terry				Certifications: 34302 34299	
Laboratory: LA Testing, Inc.				NVLAP No.: 200232-0	

*Suspect Materials / Homogeneous Sample Groups are listed on Page 7.

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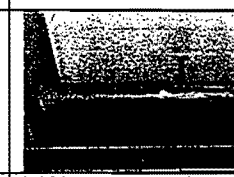
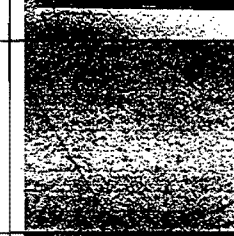
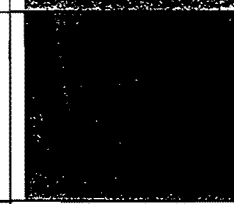
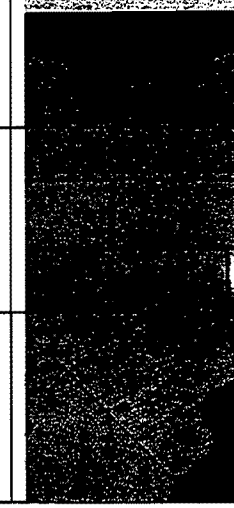
SUSPECT MATERIALS/HOMOGENEOUS SAMPLE GROUPS

No.	Building Material	% Asbestos	Photo
1	**Pipe Wrap (TSI)**	**Identified during previous inspection**	
2	White, 2' x 4' Ceiling Tile, Fissures & Dots (Miscellaneous)	ND	
3	White, 1' x 1' Ceiling Tile, Fissures & Dots w/mastic (Miscellaneous)	ND	
4	Tan, 12' x 12' Floor Tile, (Miscellaneous)	Assumed	
5	**Mudded Joints (TSI)**	**Identified during previous inspection**	
6	Black Cove Base w/mastic (Miscellaneous)	ND	
7	Tan, 12' x 6' Ceramic Wall Block w/grout (Miscellaneous)	ND	
8	Tan / Brown, 12' x 12' Floor Tile, (Miscellaneous)	Assumed	

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Appendices

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Appendix A

FLOOR PLANS

AND

SAMPLE LOCATIONS

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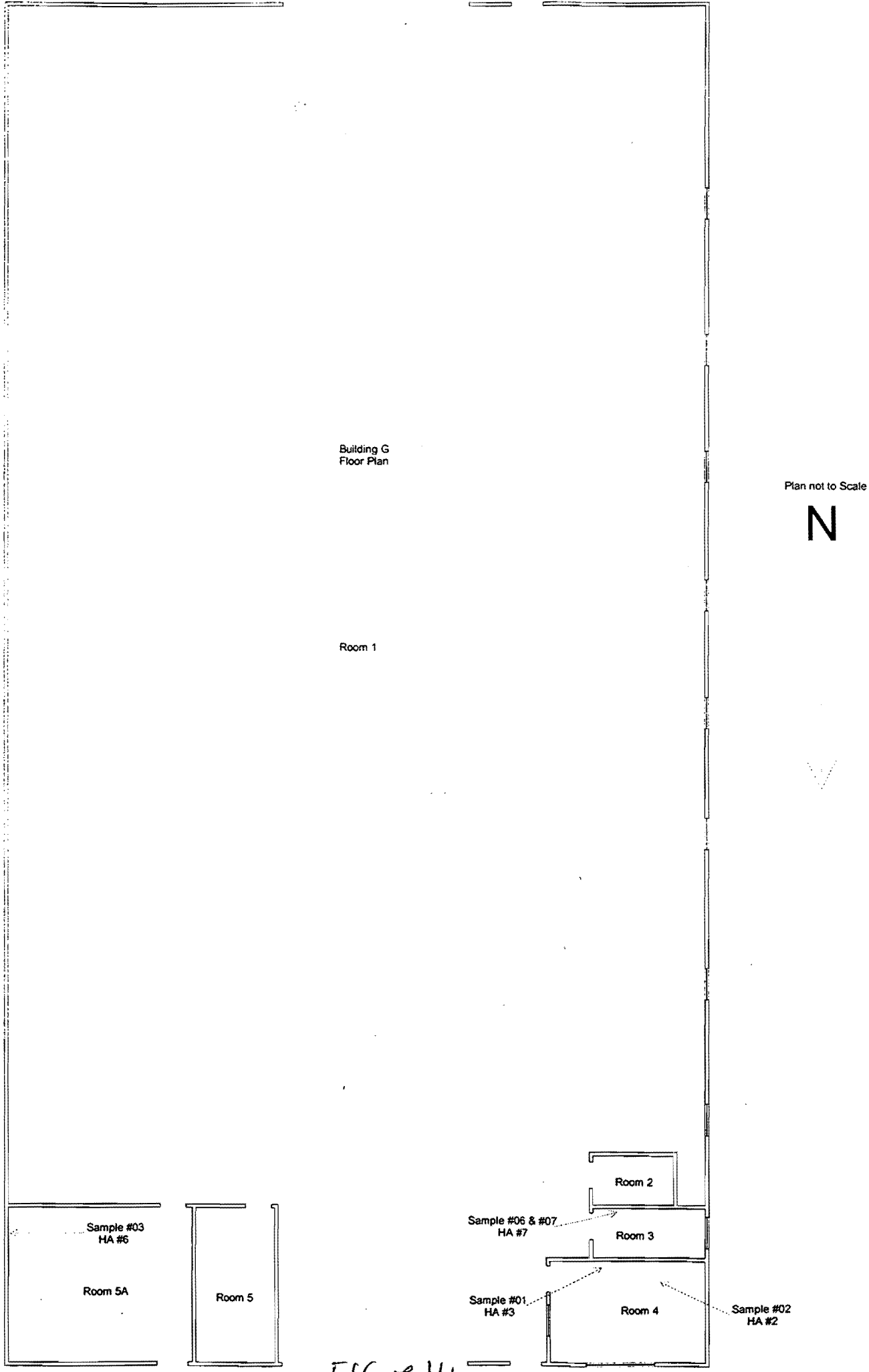
Building G
Floor Plan
Plan not to Scale
N
Room 1
Room 2
Sample #06 & #07
HA #7
Room 3
Sample #03
HA #6
Room 5A
Room 5
Sample #01
HA #3
Room 4
Sample #02
HA #2

Appendix A - 1

MATERIAL BY

ROOM AND

BY HOMOGENEOUS

NUMBER

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Building name:
G

Room Number	Homogen Number	Material Discrption		Amount		Notes
1	1	White	TSI pipe wrap	2000	Lft	4"
	5	White	Hard Mudded Joints	160	each	4"
	9	Grey	Window Glazing	27	8 panes	
2	4	Tan	Floor tile	40	Sqft	12x12
	6	Black	Covebase w/ mastic	25	Lft	
3	1	White	TSI pipe wrap	30	Lft	4"
	5	White	Hard Mudded Joints	5	each	4"
	7	Tan/Red	Cermic tile w/grout	250	Sqft	
	9	Grey	Window Glazing	1	8 pane	
4	2	white	Ceil tile/ Fissures with Dots	175	Sqft	2x4
	3	white	Ceil tile/ fissures with dots on ceiling and	550	Sqft	1x1
	4	Tan	Floor tile	175	Sqft	12x12
	6	Black	Covebase w/ mastic	50	Lft	
	9	Grey	Window Glazing	1	6 pane	
5	2	white	Ceil tile/ Fissures with Dots	250	Sqft	2x4
	4	Tan	Floor tile	250	Sqft	12x12
	6	Black	Covebase w/ mastic	50	Lft	
5a	3	white	Ceil tile/ fissures with dots on ceiling and	90	Sqft	1x1
	4	Tan	Floor tile	25	Sqft	12x12
	8	Tan/Brown	Floor tile	175	Sqft	12x12

Building name:
G

Room Number	Homogen Number	Material Discrption		Amount		Notes
1	1	White	TSI pipe wrap	2000	Lft	4"
3	1	White	TSI pipe wrap	30	Lft	4"
4	2	white	Ceil tile/ Fissures with Dots	175	Sqft	2x4
5	2	white	Ceil tile/ Fissures with Dots	250	Sqft	2x4
4	3	white	Ceil tile/ fissures with dots on ceiling and	550	Sqft	1x1
5a	3	white	Ceil tile/ fissures with dots on ceiling and	90	Sqft	1x1
2	4	Tan	Floor tile	40	Sqft	12x12
4	4	Tan	Floor tile	175	Sqft	12x12
5	4	Tan	Floor tile	250	Sqft	12x12
5a	4	Tan	Floor tile	25	Sqft	12x12
1	5	White	Hard Mudded Joints	160	each	4"
3	5	White	Hard Mudded Joints	5	each	4"
2	6	Black	Covebase w/ mastic	25	Lft	
4	6	Black	Covebase w/ mastic	50	Lft	
5	6	Black	Covebase w/ mastic	50	Lft	
3	7	Tan/Red	Cermic tile w/grout	250	Sqft	
5a	8	Tan/Brown	Floor tile	175	Sqft	12x12
1	9	Grey	Window Glazing	27	8 panes	
3	9	Grey	Window Glazing	1	8 pane	
4	9	Grey	Window Glazing	1	6 pane	

Appendix B

LABORATORY BULK SAMPLE

ANALYSIS REPORT

LA Testing
[redacted]

Attn:	Cole & Associates 451 Southwest Tenth St. Suite 100 Renton, WA 98055	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/05/03 9:00 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300747
Project:	CTC-365-01/G bldg	EMSL Project ID:	
		Analysis Date:	6/5/03

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

				Non-Asbestos				Asbestos	
Sample	Location	Appearance	Treatment	%	Fibrous	%	Non-Fibrous	%	Type
CTC-03-363-01-01-4G *320300747-0001*		Cream Fibrous Homogeneous	Teased	55% 40%	Glass Cellulose	5%	Non-fibrous (other)	None Detected	
CTC-03-363-01-01-4GM *320300747-0004*		Brown Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-03-363-01-02-4G *320300747-0002*		White/Gray Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None Detected	
CTC-03-363-01-03-4G *320300747-0003*		Black Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-03-363-01-03-4GM *320300747-0005*		Brown Non-Fibrous Homogeneous	Teased	5%	Wollastonite	95%	Non-fibrous (other)	None Detected	

Analyst(s)

Jeff Krogstad (5)

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

THIS IS THE LAST PAGE OF THE REPORT.

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LA Testing
469 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	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/07/03 9:30 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300809
Project:	CH2M HILL Mound	EMSL Project ID:	
		Analysis Date:	6/7/03

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-03365-04-06G *320300809-0001*	BATHRM TILE BLDG G.	Beige Non-Fibrous Heterogeneous	Crushed Dissolved		100% Non-fibrous (other)	None Detected
CTC-03-365-01-07G *320300809-0002*	GROUT FROM BLDG. G	Gray Non-Fibrous Heterogeneous	Crushed Dissolved		100% Non-fibrous (other)	None Detected

Analyst(s)

Duong Kieu-anh (2)

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

THIS IS THE LAST PAGE OF THE REPORT.

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Appendix C

OHIO DEPARTMENT OF HEALTH

ASBESTOS HAZARD

EVALUATION SPECIALIST

CERTIFICATION

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

Post-it® Fax Note 7671	Date 5/29	# of pages ▶ 1
To Robert Parsons	From Josh Koch	
Co./Dept. C + A	Co. ODH	
Phone #	Phone # 614-466-0061	
Fax # 509-927-3050	Fax #	

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

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 21, 2003

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

ATTN: Reed Terry

RE: Evaluation Specialist Certification # 34299

Dear Reed Terry:

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-20-2004.

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

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Appendix D

LABORATORY

CERTIFICATE

OF

ACCREDITATION

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)

111 of 2 I

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 A

ASBESTOS

SURVEY

SUMMARY

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"Asbestos Building Survey" Summary

Project Number: CTC-03-365-01

Inspectors: Robert Parsons and Reed Terry

Survey Date: 06/02/03

Project Name/Location: Building G, Miamisburg Closure Project, Miamisburg, OH

Asbestos Containing Building Materials were not identified as a result of this survey, however there are materials which have been identified during previous inspections.

Robert Parsons
Senior Project Manager
Asbestos Building Inspector
Certification # 34302

"Asbestos Building Survey" Summary

Project Number: CTC-03-365-01

Inspectors: Robert Parsons and Reed Terry

Survey Date: 06/02/03

Project Name/Location: Building G, Miamisburg Closure Project, Miamisburg, OH

Asbestos Containing Building Materials were not identified as a result of this survey, however there are materials which have been identified during previous inspections.

Robert Parsons
Senior Project Manager
Asbestos Building Inspector
Certification # 34302

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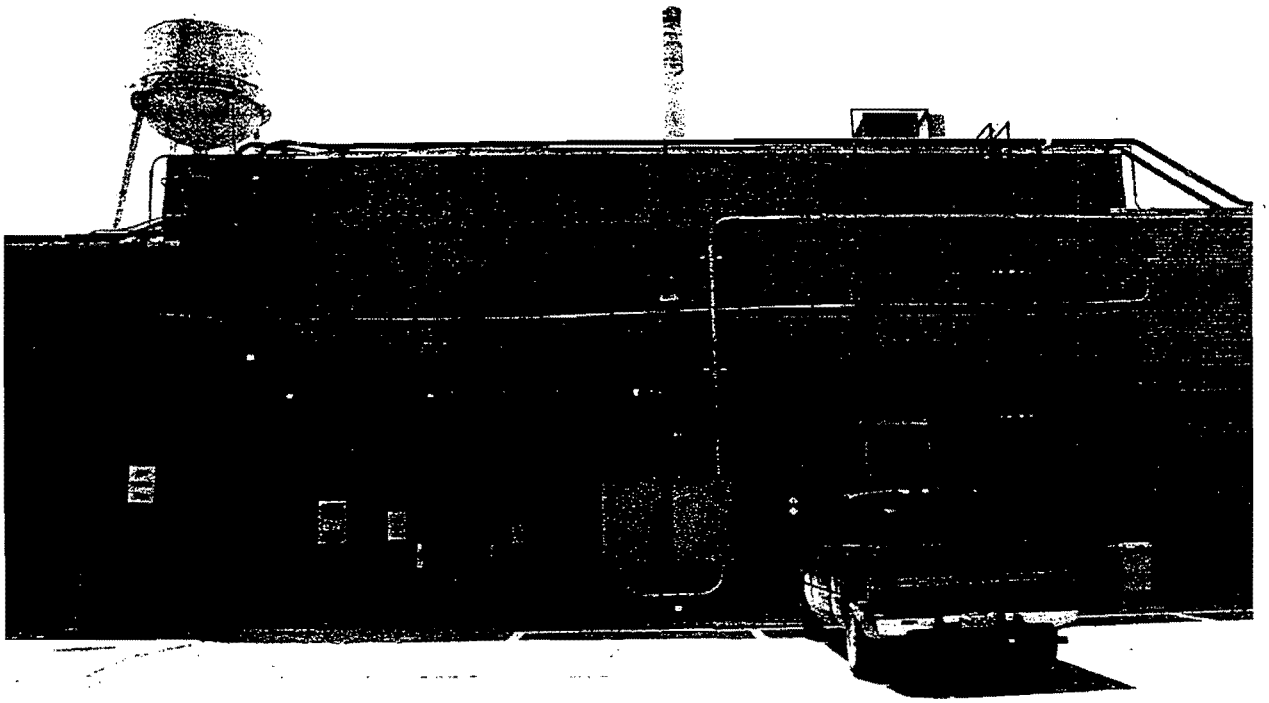
ASBESTOS MATERIALS REPORT
for



Building GW
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
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Renton, WA 98055

CTC PROJECT #CTC-03-365-01

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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 GW, 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 May 27, 2003.

The subject structure consists of a two-story 9,782 square foot reinforced concrete building with brick facing and a built up membrane roof constructed in 1968.

This survey was conducted on June 2nd, 2003. The survey encompassed the interior and the exterior of the building. Suspect materials were looked for and sampled by Robert Parsons and Reed T. Terry.

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 GW, 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 May 27, 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 Reed Terry, both EPA Certified Asbestos Building Inspectors and Ohio Department of Health Certified Asbestos Hazard Evaluation Specialists. An initial facility "preliminary walkthrough" 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 walkthrough 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 walkthrough, 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 walkthrough, 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

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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 GW was built in 1968 with reinforced concrete, a brick facing and a built-up membrane roof. Total square footage of this building is 9,782.

During this building survey asbestos containing building materials were not identified within this structure other than those materials identified during previous building surveys.

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 GW, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 2 Jun 2003	
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-01)	Type of Material	Asbestos	
				Type	%
1	**Rooms 1, 2, 110, 112, 113, 114, 204, 208, 209A, 209B, 215 Floors**	**Not included in Scope of Work**	**White / Cream 12" x 12" Tile (Miscellaneous)**	**Assumed**	
2	Rooms 1, 2, 21, 22, 24, 25, 113, 117, 204, 208, 209A 209B, 215, 221, 222, 225 Lower Walls	CTC-03-365-01-01GW	Black Cove Base w/mastic (Miscellaneous)	---	ND
3	Rooms 1, 2, 110, 112, 113, 114, 117, 204, 208, 209A, 209B, 215, 221, 222, 225, Ceilings & Walls	CTC-03-365-01-05GW CTC-03-365-01-07GW CTC-01-365-01-13GW	Gypsum Wallboard (GWB) w/joint compound (Miscellaneous)	---	ND
4	Room 4 Floor	CTC-03-365-01-02GW	Brown 12" x 4' Stair Tread w/mastic (Miscellaneous)	---	ND
5	Rooms 204, 206, 207, 208, 209A, 209B, 222, 225 Ceilings	CTC-03-365-01-04GW	White 2' x 4' Tile Fissures & Dots (Miscellaneous)	---	ND
6	Rooms 204, 206, 207, 208, 209A, 209B, 222, 225 Ceilings	CTC-03-365-01-03GW	White 2' x 2' Tile Fissures & Dots (Miscellaneous)	---	ND
7	Rooms 204, 208, 209A, 209B, Floors	CTC-03-365-01-06GW	Carpet Mastic (Miscellaneous)	---	ND
8	Room 221 Ceiling Area	CTC-03-365-01-08GW	Gray Rubberized Material (Miscellaneous)	---	ND
9	Room 221 Ceiling Area	CTC-03-365-01-09GW	White Rubberized Material (Miscellaneous)	---	ND
10	**Rooms 117, 222, 225 Floor**	**Not included in Scope of Work**	**Yellow / Brown 12" x 12" Tile (Miscellaneous)**	**Assumed**	
11	**Rooms 23, 117 Ceiling & Floor Areas**	**Sampled during previous inspection**	**Pipe Wrap (TSI)**	**Identified during previous inspection**	
12	**Rooms 23, 112, 117 Ceiling & Floor Areas**	**Sampled during previous inspection**	**Mudded Joints (TSI)**	**Identified during previous inspection**	

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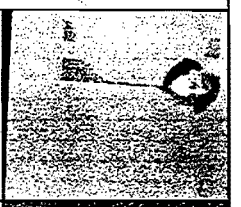
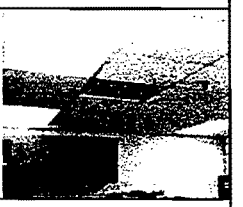
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-01)	Type of Material	Asbestos	
13	**Rooms 21, 22, 24, 25 Floor**	**Not included in Scope of Work**	**White 1" x 1" Ceramic Tile (Miscellaneous)**	**Assumed**	
14	Rooms 21, 22, 23, 25 Ceilings	CTC-03-365-01-10GW	Plaster (Surfacing)	---	ND
15	Room 25 Ceiling & Wall	CTC-03-365-01-11GW	White 12" x 12" Tile w/fissures (Miscellaneous)	---	ND
16	Rooms 110, 112 Lower Walls	CTC-03-365-01-12GW	Red Cove Base w/mastic (Miscellaneous)	---	ND
17	Rooms 114	CTC-03-365-01-14GW	Grey Cove Base w/mastic (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 Reed Terry	**Certification: 34302 34299**
Laboratory: LA Testing, Inc.	**NVLAP No.: 200232-0**

***Suspect Materials / Homogeneous Sample Groups are listed on Pages 8, 9 & 10.**

SUSPECT MATERIALS/HOMOGENEOUS SAMPLE GROUPS

No.	Building Material	% Asbestos	Photo
1	White / Cream, 12" x 12" Tile, (Miscellaneous)	ND	
2	Black Cove Base w/mastic, (Miscellaneous)	ND	
3	Gypsum Wallboard (GWB) w/joint compound, (Miscellaneous)	ND	
4	Brown 12" x 4', Stair Tread w/mastic, (Miscellaneous)	ND	
5	White 2' x 4' Tile, Fissures & Dots, (Miscellaneous)	ND	
6	White 2' x 2' Tile, Located above Homogenous Group #5 (Miscellaneous)	ND	NO PHOTO
7	Carpet Mastic, (Miscellaneous)	ND	
8	Gray Rubberized Material, (Miscellaneous)	ND	

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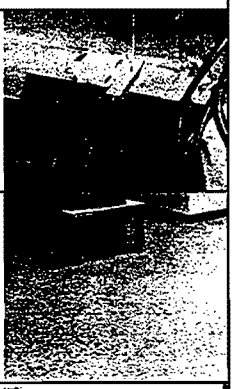
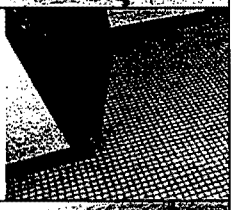
No.	Building Material	% Asbestos	Photo
9	White Rubberized Material, (Miscellaneous)	ND	
10	Yellow / Brown, 12" x 12" Tile, (Miscellaneous)	ND	
11	Pipe Wrap (TSI)	ND	
12	Mudded Joints (TSI)	ND	
13	White 1" x 1", Ceramic Tile, (Miscellaneous)	ND	
14	Plaster, (Surfacing)	ND	
15	White 12" x 12" Tile w/fissures, (Miscellaneous)	ND	
16	Red Cove Base w/mastic, (Miscellaneous)	ND	

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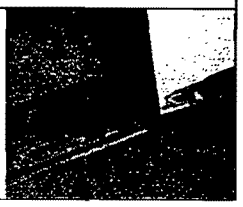
No.	Building Material	% Asbestos	Photo
19	Grey Cove Base w/mastic, (Miscellaneous)	ND	

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Appendix A

FLOOR PLANS

AND

SAMPLE LOCATIONS

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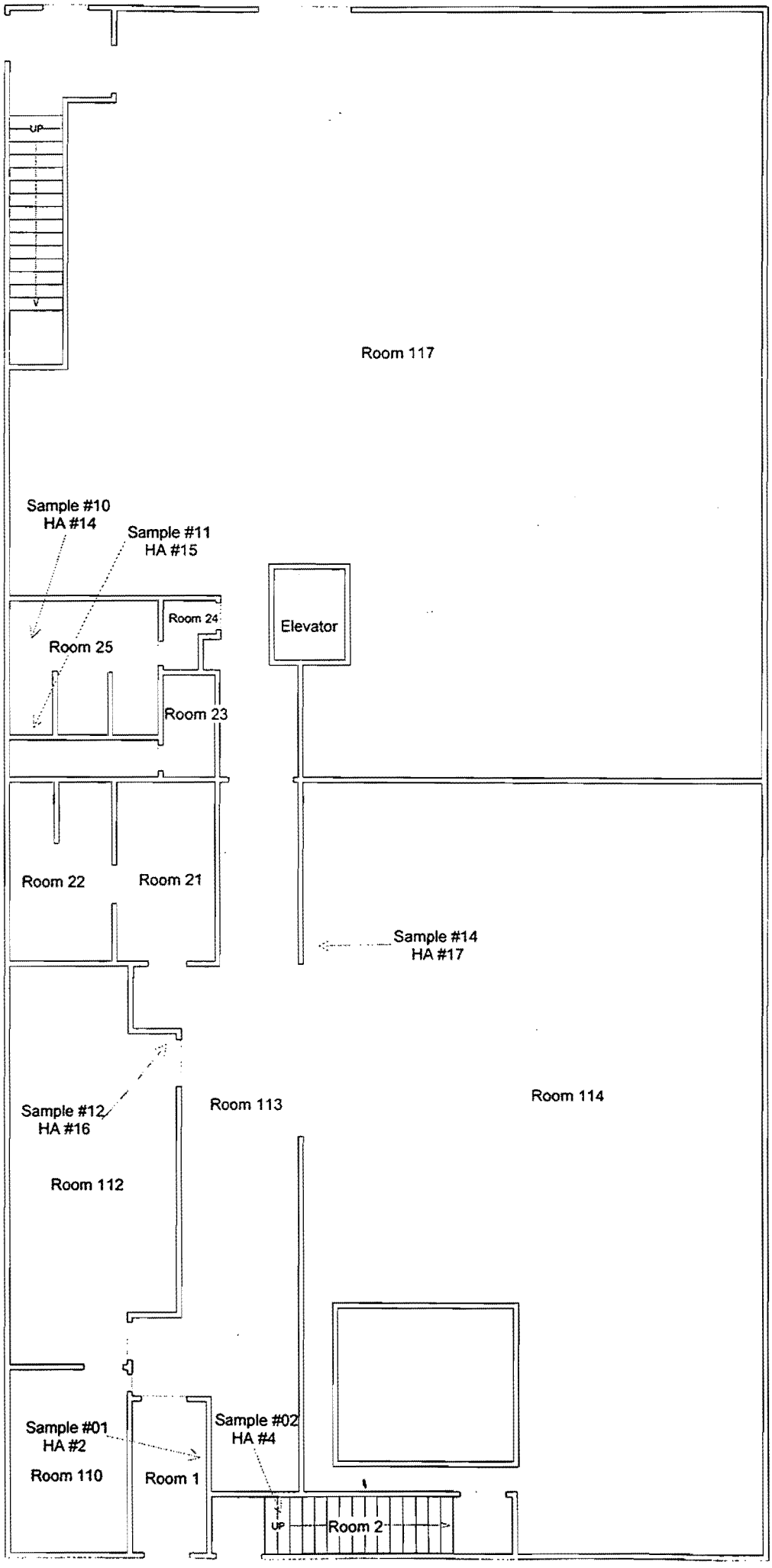

Plan not to Scale

N

Building GW
First Floor

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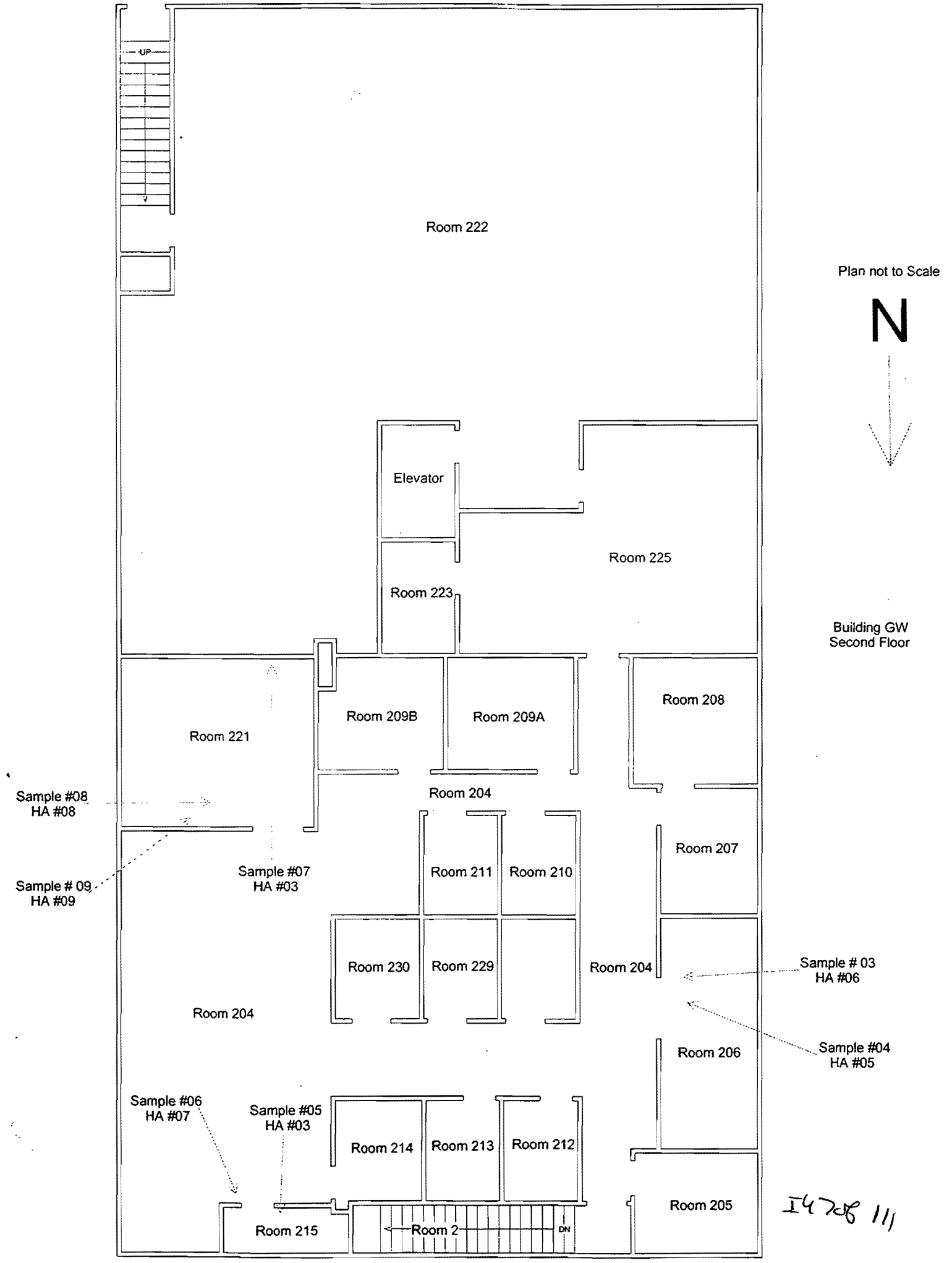
UP
Room 222
Plan not to Scale
N
Elevator
Room 225
Room 223
Building GW
Second Floor
Room 209B
Room 209A
Room 208
Room 221
Room 204
Sample #08
HA #08
Room 207
Sample #07
HA #03
Room 211
Room 210
Sample # 09
HA #09
Room 230
Room 229
Room 204
Sample # 03
HA #06
Room 204
Room 206
Sample #04
HA #05
Sample #06
HA #07
Sample #05
HA #03
Room 214
Room 213
Room 212
Room 205
Room 215
Room 2
DN

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Appendix A - 1

MATERIAL BY

ROOM AND

BY HOMOGENEOUS

NUMBER

Building name:
GW

Room Number	Homogen Number	Material Discrption		Amount		Notes
1	1	Vhite/Crear	Floor Tile	50	Sqft	12x12
	2	Black	Covebase w/mastic	30	Lft	4.5"
	3	White	Gypsum wall board (GWB)	300	Sqft	4x8
110	1	Vhite/Crear	Floor Tile	96	Sqft	12x12
	3	White	Gypsum wall board (GWB)	400	Sqft	4x8
	18	Red	Covebase w/mastic	40	Lft	4.5"
112	1	Vhite/Crear	Floor Tile	350	Sqft	12x12
	3	White	Gypsum wall board (GWB)	400	Sqft	4x8
	14	e w/ green	TSI Joints	14	each	
	18	Red	Covebase w/mastic	100	Lft	4.5"
113	1	Vhite/Crear	Floor Tile	576	Sqft	12x12
	2	Black	Covebase w/mastic	150	Lft	4.5"
	3	White	Gypsum wall board (GWB)	1560	Sqft	4x8
114	1	Vhite/Crear	Floor Tile	1800	Sqft	12x12
	3	White	Gypsum wall board (GWB)	1800	Sqft	4x8
	19	Grey	Covebase w/mastic	160	Lft	4.5"
117	2	Black	Covebase w/mastic	200	Lft	4.5"
	3	White	Gypsum wall board (GWB)	2000	Sqft	4x8
	12	'ellow/Brow	Floor Tile	2500	Sqft	12x12
	13	:e w/green	TSI pipe wrap	45	Lft	4"
	14	e w/ green	TSI Joints	15	each	
2	1	Vhite/Crear	Floor Tile	40	Sqft	12x12
	2	Black	Covebase w/mastic	30	Lft	4.5"
	3	White	Gypsum wall board (GWB)	616	Sqft	4x8
	4	Brown	Stair Tread w/mastic	70	Sqft	1'x4'
204	1	Vhite/Crear	Floor Tile	3300	Sqft	12x12
	2	Black	Covebase w/mastic	200	Lft	4.5"

Building name:
GW

Room Number	Homogen Number	Material Discrption		Amount		Notes
204	3	White	Gypsum wall board (GWB)	1760	Sqft	4x8
	5	White	Ceiling Tile Fissures w/ Dots	3300	Sqft	
	6	White	Ceiling Tile Fiberglass above #5	3300	Sqft	
	7	green	Carpet Mastic on tile	3300	Sqft	
205	1	Vhite/Crear	Floor Tile	144	Sqft	12x12
	2	Black	Covebase w/mastic	48	Lft	4.5"
	3	White	Gypsum wall board (GWB)	384	Sqft	4x8
	5	White	Ceiling Tile Fissures w/ Dots	144	Sqft	
	6	White	Ceiling Tile Fiberglass above #5	144		
	7	green	Carpet Mastic on tile	144		
208	1	Vhite/Crear	Floor Tile	180	Sqft	12x12
	2	Black	Covebase w/mastic	60	Lft	4.5"
	3	White	Gypsum wall board (GWB)	288	Sqft	4x8
	5	White	Ceiling Tile Fissures w/ Dots	180	Sqft	
	6	White	Ceiling Tile Fiberglass above #5	180	Sqft	
	7	green	Carpet Mastic on tile	180	Sqft	
209A	1	Vhite/Crear	Floor Tile	144	Sqft	12x12
	2	Black	Covebase w/mastic	48	Lft	4.5"
	3	White	Gypsum wall board (GWB)	384	Sqft	4x8
	5	White	Ceiling Tile Fissures w/ Dots	144	Lft	
	6	White	Ceiling Tile Fiberglass above #5	144		
	7	green	Carpet Mastic on tile	144	Sqft	
209B	1	Vhite/Crear	Floor Tile	144	Sqft	12x12
	2	Black	Covebase w/mastic	48	Lft	4.5"
	3	White	Gypsum wall board (GWB)	384		4x8
	5	White	Ceiling Tile Fissures w/ Dots	144	Sqft	
	6	White	Ceiling Tile Fiberglass above #5	144		

Building name:
GW

Room Number	Homogen Number	Material Discrption		Amount		Notes
209B	7	green	Carpet Mastic on tile	144	Sqft	
21	2	Black	Covebase w/mastic	38	Lft	4.5"
	15	White	Cermic Tile	84	Sqft	1"x1"
	16	white	Plaster on ceiling	84	Sqft	
215	1	Vhite/Crear	Floor Tile	40	Sqft	12x12
	2	Black	Covebase w/mastic	30	Sqft	4.5"
	3	White	Gypsum wall board (GWB)	224	Sqft	4x8
22	2	Black	Covebase w/mastic	38	Lft	4.5"
	15	White	Cermic Tile	84	Sqft	1"x1"
	16	white	Plaster on ceiling	84	Sqft	
221	2	Black	Covebase w/mastic	80	Lft	4.5"
	3	White	Gypsum wall board (GWB)	480	Sqft	4x8
	8	Gray	Vibration Dampaners	2	each	1'x1.5'
	9	White	Vibration Dampaners	2	each	1'x1.5'
222	2	Black	Covebase w/mastic	216	Lft	4.5"
	3	White	Gypsum wall board (GWB)	2160	Sqft	4x8
	10	white	Ceiling Tile numerours Fissures w/nume	2916	Sqft	2x2
	12	'ellow/Brow	Floor Tile	2916	Sqft	12x12
223	2	Black	Covebase w/mastic	28	Sqft	4.5"
	3	White	Gypsum wall board (GWB)	188	Sqft	4x8
225	2	Black	Covebase w/mastic	90	Lft	4.5"
	3	White	Gypsum wall board (GWB)	640	Sqft	4x8
	10	white	Ceiling Tile numerours Fissures w/nume	280	Sqft	2x2
	11		Ceiling Tile few Fissures w/numerous Pi	40	Sqft	
	12	'ellow/Brow	Floor Tile	504	Sqft	12x12
23	13	:e w/green	TSI pipe wrap	70	Lft	4"
	14	e w/ green	TSI Joints	20	each	

Building name:
GW

Room Number	Homogen Number	Material Discrption		Amount		Notes
23	**16**	white	Plaster on ceiling	30	Sqft	
24	**2**	Black	Covebase w/mastic	18	Lft	4.5"
	15	White	Cermic Tile	20	Sqft	1"x1"
25	**2**	Black	Covebase w/mastic	50	Lft	4.5"
	15	White	Cermic Tile	160	Sqft	1"x1"
	16	white	Plaster on ceiling	160	Sqft	
	17	white	Ceiling tile	36	Sqft	1x1
Elevato	**12**	ellow/Brow	Floor Tile	25	Sqft	12x12

Building name:
GW

Room Number	Homogen Number	Material Discrption	Amount		Notes
1	1	Vhite/Crear Floor Tile	50	Sqft	12x12
110	1	Vhite/Crear Floor Tile	96	Sqft	12x12
112	1	Vhite/Crear Floor Tile	350	Sqft	12x12
113	1	Vhite/Crear Floor Tile	576	Sqft	12x12
114	1	Vhite/Crear Floor Tile	1800	Sqft	12x12
2	1	Vhite/Crear Floor Tile	40	Sqft	12x12
204	1	Vhite/Crear Floor Tile	3300	Sqft	12x12
205	1	Vhite/Crear Floor Tile	144	Sqft	12x12
208	1	Vhite/Crear Floor Tile	180	Sqft	12x12
209A	1	Vhite/Crear Floor Tile	144	Sqft	12x12
209B	1	Vhite/Crear Floor Tile	144	Sqft	12x12
215	1	Vhite/Crear Floor Tile	40	Sqft	12x12
1	2	Black Covebase w/mastic	30	Lft	4.5"
113	2	Black Covebase w/mastic	150	Lft	4.5"
117	2	Black Covebase w/mastic	200	Lft	4.5"
2	2	Black Covebase w/mastic	30	Lft	4.5"
204	2	Black Covebase w/mastic	200	Lft	4.5"
205	2	Black Covebase w/mastic	48	Lft	4.5"
208	2	Black Covebase w/mastic	60	Lft	4.5"
209A	2	Black Covebase w/mastic	48	Lft	4.5"
209B	2	Black Covebase w/mastic	48	Lft	4.5"
21	2	Black Covebase w/mastic	38	Lft	4.5"
215	2	Black Covebase w/mastic	30	Sqft	4.5"
22	2	Black Covebase w/mastic	38	Lft	4.5"
221	2	Black Covebase w/mastic	80	Lft	4.5"
222	2	Black Covebase w/mastic	216	Lft	4.5"
223	2	Black Covebase w/mastic	28	Sqft	4.5"

Amount		Notes
90	Lft	4.5"
18	Lft	4.5"
50	Lft	4.5"
300	Sqft	4x8
400	Sqft	4x8
400	Sqft	4x8
1560	Sqft	4x8
1800	Sqft	4x8
2000	Sqft	4x8
616	Sqft	4x8
1760	Sqft	4x8
384	Sqft	4x8
288	Sqft	4x8
384	Sqft	4x8
384		4x8
224	Sqft	4x8
480	Sqft	4x8
2160	Sqft	4x8
188	Sqft	4x8
640	Sqft	4x8
70	Sqft	1'x4'
3300	Sqft	
144	Sqft	
180	Sqft	
144	Lft	
144	Sqft	
3300	Sqft	

Building name:
GW

Room Number	Homogen Number	Material Discrption		Amount		Notes
205	**6**	White	Ceiling Tile Fiberglass above #5	144		
208	**6**	White	Ceiling Tile Fiberglass above #5	180	Sqft	
209A	**6**	White	Ceiling Tile Fiberglass above #5	144		
209B	**6**	White	Ceiling Tile Fiberglass above #5	144		
204	**7**	green	Carpet Mastic on tile	3300	Sqft	
205	**7**	green	Carpet Mastic on tile	144		
208	**7**	green	Carpet Mastic on tile	180	Sqft	
209A	**7**	green	Carpet Mastic on tile	144	Sqft	
209B	**7**	green	Carpet Mastic on tile	144	Sqft	
221	**8**	Gray	Vibration Dampaners	2	each	1'x1.5'
	9	White	Vibration Dampaners	2	each	1'x1.5'
222	**10**	white	Ceiling Tile numerours Fissures w/nume	2916	Sqft	2x2
225	**10**	white	Ceiling Tile numerours Fissures w/nume	280	Sqft	2x2
	11		Ceiling Tile few Fissures w/numerous Pi	40	Sqft	
117	**12**	'ellow/Brow	Floor Tile	2500	Sqft	12x12
222	**12**	'ellow/Brow	Floor Tile	2916	Sqft	12x12
225	**12**	'ellow/Brow	Floor Tile	504	Sqft	12x12
Elevato	**12**	'ellow/Brow	Floor Tile	25	Sqft	12x12
117	**13**	:e w/green	TSI pipe wrap	45	Lft	4"
23	**13**	:e w/green	TSI pipe wrap	70	Lft	4"
112	**14**	e w/ green	TSI Joints	14	each	
117	**14**	e w/ green	TSI Joints	15	each	
23	**14**	e w/ green	TSI Joints	20	each	
21	**15**	White	Cermic Tile	84	Sqft	1"x1"
22	**15**	White	Cermic Tile	84	Sqft	1"x1"
24	**15**	White	Cermic Tile	20	Sqft	1"x1"
25	**15**	White	Cermic Tile	160	Sqft	1"x1"

Building name:
GW

Room Number	Homogen Number	Material Discrption		Amount		Notes
21	16	white	Plaster on ceiling	84	Sqft	
22	16	white	Plaster on ceiling	84	Sqft	
23	16	white	Plaster on ceiling	30	Sqft	
25	16	white	Plaster on ceiling	160	Sqft	
	17	white	Ceiling tile	36	Sqft	1x1
110	18	Red	Covebase w/mastic	40	Lft	4.5"
112	18	Red	Covebase w/mastic	100	Lft	4.5"
114	19	Grey	Covebase w/mastic	160	Lft	4.5"

Appendix B

LABORATORY BULK SAMPLE

ANALYSIS REPORT

LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9259 Fax: (323) 254-9267 Email: pasadenalab@latesting.com

Attn:	Cole & Associates 451 Southwest Tenth St. Suite 100 Renton, WA 98055	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/05/03 9:00 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300746
Project:	CTC-365-01/GW bldg	EMSL Project ID:	
		Analysis Date:	6/5/2003

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-1-635-01-01-6W *320300746-0001*		Black Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-01-6W M *320300746-0015*		Brown Non-Fibrous Homogeneous	Teased	5%	Wollastonite	95%	Non-fibrous (other)	None Detected	
CTC-1-635-01-01-6W Plaster *320300746-0016*		White Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-02-6W *320300746-0002*		Brown Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-02-6W M *320300746-0017*		Cream Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-03-6W *320300746-0003*		Yellow Fibrous Homogeneous	Teased	80% <1%	Glass Cellulose	20%	Non-fibrous (other)	None Detected	
CTC-1-635-01-03-6W M *320300746-0018*		White Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-04-6W *320300746-0004*		White/Cream Fibrous Homogeneous	Teased	40% 40%	Glass Cellulose	20%	Perlite	None Detected	

Analyst(s)

Jeff Krogstad (20)

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

LA Testing
[illegible]59 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9960 Fax: (323) 254-9981 Email: pasadenalab@la-testing.com

Attn:	Cole & Associates 451 Southwest Tenth St. Suite 100 Renton, WA 98055	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/05/03 9:00 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300746
Project:	CTC-365-01/GW bldg	EMSL Project ID:	
		Analysis Date:	6/5/2003

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-1-635-01-05-6W 320300746-0005		White/Tan Fibrous Heterogeneous	Teased	<1% 15%	Glass Cellulose	85%	Non-fibrous (other)	None Detected	
CTC-1-635-01-06-6W 320300746-0006		Green Fibrous Homogeneous	Teased	5%	Synthetic	95%	Non-fibrous (other)	None Detected	
CTC-1-635-01-07-6W 320300746-0007		Black Fibrous Heterogeneous	Teased Dissolved	20%	Cellulose	80%	Non-fibrous (other)	None Detected	
CTC-1-635-01-08-6W 320300746-0008		Black Fibrous Heterogeneous	Teased	65%	Glass	35%	Non-fibrous (other)	None Detected	
CTC-1-635-01-09-6W 320300746-0009		Cream Fibrous Homogeneous	Teased	40%	Glass	60%	Non-fibrous (other)	None Detected	
CTC-1-635-01-010-6W 320300746-0010		White Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-011-6W 320300746-0011		Cream Fibrous Homogeneous	Teased	50% 50%	Glass Cellulose			None Detected	
CTC-1-635-01-012-6W 320300746-0012		Purple Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	

Analyst(s)

Jeff Krogstad (20)

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 expected 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

LA Testing
459 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9960 Fax: (323) 254-3987 Email: pasadenalab@latesting.com

Attn:	Cole & Associates 451 Southwest Tenth St. Suite 100 Renton, WA 98055	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/05/03 9:00 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300746
Project:	CTC-365-01/GW bldg	EMSL Project ID:	
		Analysis Date:	6/5/2003

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-1-635-01-012-6W M *320300746-0019*		Brown Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-013-6W *320300746-0013*		White/Tan Fibrous Heterogeneous	Teased Dissolved	10%	Cellulose	90%	Non-fibrous (other)	None Detected	
CTC-1-635-01-014-6W *320300746-0014*		Gray Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-1-635-01-014-6W M *320300746-0020*		Cream Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	

Analyst(s)

Jeff Krogstad (20)

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

THIS IS THE LAST PAGE OF THE REPORT.

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Appendix C

OHIO DEPARTMENT OF HEALTH

ASBESTOS HAZARD

EVALUATION SPECIALIST

CERTIFICATION

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

Post-It® Fax Note 7671	Date 5/29	# of pages ▶ 1
To Robert Parsons	From Josh Koch	
Co./Dept. C + A	Co. ODH	
Phone #	Phone # 614-466-0061	
Fax # 509-927-3050	Fax #	

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

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 21, 2003

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

ATTN: Reed Terry

RE: Evaluation Specialist Certification # 34299

Dear Reed Terry:

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-20-2004.

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

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An Equal Opportunity Employer/Provider

Appendix D

LABORATORY

CERTIFICATE

OF

ACCREDITATION

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 Larson
For the National Institute of Standards and Technology

NVLAP Lab Code: 200232-0

NVLAP-01C (06-01)

111 2S9T

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 A

ASBESTOS

SURVEY

SUMMARY

"Asbestos Building Survey" Summary

Project Number: CTC-03-365-01

Inspectors: Robert Parsons and Reed Terry

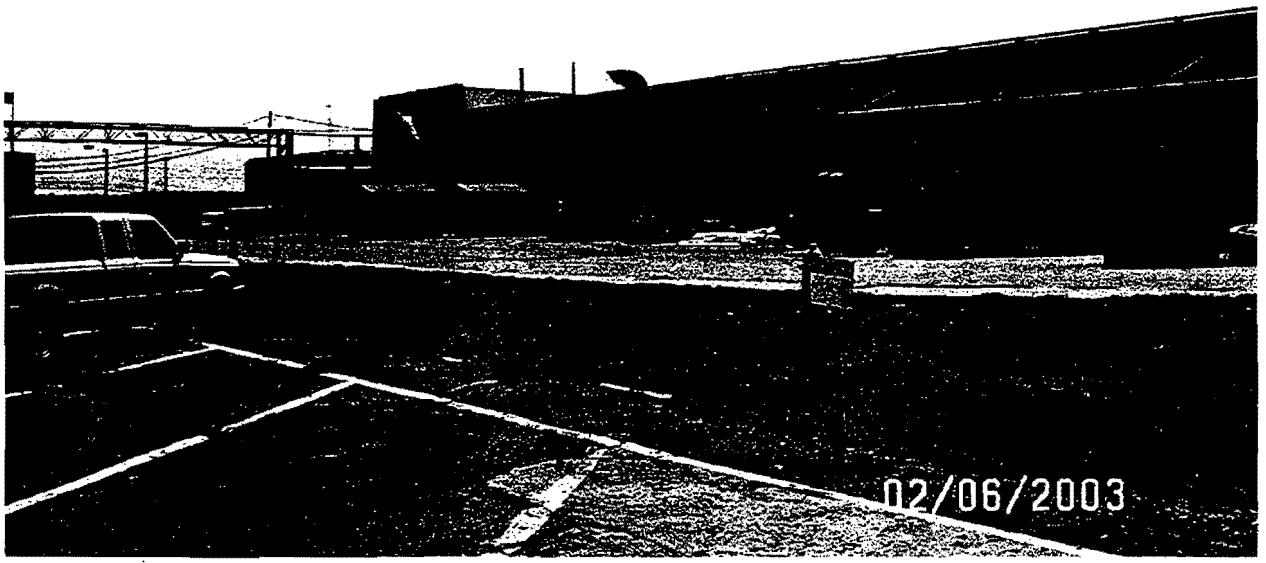
Survey Date: 06/02/03

Project Name/Location: Building GW, Miamisburg Closure Project, Miamisburg, OH

Asbestos Containing Building Materials were not identified as a result of this survey, however there are materials which have been identified during previous inspections.

Robert Parsons
Senior Project Manager
Asbestos Building Inspector
Certification # 34302

ASBESTOS MATERIALS REPORT
for



Building W
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-03-365-01

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

EXECUTIVE SUMMARY

Cole & Associates, Training & Consulting, Inc. (CTC) was retained by CH2M Hill Mound, Inc. to conduct a "Building Survey (Inspection)" on Building W, 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 May 27, 2003.

The subject structure consists of a two-story 32,484 square foot reinforced concrete building with brick facing and a built up membrane roof constructed in 1948.

This survey was conducted on June 3rd, 2003. The survey encompassed the interior and the exterior of the building. Suspect materials were looked for and sampled by Robert Parsons and Reed Terry.

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 W, 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 May 27, 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 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, Trent Slemmons and Reed Terry, all EPA Certified Asbestos Building Inspectors. An initial facility "preliminary walkthrough" 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 walkthrough 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.

I 736 141

During this walkthrough, 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 walkthrough, 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 W was built in 1948 with reinforced concrete, a brick facing and a built-up membrane roof. Total square footage of this building is 32,484.

During this building survey asbestos containing building materials were not identified within this structure other than those materials identified during previous building surveys.

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 W, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 3 Jun 2003	
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-01)	Type of Material	Asbestos	
				Type	%
1	Rooms 101, 121, 124, 125, 130, 201P Ceiling Areas	Sampled during previous inspection	3" Pipe Wrap (TSI)	Identified during previous inspection	
2	Room 121 Ceiling	CTC-03-365-01-01W	24" Diameter Exhaust Manifold (Miscellaneous)	Chrysotile	68
3	Room 121 Ceiling	CTC-03-365-01-02W CTC-03-365-01-04W	12" Diameter Exhaust Manifold (Miscellaneous)	Chrysotile	70
4	Rooms 105, 109, 121, 123, 135, 136, 138, 139 Ceilings & Walls	CTC-03-365-01-03W CTC-03-365-01-15W CTC-03-365-01-18W	Gypsum Wall Board (GWB) w/Joint Compound (Miscellaneous)	---	ND
5	Rooms 104, 106, 107, 112, 114, 118, 138, 142, 201, 202, 204, 213, 216 Ceiling	CTC-03-365-01-05W	White 2' x 4' Tile Fissures & Dots (Miscellaneous)	---	ND
6	Rooms 105, 110, 115, 118, 119, 122, 134, 137, 137A, 138, 139, 201, 202, 205 Floors	Not included in Scope of Work	White w/Gray Marbling 12" x 12" Tile (Miscellaneous)	Assumed	
7	Room 201P	Sampled during previous inspection	6" Pipe & Wrap (TSI)	Identified during previous inspection	
8	Rooms 124, 130, 201P Ceiling Areas	CTC-03-365-01-06W	Gray Rubberized Material (Miscellaneous)	---	ND
9	Roof	CTC-03-365-01-08W	Flashing under Silver Paint (Miscellaneous)	Chrysotile	3
10	Rooms 106, 107, 108, 122 Ceilings	CTC-03-365-01-09W	White 2' x 4' w/fissures (Miscellaneous)	---	ND
11	Rooms 106, 107, 203, 204 Floors	CTC-03-365-01-10W	White 1" x 1" Ceramic Tile (Miscellaneous)	---	ND

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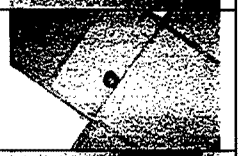
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-01)	Type of Material	Asbestos	
				Type	%
12	**Rooms 106, 107, 203, 204 Wall**	**Not included in Scope of Work**	**White 2" x 2" Ceramic Tile (Miscellaneous)**	**Assumed**	
13	Rooms 105, 110, 122 Lower Walls	CTC-03-365-01-12W	Black Cove Base w/mastic (Miscellaneous)	---	ND
14	Rooms 112, 113, 114, 118, 119, 138, 139 Lower Walls	CTC-03-365-01-13W	Grey Cove Base w/mastic (Miscellaneous)	---	ND
15	Rooms 105, 113, 114, 118, 119, 122, 137, 138, 139, 202, 203, 204, 205, 208, 209, 210, 211, 212, 213, 216, 219, 220 Ceilings	CTC-03-365-01-14W	White 2' x 4' Tile w/deep fissures (Miscellaneous)	---	ND
16	**Room 124 Ceiling Area**	**Sampled during previous inspection**	**White Condensation Tape / Wrap (Miscellaneous)**	**Identified during previous inspection**	
17	Rooms 115, 116, 117 Ceilings	CTC-03-365-01-16W	White 2' x 4' Tile fiberous (Miscellaneous)	---	ND
18	**Rooms 115, 116, 125 Windows**	**CTC-03-365-01-17W**	**Window Glazing**	**Chrysotile**	**<1**
19	Room 123 Walls	CTC-03-365-01-19W	Grout	---	ND
20	Room 123 Walls	CTC-03-365-01-20W	Concrete	---	ND
21	Room 123 Ceiling	CTC-03-365-01-21W	Concrete	---	ND
22	Room 123 Floor Area	CTC-03-365-01-22W	Grout	---	ND
23	Room 142 Ceiling Area	CTC-03-365-01-23W	White / Gray Panels	---	ND
24	**Room 134**	**CTC-03-365-01-24W**	**Panel under Desk under Fume Hood (Miscellaneous)**	**Chrysotile Amosite**	**15 2**

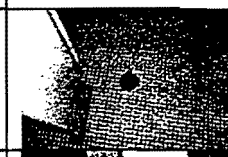
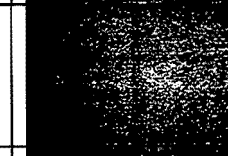
F 2726 111

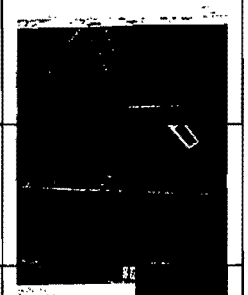
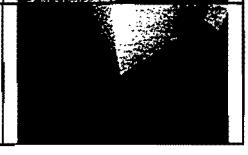
BUILDING SURVEY SUMMARY

For: Building W, Miamisburg Closure Project, Miamisburg, OH				Sample Date: 3 Jun 2003	
Homogenous Group*	Room(s)/Location	Sample No. (CTC-03-365-01)	Type of Material	Asbestos	
				Type	%
25	Room 134	CTC-03-365-01-25W	Locking File Cabinet Inner Material (Miscellaneous)	---	ND
26	Room 202, 205, 208, 209, 210, 211, 212, 213, 216, 219, 220 Lower Walls	CTC-03-365-01-26W	Brown Cove Base (Miscellaneous)	---	ND

SUSPECT MATERIALS/HOMOGENEOUS SAMPLE GROUPS

No.	Building Material	% Asbestos	Photo
1	**3" Pipe Wrap, (TSI)**	**Identified during previous inspection**	
2	**24" Diameter Exhaust Manifold, (Miscellaneous)**	**68% Chrysotile**	
3	**12" Diameter Exhaust Manifold, (Miscellaneous)**	**70% Chrysotile**	
4	Gypsum Wall Board (GWB) w/Joint Compound (Miscellaneous)	ND	
5	White 2' x 4' Tile Fissures & Dots, (Miscellaneous)	ND	
6	**White w/Gray Marbling 12" x 12" Tile, (Miscellaneous)**	**Assumed**	
7	**6" Pipe & Wrap, (TSI)**	**Identified during previous inspection**	
8	Gray Rubberized Material, (Miscellaneous)	ND	
9	**Flashing under Silver Paint, (Miscellaneous)**	**3% Chrysotile**	
10	White 2' x 4' w/fissures, (Miscellaneous)	ND	

No.	Building Material	% Asbestos	Photo
11	White 1" x 1" Ceramic Tile, (Miscellaneous)	ND	
12	**White 2" x 2" Ceramic Tile, (Miscellaneous)**	**Assumed**	
13	Black Cove Base w/mastic, (Miscellaneous)	ND	
14	Grey Cove Base w/mastic, (Miscellaneous)	ND	
15	White 2' x 4' Tile w/deep fissures, (Miscellaneous)	ND	
16	White Condensation Tape / Wrap, (Miscellaneous)	**Identified during previous inspection**	
17	White 2' x 4' Tile fiberous, (Miscellaneous)	ND	
18	**Window Glazing**	**<1% Chrysotile**	
19	Grout	ND	
20	Concrete Wall Panels	ND	

No.	Building Material	% Asbestos	Photo
21	Concrete Ceiling Panels	ND	
22	Grout	ND	
23	White / Gray Panels	ND	
24	**Panel under Desk under Fume Hood, (Miscellaneous)**	**15% Chrysotile 2% Amosite**	
25	Locking File Cabinet Inner Material, (Miscellaneous)	ND	
26	Brown Cove Base, (Miscellaneous)	ND	

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Appendices

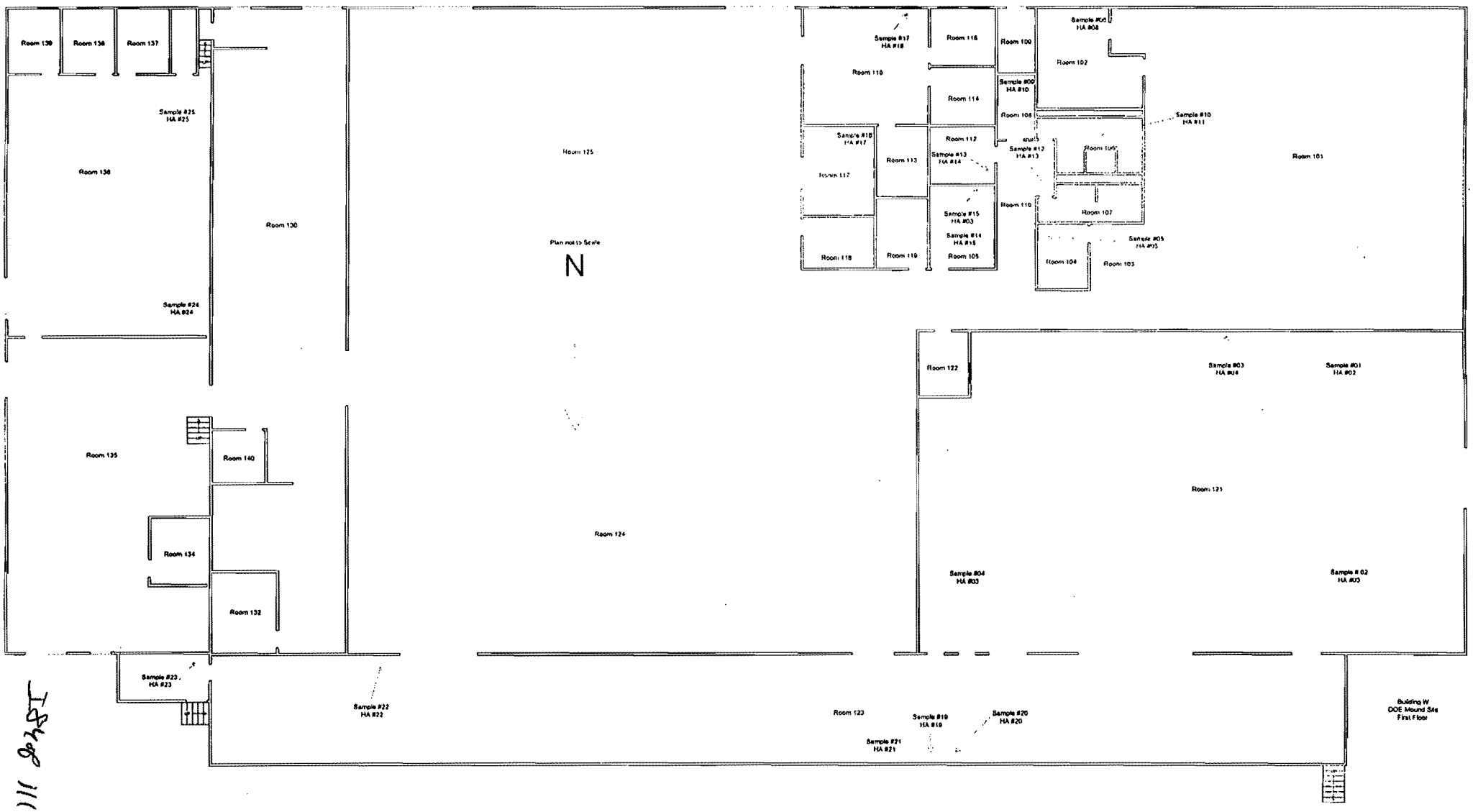
Appendix A

FLOOR PLANS

AND

SAMPLE LOCATIONS

I 8306 1/1


Room 139
Room 138
Room 137
Sample #25
HA #25
Room 136
Room 130
Sample #24
HA #24
Room 135
Room 140
Room 134
Room 132
Sample #23
HA #23
Sample #22
HA #22
Room 125
Plan not to Scale
N
Room 124
Sample #17
HA #18
Room 116
Room 100
Room 118
Room 102
Sample #09
HA #10
Room 114
Room 108
Sample #10
HA #11
Sample #18
HA #17
Room 112
Room 113
Sample #13
HA #14
Sample #12
HA #13
Room 109
Room 101
Room 117
Room 110
Room 107
Sample #15
HA #03
Sample #14
HA #15
Sample #05
HA #05
Room 118
Room 119
Room 105
Room 104
Room 103
Room 122
Sample #03
HA #04
Sample #01
HA #02
Room 121
Sample #04
HA #03
Sample # 02
HA #01
Room 123
Sample #19
HA #19
Sample #20
HA #20
Sample #21
HA #21
Building W
DOE Mound Site
First Floor

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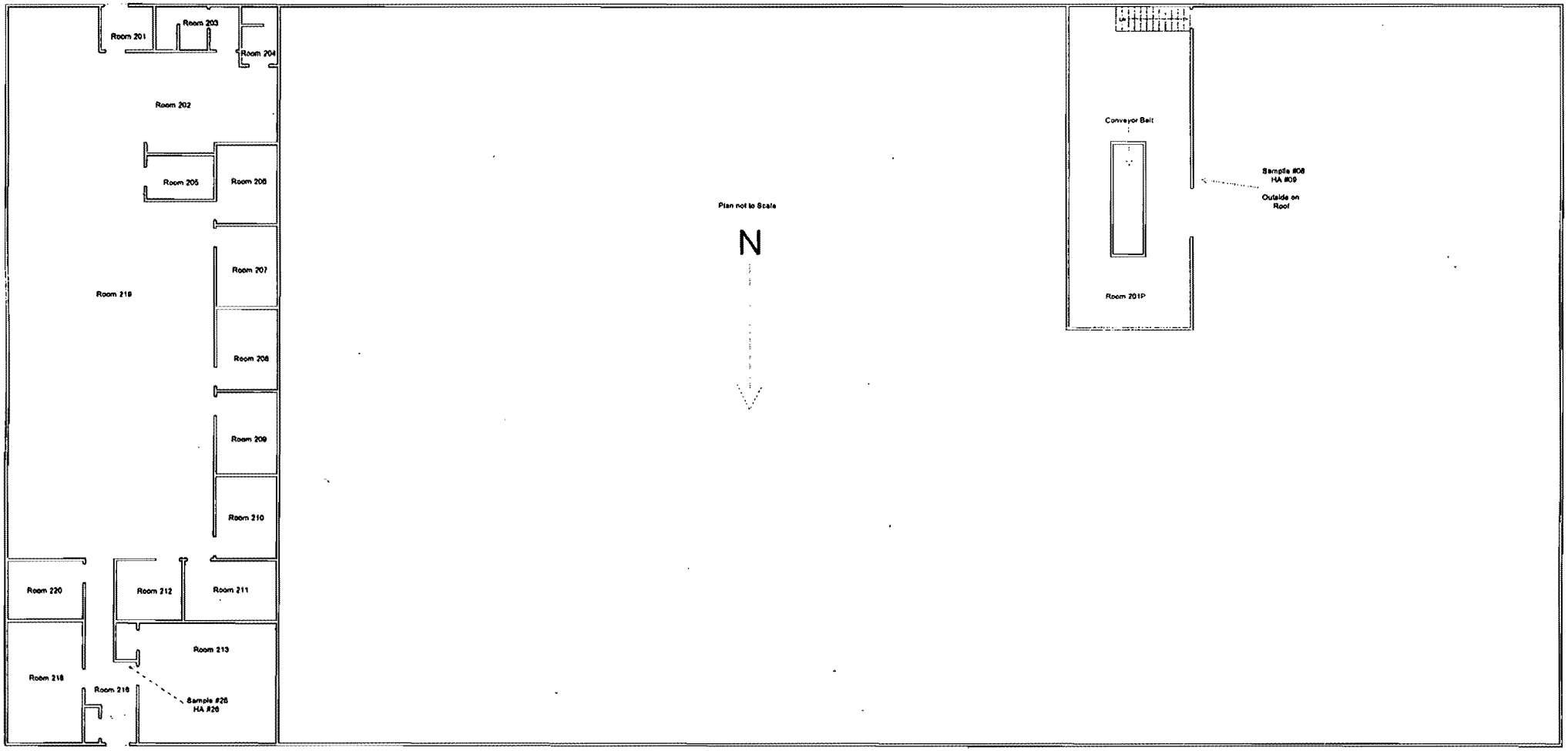

Building W
Second Floor

1858 III

Appendix A - 1

MATERIAL BY

ROOM AND

BY HOMOGENEOUS

NUMBER

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Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
101	4	White	GWB w/ Joint compound	480	Sqft	
	7	white	TSI wrapped pipes	165	Lft	>4
104	5	White	Ceiling Tiles/ Large fissures and Pin hol	108	Sqft	2'x4'
	6	e/Gray mar	Floor tiles	108	Sqft	12x12
105	4	White	GWB w/ Joint compound	96	Sqft	
	6	e/Gray mar	Floor tiles	160	Sqft	12x12
	13	Black	Covebase	60	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	160	Sqft	2x4
106	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'
	10	white	Ceiling tiles /with pokemarks	60	Sqft	2x4
	11	white	cermic Floor Tile	160	Sqft	1"x1"
	12	Tan	Cermic Wall Tile	250	Sqft	2"x2"
107	5	White	Ceiling Tiles/ Large fissures and Pin hol	50	Sqft	2'x4'
	10	white	Ceiling tiles /with pokemarks	10	Sqft	2x4
	11	white	cermic Floor Tile	60	Sqft	1"x1"
	12	Tan	Cermic Wall Tile	70	Sqft	2"x2"
108	10	white	Ceiling tiles /with pokemarks	160	Sqft	2x4
109	4	White	GWB w/ Joint compound	96	Sqft	
110	6	e/Gray mar	Floor tiles	140	Sqft	12x12
	13	Black	Covebase	55	Lft	4.5"
112	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'
	10	white	Ceiling tiles /with pokemarks	15	Sqft	2x4
	14	Gray	Covebase	42	Lft	4.5"
113	6	e/Gray mar	Floor tiles	120	Sqft	12x12
	14	Gray	Covebase	34	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	120	Sqft	2x4
114	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
114	6	e/Gray mar	Floor tiles	120	Sqft	12x12
	14	Gray	Covebase	34	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	20	Sqft	2x4
115	6	e/Gray mar	Floor tiles	120	Sqft	12x12
	14	Gray	Covebase	34	Lft	4.5"
	17	white	Fibrous ceiling tiles	120		2x4
	18	Gray	Window Glazing	2	6 Pane	
116	17	white	Fibrous ceiling tiles	360		2x4
	18	Gray	Window Glazing	4	4 Pane	
117	17	white	Fibrous ceiling tiles	165	Sqft	2x4
118	5	White	Ceiling Tiles/ Large fissures and Pin hol	76	Sqft	2'x4'
	6	e/Gray mar	Floor tiles	96	Sqft	12x12
	14	Gray	Covebase	40	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	20	Lft	2x4
119	6	e/Gray mar	Floor tiles	100	Sqft	12x12
	14	Gray	Covebase	40	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	100	Sqft	2x4
121	2	Black	Main Exhaust Gasket	1	each	24"
	3	Black	Main Exhaust Gasket	2	each	12"
	4	White	GWB w/ Joint compound	1665	Sqft	
	7	white	TSI wrapped pipes	30	Lft	>4
122	6	e/Gray mar	Floor tiles	100	Sqft	12x12
	10	white	Ceiling tiles /with pokemarks	70	Sqft	2x4
	13	Black	Covebase	40	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	30	Sqft	2x4
123	4	White	GWB w/ Joint compound	144	Sqft	
	19	White	Wall grout			

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
123	20	gray	Concrete wall	1728	Sqft	
	21	Gray	Concrete Ceiling	105	each	
	22	Black	Floor to wall sealant	210	Lt	
124	1	White	TSI wrapped pipe	1750	Lft	<4
	8	Black	Vibration Dampners	1	each	
	16	brown	Condensation tape	108	Lft	
125	1	White	TSI wrapped pipe	85	Lft	<4
	18	Gray	Window Glazing	5	4 pane	
130	1	White	TSI wrapped pipe	1	Lft	<4
	8	Black	Vibration Dampners	1	each	
134	6	e/Gray mar	Floor tiles	108	Sqft	12x12
	24	white	Ceiling tile/fiberglass	108		2x4
135	4	White	GWB w/ Joint compound	2458	Sqft	
136	4	White	GWB w/ Joint compound	2500	Sqft	
	23	Gray	Composite Panal			4x8
	26	white	Locking File cabnet/fire proofing in door	1	each	4.5'x3'
137	6	e/Gray mar	Floor tiles	100	Sqft	12x12
	15	white	Ceiling tiles Deep pokmarks	100	Sqft	2x4
137A	5	White	Ceiling Tiles/ Large fissures and Pin hol	50	Sqft	2'x4'
	6	e/Gray mar	Floor tiles	50	Sqft	12x12
138	4	White	GWB w/ Joint compound	384	Sqft	
	5	White	Ceiling Tiles/ Large fissures and Pin hol	144	Sqft	2'x4'
	6	e/Gray mar	Floor tiles	128	Sqft	12x12
	14	Gray	Covebase	50	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	16	Sqft	2x4
139	4	White	GWB w/ Joint compound	320	Sqft	
	5	White	Ceiling Tiles/ Large fissures and Pin hol	88	Sqft	2'x4'

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
139	6	e/Gray mar	Floor tiles	100	Sqft	12x12
	14	Gray	Covebase	40	Lft	4.5"
	15	white	Ceiling tiles Deep pokmarks	12	Sqft	2x4
142	5	White	Ceiling Tiles/ Large fissures and Pin hol	470	Sqft	2'x4'
	20	gray	Concrete wall	4	each	
	23	Gray	Composite Panal	2	each	4x8
201	5	White	Ceiling Tiles/ Large fissures and Pin hol	50	Sqft	2'x4'
	6	e/Gray mar	Floor tiles	50	Sqft	12x12
201P	1	White	TSI wrapped pipe	70	Lft	<4
	8	Black	Vibration Dampners	2	each	
	28	e w/green	TSI Joints	3	each	
202	4	White	GWB w/ Joint compound	304	Sqft	
	5	White	Ceiling Tiles/ Large fissures and Pin hol	75	Sqft	2'x4'
	6	e/Gray mar	Floor tiles	84	Sqft	12x12
	15	white	Ceiling tiles Deep pokmarks	10	Sqft	2x4
	27	brown	Covebase	40	Lft	4.5"
203	4	White	GWB w/ Joint compound	272	Sqft	
	11	white	cermic Floor Tile	65	Sqft	1"x1"
	12	Tan	Cermic Wall Tile	140	Sqft	2"x2"
	15	white	Ceiling tiles Deep pokmarks	60	Sqft	2x4
204	4	White	GWB w/ Joint compound	272	Sqft	
	5	White	Ceiling Tiles/ Large fissures and Pin hol	30	Sqft	2'x4'
	11	white	cermic Floor Tile	60	Sqft	1"x1"
	12	Tan	Cermic Wall Tile	140	Sqft	2"x2"
	15	white	Ceiling tiles Deep pokmarks	20	Sqft	2x4
205	4	White	GWB w/ Joint compound	256	Sqft	
	6	e/Gray mar	Floor tiles	60	Sqft	12x12

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
205	15	white	Ceiling tiles Deep pokmarks	60	Sqft	2x4
	27	brown	Covebase	32	Lft	4.5"
208	4	White	GWB w/ Joint compound	320	Sqft	
	15	white	Ceiling tiles Deep pokmarks	96	Sqft	2x4
	27	brown	Covebase	40	Lft	4.5"
209	4	White	GWB w/ Joint compound	351	Sqft	
	15	white	Ceiling tiles Deep pokmarks	96	Sqft	2x4
	27	brown	Covebase	40	Lft	4.5"
210	4	White	GWB w/ Joint compound	352	Sqft	
	15	white	Ceiling tiles Deep pokmarks	130	Sqft	2x4
	27	brown	Covebase	34	Lft	4.5"
211	4	White	GWB w/ Joint compound	320	Sqft	
	15	white	Ceiling tiles Deep pokmarks	100	Sqft	2x4
	27	brown	Covebase	40	Lft	4.5"
212	4	White	GWB w/ Joint compound	320	Sqft	
	15	white	Ceiling tiles Deep pokmarks	96	Sqft	2x4
	27	brown	Covebase	40	Lft	4.5"
213	4	White	GWB w/ Joint compound	800	Sqft	
	5	White	Ceiling Tiles/ Large fissures and Pin hol	550	Sqft	2'x4'
	15	white	Ceiling tiles Deep pokmarks	50	Sqft	2x4
	27	brown	Covebase	100	Lft	4.5"
216	4	White	GWB w/ Joint compound	416		
	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'
	15	white	Ceiling tiles Deep pokmarks	30	Sqft	2x4
	27	brown	Covebase	65	Lft	4.5"
218	15	white	Ceiling tiles Deep pokmarks	210	Sqft	2x4
	27	brown	Covebase	60	Lft	4.5"

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
219	**4**	White	GWB w/ Joint compound	1600	Sqft	
	15	white	Ceiling tiles Deep pokmarks	2100	Sqft	2x4
	27	brown	Covebase	200	Lft	4.5"
220	**4**	White	GWB w/ Joint compound	352	Sqft	
	15	white	Ceiling tiles Deep pokmarks	120	Sqft	2x4
	27	brown	Covebase	50	Lft	4.5"
Roof	**9**	Black/silver	Silver paint over Roof Flasing	400	Lft	

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
124	1	White	TSI wrapped pipe	1750	Lft	<4
125	1	White	TSI wrapped pipe	85	Lft	<4
130	1	White	TSI wrapped pipe	1	Lft	<4
201P	1	White	TSI wrapped pipe	70	Lft	<4
121	2	Black	Main Exhaust Gasket	1	each	24"
	3	Black	Main Exhaust Gasket	2	each	12"
101	4	White	GWB w/ Joint compound	480	Sqft	
105	4	White	GWB w/ Joint compound	96	Sqft	
109	4	White	GWB w/ Joint compound	96	Sqft	
121	4	White	GWB w/ Joint compound	1665	Sqft	
123	4	White	GWB w/ Joint compound	144	Sqft	
135	4	White	GWB w/ Joint compound	2458	Sqft	
136	4	White	GWB w/ Joint compound	2500	Sqft	
138	4	White	GWB w/ Joint compound	384	Sqft	
139	4	White	GWB w/ Joint compound	320	Sqft	
202	4	White	GWB w/ Joint compound	304	Sqft	
203	4	White	GWB w/ Joint compound	272	Sqft	
204	4	White	GWB w/ Joint compound	272	Sqft	
205	4	White	GWB w/ Joint compound	256	Sqft	
208	4	White	GWB w/ Joint compound	320	Sqft	
209	4	White	GWB w/ Joint compound	351	Sqft	
210	4	White	GWB w/ Joint compound	352	Sqft	
211	4	White	GWB w/ Joint compound	320	Sqft	
212	4	White	GWB w/ Joint compound	320	Sqft	
213	4	White	GWB w/ Joint compound	800	Sqft	
216	4	White	GWB w/ Joint compound	416		
219	4	White	GWB w/ Joint compound	1600	Sqft	

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
220	4	White	GWB w/ Joint compound	352	Sqft	
104	5	White	Ceiling Tiles/ Large fissures and Pin hol	108	Sqft	2'x4'
106	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'
107	5	White	Ceiling Tiles/ Large fissures and Pin hol	50	Sqft	2'x4'
112	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'
114	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'
118	5	White	Ceiling Tiles/ Large fissures and Pin hol	76	Sqft	2'x4'
137A	5	White	Ceiling Tiles/ Large fissures and Pin hol	50	Sqft	2'x4'
138	5	White	Ceiling Tiles/ Large fissures and Pin hol	144	Sqft	2'x4'
139	5	White	Ceiling Tiles/ Large fissures and Pin hol	88	Sqft	2'x4'
142	5	White	Ceiling Tiles/ Large fissures and Pin hol	470	Sqft	2'x4'
201	5	White	Ceiling Tiles/ Large fissures and Pin hol	50	Sqft	2'x4'
202	5	White	Ceiling Tiles/ Large fissures and Pin hol	75	Sqft	2'x4'
204	5	White	Ceiling Tiles/ Large fissures and Pin hol	30	Sqft	2'x4'
213	5	White	Ceiling Tiles/ Large fissures and Pin hol	550	Sqft	2'x4'
216	5	White	Ceiling Tiles/ Large fissures and Pin hol	100	Sqft	2'x4'
104	6	e/Gray mar	Floor tiles	108	Sqft	12x12
105	6	e/Gray mar	Floor tiles	160	Sqft	12x12
110	6	e/Gray mar	Floor tiles	140	Sqft	12x12
113	6	e/Gray mar	Floor tiles	120	Sqft	12x12
114	6	e/Gray mar	Floor tiles	120	Sqft	12x12
115	6	e/Gray mar	Floor tiles	120	Sqft	12x12
118	6	e/Gray mar	Floor tiles	96	Sqft	12x12
119	6	e/Gray mar	Floor tiles	100	Sqft	12x12
122	6	e/Gray mar	Floor tiles	100	Sqft	12x12
134	6	e/Gray mar	Floor tiles	108	Sqft	12x12
137	6	e/Gray mar	Floor tiles	100	Sqft	12x12

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
137A	6	e/Gray mar	Floor tiles	50	Sqft	12x12
138	6	e/Gray mar	Floor tiles	128	Sqft	12x12
139	6	e/Gray mar	Floor tiles	100	Sqft	12x12
201	6	e/Gray mar	Floor tiles	50	Sqft	12x12
202	6	e/Gray mar	Floor tiles	84	Sqft	12x12
205	6	e/Gray mar	Floor tiles	60	Sqft	12x12
101	7	white	TSI wrapped pipes	165	Lft	>4
121	7	white	TSI wrapped pipes	30	Lft	>4
124	8	Black	Vibration Dampners	1	each	
130	8	Black	Vibration Dampners	1	each	
201P	8	Black	Vibration Dampners	2	each	
Roof	9	Black/silver	Silver paint over Roof Flasing	400	Lft	
106	10	white	Ceiling tiles /with pokemarks	60	Sqft	2x4
107	10	white	Ceiling tiles /with pokemarks	10	Sqft	2x4
108	10	white	Ceiling tiles /with pokemarks	160	Sqft	2x4
112	10	white	Ceiling tiles /with pokemarks	15	Sqft	2x4
122	10	white	Ceiling tiles /with pokemarks	70	Sqft	2x4
106	11	white	cermic Floor Tile	160	Sqft	1"x1"
107	11	white	cermic Floor Tile	60	Sqft	1"x1"
203	11	white	cermic Floor Tile	65	Sqft	1"x1"
204	11	white	cermic Floor Tile	60	Sqft	1"x1"
106	12	Tan	Cermic Wall Tile	250	Sqft	2"x2"
107	12	Tan	Cermic Wall Tile	70	Sqft	2"x2"
203	12	Tan	Cermic Wall Tile	140	Sqft	2"x2"
204	12	Tan	Cermic Wall Tile	140	Sqft	2"x2"
105	13	Black	Covebase	60	Lft	4.5"
110	13	Black	Covebase	55	Lft	4.5"

Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
122	13	Black	Covebase	40	Lft	4.5"
112	14	Gray	Covebase	42	Lft	4.5"
113	14	Gray	Covebase	34	Lft	4.5"
114	14	Gray	Covebase	34	Lft	4.5"
115	14	Gray	Covebase	34	Lft	4.5"
118	14	Gray	Covebase	40	Lft	4.5"
119	14	Gray	Covebase	40	Lft	4.5"
138	14	Gray	Covebase	50	Lft	4.5"
139	14	Gray	Covebase	40	Lft	4.5"
105	15	white	Ceiling tiles Deep pokmarks	160	Sqft	2x4
113	15	white	Ceiling tiles Deep pokmarks	120	Sqft	2x4
114	15	white	Ceiling tiles Deep pokmarks	20	Sqft	2x4
118	15	white	Ceiling tiles Deep pokmarks	20	Lft	2x4
119	15	white	Ceiling tiles Deep pokmarks	100	Sqft	2x4
122	15	white	Ceiling tiles Deep pokmarks	30	Sqft	2x4
137	15	white	Ceiling tiles Deep pokmarks	100	Sqft	2x4
138	15	white	Ceiling tiles Deep pokmarks	16	Sqft	2x4
139	15	white	Ceiling tiles Deep pokmarks	12	Sqft	2x4
202	15	white	Ceiling tiles Deep pokmarks	10	Sqft	2x4
203	15	white	Ceiling tiles Deep pokmarks	60	Sqft	2x4
204	15	white	Ceiling tiles Deep pokmarks	20	Sqft	2x4
205	15	white	Ceiling tiles Deep pokmarks	60	Sqft	2x4
208	15	white	Ceiling tiles Deep pokmarks	96	Sqft	2x4
209	15	white	Ceiling tiles Deep pokmarks	96	Sqft	2x4
210	15	white	Ceiling tiles Deep pokmarks	130	Sqft	2x4
211	15	white	Ceiling tiles Deep pokmarks	100	Sqft	2x4
212	15	white	Ceiling tiles Deep pokmarks	96	Sqft	2x4

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Building name:
W

Room Number	Homogen Number	Material Discrption		Amount		Notes
213	15	white	Ceiling tiles Deep pokmarks	50	Sqft	2x4
216	15	white	Ceiling tiles Deep pokmarks	30	Sqft	2x4
218	15	white	Ceiling tiles Deep pokmarks	210	Sqft	2x4
219	15	white	Ceiling tiles Deep pokmarks	2100	Sqft	2x4
220	15	white	Ceiling tiles Deep pokmarks	120	Sqft	2x4
124	16	brown	Condensation tape	108	Lft	
115	17	white	Fibrous ceiling tiles	120		2x4
116	17	white	Fibrous ceiling tiles	360		2x4
117	17	white	Fibrous ceiling tiles	165	Sqft	2x4
115	18	Gray	Window Glazing	2	6 Pane	
116	18	Gray	Window Glazing	4	4 Pane	
125	18	Gray	Window Glazing	5	4 pane	
123	19	White	Wall grout			
	20	gray	Concrete wall	1728	Sqft	
142	20	gray	Concrete wall	4	each	
123	21	Gray	Concrete Ceiling	105	each	
	22	Black	Floor to wall sealant	210	Lt	
136	23	Gray	Composite Panal			4x8
142	23	Gray	Composite Panal	2	each	4x8
134	24	white	Ceiling tile/fiberglass	108		2x4
136	26	white	Locking File cabnet/fire proofing in door	1	each	4.5'x3'
202	27	brown	Covebase	40	Lft	4.5"
205	27	brown	Covebase	32	Lft	4.5"
208	27	brown	Covebase	40	Lft	4.5"
209	27	brown	Covebase	40	Lft	4.5"
210	27	brown	Covebase	34	Lft	4.5"
211	27	brown	Covebase	40	Lft	4.5"

I9706 111

Building name:
W

Room Number	Homogen Number	Material Discrption	Amount		Notes
212	**27**	brown Covebase	40	Lft	4.5"
213	**27**	brown Covebase	100	Lft	4.5"
216	**27**	brown Covebase	65	Lft	4.5"
218	**27**	brown Covebase	60	Lft	4.5"
219	**27**	brown Covebase	200	Lft	4.5"
220	**27**	brown Covebase	50	Lft	4.5"
201P	**28**	e w/green TSI Joints	3	each	

Appendix B

LABORATORY BULK SAMPLE

ANALYSIS REPORT

I 99 of 111

LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9260 Fax: (323) 254-9263 Email: pasadenalab@latesting.com

Attn:	Cole & Associates 451 Southwest Tenth St. Suite 100 Renton, WA 98055	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/05/03 9:00 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300745
Project:	CTC-365-01/W bldg	EMSL Project ID:	
		Analysis Date:	6/5/2003

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-03-365-01-01-W 320300745-0001		Gray Fibrous Homogeneous	Teased			35%	Non-fibrous (other)	65%	Chrysotile
CTC-03-365-01-02-W 320300745-0002		Gray/Cream Fibrous Heterogeneous	Teased			30%	Non-fibrous (other)	70%	Chrysotile
CTC-03-365-01-03-W 320300745-0003		Cream/Tan Fibrous Heterogeneous	Teased Dissolved	30%	Cellulose	70%	Non-fibrous (other)	None Detected	
-03-365-01-04- 320300745-0004		Gray Fibrous Homogeneous	Teased			30%	Non-fibrous (other)	70%	Chrysotile
CTC-03-365-01-05-W 320300745-0005		White/Tan Fibrous Homogeneous	Teased	30% 50%	Glass Cellulose	20%	Perlite	None Detected	
CTC-03-365-01-06-W 320300745-0006		Black Fibrous Homogeneous	Teased	40%	Glass	60%	Non-fibrous (other)	None Detected	
CTC-03-365-01-07-W 320300745-0007		Cream/Blue Non-Fibrous Heterogeneous	Teased	5% 10%	Wollastonite Cellulose	85%	Non-fibrous (other)	None Detected	
CTC-03-365-01-08-W 320300745-0008		Black/Silver Fibrous Heterogeneous	Teased	2%	Cellulose	95%	Non-fibrous (other)	3%	Chrysotile

Analyst(s)

Jeff Krogstad (29)

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 report is performed by LA Testing (NVLAP #200222-0)

PLM-1

LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
Phone: (323) 254-9963 Fax: (323) 254-9982 Email: pasadenalab@latesting.com

LA TESTING

Attn: Cole & Associates
451 Southwest Tenth St.
Suite 100
Renton, WA 98055
Fax: (425) 793-5525 Phone: 425-793-5505
Project: CTC-365-01/W bldg

Customer ID: 32COLE21
Customer PO:
Received: 06/05/03 9:00 AM
EMSL Order: 320300745
EMSL Project ID:
Analysis Date: 6/5/2003

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-03-365-01-09-W 320300745-0009		Tan Fibrous Homogeneous	Teased	30% 50%	Glass Cellulose	20%	Perlite	None	Detected
CTC-03-365-01-010-W 320300745-0010		Tan/Gray Non-Fibrous Heterogeneous	Crushed Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-03-365-01-011-W 320300745-0011									
C-03-365-01-012-W 320300745-0012		Black Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None	Detected
CTC-03-365-01-012-W M 320300745-0027		Tan Non-Fibrous Homogeneous	Teased	<1%	Cellulose	100%	Non-fibrous (other)	None	Detected
CTC-03-365-01-013-W 320300745-0013		Tan Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None	Detected
CTC-03-365-01-013-W M 320300745-0028		Tan Non-Fibrous Homogeneous	Teased	<1%	Cellulose	100%	Non-fibrous (other)	None	Detected
CTC-03-365-01-014-W 320300745-0014		White/Tan Fibrous Homogeneous	Teased	30% 50%	Glass Cellulose	20%	Non-fibrous (other)	None	Detected

Analyst(s)
Jeff Krogstad (29)

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.
Tests performed by LA Testing (NVLAP #200232-0)

PLM-1

I 101 of 111

LA Testing
159 Pasadena Avenue, South Pasadena, CA 91030
[redacted]

Attn:	Cole & Associates 451 Southwest Tenth St. Suite 100 Renton, WA 98055	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/05/03 9:00 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300745
Project:	CTC-365-01/W bldg	EMSL Project ID:	
		Analysis Date:	6/5/2003

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-03-365-01-015-W *320300745-0015*		White/Tan Fibrous Heterogeneous	Teased Dissolved	15%	Cellulose	85%	Non-fibrous (other)	None	Detected
CTC-03-365-01-016-W *320300745-0016*		White Fibrous Homogeneous	Teased Dissolved	85%	Cellulose	15%	Non-fibrous (other)	None	Detected
CTC-03-365-01-017-W *320300745-0017*		White/Gray Non-Fibrous Homogeneous	Ashed Dissolved			100%	Non-fibrous (other)	<1%	Chrysotile
C-03-365-01-018-W *320300745-0018*		White/Tan Fibrous Heterogeneous	Teased Dissolved	<1% 15%	Glass Cellulose	85%	Non-fibrous (other)	None	Detected
CTC-03-365-01-019-W *320300745-0019*		Cream Non-Fibrous Homogeneous	Ashed Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-03-365-01-020-W *320300745-0020*		Gray Non-Fibrous Homogeneous	Teased Dissolved			100%	Non-fibrous (other)	None	Detected
CTC-03-365-01-021-W *320300745-0021*		Gray Non-Fibrous Homogeneous	Teased Dissolved			60% 40%	Quartz Non-fibrous (other)	None	Detected
CTC-03-365-01-022-W *320300745-0022*		Black/Gray Non-Fibrous Homogeneous	Teased	<1%	Cellulose	100%	Non-fibrous (other)	None	Detected

Analyst(s)

Jeff Krogstad (29)

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 is performed by LA Testing (NVLAP #200232-0)

PLM-1

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	Customer ID:	32COLE21
		Customer PO:	
		Received:	06/05/03 9:00 AM
Fax:	(425) 793-5525 Phone: 425-793-5505	EMSL Order:	320300745
Project:	CTC-385-01/W bldg	EMSL Project ID:	
		Analysis Date:	6/5/2003

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-03-365-01-023-W *320300745-0023*		Gray Non-Fibrous Heterogeneous	Crushed Dissolved	<1%	Cellulose	20% 80%	Quartz Non-fibrous (other)	None Detected	
CTC-03-365-01-024-W *320300745-0024*		Gray Fibrous Homogeneous	Teased Dissolved			83%	Non-fibrous (other)	15% 2%	Chrysotile Amosite
CTC-03-365-01-025-W *320300745-0025*		White Non-Fibrous Homogeneous	Teased Dissolved	2%	Fibrous (other)	98%	Non-fibrous (other)	None Detected	
CTC-03-365-01-026-W *320300745-0026*		Brown Non-Fibrous Homogeneous	Teased			100%	Non-fibrous (other)	None Detected	
CTC-03-365-01-026-WA *320300745-0029*		Cream Non-Fibrous Homogeneous	Teased	<1%	Cellulose	100%	Non-fibrous (other)	None Detected	

Analyst(s)

Jeff Krogstad (29)

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 was performed by LA Testing (NVLAP #200232-0)

PLM-1

THIS IS THE LAST PAGE OF THE REPORT.

Appendix C

OHIO DEPARTMENT OF HEALTH

ASBESTOS HAZARD

EVALUATION SPECIALIST

CERTIFICATION

I 104 of 111

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

Post-it® Fax Note 7671	Date 5/29	# of pages ▶ 1
To Robert Parsons	From Josh Koch	
Co./Dept. C + A	Co. ODH	
Phone #	Phone # 614-466-0061	
Fax # 509-927-3050	Fax #	

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

I 10506 111

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 21, 2003

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

ATTN: Reed Terry

RE: Evaluation Specialist Certification # 34299

Dear Reed Terry:

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-20-2004.

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

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An Equal Opportunity Employer/Provider

Appendix D

LABORATORY

CERTIFICATE

OF

ACCREDITATION

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

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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 Jackson
For the National Institute of Standards and Technology

NVLAP Lab Code: 200232-0

NVLAP-01C (06-01)

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Appendix A

ASBESTOS

SURVEY

SUMMARY

"Asbestos Building Survey" Summary

Project Number: CTC-03-365-01

Inspectors: Robert Parsons and Reed Terry

Survey Date: 06/02/03

Project Name/Location: Building W, Miamisburg Closure Project, Miamisburg, OH

Asbestos Containing Building Materials were identified as a result of this survey, however additional materials have been identified during previous inspections.

Robert Parsons
Senior Project Manager
Asbestos Building Inspector
Certification # 34302

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CTC **Cole & Associates, Training and Consulting, Inc.**
Engineering, Health, Safety, and Environmental

August 26, 2003

Mr. Chris Ahlquist
CH2M HILL Mound, Inc.
1 Mound Road
P.O. Box 3030
Miamisburg, Ohio 45343

Re: Asbestos Abatement Summary Report
Building G, W and GW

Dear Chris,
Attached to this cover letter are two printed copies and one electronic copy (as requested in RFP # DP4-18436, April 30, 2003) of the asbestos abatement summary report for building g, w and gw.

Please do not hesitate to contact me at 614-891-7955 (office) or 614-348-0091 (mobile phone), if you have any questions and/or concerns.

Sincerely,

Trent Slemmons
Cole & Associates, Training and Consulting, Inc.

Cole & Associates, Training and Consulting Inc. (CTC), INC ♦ www.ctcbear.com
♦Plaza 451, 451 SW 10th Street ♦ Suite 100 ♦ Renton, WA 98055 ♦ (425) 793-5505 ♦ (425) 793-5552 Fax ♦ 1-877-455-BEAR ♦
♦ 1101 North Argonne Road ♦ Suite 110 ♦ Spokane, WA 99212 ♦ (509) 448-5510 ♦ (509) 927-3050 Fax ♦ 1-888-414-8008 ♦
♦ 79 South State Street ♦ Suite D-4 ♦ Westerville, OH 43081 ♦ (614) 891-7955 ♦ (614) 891-7956 Fax ♦

"The difficult we do overnight, the impossible takes twenty-four hours"

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MOUND

Miamisburg Closure Project

ASBESTOS ABATEMENT SUMMARY
BUILDINGS G, W and GW

prepared for

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

by

Cole & Associates, Training & Consulting, Inc.
79 South State Street
Westerville, Ohio 43081

CTC PROJECT #CTC-03-365-01

August 25, 2003

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2.0 Description of Asbestos Removal Using Glove Bags.....2

3.0 Personnel Air Sampling.....3

4.0 Air Sampling Analysis.....3

5.0 Health & Safety Issues.....3

6.0 Daily Site Logs.....3

Appendix A- Daily Site Logs

Appendix B- Air Sampling Analysis

Appendix C- Abatement Technician Certifications

Appendix D- Oversight Personnel Abatement and Evaluation Specialist Certifications

Appendix E- Laboratory NVLAP Accreditation

Executive Summary for Asbestos Abatement Activities in Buildings G,GW and W

- American Services Group (ASG, asbestos abatement contractor) mobilized to the Mound facility on July 14, 2003. A portion of the abatement crew attended the site-specific orientation training while the other crew members that have previously completed the orientation training began to unload and stage their equipment.

- Glove bag operations were utilized to remove asbestos insulation from piping.

- To prevent wheeled man-lifts from tipping over, the drain covers were replaced over the blinded floor sumps.

- Two layers of plastic sheeting was used to line the roll-off container, prior to any asbestos containing material being placed into the roll-off.

- A conduit containing the wiring (low voltage) for a fire alarm pull station was cut during the abatement activities within building W. A management review meeting was held by CH2M HILL to ensure that ASG is aware of what piping/conduits were not permissible to cut.

- The asbestos insulated pipes were cut and removed from the building using electric band saws and electric reciprocating saws. When situations didn't make it practical to cut pipes with electrical equipment, an acetylene torch was used to cut pipes (only after a hot work permit was issued).

- Building G was said to be isolated from electricity and water sources. Chris Ahlquist and Bill Wahler were notified when water was leaking from a pipe that was cut during abatement activities. Mound maintenance personnel were utilized to turn off the water.

- G building asbestos abatement was completed on 7/18/03. Abatement activities within buildings GW and W were completed on 7/19/03.

- Air samples were collected within buildings G, GW and W maintenance area from the garage area. The sampling cassette for building G was damaged in transit to the laboratory and was unable to be analyzed. The air sampling analytical is located in Appendix B of this abatement summary report.

I_2 567

1.0 Asbestos Removal Method

The asbestos containing material within buildings G, GW and W and are within the Mound facility was limited to pipe insulation, which dictated that the glove bag method be used to remove the material from the building. The entrances to the buildings were blocked off with caution tape to keep unauthorized personnel from entering the building during abatement activities. The following is a description of the "glove bag" method of removing asbestos insulation from piping:

2.0 Description of Asbestos Removal Using Glove Bags

Prior to hanging any glove bags, all loose and friable material adjacent to the glove bag area shall be wrapped and sealed in two layers of 6-mil poly. After the required hand tools and equipment are assembled, a polyethylene glove bag shall be installed, according to the manufacturer's instructions and 29 CFR 1926.1101, on a small section of asbestos-containing thermal system insulation to be removed. If negative pressure enclosure has not been established, the inner portion of the glove bag shall then be supported to allow negative air pressure, provided by a portable HEPA filtered vacuum, to be established inside the bag. All necessary tools and equipment shall be inserted into the bag before sealing the bag to the pipe. The exterior cover on the pipe insulation shall be cut and opened to allow through wetting of the insulation with amended water by inserting the nozzle of the portable sprayer into the bag. After the insulation has been opened and thoroughly wetted, the exterior cover shall be cut around the circumference of the section being removed. After removal of the insulation material, all material shall be contained in the lower compartment of the bag and thoroughly saturated. The inside of the glove bag and pipe shall be washed down with amended water, wet wiped and encapsulated. All tools shall be washed thoroughly before they are removed through the gloves of the bag. The glove bag shall then be evacuated with the portable HEPA filtered vacuum. While the bag is collapsed, it shall be squeezed below the tool pouch and twisted. The bag shall be sealed with tape or locking ties to separate the waste from the removal compartment. The glove bag shall be cut along the top and sides and removed from the pipe. The glove bag shall then be placed in the appropriate disposal container. **NOTE: 1) At least two persons shall perform all glove bag Worker per 29 CFR 1926.1101, and 2) Glove bags shall not be used on surfaces whose temperature exceeds 150 degrees.** Where "cut and wrap" methods are used, contractor shall wrap the material to be removed with two impermeable layers of 6 mil thickness plastic sheeting prior to dismantling the underlying substrate (for instance, cutting out a section of insulated pipe). The substrate will only be cut/dismantled at points, which are not covered/treated with asbestos material in such a manner that does not disturb any adjacent/nearby ACM. Removed sections will be sized so as to allow safe removal and handling of resultant packaged ACM/substrate, and size of removed sections will be coordinated with the Mound's representative so as to permit safe and proper conveyance of material for disposal. Removed sections of ACM/substrate will be properly labeled as asbestos waste by contractor in accordance with applicable regulations. All work areas where ACM is removed and/or packaged shall be regulated in accordance with 29 CFR 1923.1101.

3.0 Personal Air Sampling

Under the contract agreed upon between CH2M HILL Mound, Inc. and Cole & Associates, Training & Consulting, Inc. (CTC), ASG was responsible for conducting the personal air sampling of their asbestos abatement technicians.

4.0 Air Sample Analysis

As discussed in the executive summary of this report, the air-sampling cassette used for the area air sampling of building G was damaged during transportation to the laboratory. The sample was collected with an air pump set up in the middle of the garage area of building G. The amount of fibers/per cubic centimeter (f/cc) from buildings W and GW were reported <0.002 and 0.004 f/cc, which indicates that the clearance standard of .01 f/cc was not exceeded. The samples were analyzed by LA Testing in Pasadena, California, which maintains a current National Voluntary Laboratory Accreditation (NVLAP) accreditation as specified in RFP number DP4-18436. The results from air sampling from building GW and W are located in Appendix B of this abatement summary report.

5.0 Health & Safety Issues

During the abatement activities of building G, several health & safety issues were observed and corrected at the beginning of the project. Abatement technicians were counseled on the following issues;

- Safe scaffolding use.
- Securing the safety lanyard on the technicians body harnesses to solid mounting points.
- Utilizing the proper PPE while working in the asbestos abatement work areas.

6.0 Daily Site Logs

The daily site logs were submitted with the weekly report to Chris Ahlquist of CH2M HILL Mound, Inc. Copies of the daily site log can be found in Appendix A.

I2 7 of 7

Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 6/18/03 12:55PM
Subject: Building G/GW/W

Val -

For Buildings G/GW/W asbestos and lead paint concerns, the following is provided for your use:

Asbestos

An asbestos survey was completed in June of 2003 by Cole & Associates Training & Consulting, Inc. in accordance with EPA NESHAP requirements prior to demolition. Three types of materials were found to contain asbestos which must be removed prior to demolition; these materials included 4,540 linear feet of various pipe insulations throughout, 15 square feet of table top cement board lining in Room W-136, and 3 exhaust gaskets in Room W-121. The roofing (approximately 37,200 square feet) is of a built-up asphalt variety and is assumed to contain asbestos as is the floor tile (approximately 8,355 square feet) within the building - being classified as EPA Nonfriable Category I types of materials, the removal of roofing and floor tile is not necessary prior to demolition by normal heavy-duty means. A copy of the survey report is being forwarded.

Lead

No previous lead surveys or sampling data could be found for Buildings G/GW/W. 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.

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Kehler, Kurt; Kramer, Donald

Appendix K

Chemical Information

Lists of chemicals known to have been in G-GW-W Buildings are provided.

Applicable pages of CY2001 Emergency and Hazardous Chemical Inventory Report (dated March 2002) are also provided.

Chemicals and Products Previously Used or Stored in G Building

2-cycle Multipurpose Lubricant
acetylene
Air Lube 10W/NR
Antifreeze waste
Asbestos waste
Auto Marine Motor Tune-up
Automatic trans. fluid
Balkamp Lith-Ease Grease
Bar & Chain Oil
Battery Protector 7011
Battery Terminal Protector
Bio Hygard hydraulic/trans. Fluid
Blue Max Spray Buff
Childers CP-10
Clean-N-Dry
CLR Window
Conquest
Coolant Conditioner Liquid # TY16004
DD/85 Spray
Dextron ATF
dichlorodifluoromethane
Diesel fuel supplement
Diesel fuel, water
Diesel fuel, water waste
Dieselall SAE 15W-40
DMQ cleaner
DOU-Powder
E-708 Automotive Body/Glass Sealer
Epoxy & Laquer thinner
ethylene glycol Antifreeze Coolant
Farm & Equipment Orange Paint
Floor Finish/Above
Fountain Head
Gasoline Unleaded
gasoline, unleaded and 2-cycle oil
Gloss Extender
grease Multi-purpose
Grease-Be-Gone
Head Start
High Tack spray-a-gasket adhesive
Hi-strength spray adhesive 90
Hydraulic/Hydrostatic Trans. Fluid
Industrial Equipment Yellow Spray Paint
Insect Spray/Cherry
Insecticide/Wasp
Kerosene
Kindest Care
Lava hand soap
Lil Brother Sam
Low ash engine oil SAE-30
Lubricant Permatex Antiseize
lubricant SAE 80W-90 gear
methanol Air Brake Antifreeze 5601
methanol Air brake system antifreeze
Mineral spirits
MP Dextron 3 ATF
MRO Concentrated Spray Paint
NABC
Neut. Floor Corp.
Nitric acid
Odor Bane
oil 10W-30 motor
oil 15W-40 motor
oil 32 #65208 Tellus
oil 5W-30 engine
Oil SAE 20W Motor
Oil SAE 50 Motor
Oil Treatment
Oil waste
Oil waste, fuel oil
Oil waste, gas
Oil waste, hydraulic
Oil waste, hydraulic oil
Oil, gas sample, 94-333
Oil, gas sample, 94-357
Oil, gas waste
Oil, gas waste sample, 95-001
Oil, hydraulic oil waste
On-Base Sealer
One-Step Sure Bet
Oxygen
PCB Ballast
Plus 50 Supreme motor oil 15W-40
Polish/Lemon
Power steering fluid
Propane
Protector & Sealer Permatex Battery
Pummel hand soap
Pyroil Antifreeze Coolant
Pyroil Power Steering Fluid
R&O Hydraulic oil (Warren oil)
Rinse-Free soap

RoundUp
Ruthless Paint Remover
SAE 10W hydraulic oil 8T-9579
SBS lotion soap
Seal-Con-Seal
Sealer Ironstone
Shineline Base
Silicone Sealant
Special Purpose HD Moly Grease
Specticide
Spin-Out
Spot, Pile Driver
Stainless cleaner
Statcide
Stay clean flux
Stripper
Super HPO SAE 30 motor oil
Surface Gleem
Tap Magic Cutting Fluid
Track Idler & Roller Grease
Treatment/Dust
Upside Down Marking Paint
Vesta Power
WD-40
Window Shine

Chemicals Previously Used or Stored in GW Building

186 Curing Agent
186 Silicone
520 Adhesive
7200 Curing Agent
7200 Resin
8822 Epoxy Part A
8822 Epoxy Part B
A2 Adhesive
Abrasive Powder 9
Acme E Solder 3025 Part A
Acme E Solder 3025 Part B
Activator A
Adipreen L-100
Adiprene 100
Adstart
Aerojet Accelerator ATC-3
Alcohol
Alconox
Alconox Detergent
Alkyl sulphanote
Allyl glycidyl ether
Alodine 1200S
Alodine 1201
Alumina C
Aluminum Alloy #2203
Aluminum Alloy #2204
Aluminum oxide
Amdry Cement
Ammonium iodide
Ammonium phosphate
Ammonium phosphate, monobasic
Anco A-8007
Antifoam Type II
Antimony
AP-20
Axel Mold Release P-9
Barium fluoride
Biphenyl
Blue Dap Short #4747
Blue Paste
Blue Paste 2301
Boact EC 7
Boric acid
Boric acid, solid
Boron powder
Boron Reference Solution
Brightener E3
BX 20101 Part B
Cab-O-Sil
Calcium nickel
Calcium stearate
Calcium state
Castone
Castone Buff
Caytur 21
CGE 100 Etchant
Chaner Markem
chlorodifluoromethane
Chloroform
Chromium Etchant
Chromium trioxide
Cimstar Metal Working Fluid
Citrate solution
Citric acid
Citric acid monohydrate
Clean Powder
Cleaner
Cleaning Powder 2
Cleaning Powder 3
Clear Acrylic
Component A
Component B
Compressed Air Duster Aerosol
Conap AD1146
Conap Conathane EN7-A
Conap Conathane EN7-B
Conap DS 1834
Conap EN7 Part A
Conap EN7 Part B
Conap EN8 Part A
Conap EN8 Part B
Conap S-1
Conductor Composition
Contact Cement
Copper fluoride
Corrocoat 1295
Corrocote Thinner with Toluene 2,4 Diisocyanate
CPVC
CTBN Epoxy
Curing Agent
Cyanocure

Cynide pit waste rags
DAP 306
Dap Blue Figerglass
DAP Short Glass 5201
Defoamer Resin
De-Ox-It
Dextrose
Dextrose Powder
Diallyl phthalate
Diallyl Phthalate Compound
Diaminobenzene (1,3)-4,4 methylenedianiline
Dibutyl tin dilaurate
Diethlyamino ethanol
Diethlyene glycol
Diethyl amine
Diethylene glycol butyl ether acetate
Dimer Parylene
Dimethoxy-phenylacetophenase
Dimethylformamide
Diphenyl methane 4,4 diisocyanate
Dow 1200 Prime Coat
Dow 1204 Prime Coat
Dow 3140
Dow 3140 RTV
Dow Corning 3140 RTV Coating
DuPont Conductor
Dye Gard 184
Dye Zuler Blue
Dynamark 8500
Dynatronix Acidic Solution
E Solder A
E Solder B
EGMB ether, formaldehyde, diethylethanolamine
Epon 815
Epon 828
Epon 828 Resin
Epon Curing Agent U
Epon Resin 815
Epon Resin 828
Epoxy 8822 Part A
Epoxy 8822 Part B
Epoxy Resin
Epoxy Resin, methylene biphenyl isocyanate
Epoxy Resin, polypropylene triol
Epoxy Resin, Talc
Epoxy SRIS
Epoxylite 8822 Part A
Epoxylite 8822 Part B
Epoxypolymide, Triphenylphosphite, Magnesium Oxide, Pigment
E-Solder 3012
Ester alcohol
Ethacure
Ethacure 100
Ethone Enplate NI-416M
Ethylcyanocrylate, Hydroquinone Ethyorthosilicate, Tetrabutytitoneet, Petroleum Distillates
Europium hydride
Europium Metal
External Mold Release
Ferric chloride
Flourene
Flux
Flux Supr #30
Flux Type B
Foam Suppressant
Formic acid
Formica 100
gasoline
GE Blue Primer SS4155
GE RTV 630 Part A
GE RTV 630 Part B
GE RTV 630A Silicone
GE RTV 630B Curing Agent
GE RTV II
GE RTV Silicone
GE Silicone
GE Silicone A
GE Silicone B
GE Silicone RTV 11
GE Silicone RTV 630 Part A
GE Silicone RTV 630 Part B
GE Silicone SS4155
GE SS4155 Blue Primer
GE SS4155 Primer
Glacial Acetic Acid
Glass Beads
Glycerin
Gold Brightner
Gold Etch
Gold Salt 9NT
Gold Stripper

Graphite
Graphite Powder
Green Glue
Green Glue Epoxy
Hach EDTA Salt
Halthane 7200 Part A
Halthane 7200 Part B
Halthane 7318
Halthane 73-18 Curing Agent
Halthane 73-18 Resin
Halthane 88-3 Curing Agent
Halthane 88-3 Resin
Halthane Curing Agent
Halthane Curing Agent 73-18
Halthane Curing Agent 88-3
Halthane Resin
Heresite CSE6006
Hexane
Hexane Reagent
Hexane waste
Hydrofluoric Acid
Hydrofluoric Acid 49%
Hydrofluric acid
Hydroxypropyl (2)-Ethylene Diamine
Hysol 934 Part A
Hysol 934 Part B
Hysol EE-4169 Casting Compound
Hysol Part A
Hysol Part B
Instagel XF
Irgacure 651
Iron Powder
Iso Verre Stripper
Isocut Fluid
Isopropanol
Isopropyl, bromocresol, potassium hydroxide
J. R. Accelerator Polysulfide
J. R. Base Polysulfide
Jaguar C13
Joint Sealant
Kester Flux 197
Kester Resin AP-20
Kester Solder Flux
Kodak Indrustrex Developer Part A
Kodak Triphenyl Phosphite
Lanthanum Hydride
Lanthanum Metal
Lanthanum nickel aluminum
Lanthanum nickel hydrate
Laquer
Lead dioxide
Lead Dioxide Part B
Lead Octoate with Stringes
Lead Oxide - Red
Lead zirconate titanate
Lectroless Nickel Makeup
Limonene
Lithium carbonate
Lithium hydride
Lithium hydride, berrylium hydride
Lithium magnesium hydride
Lithium phosphate
Loctite 271
Magnesium nickel
Magnesium nickel hydride
Magnesium oxide
Mannitol
Markem 207 Cleaner
Markem 7132 Black Ink
Markem 8639 Black Ink
Markem Black 8829
Markem Cleaner
Markem Cleaner 320
Mek, acetone, 1,1,1-trichloroethane, petroleum hydrocarbons
Mercury
Mercury thermometers
Methanol
Methyl alcohol
Methyl ethyl ketone
Methyl Orange
Methyl Orange Solution
Methyl pyrrolidone
Methylene bis-phenyl isocyanate
Mold Whiz P-9
Mound Green Glue
M-Pyrol
Nadic methyl anhydride
Nadic methyl anhydride, epoxy resin
Narkem 320
Nickel carbonate
Nickel standard
Nickel sulfamate solution
Nickel sulfate
Nitric acid

Organic ink
Organic isocyanate
Organic resin
Oxidizers, Chromic Acid
Parylene
PCB oil
PDI Blue 2301
PDI Blue Epoxy
PDI Blue Paste
PDI Epoxy
PDI Epoxy 22-38010
PDI Epoxy Blue 22-38010
PDI Yellow
PDI Yellow 22-20480
PDI Yellow Paste
PDI Yellow Paste 22-2048
Permabond 910
Petroleum distillates
Phenolic Microballoons
Phenolic Resin
Phosphoric Acid
Plastisil Adhesive
Plastisil Base
Plastisil Catalyst
Polishing Powder
Polyamid Resin
Polyamide Resin, Trimethylene Tetramine
Polysacharride
Polysulfide Part A
Polysulfide Part B
Potassium chloride
Potassium iodide
Potassium perchlorate
Potassium phosphate
Potassium sulphate
PRC 1201QA
PRC 1201QB
PRC A
PRC B
Prime Coat
Prime Coat 1200
Prime Coat 1204
Primer
Primer SIL
Pura Gold Conducting Salt
Q Dope
Raycohesive B-84
RC-20
Replenisher Gold
Resin
Resin, isopropanol, turpentine
RTV 11
RTV 3145
RTV 511 Silicone
RTV 511 Silicone Rubber Compound
RTV 630 A&B
RTV F
RTV-11
Ruger Triton
Saes Getters
Scotch Electrical Resin Part A
Scotch Electrical Resin Part B
Scotch Weld Epoxy Adhesive 2214
Scotchcast Electrical Resin 8 Part A
Scotchcast Electrical Resin 8 Part B
Silica
Silica powder
Silicon oxide, lithium
Silicon sioxide waste (cabosil)
Silicone
Silicone Blue Primer SS4155
Silicone Curing Agent
Silicone Elastomer
Silicone Rubber
Silicone Rubber, Toluene
Silver Epoxy
Silver Flake MK
Silver flakes
Silver metal
Silver paint
Slygard 184 Curing Agent
Slygard 184 Elastomer
Slygard 184 Part A
Slygard 184 Part B
Slygard 184 Silicone
Slygard Curing Agent
Slygard Elastomer
Slygard Prime Coat
Sodium bicarbonate
Sodium bicarbonate
Sodium carbonate
Sodium dichromate
Sodium hydroxide
Sodium hydroxide pellets
Sodium hypochlorite
Sodium nitrate

Sodium potassium tartarate
Sodium potassium tartrate
Sodium sulfate
Sodium sulfate anhydrous
Soilder Resin Core
Solder
Solder Flux 135
Solution 7.0
Span 80
SRIR Epoxy Part A
SRIR Epoxy Part B
SS 4155
SS4144 Primer
Stir Epoxy Part A&B
Sulfuric acid
Superior Flux 30
Synkool M173
Synkool SS311
Tacpac Accellerator
Tert-butyl peroxy benzoate
Test Solution
Tetra Etch
Texanol ester alcohol
Thrichloroethane (1,1,1-)
TIH3 (Titanium tri-hydride)
Titanium copper dioxide
Titanium copper hydrate
Titanium copper oxide
Titanium iron
Titanium nickel hydrate
Titanium osmium
Titanium oxide
Titanium powder
Toluene diisocyanate
Tributylphosphite
Triphenyl penyl
Triphenyl phosphate
Triphenyl phosphite
Triton N-101
Triton X-100
Ultra Carbon Graphite
Urethane 7200 A
Urethane 7200 B
Uvithane 783
Vanadium hydride
Versamid 125
Versamid 140
Versimid
Versimid 125
Versimid 140
VEX Concentrate
Videojet 16
Videojet 2600
Vinyl (N) -2-pyrrolidone
Weld-on Cement 16
Wesgo 532
Xylene, aluminum, epoxy resin
Zinc oxide
Zirconium chromate
Zirconium oxide
Zirconium powder
Zulu Blue

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Chemicals or Products Previously Used or Stored in W Building

#21 welding rods (stick)
1,1,1-Trichlorethane Solvent MS-170
19 vacuum pump fluid
22P Lockdown encapsulant
242 thread locker
262 thread locker
271 thread locker
3 in 1 oil
3080 food safe mold release
33 Glazing
3300 const. Polyurethane sealant
4 compound
5 Pipe thread sealant
7014 welding rods (stick)
95/5 solder
acetylene
Adhesive 520
adhesive Acousti-Gum acoustical tile 137
AEON PD Lubricant
Airco code arc 7018MR covered
Air-lock 181 duct sealant
Alcoa almigweld aluminum electrode
Alcohol USP, ethyl alcohol, 190 proof
Almagard 3752 Lubricant
Almagard vari-purpose grease #3752
Aluminum Polish
Aluminum welding electrodes
Aluminum wires & rods
Antifreeze waste
Antifreeze, water waste
Anti-heat heat-sink compound
Antirust Oil Primer #21951
Anti-skid coating additive #200
Anti-wear Hydraulic oil
Anti-wear hydraulic oil ISO 32
Apiezon vac. Grease
Aqua-Gel II cable pulling lube
Aquathane metal primer #1611
Ar 75% CO2 25%
Argon
Argoshield gas #75, #75A
Argoshield gas #8C, #25C
Asbestos Contamination Shield
Asphalt Emulsion Adhesive 131
B-150 driveway sealer
Baking soda
Battery acid, sulfuric acid-UN2796
Battery fluid acid
Battery terminal cleaner and
Bay Country shop coat primer 232-20
Bearing grease
Bearing grease, light
Bearing grease, medium
Belt dressing-cling surface
Bioact EC-7 terpene cleaner
Bison open gear guard
Block filler flat latex 220-12
Blue toolmaker's ink #6001, 16001
Brazing fluxes stay silv white & black
Break-free CLP, aerosol
Bridgit soldering flux
Bru-tect chem resistant epoxy #380
Brutone acrylic satin enamel 1503
Brutone acrylic satin enamel #110-03
Brutone acrylic satin enamel: 110 series
Brutone alkyd satin enamel
Brutone Latex Flat Wall Paint #100-50
Brutone satin enamel #1402
butane fuel Ultrane
Butane gas
butane gas Multi-fill
Calci-solve nyco N-001
Calcon pax-solv waterless hand
Calgon spray adhesive (4080)
Capella WF 68 refrigeration oil
Carpet adhesive 251
Carpet Adhesive (Eighty-Four)
Carriage House House & Trim 315-03
CC-4 Cable Cleaning Solvent
Celvacene high vac. Grease
Celvacene vacuum grease
cement Acrylic SC-100
cement Weld-on 711 plastic pipe
cement Weld-on PVC 717 plastic pipe
Certanium 78 gas-tig
Certanium 889SP AC-DC
Chem-Skid floor surfacer
Chesterton cutting oil 390
Chesterton NR 390 cutting oil
Chico A2 Sealing Compound
Cimtap Tapping Compound
Citrus All Purpose Cleaner

Citrus-Pure remover
Cleaning solution, basic
Clear acrylic coating
Clear acrylic protective coating
Clear Gloss 70-0
Clear Gloss and Base
Clear urethane seal coat
CN-163 primer
Coatings Devguard 4308-8600
Concord Pipe Joint Lubricant
Concrete mix
Convoil 20
Cool Tool 2 Cutting Fluid
Cool-amp silver plating powder
Cool-tool II cutting & tapping fluid
Cove base adhesive
CP-10 AF VI-CRYL acetate emulsion
CP-240 chil-lock abatement sealer
CP-30 Chil-Perm low odor
CP-30 low odor chil-perm barrier coating
crystal clear acrylic
Crystal clear cleaner
Cupran New hand paint remover
Cutting fluid
Cyanide pit waste
Daytone wall & trim latex enamel
Defender II
De-ox-it electrical contact cleaner
Dias-Aid
Dias-Aid concentrate
dichlorodifluoromethane
Dimenso enamel #522
DMQ cleaner
Dow Corning general purpose
Dow Therm SR-1
Dow Therm SR-1 coolant
Dowtherm ® SR-1 heat transfer fluid
Dowthrem-J
Dry film lubricant
DTE oil BB
DTE oil light
DTE oil medium/heavy
Duo seal oil, Cat. No. 1407K
DuoSeal pump oil
Durabond web patch 90 covering
Durham Rock Hard Water Putty
Dust Off
Dust-n-shine
Dymonic sealant
Dyna-blue cable lubricant
Easy-arc electrodes 6012 (stick)
Effecto gloss enamel #7727
Eighty-Four Press. Sens. Carpet Adhesive
Electric contact cleaner
Electrical contact cleaner (4082)
Electrical contact cleaner, aerosol
Electrolyte 2X
Electronic components cleaner
Emkarate refrigeration lubricant
Enforcer wasp and hornet killer
Epoxy caulking compound #930
ER-5356 welding wire
Ersin Multicore solder Sn60
ethanol
Ethylene glycol, water
Exterior oil gloss #5205
Ferri-floc
Fine quality acrylic paint #5442
Fire barrier caulk CP-25
Firestop
Fisher brand 19 mechanical pump oil
Flame control coatings #320A
Flashback arrester liquid
Fleetweld 5P
Fleetwood 5P&6010 welding rods
Floor Covering Adhesive 630
Fluorescent alkyd paint
Fog Pruf lens solution
Fogpruf lens solution
Formica adhesive
Free all penetrating oil
Freez-it 2000 antistat
Freon TMC solvent flux remover
furniture polish
Gas leak detector
Gas leak detector (bubble type)
Gasoila thread sealant
GC rubber to metal cement
Genetron 12
Genetron 22
Genetron 22 chlorodifluoromethane
Genetron 502
Genetron 502 azeotrope
Glass beads
Glass Frosting (white #152)
Gloss Protective Enamel #7779

Gloss varnish polyurethane #2040
glue Multi-purpose
Graphite powder, fibers
Gray paint, MRO
grease high vacuum
GRS Aerosol Lubrication
Gunk Super Oil
Harris lead free plumbing solders
Harris safety silv (silver solder)
Heavy Duty traffic marking paint
Heavy duty white lithium grease
Helium
Hickman HK300
High strength adhesive 90
High vac grease, Dow-Corning
Hi-strength 90 spray adhesive
HK 300 asphalt
HK aluminum shield
Hobart FCAW
Hobart FCAW low alloy
Hobart FCAW mild steel
Hobart FCAW self shielded tubular
Hobart nickel cast electrodes
Hobart rutile coated (titania)
Hobart SMAW carbon steel
Hobart SMAW hardsurfacing build-up
Hobart SMAW low hydrogen carbon
Hobart SMAW low hydrogen, low
Hydrogen
Ice machine cleaner
IMS silicone spray #512
Industrial Protective Coating (clear)
Inland 19
Insul-Tile activated epoxy
Iron cement # 1
Iron grip 601 duct sealant
isopropanol
Joint sealing compound
Killark sealing compound
Kindest Kare hand soap
Koppers 441
Koppers Flash On 441
Koppers Mastic 451
K-Poxy cleaner
Laquer thinner
Latex Paint - 7300 White
Latex-fortified wall grout
Lava soap
LE 3003 cove base adhesive
LE 5000 VCT floor covering adhesive
Lead free plumbing solders
Leak lock joint sealing compound
Leak-Tec
Lemon furniture polish
Lightweight 3 Auto Body Filler
Linoleum paste 150
Liquid lab cleaner
Liquid Nail
Liquid Paper correction fluid all
Liquid Plumber
Liquid Wrench
Liquid Wrench No. 1 (aerosol)
Liquid Wrench No. 1 penetrant
Liquid wrench, perchlorethylene
Lock-Ease LE-5
Lock-Ease No. LE-4 & LE-18
Loctite #242 Threadlocker
Loctite 567 Thread Sealant
Loctite anti-seize lubricant 767
Loctite anti-seize thread compound
LPS Lubricant
Lube 80W
lubricant
Lubricant J
Lubricating oil 9150-598-7122
Machine cleaner polish
Marker board cleaner No. 202
Marker board cleaner No. 404
Marking Paint: white
Masonry Cement
Masonry surface conditioner
Mastic weather coating
Matte Fixative Spray (Blair-Art)
Medium dry instrument ink Red
Mercury
Mercury debris waste sample, 95-998
Metal duct sealer D617
Metal dye
Metal working oil, gulf-cut 11D
Micro lab cleamer
Midaco crystal clear visor cleaner
Miller welding system coolant
Mineral oil
Miriam 100 unity oil SG1
Mitee thread cutting oil Dark
Mo59-Finish insulating varnish

Mobile 1, 15 W 50 Syn. Oil
Mobile DTE Light
Mobilux EP1
Mobilux EP2
Mono 555 Acrylic terpolymer sealant
Morite no-drip plastic coating
Morite no-drip tape
MRO Industrial Coating #20-1423
MRO protective coating: dk. Grey
MRO safety clear spray #20-1421
MRO safety yellow #20-1419 spray
NDT fault check cleaner
Neatsfoot oil and petroleum
Never seez regular grade
Nissen metal marker
Nitrogen
Nova HT 2 High Temp Grease
NuClear Thread Cutting Oil
Oatey No. 5 flux
Oatey PVC cement
Oatey PVC cleaner
Odorbuster fragrance, refill
Oil # 46 Tellus
oil #88970
oil 10W-30 motor
Oil 20W-50
oil 3 in 1 household
oil 390 cutting
Oil floor paint #814
Oil for Programmer
oil Non-detergent motor
Oil Premium Dark Thread Cutting
Oil rags, debris
Oil SAE 30 Non-Detergent
Oil Stain 70%
Oil Valvoline 80W-90
Oil waste, solvents
Oil waste, water
Oxygen
Paint Acrylic B66xx
paint Acrylic house #096 3B
Paint conditioner
paint Pacon supreme traffic marking 555
paint Pacon Supreme wall & trim #140-01
paint Pacon supreme zone marking 555-00
paint thinner
Pax-solv waterless hand cleaner
PC3 Black Part B
PC-3 black Part A Lab table cement
Penetrating Surfactant
Performix Coating & Primer
Permatex #1
Permatex #2
Permatex Form-a-gasket #2
Petroleum naphtha, unit 301-82433
Plastic pipe cement, weld-on
Plastic roof cement
Pliobond industrial adhesive
Polychlorinated biphenyls
Polyseamseal all-purpose caulk
Polyurethane wood finish
Porch floor enamel #C11271
Professional Inverted Marking Paint
Propane
Pummel skin cleaner
Pummell
Pump Lubricant
Purple primer
PVC cleaner
PVC pipe cement
PVC primer
PVC primer Purple
PVC primer clear
QB-300 Multipurpose Constrction Adhesive
Quad seal silicon gasket
Quick Gel Super Glue
Quick Metal Loctite
R-373 adhesive
Radio TV cement solvent
Reagent Alcohol # 7019
Reciprocating Compressor Oil
Red gage oil 826 SG
Red Marking paint
Reglet joint sealant
Rez-N-Kleen
Rockite anchoring & patching
Roof Cement, fibered plastic #108 047
RTV 103 sealant
RTV sealant
RTV silicone rubber sealant 102
RTV silicone rubber sealant 102 5P1
RTV silicone rubber sealant 108
RTV silicone rubber sealant 108 5P1
Ruby fluid soldering flux
Ruby fluid soldering paste
Rust reformer

SAC 55 mortar additive
SAC 80 Joint Filler/Tile Grout
Saddle soap
Sand mix
Scotch Brand Spray Mounting Adhesive
Scotch-grip 1357-L adhesive
Sealing compound SC-8 oz.
Seam cleaner Black
Serpiflex shield asbestos encapulant
Sherwood Wipe On Stain
SikaFlex 1A Uni-Pack Sausage
Silathane 2 acrylic gloss enamel #532/533
Silathane gloss enamel
Silathane gloss enamel 520 series
Silathane gloss enamels 520
Silathane rust proof metal primer #520-13
Silicon acrylic latex caulk
Silicone Primer #SS4179
Silicone spray
Skid-tex
Skin screen hand protection
Skin-So-Soft
Slic-tite thread sealing compound
Smoke detector testor
Soldering flux
Solders, various trade names
Solid exterior latex stain #4838
Solid steel welding wire
Splice adhesive
Splice adhesive White
Spotcheck cleaner/remover SKC-NF
Spotcheck developer SKD-NF
Spotcheck Penetrant SKL-HF/S
Spotcheck/zyglo developer
Spray adhesive
spray coating clear #1301
Spray enamel: stand. Gray
Spray Paint - 16-654 Red
Spray Paint - 16-668 Green
Spray Paint - 16-669 Blue
Spray Paint - 16-676 Yellow
spray primer for metal #1317
Spray remover SP-1138
Spray steel blue SP-1100
Spray-N-Go
Spray-tap HB-1
Spruce 473 spray paint Red
Sta Sharp adhesive
Stair tread caulking #36
Stair Tread Nosing Adhesive 920
Stair-tread adhesive #86
Static free/Static null
Stay clean soldering & tinning flux
Stay Clean Soldering Fluxes
Stay-clean paste flux
Stay-clean solder flux
Steel blue layout fluid
Stick electrodes 6010 (stick)
Stoddard Solvent
Stoddard Solvent Type II
Stoddard Solvent, Type III
Stokes V-Lube Grade J Pump Oil
Sulfuric acid battery fluid
Suniso 365 refrigeration oil
Suniso 4GS refrigeration oil
Suniso refrigeration oil 3GS L316
Super freeze mist
Super-duty lubricant # 252
Syn Hydrocarbon remover
T.H. 600 welding rods (stick)
Tap Magic Cutting Fluid
Tap Magic Cutting Oil
Thermal compound # 120-8
Thermo-trap
Thermo-trap heat absorbing paste
Thermo-trap protective heat sink
Thinner 160
Thorobond Bonding Agent
Thoropatch Patching Material
Thread seal tape (plain) teflon tape
Three-in-One household oil
Three-in-One motor oil SAE 20
toluene
Tool Cool-cutting fluid 74102
trichloroethane
Trichloroethane (1,1,1-)
Tuf Pal Multi-Purpose Expansion Cement
Ultra clear gloss wood finish
Ultra-hide Fire Retardant Overcoat
Ultra-Mark Fluorescent Spray
Universal Metal primer #5100
Unleaded gasoline
Urethane Catalyst & paint
Vaseline intensive care lotion
Vimasco, WC-5 white vinyl-acrylic
Vinyl Ester Novalac Binder

Vinyl Ester Novalac Coating
V-Lube vacuum pump oil
Water borne clear laquer
Waterbase bonding adhesive
WD-40
Welders Spatter-ease
Welding System Coolant #109973
Welding wire
Welding wire alloys, coiled
Weld-on P-70 primer
Weld-on P-70 PVC purple primer
Weldwood contact cement
Weldwood spray-n-glue
White stencil ink 7083
Whitmore #2 grease
Wood Finish Red Mahogony
Wood Stain C9320 Black walnut
XECO Blue Paint
Xylene
York Spat-R-Pruf Compound 110
Zerol 300 refrigeration oil
Zone Marking paint #20126 Yellow
Zyglo developer ZP-9

BWXT of Ohio, Inc.

CY2001 Emergency and Hazardous Chemical Inventory Report
(excludes Appendix A containing Official Use Only building maps*)

March 2002

MOUND
is operated for the
U.S. Department of Energy
under contract No. DE-AC24-97OH20044

**Contact the Department of Energy Miamisburg Environmental Management Project for a copy of Appendix A if needed for the performance of official duties.*

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here: _____
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

K16 of 19

5.0	Chemical Description										Hazard Class					Location of Chemicals							Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7440-37-1	argon		X					X		X				X	B-T	11B	1	L	2,4		01	01	C	365
2	7440-37-1	argon	X						X		X				X	B-T	2B	1	L	2,4		01	01	C	365
3	7440-37-1	argon	X						X		X				X	B-W	dock	1	L	2,4		02	02	C	365
4																									
5																									

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN PAGES ONE THROUGH 27, AND THAT BASED ON MY INQUIRY OF THOSE RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Richard Provencher, Director, USDOE, MEMP
NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

2/27/02
DATE SIGNED

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c/o Ohio EPA, Lazarus Government Center
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4.5 [x] I Have Attached a Facility Map

K17 of 19

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	107-21-1	ethylene glycol	X					X				X				B-48	211	2	N	1,4		02	02	C	365
2	107-21-1	ethylene glycol	X					X				X				B-G	1	1	N	1,4		01	01	C	365
3	107-21-1	ethylene glycol	X					X				X				B-G	1	1	D	1,4		02	02	C	365
4	107-21-1	ethylene glycol		X				X				X				B-P		1	D	1,4		03	03	C	365
5	107-21-1	ethylene glycol	X					X				X				B-T	58	1	N	1,4		01	01	C	365

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SIGNATURE

2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/89

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
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K18 of 19

5.0	Chemical Description										Hazard Class					Location of Chemicals							Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	8006-61-9	gasoline	X					X			X	X	X			T15			A	1,4		6000	4000	G	365
2	8006-61-9	gasoline	X					X			X	X	X			B-94	3	1	F	1,4		01	01	C	365
3	8006-61-9	gasoline	X					X			X	X	X			B-GW	dock	1	F	1,4		02	01	C	365
4	8006-61-9	gasoline	X					X			X	X	X			B-SD	dock	1	F	1,4		01	01	C	365
5	8006-61-9	gasoline		X				X			X	X	X			B-TR1		1	F	1,4		02	01	C	365

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

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4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

K19 of 19

5.0	Chemical Description									Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7782-37-9	nitrogen	X					X	X		X				X	T09			A	2,7		04	04	C	365
2	7782-37-9	nitrogen	X						X		X				X	B-T	266	2	L	2,4		01	01	C	365
3	7782-37-9	nitrogen	X						X		X				X	B-W	dock	1	L	2,4		02	02	C	365
4																									
5																									

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NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

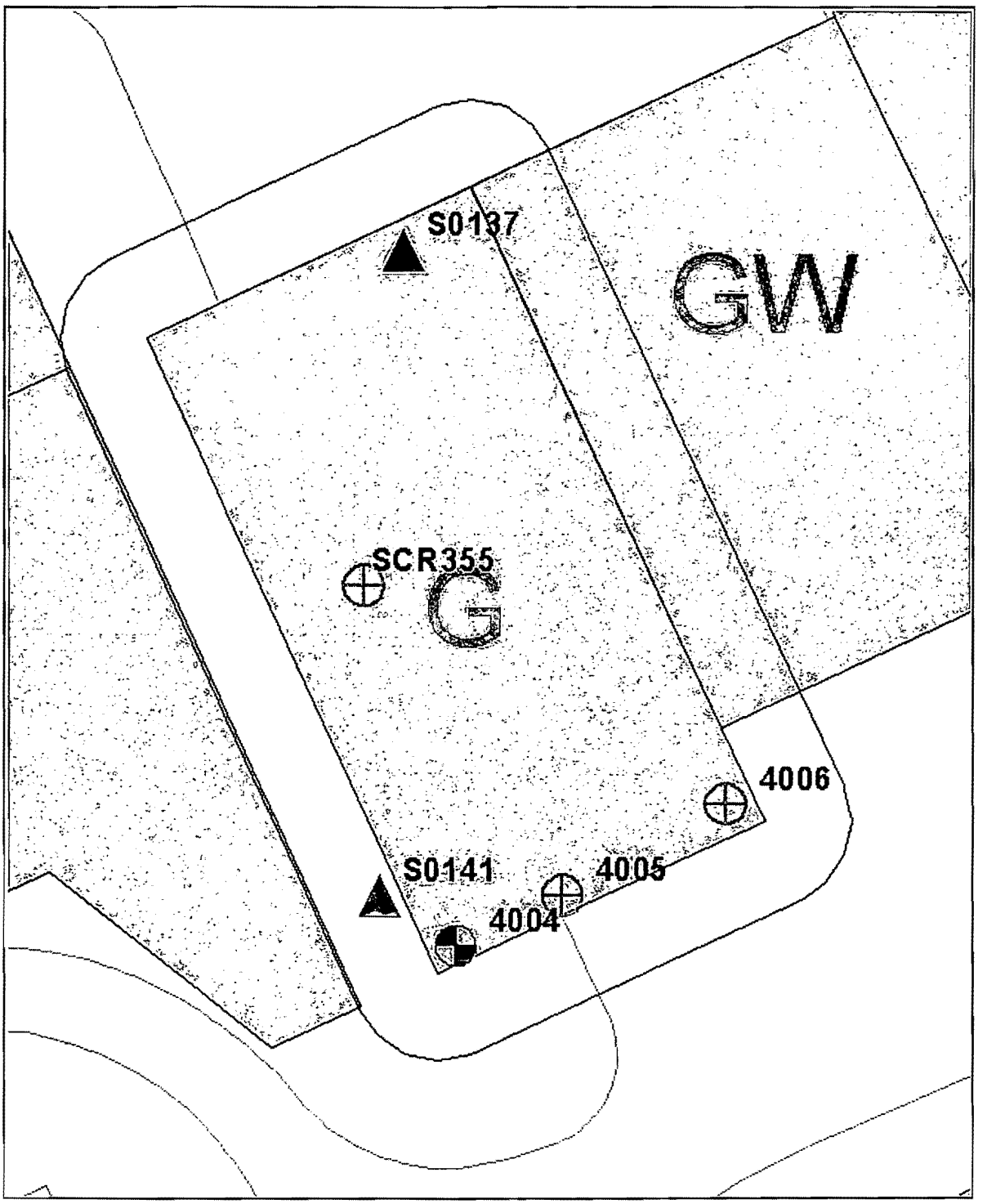
2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/89

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 feet of G Building



10 0 10 20 30 40 50 Feet

N
W E
S

MOUND

Environmental Restoration Geographic Information System

Sample Detect
Sample Nondetect

02/03/03

Building G 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
4004	4004-0002.0	19940418	1,1,1-Trichloroethane (TCA)	2982.5000	PPB		ORVO	2.0	2.0			SVROU2	Other	*
S0141	6179	19840801	Plutonium-238	0.6800	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0137	6177	19840801	Plutonium-238	0.1800	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
4004	4004-0002.0	19940418	Total VOC's	2982.5000	PPB		ORVO	2.0	2.0			SVROU2	Other	*

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

*Soil vapor samples collected as part of the Main Hill OU-2 Phase I Soil Vapor Reconnaissance Project. Measured value for TCA is less than the Calculated Acceptable Soil Gas Reading established in the *Soil Gas Survey and Geophysical Investigations Main Hill and SM/PP Hill Areas Reconnaissance Sampling* report (dated February 1993).

Total VOCs = the measured value of TCA. Total VOCs need not be evaluated because its only component (TCA) is individually evaluated.

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Building G 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
4005	4005-0002.0	19940418	1,1-Dichloroethane	1481.5000	PPB	1481.5000	ORVOA	2.0	2.0		U	SVROU2	Other
SCR355	8801073	19880107	Plutonium-238	12.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR355	8801072	19880107	Plutonium-238	0.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
S0141	6179	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0137	6177	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
SCR355	8801073	19880107	Thorium-232	0.9000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR355	8801072	19880107	Thorium-232	0.4000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
4005	4005-0002.0	19940418	Total VOC's	1481.5000	PPB	1481.5000	ORVOA	2.0	2.0		U	SVROU2	Other
4006	4006-0002.5	19940419	Total VOC's	535.7000	PPB	535.7000	ORVOA	2.5	2.5		U	SVROU2	Other
4006	4006-0002.5	19940419	Trichlorofluoromethane	535.7000	PPB	535.7000	ORVOA	2.5	2.5		U	SVROU2	Other

L 5 of 31

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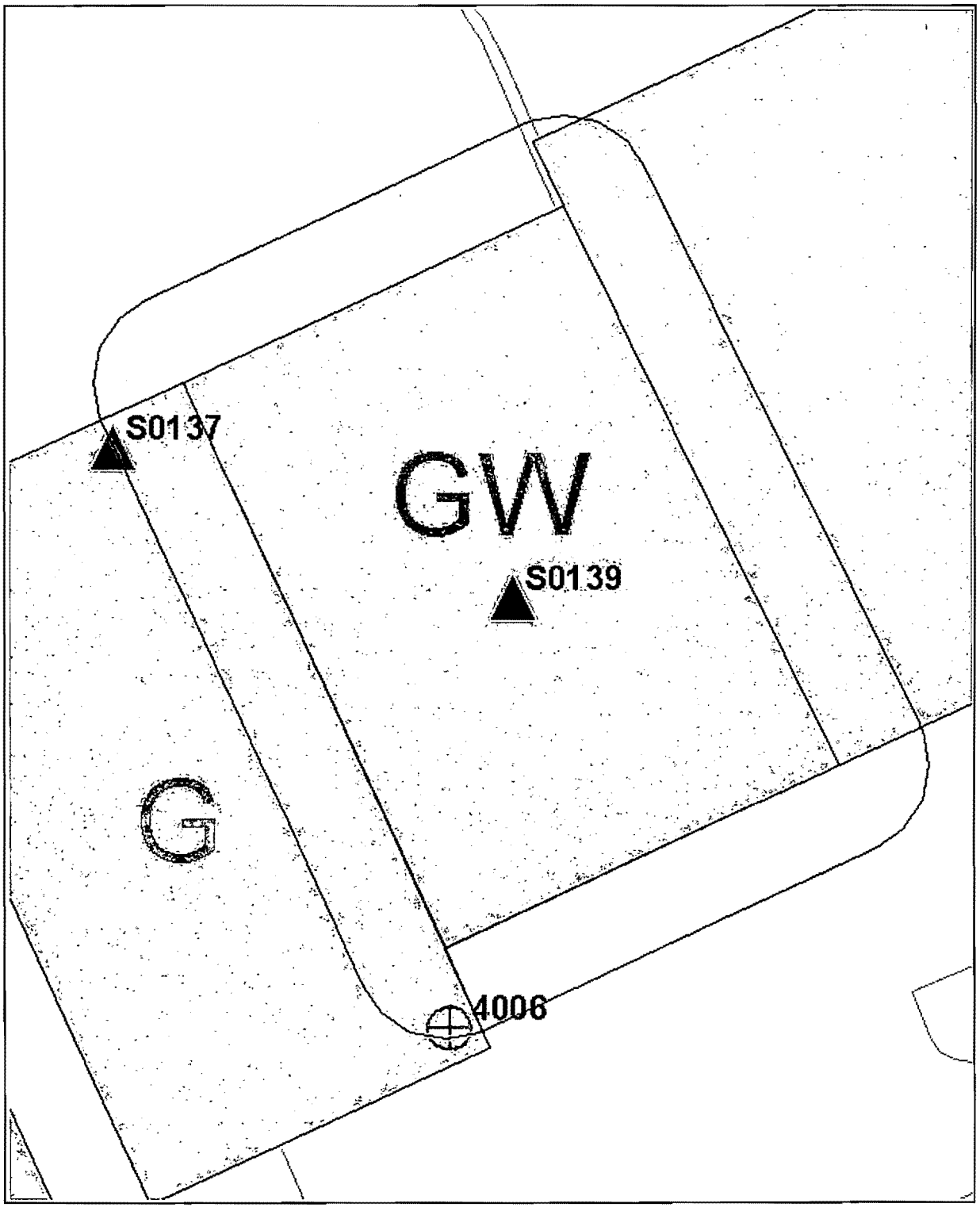
Historic Sample Locations within 15 feet of GW Building



10 0 10 20 30 40 50 Feet

MOUND

Sample Detect
Sample Nondetect

02/03/03

Building GW 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
S0139	3034	19831001	Plutonium-238	0.2300	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0137	6177	19840801	Plutonium-238	0.1800	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2

*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

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Building GW Non-Detects

Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value _units	Detection _limit	Chem_c lass	Start_ depth	End_ depth	Lab	Data	Project_code	Media
S0139	3034	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0137	6177	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
4006	4006-0002.5	19940419	Total VOC's	535.7000	PPB	535.7000	ORVOA	2.5	2.5		U	SVROU2	Other
4006	4006-0002.5	19940419	Trichlorofluoromethane	535.7000	PPB	535.7000	ORVOA	2.5	2.5		U	SVROU2	Other

L11 of 31

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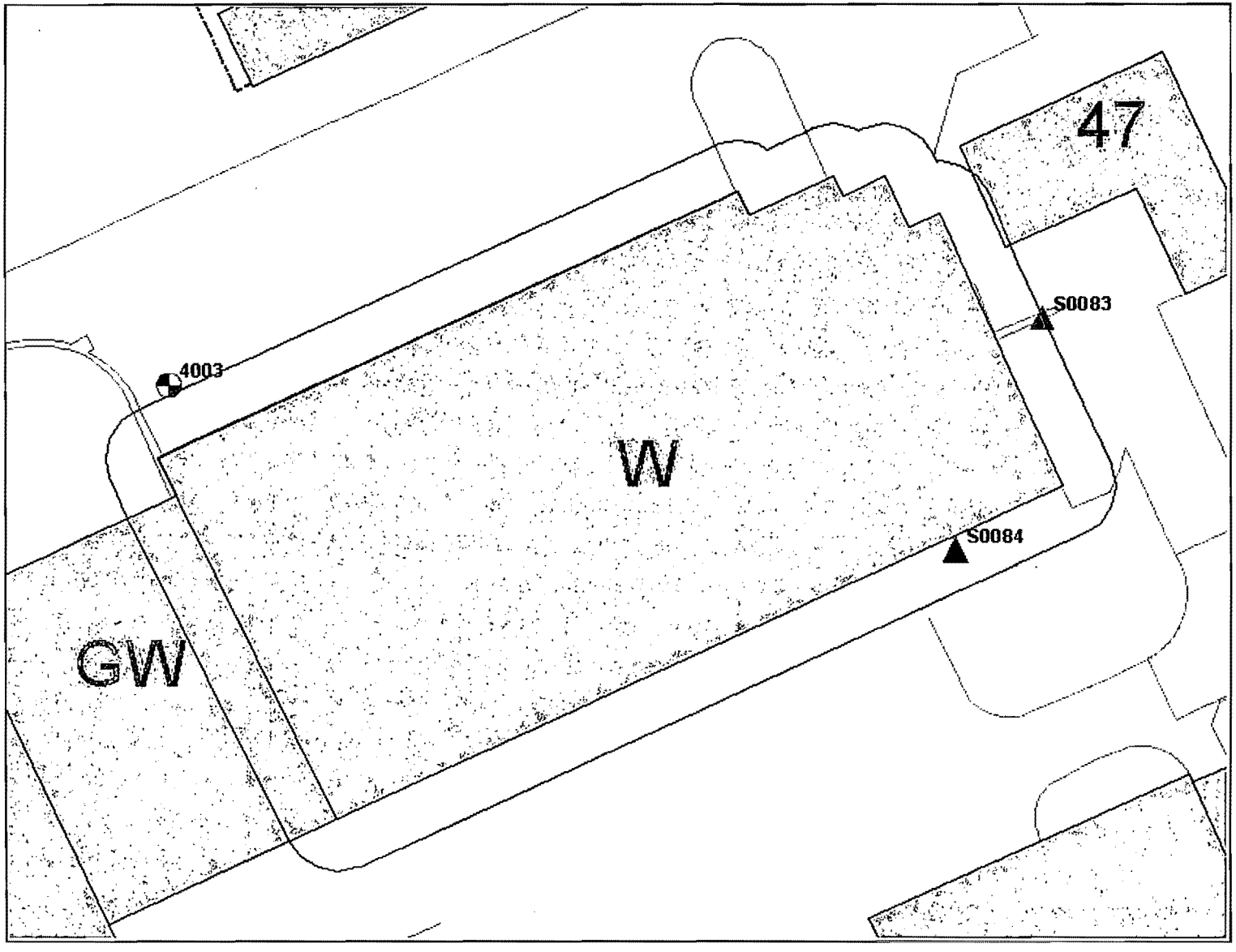
Historic Sample Locations within 15 feet of W Building



Sample Detect

50 0 50 100 150 200 Feet

02/03/03

L13 of 31

Building W 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
4003	4003-0001.5	19940419	1,1,1-Trichloroethane (TCA)	1403.5000	PPB		ORVOA	1.5	1.5			SVROU2	Other	*
4003	4003-0001.5	19940419	1,2-cis-Dichloroethene (DCE)	1767.7000	PPB		ORVOA	1.5	1.5			SVROU2	Other	*
4003	4003-0001.5	19940419	1,2-trans-Dichloroethene (DCE)	1767.7000	PPB		ORVOA	1.5	1.5			SVROU2	Other	*
S0083	3043	19831001	Plutonium-238	1.1400	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0084	6136	19840801	Plutonium-238	0.0800	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	
4003	4003-0001.5	19940419	Total VOC's	7786.6000	PPB		ORVOA	1.5	1.5			SVROU2	Other	*
4003	4003-0001.5	19940419	Trichlorofluoromethane (Freon 11)	2321.4000	PPB		ORVOA	1.5	1.5			SVROU2	Other	*

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

*Soil vapor samples collected as part of the Main Hill OU-2 Phase I Soil Vapor Reconnaissance Project. Measured values are less than the Calculated Acceptable Soil Gas Readings established in the *Soil Gas Survey and Geophysical Investigations Main Hill and SM/PP Hill Areas Reconnaissance Sampling* report (dated February 1993).

Total VOCs = the sum of the measured values of TCA, DCE (2), Freon 11, and toluene (Building W Non-Detects table); therefore, Total VOCs need not be evaluated because its components are individually evaluated.

Freon 11 has no H or Kd value, therefore, the Soil Screening Level (SSL) and the Calculated Acceptable Soil Gas Reading are not available. Other analytes are acceptable when compared to the Calculated Acceptable Soil Gas Reading.

L15 of 31

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Building W 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
S0084	6136	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0083	3043	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
4003	4003-0001.5	19940419	Toluene	526.3000	PPB	526.3000	ORVOA	1.5	1.5		U	SVROU2	Other

L17 of 31

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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.

DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

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

SUB-QUALIFIER CODES

ORGANICS

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

INORGANICS

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

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

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

Comparisons for Soil Analytical Results

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

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

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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

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

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

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SOIL GAS SURVEY AND GEOPHYSICAL INVESTIGATIONS
MAIN HILL AND SM/PP HILL AREAS
RECONNAISSANCE SAMPLING

MOUND PLANT
MIAMISBURG, OHIO

February 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

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SCREENING POTENTIAL RELEASE SITES BASED ON SOIL GAS READINGS

Soil gas readings can be utilized in the PRS screening process to identify potential release sites that may present a potenti soil contamination problem for volatile organics. The soil gas survey that was conducted at Mound as part of the "Reconnaissance Sampling Report--Soil Gas Survey and Geophysical Investigations, Mound Plant Main Hill and SM/PP Hill" investigated 8 volatile compounds. The concentrations of these compounds in the in the vapor phase within the por spaces of the soil can be correlated to the actual soil contaminant concentrations by utilizing a method developed by ICF Kaiser Engineers. This technique has been used with US EPA Region IX approval at a large Superfund site contaminated with many of the same chemicals found at relatively low levels in soils at the Mound Plant.

The soil concentration can be estimated from the soil gas values by the following equation:

$$Ct = (Cg/Pb)*[[Pb \bullet Kd / H] + [pw / H] + [pt - pw]]$$

where

Cg	concentration of volatile chemical concentrations as soil vapor in ng/ml
Pb	Bulk density of the soil in g/ml
Kd	soil/water partition coefficient in ml/g
H	Dimensionless Henry's Law Constant
pw	water filled porosity
pt	total porosity
Ct	target soil concentration in ng/g or ug/kg (ppb)

The technique that Mound Plant will use for screening a PRS, is to compare the soil gas values obtained at a PRS with soi gas concentrations that are known to be below any regulatory or health based level of concern. The risk based guideline values for the Mound Plant (DOE, December 1995) soils are based upon 10^{-6} risk levels or a hazard index of 1. These values correspond to direct soil exposure to persons who's activities place them at the highest risk, in particular inhalation and ingestion by a Mound Plant construction worker.

Another potential exposure path must be considered, however. The potential for some of the organic contaminants to leac into ground water must be considered in developing protective soil screening levels. A "Mound Plant Soil Screening Leve paper explains the calculation of soil screening levels. For all of the chemicals that the soil gas survey identified, the calculated soil screening level soil concentrations are below the standard guideline values, therefore they are more conservative and are appropriate to be used as the basis for the soil gas calculations.

By re-arranging the equation, and using either the soil guideline values or the soil screening levels as the target soil concentration, a soil gas concentration can be calculated; this calculated soil gas concentration can be compared to the actual observed soil gas values:

$$Cg = (Pb*Ct)/[[Pb*Kd/H] + [pw/H] + [pt-pw]]$$

The values of the soil specific and chemical parameters for this equation are summarized as follows:

Pb	1.6	Bulk density of the soil in g/ml
pw	0.15	water filled porosity
pt	0.43	total porosity
foc	0.02	fraction organic material in soil (used in developing the SSL values)

Typical chemicals that are detected with soil gas sampling are					
NAME	Henry's	Kd or	Calculated Acceptable	Calculated Acceptable	Calculated Acceptable
		Koc	Soil Screening Level Value	Soil Gas Reading	Soil Gas Reading
		ml/g	mg/Kg (ppm)	ng/ml	ppb
Toluene	2.52E-01	3.42	22.06	1.56E+03	414600
Trichloroethene (TCE)	4.35E-01	2.24	0.07	1.26E+01	2400
111 Trichloroethane (TCA)	7.63E-01	2.2	3.01	9.46E+02	173400
Trans-1,2 Dichloroethene (DCE)	2.29E-01	1	0.70	1.41E+02	35700
cis-1,2 Dichloroethene (DCE)	1.85E-01	2.78	0.31	1.97E+01	5000
Freon 11	NA	NA			
Freon 113	NA	NA			
Tetrachloroethene (PCE)	7.09E-01	2.78	0.09	2.13E+01	3100

na not available

IF THE SOIL GAS READING IS BELOW THE VALUES IN THE CALCULATED SOIL GAS READING COLUMN (SHADED), THEN THERE IS NO THREAT TO GROUNDWATER FROM THIS PRS.

The soil screening level values are calculated using the Soil Screening Methodology. The Potential Release Site is assumed to be more than 100 meters from a potential drinking water source with an aquifer thickness of 15 meters and a source size of 10 meters. The hydraulic gradient is assumed to be 0.01 which is conservative for most of the Mound Plant PRSs. In special instances where the PRS lies less than 100 meters from a potential drinking water source, or the hydraulic gradient is much less than 0.01, new SSL values and new acceptable soil gas values will be calculated for that particular PRS.

Appendix M

Occurrence Reports

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

G Building

- suspect and counterfeit items (bolts on door of fork lift truck),

GW Building

- smoke detector alarm activation due to exhaust from fork lift truck,

W Building

- boom truck hit a protective barrier at Guard Post 5, then was driven to W Building for an assessment of damages,
- discovery of radioactive contamination outside a radiological area which resulted in a survey of tools in storage in W Building,
- contaminated wrench found in Building 94 and contaminated tools found in W Building, and,
- glycol release at plant outfall 601 due to release from an air-purge vent on the W Building penthouse air-handling unit (Section 4.2.2, Spills and Releases).

OH-MB-BWO-BWO05-2000-0001 Final Report

Occurrence Report

Utilities Facilities
(Name of Facility)

Balance-of-Plant
(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.
(Laboratory, Site, or Organization)

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

Name: ALLISON, JERRY L
Title: BUILDING MGR SW/R TRITIUM COMPLEX **Telephone No.:** (513) 865-4533
(Originator/Transmitter)

Name: ALLISON, JERRY **Date:** 06/01/2000
(Authorized Classifier (AC))

1. **Occurrence Report Number:** OH-MB-BWO-BWO05-2000-0001

Suspect and Counterfeit Items (Roll-Up)

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

	Date	Time
Notification:	03/09/2000	10:39 (MTZ)
Initial Update:	04/20/2000	09:15 (MTZ)
Latest Update:	06/01/2000	05:48 (MTZ)
Final:	06/16/2000	06:14 (MTZ)

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

4. **Number of Occurrences:** 3 **Original OR:**

5. **Division or Project:** Babcock & Wilcox of Ohio; BWXTO

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

7. **System, Bldg., or Equipment:** Power House, Buildings 61, G, R, SW, and T.

8. **UCNI?:** No

9. **Plant Area:** Main Hill

10. **Date and Time Discovered:** 03/09/2000 10:00 (ETZ)

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11. Date and Time Categorized: 03/09/2000 10:00 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
03/09/2000	10:00 (ETZ)	Chris White	DOE-MEMP

14. Subject or Title of Occurrence:

Suspect and Counterfeit Items (Roll-Up)

15. Nature of Occurrence:

07) Value Basis Reporting
B. Defective Item, Material or Service

16. Description of Occurrence:

Occurrence #1

At the request of DOE-MEMP, letter MB-0243-00 dated 01/27/2000, a sitewide review of desinated Safety Systems and components was conducted. As a result of the spot check, Suspect and Counterfeit Items (S&C I)where identified in the Power House, Building 61 and Building G.

Power House; Of approximately 200 hundred bolts inspected, 32 were determined to be potential suspect/counterfeit bolts. Four of these being hand stamped. The review also included 39 flanges, finding six to be hand stamped. Specific locations of these findings will be identified through a corrective action.

Building G; four suspect bolts were found on the door of a Clark Forktruck. These were factory installed.

Building 61; two suspect bolts were found behind the seat of a Clark Forktruck. These were factory installed. One suspect bolt found on a Crown Forktruck, located as a non-weight bearing bolt.

Occurrence #2

On Thursday, April 20, 2000 at approximately 1200 hours it was reported to the Tritium Facility Manager that while performing a surveillance for counterfeit bolts, the DOE Facility Representative for Technical (T) Building discovered a suspect bolt on the new Tritium Emissions Reduction Facility (TERF) Squire Cogswell Compressor. The bolt in question was located on the compressor head. All the bolts on the compressor head had markings for grade 5 bolts. The bolt in question also had the letters (KS) in the center of the bolt head. This marking is on DOE's suspect counterfeit listing. The compressor was delivered to T Building on or about April 4, 2000 and put into storae as a spare part for the TERF System. A surveillance for counterfeit bolts had just been conducted on TERF equipment in late March 2000 with no findings.

In addition to the bolt on the TERF Compressor, suspect counterfeit bolts were also discovered on numerous Worcester Ball Valves, electric motors, and low pressure steam flanges in Research (R), Semi-Works (SW), and Technical (T) Buildings. These valves were not installed on safety significant equipment and while the bolts are marked with grade 5 indication, the application for which they are being used (low pressure water and air) would not require a bolt of that strength.

This occurrence was categorized on 04/20/2000 at 1300 hours (ETZ); Fred Holbrook from DOE/MEMP was notified on 04/20/2000 at 1305 houts (ETZ); Normal first shift operations were in progress at the time of the occurrence; and the activity category was normal operations.

Occurrence #3

On Wednesday, May 3, 2000 at approximately 0840 hours it was reported to the Tritium Facility Manager that additional suspect

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counterfeit bolts were found on the operating TERF compressor. The operating compressor (located inside a tritium glovebox) was inspected as a result of the previous finding on the similar spare compressor. These suspect counterfeit bolts, as well as, those reported on the spare compressor are located on the head of the compressor. These three bolts are small 1/4 X 20 bolts that hold a gasket in place between the high and low pressure side of the compressor head and therefore not critical. They do not hold the compressor head onto the compressor, that is done by six larger bolts which are not suspect counterfeit bolts.

The compressor will remain in operation until further evaluation is performed to determine the appropriate course of action. Information on the bolt specification has been requested from the manufacturer. The bolts will be replaced during the next scheduled compressor maintenance.

This occurrence was categorized on 05/03/2000 at 0845 hours (ETZ); Fred Holbrook from DOE/MEMP was notified on 05/03/2000 at 0900 houts (ETZ); Normal first shift operations were in progress at the time of the occurrence; and the activity category was normal operations.

17. Operating Conditions of Facility at Time of Occurrence:

Not Applicable

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

Occurrence #1

A critique was held on 03/09/2000 to discuss this event and determine further actions to be taken.

Occurrence #2

The TERF supervisor was notified of the suspect counterfeit bolt on the compressor and he called in a Maintenance Service Request (MSR) to replace the bolt. Since the Worchester Valves, electric motors, and low pressure steam flanges have been installed for years and there is no history of problems with the bolts and the site is scheduled for closure, there are no plans to take any further actions.

Occurrence #3

The suspect counterfeit bolts were in a non-critical application and will be replaced at the next schedule maintenance.

20. Direct Cause:

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

21. Contributing Cause(s):

22. Root Cause:

6) Management Problem
   A. Inadequate Administrative Control

23. Description of Cause:

Occurrence #1

Direct Cause: Equipment/Material Problem, Defective or Failed Part. Suspect and Counterfeit items were factory supplied. These items were received prior to a program in place to identify S&CI.

Root Cause: Management Problem, Inadequate Administrative Control. At the time these bolts were purchased, Mound did not have a ordering procedure which addressed the suspect counterfeit bolts and items.

Occurrence #2

Direct Cause: Equipment/Material Problem, Defective or Failed Part.
Suspect and counterfeit items were factory supplied. There is no longer any receiving inspection given to equipment or items that may contain counterfeit bolts or items except for waste management containers, electrical switch gear, and bioassay equipment.

Root Cause: Management Problem, Inadequate Adninistrative Control.
At the time these bolts or parts containing suspect bolts were purchased, Mound had a ordering procedure which addressed the suspect counterfeit bolts and items. However, the manufacturer failed to meet the requirements of the purchase order. The compressor was not inspected when it arrived from the manufacturer.

Occurrence #3

Direct and Root Causes were the same as occurrence #2

24. Evaluation (by Facility Manager/Designee):

Except for the TERF compressor, the suspect counterfeit bolts found on items were legacy bolts installed prior to issue of the counterfeit bolts and items program started in the early 1990's. Since, this equipment was not listed as safety related SSC it had not previously been inspected. Mound had not directed personnel to inspect non-safety related systems for counterfeit bolts or items until this latest round of validation.

There are no technical issues with the suspect counterfeit bolts on Worcester Valves, electric motors, and low pressure steam flanges; no failures have occurred with these bolts since tehy were installed; and the Mound Site is a DOE closure project and the bolts will be removed as part of that process.

25. Is Further Evaluation Required?: No

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

1.	Specifically identify systems where S&CI were located in the Power House.	
	Target Completion Date: 03/14/2000	**Completion Date:** 03/13/2000
2.	Complete an evaluation of the locations in the Power House to identify if they are in a Safety Significant System.	
	Target Completion Date: 04/15/2000	**Completion Date:** 03/23/2000
3.	Issue letter to manufacturer of TERF compressor about quality assurance of equipment purchased under Mound's requirements.	
	Target Completion Date: 05/03/2000	**Completion Date:** 05/03/2000
4.	Perform training at Main Hill Tritium Project All Hands Meeting on quality levels when ordering equipment and parts. Include the requirement to perform inspections for suspect counterfeit items when the items are received.	
	Target Completion Date: 05/02/2000	**Completion Date:** 05/02/2000
5.	Publish a Lessons Learned to the plant informing personnel that as a requisitioner of quality level 1 and 2 equipment and parts, they are responsible for the receipt inspection by that equipment including looking ofr suspect counterfeit items.	
	Target Completion Date: 06/30/2000	***Completion Date:** 06/22/2000
6.	Fill out suspect counterfeit item disposition form stating no action required at this time for those items that do not require replacements.	
	Target Completion Date: 06/08/2000	**Completion Date:** 06/05/2000
7.	Assign the responsible of helping conducting receipt inspections for the responible tritium requisitioners on quality level 1 and 2 items to the Facility Management Area Engineers.	
	Target Completion Date: 06/08/2000	**Completion Date:** 06/05/2000

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27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

If there is no site wide shipping and receiving inspection being conducted for suspect counterfeit items, then it is the responsibility of the purchaser to perform their own inspection. If a suspect counterfeit item is found, the manufacturer must be informed so they can take appropriate corrective actions.

31. Similar Occurrence Report Numbers:

1. ALO-DA-EGGM-EGGMAT04-1993-0011

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: WEIDENBACH, GARY L, Facility Manager/Designee
Date: 06/01/2000
Telephone No.: (937) 865-3241

Approved by: HOLBROOK, FRED B, Facility Representative/Designee
Date: 06/16/2000
Telephone No.: (513) 865-4677

Approved by: Approval delegated to FR
Date: 06/16/2000
Telephone No.:

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OH-MB-EGGM-EGGMAT04-1995-0018 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: Katherine G. Koehler
Title: Site Grounds Manager **Telephone No.:** (513) 865-4886

(Facility Manager/Designee)

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

(Originator/Transmitter)

Name: Don W. Organ **Date:** 11/09/1995

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-EGGM-EGGMAT04-1995-0018

GW Building, Smoke Detector Alarm

2. Report Type and Date: Final

	Date	Time
Notification:	10/09/1995	08:32 (MTZ)
Initial Update:	10/18/1995	14:20 (MTZ)
Latest Update:	11/09/1995	14:46 (MTZ)
Final:	11/16/1995	08:02 (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: EM - Environmental Management

7. System, Bldg., or Equipment: GW Building, Fire Alarm System, Smoke Detector

8. UCNI?: No

9. Plant Area: Main Hill

10. Date and Time Discovered: 10/06/1995 07:00 (ETZ)

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11. Date and Time Categorized: 10/06/1995 08:45 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
10/06/1995	08:00 (ETZ)	Mike Reker	DOE/MB
10/06/1995	08:45 (ETZ)	Fred Holbrook	DOE/MB

14. Subject or Title of Occurrence:

GW Building, Smoke Detector Alarm

15. Nature of Occurrence:

01) Facility Condition
H. Operations

16. Description of Occurrence:

On October 6, 1995, at 0731 hours (ETZ), the Fire Department received a smoke detector alarm from GW Building. Upon immediate response, Fire Department personnel discovered the alarm was caused by exhaust fumes from a fork lift. A fork lift was being used to transport approximately 10 de-classified safes from GW Building, Room 117, to M Building for storage.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (D. W. Organ, Internal Audits) on 11/09/95 at 1630 hours (ETZ) and contains no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Weekend Shutdown

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

The smoke detector was restored. Personnel in charge of moving safes were instructed to keep the fork lift further away from the entrance to GW-117.

20. Direct Cause:

3) Personnel Error
D. Other Human Error

21. Contributing Cause(s):

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22. Root Cause:

6) Management Problem
E. Policy Not Adequately Defined, Disseminated, or Enforced

23. Description of Cause:

The direct cause of the occurrence was due to a human error. The fork lift was operated too close to the vicinity of the smoke detector.

The root cause of the occurrence is due to a management problem. A policy addressing "controls for Fork Lift Operations inside Buildings or on Dock Areas" has not been developed.

24. Evaluation (by Facility Manager/Designee):

The smoke detector functioned as designed.

25. Is Further Evaluation Required?: No

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

1. Transportation management personnel will write and disseminate a policy entitled "Controls for Fork Lift Operations inside Buildings and on dock areas."

Target Completion Date: 01/30/1996	***Completion Date:** 08/08/1996

27. Impact on Environment, Safety and Health:

Operation of forklifts inside buildings or on dock areas without adequate ventilation could result in asphyxiation hazard.

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

If there was sufficient particulate matter in the air to activate a smoke detector, it is likely that carbon dioxide levels exceeded normal ambient air concentrations.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

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33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Katherine G. Koehler, Facility Manager/Designee
Date: 11/09/1995
Telephone No.: (513) 865-4886

Approved by: BERRY, RONALD E, Facility Representative/Designee
Date: 11/13/1995
Telephone No.: (513) 865-4836

Approved by: WORLEY, MICHAEL NEWTON, Program Manager/Designee
Date: 11/16/1995
Telephone No.: (301) 903-2153

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ALO-DA-EGGM-EGGMAT04-1991-1004 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: Castleberry, V. E.
Title: Director, Engineering **Telephone No.:** (513) 865-3458

(Facility Manager/Designee)

Name: Bill L. Deel
Title: Supervisor, Maintenance **Telephone No.:** (513) 865-3891

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT04-1991-1004

Truck Hit a Protective Barrier at Guard Post 5 Group 3. Personnel Safety Subset (b.) Vehicular Transportation Accident

2. Report Type and Date: Final

	Date	Time
Notification:	05/21/1991	09:11 (MTZ)
Initial Update:	06/03/1991	08:12 (MTZ)
Latest Update:	06/03/1991	08:12 (MTZ)
Final:	06/11/1991	05:03 (MTZ)

3. Occurrence Category: Off-Normal

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

5. Division or Project: EG&G Mound

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Boom Truck

8. UCNI?: No

9. Plant Area: Main Mfg. Area

10. Date and Time Discovered: 05/20/1991 13:00 (ETZ)

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11. Date and Time Categorized: 05/20/1991 15:00 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
05/21/1991	11:00 (ETZ)	James A. Morley	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Truck Hit a Protective Barrier at Guard Post 5 Group 3. Personnel Safety Subset (b.) Vehicular Transportation Accident

15. Nature of Occurrence:

03) Personnel Safety
B. Vehicular Incidents

16. Description of Occurrence:

A Construction Craftsperson was driving a boom truck to the Test Fire Area to perform a task for utilities maintenance. He was attempting to turn right at the bottom of the hill, at Guard Post Five, and did not allow enough room for the vehicle to make the turn, and hit a protective barrier, resulting in approximately $3500 damage to the vehicle. The damage was limited to one side of the truck, starting at the back portion of the cab and continuing down the passenger side to the rear bumper. There were no personal injuries. The protective barrier consists of a three-inch piece of pipe mounted in concrete and is used to protect a communications panel located in the vicinity. The post was reinstalled about an hour after the incident occurred.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Operating Conditions

18. Activity Category:

02 - Maintenance

19. Immediate Actions Taken and Results:

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The truck was operational after the incident, and was driven to W-Building for an assessment of damages. The appropriate personnel were notified of the incident.

A formal accident investigation has been initiated.

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20. Direct Cause:

3) Personnel Error
A. Inattention to Detail

21. Contributing Cause(s):

3) Personnel Error
A. Inattention to Detail

4) Design Problem
C. Error in Equipment or Material Selection

22. Root Cause:

3) Personnel Error
A. Inattention to Detail

---

23. Description of Cause:

An employee was driving a boom truck and failed to allow enough clearance when making a turn and hit a protective barrier which resulted in vehicle damage of approximately $3500. Additionally, an investigation determined the protective barrier should be more visible to large vehicles, and a sign should be installed to alert drivers of the impending turn.

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24. Evaluation (by Facility Manager/Designee):

Operator inattention was the primary cause of this incident.

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25. Is Further Evaluation Required?: No

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

1.	Install extensions on the existing barrier which will make the barrier more visible when in a large vehicle.	
	Target Completion Date: 06/07/1991	**Completion Date:** 06/03/1991
2.	Install a sign at Post No. 5 to alert the driver of the road conditions and sharp turn.	
	Target Completion Date: 06/14/1991	**Completion Date:** 06/03/1991
3.	Discuss with all maintenance personnel the need to be alert when driving a large truck in the performance of their duties.	
	Target Completion Date: 06/27/1991	**Completion Date:** 06/03/1991

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

30. Lessons Learned:

The primary cause was operator inattention. However, an investigation committee found the protective barriers were not high enough to be easily visible to an operator of large equipment. A drive through the plant did not reveal other similar situations.

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: Castleberry, V. E., Facility Manager/Designee
Date: 06/05/1991
Telephone No.: (513) 865-3458

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Approved by: Gartrell, George R., Facility Representative/Designee
Date: 06/10/1991
Telephone No.:

Approved by: Hagan, Ralph A., Program Manager/Designee
Date: 06/11/1991
Telephone No.:

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OH-MB-BWO-BWO01-1999-0004 Final Report

Occurrence Report

Tritium Facilities

(Name of Facility)

Tritium Activities

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: James N. Brogger
Title: Tritium Facility Manager **Telephone No.:** (837) 865-3380

(Facility Manager/Designee)

Name: ALLISON, JERRY L
Title: BUILDING MGR SW/R TRITIUM COMPLEX **Telephone No.:** (513) 865-4533

(Originator/Transmitter)

Name: Jerry Allison **Date:** 04/08/1999

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO01-1999-0004

Discovery of Radioactive Contamination Outside a Radiological Area (Roll-Up)

2. Report Type and Date: Final

	Date	Time
Notification:	02/25/1999	17:12 (MTZ)
Initial Update:	04/08/1999	12:20 (MTZ)
Latest Update:	04/08/1999	12:20 (MTZ)
Final:	04/15/1999	12:48 (MTZ)

3. Occurrence Category: Off-Normal

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

5. Division or Project: Babcock & Wilcox of Ohio, Inc.

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Semi-Works (SW) Building, Room 5

8. UCNI?: No

9. Plant Area: Main Hill Area

10. Date and Time Discovered: 02/24/1999 14:30 (ETZ)

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11. Date and Time Categorized: 02/24/1999 16:30 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
02/24/1999	15:00 (ETZ)	Madan Dev	DOE/MEMP

14. Subject or Title of Occurrence:

Discovery of Radioactive Contamination Outside a Radiological Area (Roll-Up)

15. Nature of Occurrence:

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

16. Description of Occurrence:

Occurrence #1

At approximately 0900 hours (ETZ) on February 24, 1999, radioactive contamination was discovered on the floor of Semi-Works (SW) Building, Room 5. At approximately 1430 (ETZ) the contamination was identified as Pu-238. The highest contamination levels present in SW-5 were 188 disintegrations per minute (dpm)/100 centimeter (cm) squared (sq.), removable and 13,000 dpm/100 cm sq. by direct frisk (Reportable threshold for alpha is 10 times 20 dpm/100 cm sq. removable and 500 dpm/100 cm sq. fixed plus removable).

Room SW-5 was in a Controlled Area but outside of a Radiological Area or Radiological Buffer Area and therefore outside an area requiring radiological controls. The contamination had been concealed beneath a floor mounted steel base cabinet that had been in place for over 20 years. The cabinet was removed from SW-5 on February 18, 1999, without being surveyed, and placed in a trash dumpster that was collected by a contract trash hauler and subsequently deposited in a commercial landfill.

The level of contamination that may be on the base cabinets which were in contact with the floor in SW-5 is unknown. The following data suggest that the cabinets may not be contaminated: 1) The worker who disassembled the cabinet was monitored for personnel contamination and was found not contaminated; 2) The tools used to disassemble the cabinet were surveyed and were found not contaminated; 3) A cart used to transport the cabinet parts was surveyed and also was found not contaminated; 4) The dumpster where the parts were placed prior to transport to the landfill was surveyed and did not show any contaminated.

During the past several years, actions have been taken site-wide to reduce the size of radiological areas. The area in question, SW-5, as well as other former radiological areas, were surveyed in September 1993. The results of that survey determined that radiological levels were low enough to allow a

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lower level of control (down posting). This down posting also allowed the level of personnel protective equipment to be reduced safely. However, in April 1994 the SW-5 area along with the entire first floor of the SW/R Tritium Complex, was involved in a flooding incident (ALO-DA-EGGM-EGGMAT01-1994-0013). The water for the entire building was collected in drums and sampled. The water samples identified the presence of alpha contamination. At that time, radiological surveys were conducted for tritium only on exposed surfaces (non-intrusive surveys) and decontaminated as necessary. Due to the low levels of contamination detected on exposed surfaces, the areas concealed by equipment such as the base cabinets were not surveyed, decontaminated nor were radiological postings changed.

The work planning process at Mound employs a graded approach wherein the rigor of work controls is commensurate with the potential hazards involved. Since SW-5 was outside of a radiological area, the removal of the base cabinet was considered a low hazard activity and as such radiological work planning and control procedures did not require in-process, material release, or post-job surveys. Further, personnel responsible for radiological work planning and control in SW-5 area were unaware that the surveys that followed the flooding incident were non-intrusive and, therefore; concealed surfaces were potentially contaminated. This information was not known to current facility, Radiological Operations, or Operations personnel.

Occurrence #2

At approximately 1645 hours (ETZ) on March 3, 1999, survey results from inside the top drawer of a safe which was located in Research (R) Building, Room 112 indicated tritium contamination levels of 105,597 dpm/100 cm sq. The contamination was located inside the top drawer of the safe. The safe had been moved to R-112 from R-111, neither room was posted as a Radiological Area.

An initial survey of the safe was conducted on February 23, 1999 with two results above the tritium free release limits but below the reportable level. That survey revealed levels of 92,978 dpm/100 cm. sq. and 4,839 dpm/100 cm sq. inside the top drawer of the safe. The second survey was conducted on March 2, 1999, to gain additional information for purposes of decontaminating the safe.

The safe had been used for nearly 30 years to store classified parts and documents. Until 1995, R-111 had been a Contamination Area and there was the possibility that contaminated classified parts were stored in the safe at some time over the years. Those contaminated parts could have cross contaminated the safe. The contamination inside the safe was not discovered when the room was down posted.

This occurrence was categorized on 03/03/1999 at 1645 hours (ETZ); Madan Dev from DOE/MEMP was notified on 03/04/1999 at 0600 hours (ETZ); Normal first shift operations were in progress at the time of the occurrence; and the activity category was normal operations.

Occurrence #3

At approximately 1220 hours (ETZ) on March 25, 1999, survey results from inside a cabinet drawer located in Research (R) Building, Room 142 indicated Pu-238 and Am-241 contamination levels of 273 dpm/100 cm sq. This exceeded the 10 CFR 835 Appendix D limit of 20 dpm/100 cm sq. by greater than 10 times. The discovery of this contamination was the result of a corrective action from occurrence #1 above. R Building, Room 142 was not posted as a Radiological Area, but was within a Controlled Area.

A analyical project was conducted in R-142 from 1966 to 1979 which involved Pu-238 and Pu-239. Apparently a contaminated part was stored in the drawer when the area was a Contamination Area and the drawer became cross contaminated at that time. The contamination inside the drawer was not picked up when the area was down posted nearly 20 years ago.

This occurrence was categorized on 03/25/1999 at 1230 hours (ETZ); Madan Dev from DOE/MEMP was notified on 03/25/1999 at 1430 hours (ETZ); corrective actions for occurrence #1 were in progress at the time of the occurrence; and the activity category was normal operations.

Occurrence #4

On March 12, 1999, radioactive contamination was discovered on top of a bookcase on the south wall of Research (R) Building, Room 155. A sample was sent to Alpha Spectrometry for identification. The level of contamination was too high for the Alpha Spectrometry equipment so the sample was then sent to Gamma Spectrometry. At Approximately 1310 hours (ETZ) on March 29, 1999, the contamination was identified as Pu-238 at a level of 2159 dpm/100 cm sq. removable. This contamination was discovered as the result of a corrective action from occurrence #1 above.

There are no records indicating that Pu-238 was ever present in R-155. The crawlspace above the room is known to contain Pu-238 contamination. The bookcase was located approximately two feet from a major ceiling leak which occurred about three years ago. There was dust and a dried white residue on top of the bookcase. The white residue appears to be where water evaporated and left white rings. The top of the bookcase was not surveyed at the time of the water leak. R-155 was not a posted Radiological Area at the time of the contamination discovery.

This occurrence was categorized on 03/29/1999 at 1315 hours (ETZ); Madan Dev from DOE/MEMP was notified on 03/29/1999 at 1345 hours (ETZ); corrective actions for occurrence #1 were in progress at the time of the occurrence; and the activity category was normal operations.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

18. Activity Category:

03 - Normal Operations

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19. Immediate Actions Taken and Results:

Occurrence #1

A "major problem" review team has been assembled chaired by the Site Manager to identify and implement immediate site-wide corrective measures to preclude future occurrences. The potentially affected workers have been placed on work restriction until bioassay results are obtained. An action plan regarding the material shipped off-site is being prepared.

SW-5 was posted as a contamination area and further posted as "Do Not Enter". Additional surveys were taken under the area where the base cabinets were previously located and in select areas of the room. A meeting was held with the personnel who had performed the removal of the cabinets to gain additional information and inform them of the event. The dumpster, tools, and equipment used to remove the cabinets were surveyed and no contamination was found. Personnel involved with work in SW-5 were informed of the bioassay requirements resulting from this event.

Occurrence #2

On February 23, 1999, an internal contamination sticker was placed on the safe and it was moved inside a Radioactive Material Area within R-112. On March 3, 1999, after receiving the results from the second survey, the safe was posted as a contamination Area. A critique meeting was held on March 4, 1999.

Occurrence #3

R-142 was posted as a Contamination Area and "Do Not Enter". An investigation into the factors in this discovery was conducted.

Occurrence #4

The bookcase in R-155 was posted as a Contamination Area. An investigation into the factors in this discovery was conducted.

20. Direct Cause:

6) Management Problem
F. Other Management Problem

21. Contributing Cause(s):

2) Procedure Problem
A. Defective or Inadequate Procedure

22. Root Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

23. Description of Cause:

Direct Cause: Management Problem, Other Management Problem.

Surveys adequate for relaxation of controls, such as personnel protection under old standards, are not adequate for down posting from a Contamination Area (CA), Radiological Buffer Area (RBA), or Radiological Materials Management Area (RMMA).

Contributing Cause: Procedures Problem, Defective or Inadequate Procedures.

Occurrence #1 only: Procedures for performing intrusive work were not adequate to prevent this occurrence.

Root Cause: Radiological/Hazardous Material Problem, Legacy Contamination.

Occurrence 1: The contamination on the floor under the cabinet is believed to be deposited as a result of a water main break in 1994 that flooded the first floor of the SW/R Tritium Complex.

Occurrence 2: The contamination in the safe drawer was probably transfer to the safe from contaminated classified parts that were once stored there.

Occurrence 3: The contamination in the cabinet drawer was probably the result of storage of radioactive material when the area was used to perform analyical work.

Occurrence 4: The contamination on top of the bookcase is probably the result of a water leak which spread contamination from the crawlspace through the ceiling.

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24. Evaluation (by Facility Manager/Designee):

The contamination in SW-5 is most likely to have been the result of the water main break which flooded the area in 1994. Based on available information, the deposition of contamination does not appear to be recent and no recent activity can explain the source of contamination. In the past several years the room has been used almost exclusively for storage of supply boxes. A review of documentation, prepared after the water main break, indicated the primary concern with that event was tritium exposure and contamination. No information has come to light about other potential radioactive depositions. It is clear however, that alpha contamination was present in some of the water collected after that incident. Initial calculations tend to corroborate that, given the amount of alpha contamination noted in the captured water, the source of the contamination was likely due to the water main break and subsequent deluge of SW Building.

Down posting of former radiological areas in SW and R Buildings occurred over a number of years during which different regulatory mechanisms were in place. Certain of these actions occurred pursuant to the then existing DOE Order requirements. Actions were implemented pursuant to guidance in the DOE RadCon Manual as applicable. Ultimately, 10 CFR 835 and its appendices became the controlling authorization. Undoubtedly, the technical requirements and there

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interpretation had played major roles in developing and implementing procedures and practices for subsequent down posting.

Surveys adequate for relaxation of control in one area, such as personnel protection, would not necessarily be adequate for relaxation of controls in another area, such as free release of fixtures or attached equipment. Intrusive work into previously unexposed areas should have contemplated the need for additional surveys given the limited scope of concern for the earlier surveys. Procedures developed after the implementation of new standards should have considered the differences between the previous revisions of procedures as to changes in the level of radiological control.

25. Is Further Evaluation Required?: No

26. Corrective Actions

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

1. Post SW and R Buildings as Radiological Material Management Areas.

Target Completion Date: 02/28/1999	**Completion Date:** 02/28/1999

2. Expand the use of the Personnel Contamination Monitors (PCM) for SW and R Buildings.

Target Completion Date: 03/02/1999	**Completion Date:** 03/02/1999

3. Perform comprehensive surveys of previously down posted areas in SW and R Buildings.

Target Completion Date: 03/16/1999	**Completion Date:** 03/16/1999

4. Evaluate controls on material/equipment in other similar buildings. Post other similar buildings as RMMAs.

Target Completion Date: 03/04/1999	**Completion Date:** 03/04/1999

5. Issue a Lessons Learned to all tritium workers and provide lessons learned information to the Mound Lessons Learned Manager for distribution to the remainder of the plant site as appropriate.

Target Completion Date: 03/16/1999	**Completion Date:** 03/16/1999

6. Place a hold on material/equipment for free release stored in Building 61 pending RMMA determinations and surveys of equipment.

Target Completion Date: 03/01/1999	**Completion Date:** 03/01/1999

7. Survey tools in W Building. Based on the results of surveys performed in W Building develop plan and survey tools in other storage areas.

***Target Completion Date:** 08/01/1999	***Completion Date:** 08/01/1999

8. Revise procedure MD-80043, Operation 400 to clarify the radiological survey requirements for intrusive work.

Target Completion Date: 04/01/1999	**Completion Date:** 04/01/1999

27. Impact on Environment, Safety and Health:

None

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28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

The down posting of Radiological Areas requires detailed and rigorous characterization surveys to assure that contamination and radiation levels are below those specified in 10 CFR 835.

Any work in a Controlled Area that requires penetration of walls, ceilings, floors or exposure of previously inaccessible areas must be evaluated by a Radiological Controls Engineer or Supervisor for potential radiological concerns. The requirements from that evaluation should place emphasis on radiological monitoring during the work process and use of appropriate Personnel Protection Equipment (PPE). Likewise, any waste in a Controlled Area generated from the structural modification of a building including waste from the penetration of a wall/ceiling/floor, waste generated to replace carpet or other flooring, and waste due to dismantling or demolition must be evaluated by the Radiological Controls Engineer or Supervisor.

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: James N. Brogger, Facility Manager/Designee
Date: 04/08/1999
Telephone No.: (837) 865-3380

Approved by: DEV, MADAN, Facility Representative/Designee
Date: 04/15/1999
Telephone No.: (513) 865-4714

Approved by: Approval delegated to FR
Date: 04/15/1999
Telephone No.:

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OH-MB-BWO-BWO04-1999-0004 Final Report

Occurrence Report

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

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

(Facility Manager/Designee)

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

(Originator/Transmitter)

Name: Don Dixon **Date:** 02/16/2000

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO04-1999-0004

Contaminated Wrench Found in Building 94

2. Report Type and Date: Final

	Date	Time
Notification:	03/02/1999	11:17 (MTZ)
Initial Update:	03/18/1999	13:52 (MTZ)
Latest Update:	02/16/2000	07:59 (MTZ)
Final:	02/17/2000	13:59 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 5 **Original OR:**

5. Division or Project: Babcock and Wilcox of Ohio

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Building 94, Room 3

8. UCNI?: No

9. Plant Area: Test Fire Valley

10. Date and Time Discovered: 03/01/1999 12:00 (ETZ)

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11. Date and Time Categorized: 03/01/1999 12:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
03/01/1999	12:15 (ETZ)	Fred Holbrook	DOE/MEMP

13. Other Notifications:

Date	Time	Person Notified	Organization
03/01/1999	12:10 (ETZ)	Chris White	DOE/MEMP
03/01/1999	12:20 (ETZ)	Ron Berry	DOE/MEMP

14. Subject or Title of Occurrence:

Contaminated Wrench Found in Building 94

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15. Nature of Occurrence:

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

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16. Description of Occurrence:

Update/Roll-Up Report

Occurrence #1

On Monday, March 1, 1999 at 12:00 a.m. a hand tool was found in Building 94 room 3 to be contaminated. A pipe wrench was found to be contaminated to levels of 3700dpm/100cm2 direct alpha and 190dpm/100cm2 removable alpha. Three wipes were submitted for isotopic analysis. The wrench was not located within a posted area.

On Tuesday, March 2, 1999 the 3 wipes were analyzed simultaneously by alpha spectroscopy and revealed 450 dpm of Pu-238. This exceeds the reporting criteria of Table 2-2 of the RADCON manual.

Occurrence #2

Isotopic analysis received on March 18, 1999 determined that contaminated isotopes levels were greater than 10 times the contamination values in table 2-2 of the Radiological Control Manual for a controlled area.

During a tool box survey of W Building on March 12, & 13, 1999 the following items were found in a posted controlled area.

In W Building's Carpenter Shop chisel bits were found to be contaminated to levels of 1350 dpm/100cm2 direct alpha Pu-238.

In W Building's Pipe Fitter Shop a tool box was found to be contaminated with fixed alpha at 15000 dpm/100cm2 of Pu-238.

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In W Building room 125 a drill and drill box revealed levels of 8820 dpm/100cm2 and 6500 dpm/100cm2 fixed contamination with removal contamination of 450 dpm of Pu-238.

Occurrence #3

On Thursday, April 15, 1999, two boxes filled with material going to auction were identified as having fixed contamination on them at levels of 200 dpm/100cm2 and 4000 dpm/100cm2. The samples were sent to gamma spec for isotope identification and results found to be
Pu-238 and Am-241. Surveys of the reminder of the boxes and material contained within were identified resulting with no other contamination present.

On Thursday, April 15, 1999, contamination was found in Building 61 during surveying of excess equipment. A screen off the back of a piece of electronic equipment (Tenelec counting module) was found to be contaminated. The screen read 2000 dpm/100 cm2 direct contamination without any removable contamination. Two covers from over separate power supplies for the Tenelec module housing and Tenelec amplifier housing were found to be contaminated. One of the covers read 1500 dpm/100 cm2 direct and the other cover was 500 dpm/100 cm2 direct. The power cord for the unit was at 500 dpm/100 cm2 direct. No removable contamination was present on either power supply cover or power cord. The equipment was found in a non-radiological area.

The screen, covers, and power cord were sent to gamma spec for isotope identification and results found to be Pu-238 and Am-241.

Occurrence #4

As a result of the discovery of previously unidentified and uncontrolled contamination in SW-5 and subsequent discovery of contaminated tools in Buildings 94 & 301 it was determined to be necessary to perform surveys of the tools used by the site trades organization. These surveys were performed to determine if any of the tools had been radioactively contamined during past use. These surveys have been completed for the main tool storage area on plant site (W-Building) and this report provides the results of those surveys. During the surveys of the approximately 309 toolboxes and cabinets located in W-Building 36 items were discovered to be contaminated above todays's release criteria. Four of the items had removable contamination. The maximum direct contamination found was 44,000 dpm/100 cm2 alpha on a tool box drawer. The maximum removable contamination found was 4,400 dpm/100 cm2 removable alpha contamination on a toolbox and 57,210 dpm/100cm2 removable tritium on screwdrivers. The predominant isotope identified during these surveys was Pu-238.

A table is available from the Facility Manager, Site and Grounds, that identifies the specific items found to be contaminated and provides a summary of the type and amount of contamination found.

Occurrence #5

Two additional items that were not reported under occurrence #4 are listed as follows:

Box in drawer of Pipe Shop (W Building) with 1373 dpm/100cm2 tritium.

DOP test units - 650 dpm/100cm2 direct alpha contamination Pu-238.

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17. Operating Conditions of Facility at Time of Occurrence:

Normal Operations

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18. Activity Category:

03 - Normal Operations

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19. Immediate Actions Taken and Results:

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Occurrence #1

The pipe wrench was disassembled using proper Personnel Protection Equipment (PPE)for sending to the lab for isotopic analysis. In the process of disassembling the 190dpm/100cm2 removable alpha was found. The entire area (room 3 of Building 94) was posted as an Radiological Material Management Area (RMMA).

Occurrence #2

Each item was secured in a Radioactive Material Area (RMA). Radiological surveys continue on the balance of the W Building tool storage area and other plant areas.

Occurrence #3

Each item listed under occurrence #3 was secured in a Radioactive Material Area (RMA) and will be disposed of properly.

Occurrences #4 and #5

Each item listed was secured in a Radioacive Material Area (RMA) and will be disposed of properly.

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20. Direct Cause:

6) Management Problem
A. Inadequate Administrative Control

21. Contributing Cause(s):

22. Root Cause:

6) Management Problem
A. Inadequate Administrative Control

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23. Description of Cause:

Inadequacy of Managerial Administrative Controls have contributed to the spread of radiological contamination such as the events identified in this report. Tools or equipment radiologically contaminated must be kept within radiologically controlled areas and not permitted to leave those areas improperly. The removal of tools and equipment from areas without the approval of Radiological Control technicians must be emphasized and enforced by management. Radiological Control technicians and count room technicians must be thorough in their monitoring and release of tools and equipment from radiological areas.

The Corrective Action of evaluating controls on material and equipment addressed the above concerns related to removal and release of tools and equipment from radiological areas.
The Corrective Action of defining existing tool storage areas allowed for the inventorying and surveying of these tools across the site.
The Corrective Action to develop controls for tool storage areas resulted in the identification by color coding tools used and to be kept within radiological areas for control.

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24. Evaluation (by Facility Manager/Designee):

The event of finding radiologically contaminated tools outside of radiological control areas prompted the survey of tools across the plant site. Tools used within radiological areas will be identified by color coding and are to remain in those areas only.
The finding of radiologically contaminated equipment outside of radiological control areas has increased the emphasis of controls of material movement within the plant and the release of equipment from off the plant site.

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25. Is Further Evaluation Required?: No

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26. Corrective Actions

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

1. Evaluate controls on material/equipment in other similar buildings. Surveys will be performed on the remaining equipment in the buildings posted as RMMAs.

Target Completion Date: 08/01/1999	**Completion Date:** 07/30/1999

2. Develop a list of existing tool storage areas for surveying.

Target Completion Date: 06/30/1999	**Completion Date:** 06/30/1999

3. Develop controls for tool storage area.

Target Completion Date: 08/01/1999	**Completion Date:** 07/30/1999

27. Impact on Environment, Safety and Health:

There were no personnel injuries, no environmental or human health concerns, no impacts to the safety systems or production, no press release is planned, and no congressional inquiries are likely.

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Controls are needed for tools within radiological areas and those tools being removed from radiological areas.
Keeping tools within these areas and identifying them by color coding is an effective way of control.

The down posting of Radiological Areas requires detailed and rigorous characterization surveys to assure that contamination and radiation levels are below those specified in 10CFR835. When tools and equipment are used on work in these areas they should not leave these areas without proper characterization.

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:

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Approved by: WEIDENBACH, GARY L, Facility Manager/Designee
Date: 02/16/2000
Telephone No.: (937) 865-3241

Approved by: WHITE, CHRISTOPHER A, Facility Representative/Designee
Date: 02/17/2000
Telephone No.: (937) 865-4396

Approved by: Approval delegated to FR
Date: 02/17/2000
Telephone No.:

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OH-MB-BWO-BWO06-2001-0005 Final Report

Occurrence Report

Waste Management Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: HENDERSON, WILLIAM R
Title: Facility Manager **Telephone No.:** (937) 865-4242

(Facility Manager/Designee)

Name: HENDERSON, WILLIAM R
Title: **Telephone No.:** (937) 865-4242

(Originator/Transmitter)

Name: Steve Romage **Date:** 02/14/2002

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO06-2001-0005

Glycol Release at Plant Outfall 601

2. Report Type and Date: Final

	Date	Time
Notification:	10/31/2001	14:21 (MTZ)
Initial Update:	12/06/2001	09:47 (MTZ)
Latest Update:	02/14/2002	09:43 (MTZ)
Final:	03/06/2002	09:40 (MTZ)

3. Occurrence Category: Off-Normal

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

5. Division or Project: BWXT of Ohio, Inc.

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: SD Waste Water Treatment Facility, W-Bd Air-Handler

8. UCNI?: No

9. Plant Area: Outfall 601

10. Date and Time Discovered: 10/30/2001 11:00 (ETZ)

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11. Date and Time Categorized: 10/30/2001 12:00 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
10/30/2001	11:30 (ETZ)	P. Brechlin	DOE/MEMP
10/30/2001	11:30 (ETZ)	O. Vincent	DOE/MEMP
10/30/2001	11:30 (ETZ)	C. White	DOE/MEMP
10/30/2001	11:40 (ETZ)	OEPA & Hotline	OEPA

14. Subject or Title of Occurrence:

Glycol Release at Plant Outfall 601

15. Nature of Occurrence:

02) Environmental
B. Release of Hazardous Substances/Regulated Pollutants/Oil

16. Description of Occurrence:

An onsite glycol release was discovered on Saturday, 10/27/01. The release was from an air-purge vent on an air-handling unit located in W-221 penthouse. The air vent is an automatic valve that releases air from the glycol system. The plant cooling system (30% glycol) had been in a planned shutdown on Friday, 10/26/01 to support T-Building maintenance. A quantity of glycol had been drained from the cooling system to support the maintenance. The maintenance could not be completed, so the cooling system was re-filled and brought back on-line.

Powerhouse operators noted a pressure bleed, which normally indicates entrapped air. Additional glycol was added to bring the pressure back to norms. At the Waste Water Treatment System (WWTP) plant, an operator noticed a pink haze in the equalization tank which is indicative of glycol. The powerhouse operator was notified. A building walkdown discovered a leaking air bleed vent in the W-building penthouse. The valve had not re-seated appropriately when the system was brought back on-line. The air vent was subsequently valved out of the system.

The leak went to the floor drain and subsequently to WWTP and contained initially in the WWTP equalization basins (influent tanks). The supervisor and shift operators initiated actions to hold the discharge at WWTP and treat by various mechanisms. The WWTP is very inefficient at processing glycol and requires a long time period for processing. The pump was activated over the weekend and the equalization basin discharged to further tanks which allowed the glycol tainted effluent to discharge to outfall 601. Monday morning composite testing results, which indicated the glycol discharge, were received on Monday afternoon 10/29/01. The analysis of the results was completed Tuesday morning 10/30/01. At that time, it was determined that a glycol release from the plant outfall had occurred.

17. Operating Conditions of Facility at Time of Occurrence:

SD plant was retaining the glycol contaminated water for treatment.

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

DOE/MEMP and EPA Hot Line notifications were made Tuesday, 10/30/01. The environmental release was reported to the Ohio EPA hotline (EPA case # 011-57-4139) and to the Surface Water Quality Division of the Ohio EPA Southwest District Office. A critique was held the afternoon of 10/30/01 with follow-up actions assigned. A flushing process to clean the plant of glycol was initiated. A

Root Cause analysis is being performed.

20. Direct Cause:

3) Personnel Error
A. Inattention to Detail

21. Contributing Cause(s):

3) Personnel Error
D. Other Human Error

22. Root Cause:

6) Management Problem
A. Inadequate Administrative Control

23. Description of Cause:

The direct cause was the inattention to detail of the WWTP operators spanning multiple days and shifts. The plant was in known shutdown status to contain and manage a glycol spill. Shift change walk-throughs of the plant would have shown the primary influent pump to be in auto mode, rather than off. Configuration check of the plant after maintenance would have verified proper configuration of equipment. Round sheet data entries, if performed, would have given sufficient information for the trained operators to know the influent pump was activated.

Contributing causes include the uncertainties in understanding instructions by telephone verbal communications between operators and supervisors during non-routine hours and weekends. The supervisor thought the operators understood the requirements. The lack of pre-job with SD operators and electricians may have led to confusion on plant operational status and importance of the glycol containment.

Root cause is review of procedures and processes, with appropriate training for personnel, on chilled water system operations including block valve & auto air vent valve operational modes. If the block valves had been properly operated and configured, glycol would not have been released to the sanitary drain.

TapRoot Root Cause Analysis was utilized for this event.

24. Evaluation (by Facility Manager/Designee):

Powerhouse operators noted a pressure drop in the system Saturday morning. On Saturday morning, glycol was added and a check of T-Building was performed to determine if entrapped air or a leak from the maintenance accounted for the pressure drop. A check of the Waste Water Treatment Plant (WWTP) was made to determine if there was glycol from the sanitary drains entering WWTP. The discovery of glycol in the influent tanks led to the primary influent pump being manually switched out and a walkdown to discover the source. The source was discovered in the W-penthouse. The chiller was valved out of the system. At this time, the reason for the chiller release of glycol was not known .

Verbal instructions were given by the supervision to the operators via telephone (weekend shifts) to stop the glycol from entering the sanitary drain and configure WWTP to hold the contaminated water for treatment (primary influent pump stays off). With the pump off, no water from the sanitary drains would leave the influent tanks. Foreman maintained contact with operators via phone over the weekend. Aerator blowers were to be run periodically to maintain the bacteria.

Additionally, on Saturday, Oct. 27, commercial power to WWTP was off due to work on TF substation. The WWTP operated on backup generator power. Electricians went to the WWTP to shutdown the generator late Saturday afternoon because it failed to turn off after commercial power had been restored.

The leak was determined to be the air-purge vent valve that bleeds air from the chilled water lines in the W-penthouse chiller. The blocking valve was open, the vent did not reseat, and glycol ran to the floor drains. The blocking valve is used to isolate the air purge valve except during system startups. This valve was not involved in the maintenance shutdown. It is unknown when this blocking valve was left open. The blocking valve was closed.

Documentation of WWTP equipment status was not performed over multiple shifts (round sheets). Position of primary influent pump switch (off/auto) could not be verified during the abnormal operating status. No round sheet entries made from 2nd shift Saturday until

1st shift Monday (Oct. 29). Logbook entries were made. Monday, supervisor checked status by phone with operators who verified pump was on and water levels indicated influent tanks had been pumped. Supervisor went to plant and directed a shutdown. Monday composite analysis results indicate glycol released from the outfall.

Interviews and root cause analysis is complete. Corrective actions are developed. During root cause analysis, immediate corrective actions were developed and implemented to prevent recurrence, improve documentation and processes for abnormal conditions in the treatment plant, and improve communications outside normal business hours.

Insufficient data exists to determine if the primary influent pump switch was never off, turned on at some point, or who turned it on (operators or electricians) if it was previously off. From existing records and interviews, it appears the glycol was pumped from the influent tanks between Saturday 11am and Monday 5am.

25. Is Further Evaluation Required?: No

26. Corrective Actions

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

1. Develop Lessons Learned for control of plant configuration during abnormal activities and chilled water system blocking valve operational modes.

Target Completion Date: 01/03/2002	**Completion Date:** 12/05/2001

2. Review, modify, develop, and/or update SD Utility Operations processes and procedures including round sheets, plant configuration check sheets, abnormal operations processes, log sheet requirements, plant configuration control during/after maintenance and return to normal conditions for chilled water system startup, verification of instructions between supervision/operators, SD plant normal/abnormal operations, and glycol spills.

Target Completion Date: 03/01/2002	**Completion Date:** 02/28/2002

3. Review TapRoot root cause analysis 2001-028 Actions Report to verify all actions completed.

Target Completion Date: 03/14/2002	***Completion Date:** 03/14/2002

27. Impact on Environment, Safety and Health:

Environmental Compliance estimated 52 gallons of glycol (100%) were released from the outfall.

28. Programmatic Impact:

none

29. Impact on Codes and Standards:

none

30. Lessons Learned:

With changes in contractors, restructurings, responsibility changes, personnel turnover, etc., requirements implemented for control of potential releases can be easily lost. Ensure that all block valves in the chilled water system are in the closed position. Ensure that all personnel who have access to the chilled water system understand block valve closure requirements, before and after maintenance activities. Ensure Powerhouse Operators coordine with personnel on bleeding air out of the system during startups. Ensure procedures address important areas such as control of potential releases.

31. Similar Occurrence Report Numbers:

1. ALO-DA-EGGM-EGGMAT04-1990-0003

32. User-defined Field #1:

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BWXTO Root Cause analysis 2001-028.

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: HENDERSON, WILLIAM R, Facility Manager/Designee
Date: 02/14/2002
Telephone No.: (937) 865-4242

Approved by: WHITE, CHRISTOPHER A, Facility Representative/Designee
Date: 03/06/2002
Telephone No.: (937) 865-4396

Approved by: Approval delegated to FR
Date: 03/06/2002
Telephone No.:

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Appendix N

PRS Information

Recommendation pages are not generated for PRSs that require Further Assessment (FA) or that have been unbinned. Accordingly, there is no recommendation page included for PRS 106.

PRS 106 will be binned after the Core Team receives and evaluates the analytical data from the soil samples collected after the G Building slab is removed. The Core Team recommendation sheet will be included in the G-GW-W Buildings Closeout Report.

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 — 12/17/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer — 12/17/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel — 12/17/97
Brian K. Nickel, Project Manager (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.

MOUND PLANT
PRS 113/114/115/116/117
FORMER TANK SITE - POWERHOUSE FUEL OIL STORAGE TANKS AND SOIL CONTAMINATION

RECOMMENDATION:

Potential Release Sites (PRSs) 113, 114, 115, 116, and 117 were identified to address fuel oil and toluene contamination in the soil located on the east side of the powerhouse.

PRSs 114-117 are the four underground fuel oil tanks that were removed. Removal of the tanks and contaminated soils was initiated in 1995 and completed in 1996. The treatment of the soils is ongoing in accordance with the Action Memorandum for the Fuel Oil Storage Removal Action (FOSRA). The On-Scene Coordinator (OSC) Report for the FOSRA will document residual levels and the requirements for this removal per the Ohio Bureau of Underground Tank Regulations (BUSTR).

PRS 113 refers to a single toluene soil gas detection prior to the removal activities. Toluene was identified at a concentration of 447 parts per billion (ppb), which is below the 414,800 ppb calculated acceptable soil gas concentration.

Therefore, since these PRSs are part of an active removal action, NO FURTHER ASSESSMENT is recommended.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath 3/18/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 3/18/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 3/18/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 5/8/97 to 6/16/97

☐ No comments were received during the comment period.

☒ Comment responses can be found on page 1, 2 of this package.

N2 of 5

MOUND PLANT
PRS 126/127
SOLVENT STORAGE SITE - OUTSIDE AREA NEXT TO BUILDING 28

RECOMMENDATION:

Potential Release Sites (PRSs) 126 and 127 refer to the temporary storage locations for waste solvents generated by the Building 28/60 operations. The solvents were used in cleaning operations during the manufacture of weapon components. There are no historical records of any spill or leak of solvents from either of the waste solvent storage areas.

Volatile organic compounds (VOCs) were detected in the surrounding soil gas samples collected in 1993. All the VOC concentrations were below the calculated acceptable soil gas criteria. Samples analyzed for plutonium and thorium were below their respective radiological guideline criteria, 25 pCi/g for plutonium-238 (Mound ALARA) and 15 pCi/g for subsurface thorium (40 CFR 192.41). Therefore, PRSs 126/127 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 10/3/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 10/3/96 (date)

OEPA: Brian K. Nickel, Project Manager — 10/3/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 10/15/96 to 11/15/96

☒ No comments were received during the comment period.

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

N3 of 5

MOUND PLANT
PRS 242
SOIL CONTAMINATION
W-BUILDING

RECOMMENDATION:

The site was designated a Potential Release Site (PRS) because of volatile organic compound (VOC) detections in a soil gas survey. All VOCs detected were below the calculated acceptable soil gas comparison values. These comparison values correspond to VOC soil concentrations which would represent a 10^{-6} risk to a construction worker or Mound employee. The maximum concentration of plutonium-238 of 0.10 pCi/g is below the Mound As Low As Reasonably Achievable (ALARA) goal of 25 pCi/g and the 10^{-5} Guideline Value of 55 pCi/g. Thorium-232 was not detected at the 2pCi/g detection limit and is therefore below the accepted regulatory standard of 5 pCi/g. Therefore, PRS 242 is designated NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 5/8/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 5/8/96 (date)

OHIO EPA: Brian K. Nickel, Project Manager — 5/8/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from ~~6/15/96~~ 6/17/96 to ~~7/15/96~~ 7/17/96.

☒ No comments were received during the comment period.

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

MOUND PLANT
PRS 332
WASTE OIL TANK - BUILDING G (Used engine oil)

RECOMMENDATION: 262 DCKramer 6-19-03

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 12/17/96
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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Appendix O

Work Plan (Draft)

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

☒ Office Master Copy ☐ ~ Field Working Copy ☐ ~ Review Copy ☐ ~ Other Copy

(Original Approval Signatures) (Original Field Sign -Offs) [Note: Mark this section in color]

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

1. WORK PACKAGE TITLE: **Buildings G, GW, and W Demolition**

2. WORK PACKAGE NUMBER: SMPP/TFV- 35691 | **Requestors: Lee Koehmstedt x 3659 / Mark Tibbs x 4734**

1. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Buildings G, GW, and W. Using heavy equipment to demolish the facility (including pipe stanchions, slab and foundation), remove and dispose of the debris, provide site restoration, grading, and erosion protection with seeding and mulch. This is a Non-Radiological Demolition project and no RWP is required. Asbestos abatement, safe shutdown, and utilities isolation activities will have already been completed prior to demolition.

4. WORK LOCATION: Building #: G, GW, and W

5. WORK PACKAGE PHASES:

1. Site Information
2. Site Preparation & Mobilization
3. Building & Slab Demolition
4. Site Remediation & Demobilization

List of Appendixes

A – PHA/JSHA

B – Pre-Job Briefings/Job Status Log

C – Drawings/Sketches

D – Miscellaneous (RWP, USQ, etc.)

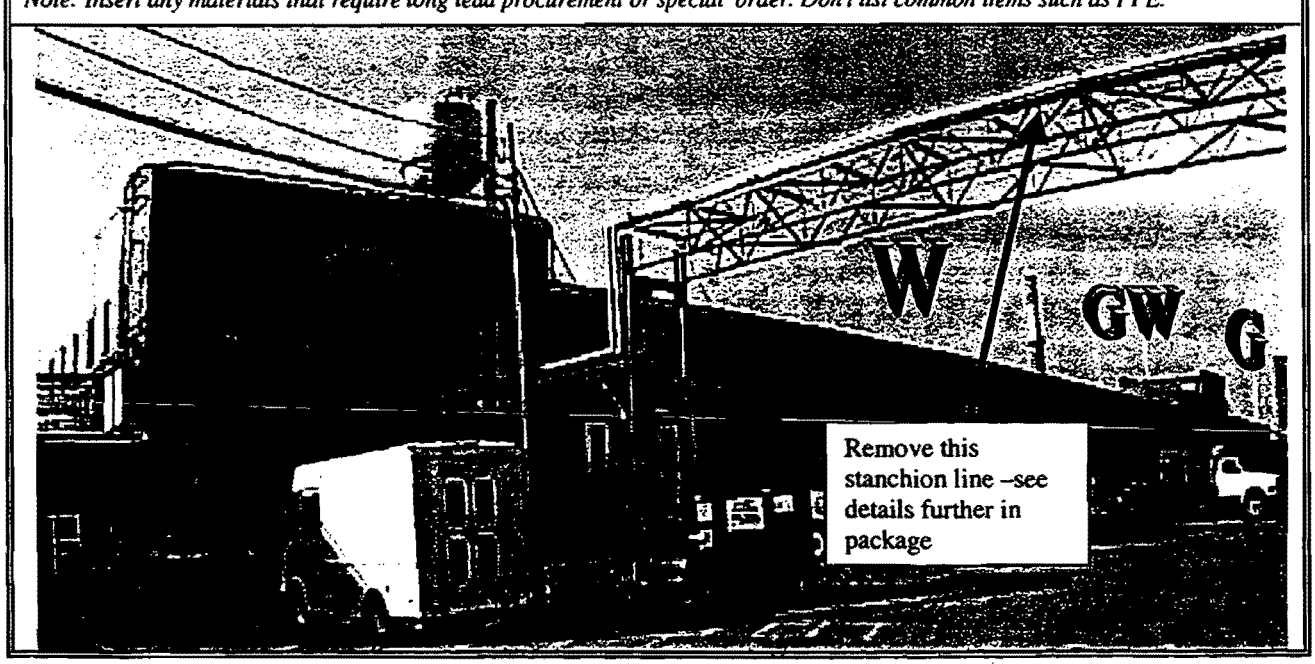
E – Post-Job Conference/Lessons Learned

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

6. SPECIAL MATERIALS AND EQUIPMENT:

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

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



0 1 of 48

7 DETAILED WORK STEPS:

7.1 Site Information

7.1.1 Building W

Building W was constructed in 1947, as the "Maintenance, Offices & Shops (Old Warehouse)." At the time of construction, the building contained 32,484-ft^2. Construction of the structure consists of a steel reinforced 6" concrete slab on grade. Reinforcement in the slab consists of #3 rebar at 12" centers in both directions. The foundation consists of a 12"-16" wide x 1' deep footer with a 12" x ~ 3' tall stem foundation wall. Above grade walls are a brick veneer in front of a CMU wall with 8" steel beams for the roof truss joist support. The roof truss joists span the 50' length from the wall to center column line, on each side of the structure. Roof construction consists of metal decking with built up asphalt roofing.

7.1.2 Building GW

Building GW was constructed in 1968, as the "Records Storage (old Receiving/Inspection)." At the time of construction, the building contained 9,782-ft^2. Construction of the structure consists of a steel reinforced 6" concrete slab on grade. Reinforcement in the slab consists of 6x6 welded wire mesh. The foundation consists of a 2' foot wide footer with a 12" x ~3' tall stem foundation wall. Above grade walls are a brick veneer in front of a CMU wall with 8" W-8x31 steel columns for the roof truss joist support. The roof truss joists span the 50' length from the wall to center column line on the northern bay, the other two bays have 25 foot beams supporting the roof structure. Roof construction consists of metal decking with built up asphalt roofing. The second floor system consists of 10" thick –flexi core pre cast concrete panels.

7.1.3 Building G

Building G was constructed in 1947 as the "Garage." At the time of construction, the building contained 7,518-ft^2. Construction of the structure consists of a steel reinforced 6" concrete slab on grade. Reinforcement in the slab consists of #3 rebar at 12" centers in both directions. The foundation consists of a 12"-16" wide x 1' deep footer with a 12" x ~ 3' tall stem foundation wall. Above grade walls are a brick veneer in front of a CMU wall with 8" steel beams for the roof truss joist support.

Exposed exterior wall construction generally consists of brick veneer on reinforced concrete block, with a 4" break between the veneer and the block containing about 4" of insulation. Reinforcing rebar consists of #5 @ 24" for vertical wall reinforcement and continuous tie reinforcing rebar (#4). The brick veneer/block walls are anchored by #5 rebar at 24", set 12" in the footer.

7.2 National Historic Preservation Act (NHPA)

Building GW is not listed as a historic structure with the Ohio Historic Preservation Office (OHPO). No mitigative documentation package is required. W and G Buildings are two of Mound Facility's original structures built to support the polonium processing and research mission. Consequently, the Ohio Historic Preservation Office (OHPO) has determined W and G Buildings to be historic buildings based upon their role in the polonium mission. Accordingly, the demolition of these structures was determined to be an adverse impact upon the historic structures. Consistent with requirements established by the OHPO in a Memorandum of Agreement between DOE and the Advisory Council on Historic Preservation, documentation packages were prepared to mitigate the adverse impacts.

The mitigative documentation packages have been completed and the demolition of these structures can proceed without the need for any additional evaluations of the activities to affect or impact cultural resources or historic property.

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

7.3 Site Preparation & Mobilization

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

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

Emergency egress for Bldgs. 99/40 and 28 occupants shall be maintained.

Install sediment/stormwater control fence around designated construction area. Coordinate with Environmental Compliance PoC. Controls will be routinely evaluated to ensure compliance.

7.3.2 Clear Area and Mark/Protect Utility Equipment
The area around the building will be cleared of obstacles as appropriate. Coordinate with site Safety and Health and Environmental Compliance.

Remove lead flashing around soil stack using Mound lead handling procedure and turn over to the Waste Management PoC.

Mark and/or protect fire prevention fire hydrant and other utility equipment. Cover field grates for protection.

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

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

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

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

7.4 PRELIMINARY ACTIVITIES AND VERIFICATIONS

7.4.1 Verify all Building Safe Shutdown Activities have been completed per Safe Shutdown Pkg. SMPP/TFV – 35689. Mark all monitoring wells with barricades and or flagging to keep from accidental damage.

verified by _____ date: _____
Bill Wahler or designee

7.4.2 Verify all Building Utility Isolation Activities have been completed per Utility Isolation pkg. UA – 35692

verified by _____ date: _____
Allen Upshaw or designee

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

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

7.4.5 Notify engineering to communicate with the occupants of Bldg. 99, 40 and 28 of demolition schedule, potential traffic pattern delays, and building access / egress coordination. Ron Parr x3958, Tom Beal x4897 or Steve Etter x3313, Steve Romage x4518, Gary Weidenbach x3241 (or whomever Gary says is the Building Manager for the building in question)

7.4.6 Notify engineering to communicate with site security and site mound GroupWise e-mails news of the pending traffic restrictions.

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

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

7.5 BUILDING DEMOLITION SEQUENCE OF WORK

7.5.1 Structural Demolition

HOLD POINT: 'COLD & DARK' Review Team (Project Mgr., Construction Mgr./ Foreman, Building Mgr., and Project Engineer), notification of team by Construction Mgr./ Foreman.

Walk-down Completed & Project Manager Authorizes Work to Start:

Project Manager:_____ Date and Time:_____

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_____

Starting with the North eastern end of Building W demolish the structure's concrete block walls & brick facing using heavy equipment. Utilize debris to build a ramp to allow equipment to reach the higher levels to weaken the structure to allow upper section to collapse onto lower level for demolition. See attached structural drawings, more available upon request.

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

Demolished the utility stanchions that extend from buildings G and W; see attached photographs and sketch for scope. Stanchion and pipes over 14' above the ground should be stabilized using the excavator with the grapple attachment to hold the elevated parts to be demolished steady while the shears cut the ends free material. The concrete pier footings for the stanchions will be removed and surveyed/ scanned by rad. control technicians. The materials will be sized, surveyed and placed into appropriate hauling containers or trucks.

Note: The progression of the building demolition will ultimately be determined in the field.

IMPORTANT: Ensure structure collapse is directed away from Buildings 28,40, and 99 and the Power House.

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

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

WARNING HAZARD: Dust Control – Utilize misting & fogging during demolition & road wetting during waste hauling. The Goal is no visible dust emissions. Controls will be routinely evaluated to ensure compliance.

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

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

CAUTION HAZARD: Struck by moving equipment.

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

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

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

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

7.5.2 Slab and Foundation Demolition

Using heavy equipment, break apart the concrete slab, foundation, and footers to 3 feet below grade, torch cut the rebar if required (Hot Work Permit is required) to support demolition and downsizing. Remove the concrete /asphalt parking aprons out to 3' from edge of roadways.

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.

7.5.3 Removal of Tank 262 (PRS 332) Underground Waste Oil Tank (below GW Building)

Prior to the construction of GW Building, there was an underground automobile waste oil tank (Tank 262, PRS 332) located to the north/northeast of G Building (see attached figure). The tank is described as a concrete tank with a 550-gallon capacity. VistaMap indicates that the tank is inactive, but remains in place. However, interviews with multiple site personnel indicate that the tank was removed prior to the construction of GW Building. VistaMap indicates that the tank is located two feet below grade. However, GW Building footers are reported to extend four feet below the slab. Accordingly, we believe that the tank was removed prior to the construction of GW Building. However, demolition craft is asked to use care when working in this area because of the possibility that the tank remains in place.

In 1996, the Core Team binned PRS 332 (G Building Waste Oil Tank, Tank 262) No Further Assessment (NFA). If during the GW Building demolition activities, the tank is discovered, it will be removed and its removal documented in the corresponding Closeout Report.

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

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

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

7.6 SITE REMEDIATION & DEMOBILIZATION

7.6.1 Grading, Seeding, & Mulching
Restore the area by grading and filling with appropriate amount of soil to grade to drain.

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

Remove any unnecessary remaining sediment/ stormwater control fences.

CAUTION FALLING HAZARD: Utilize fall protection trained workers and fall protection equipment when using man-lifts.

7.6.3 Remove Temporary Protection Structures
Remove fencing,plywood barriers from fire hydrants, fire prevention water lines, steel sheeting from field grates.

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

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

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

COMMENTS:

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

9. REVIEW SIGNATURES:

Written by: _____ Date: 6/20/03 Phone: 3659

Job Foreman: _____ Date: 6/25/03 Phone: 3663

Superintendent/Constr. Mgr: _____ Date: 6/24/03 Phone: 3866

Project Eng. Mgr: _____ Date: 6/23/03 Phone: 4220

Industrial Safety & Hygiene: _____ Date: 6/23/03 Phone: 3769/3737

Rad. Controls: _____ Date: 6/23/03 Phone: 4522

Environmental Compliance: _____ Date: 6/30/03 Phone: 4050

Waste Mgmt: _____ Date: 6/30/03 Phone: 4617

Bldg. Mgr: Gary L. Weidenbach Date: 07/01/03 Phone: 3241

Craft Review: _____ Trade HDM Date: / / Phone:

Craft Review: _____ Trade HP Date: / / Phone:

Craft Review: _____ Trade HD Date: / / Phone:

Craft Review: N/A Trade _____ Date: / / Phone:

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

Brief Explanation: This work will have no effect upon a Nuclear or ~~[illegible]~~ Radiological Building

USQ Trained Person: Gary L Weidenbach Date: 07/01/03 Phone: 3241

10. AUTHORIZATION SIGNATURE:

Project Manager: _____ Date: 7/1/03 Phone:

11. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: / / Phone:

Project Manager: _____ Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

5. WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE:
2. WORK PACKAGE NUMBER.

[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:

Project Manager

Name Signature

Date

Concurrence by:

DOE Project Manager

Name Signature

Date

REVISION LOG

. WORK PACKAGE TITLE:

. WORK PACKAGE NUMBER.

EVISION	Reason	BY	Date

Work Package Revision History Form

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

Appendix A

PHA/JSHA

PRELIMINARY HAZARD ANALYSIS (PHA)
FOR WORK PACKAGE ACTIVITIES

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

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Blockage of exits or means of egress	NO	N/A	[EGRESS]
Blockages/obstructions (Identify)	N/A	N/A	
Burning, welding, hot-work (Fire Watch)	Yes	3	[BURN] Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286 ops. no. H-1.
Chemical compatibility of corrosives/flammables	No	N/A	
Chemical process safety	No	N/A	
Compressed gas cylinders	No	N/A	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. no. H-1.All compressed gas cylinders are removed during safe shutdown activities
Confined space entry	No	N/A	[CONFINE]
Crane operations, overhead or mobile	No	N/A	
Critical lifts (heavy or high value loads)	No	N/A	[CLIFT]
Electrical hazards	Yes	2,3,4	[LIVEL] Electrical Isolation of facility is accomplished during Utilities Isolation activities. Street light circuit will be LOTO when within 10'.
Elevated work/fall protection	Yes	2,3	[ELEV] Use fall protection trained workers and equipment.
Emergency eyewash/shower available	No	N/A	[EWASH]
Emergency alarms or evacuation plans required	Yes	All	[EMERG] Plant Public Address system will be used to announce any plant emergency over the plant radio channel; cell phones will be used also; no specific added hazards exist in the demolition of these buildings.
Explosive/flammable atmosphere	No	N/A	
Explosives	No	N/A	
Fire protection system/equipment outage	Yes	All	[FIRE/EFIRE] FAS & fire protection system isolated during Utilities Isolation activities.
Fire Hazards Analysis Required of Demolition	No	N/A	[FHA/ADJA] FHA walkthrough of facility is accomplished during Utilities Isolation activities.
Flammable liquids/gases	No	N/A	[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. no. H-1.
Forklifts, aerial lifts or material handling equipment	Yes	2, 3	Use fall protection trained workers and equipment.
Grounding of electrical equipment	No	N/A	
Hazards due to condition of facility or terrain (Identify)	No	N/A	
Hoisting and rigging	No	N/A	[HOIST]
Lighting/illumination/adequacy	No	N/A	[MLITE]
Excavation and Soil disturbance	Yes	3 & 4	Excavation Permit is required obtain and follow.

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

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

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout of hazardous sources:			[LOTO/ISO]
• Electrical	Yes	2, 3, & 4	Electrical Isolation of facility is accomplished during Utilities Isolation activities..
• Mechanical (steam, hydraulic, pneumatic)	No	N/A	
• Interlocks	No	N/A	[ILOCK]
• Chemical	No	N/A	
• Radiological	No	N/A	BLDGS W, GW &G is not a radiological area, no RWP is required.
Machine guards	No	N/A	
Modification to Fire Wall/Door	No	N/A	[FIREWAL]
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	Yes	All	Fire hydrant available for emergency use.
Off-shift work	No	N/A	
Outages of the plant public announcement (PA) system or the emergency notification system	N/A	N/A	[OUTAGE]
Overhead or underground utilities (Identify)	Yes	2, 3, & 4	[UITL] See attached drawings Appendix C.
Penetrations into walls, floors, etc.	No	N/A	[PENETR]
Plastic sheeting or wood framing/enclosures	No	N/A	
Powder-actuated tools	No	N/A	
Plant utilities (Identify)	No	N/A	[WATER]
Repetitive work	No	N/A	[ERGO]
Structural Modification	Yes	2 & 3	[STRUCT] Buildings & slabs are being demolished.
Special Fire Protection Equipment Required	No	N/A	[FIREQU]
Trenching/Shoring	No	N/A	[DIG]
Temporary heating facilities	No	N/A	
Temporary/portable buildings or structures	No	N/A	[FACIL]
Temporary service hook-ups (Identify)	Yes	All	Temp. electrical and water service (for dust control).
Traffic control/flagman	Yes	All	[TRAFIC] as needed basis, during equipment movement & demolition activities Proximity to BLDG-28, 40/99, BLDG-A & Power House heavy traffic patterns. Increase awareness of adjacent structures & roadway and utilize traffic control.
Work in attics, ceilings, chases, or crawlspaces	No	N/A	
Work impacting adjacent normally occupied areas	Yes	2 & 3	[ADJAC/BMAPP/SIGNS/NOTIF] Coordination with BD 99, 40 and 28 tenants during demolition activities.
Work Requiring Scaffolding, construction and inspection	No	N/A	[SCAFF]
Other (Specify) Building Structural Engineering Survey per OSHA 29 CFR 1926.850	Yes	2	Survey Completed by ___W. Johanan_-letter in Appendix _D_____

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

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

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Abrasive blast (☐ MSDS available)*	No	N/A	
Asbestos	Yes	3	[ASBEST] Asphalt roof may contain asbestos, don't conduct activities which may cause ACM materials to become friable and involving close worker contact. Asbestos Abatement of regulated materials completed prior to demolition.
Beryllium	No	N/A	
Blood-borne pathogens*	No	N/A	
Cadmium	No	N/A	
Carcinogens (☐ MSDS available)*	No	N/A	[CARC]
Chemicals/solvents (☐ MSDS available)*	No	N/A	[CHEM/MSDS]
Chlorofluorcarbon (CFC)	No	N/A	[CFC]
Coal, tar or asphalt products	Yes	2	Roofing material contains tar and asphalt products; to be disposed of as construction debris.
Coating/painting (☐ MSDS available)*	No	N/A	
Corrosives/acids/caustics (☐ MSDS available)*	No	N/A	
Dusty operations	Yes	2 & 3	[POWDER] Potential dust generation controlled via water misting during demolition and road wetting during waste hauling.
Hazardous Waste Operations (HAZWOPER)*	No	N/A	
High Pressure systems	No	N/A	[HIPRES]
Insulation/man-made mineral fibers (☐ MSDS available)*	No	N/A	
Lasers	No	N/A	
Lead	Yes	2 & 3	Paint may contain lead, do not torch cut painted surfaces without verification by IH.
Foam in Place Operations	No	N/A	
Mercury	No	N/A	
Noise in excess of 85 dBA	Yes	2 & 3	[NOISE] Hearing protection required
Polychlorinated biphenyls (PCBs)	No	N/A	
Removal of ceiling tiles*	No	N/A	
Spraying/generation of mists*	Yes	2 & 3	Demolition dust control via water mist and road wetting during waste hauling.
Temperature extremes (heat or cold stress)	Yes	All	[CRYRO/COLD/HEAT]] discuss in Pre-job/daily briefings & monitor work.
Ventilation or Air Monitoring requirements	Yes	2 & 3	[VENTIL/IH] Air monitoring for potential silica during demolition activities will be performed as needed for annual site assessment.
Welding, brazing, or thermal cutting operations	Yes	2 & 3	[BURN] 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. no. H-1.
Other (specify)	N/A	N/A	

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

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

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

Item		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Location:	Controlled Area	No	N/A	
	Contamination Area	NO	N/A	[STP]
	High Contamination Area	NO	N/A	[STP]
	Radioactive Materials Storage Area	NO	N/A	
	Airborne Radioactivity Area (STP or OBT)	NO	N/A	
	Radiation Area	NO	N/A	
	High Radiation Area	NO	N/A	
	Very High Radiation Area	NO	N/A	
	Other (Specify)	NO	N/A	
Activities:	Criticality Safety Concerns	NO	N/A	
	Digging/Soil Removal	Yes	3 & 4	[DIG] Flip slab sections to survey before release.
	Surface destruction of radioactively contaminated materials or equipment?	NO	N/A	[SURFAC]
	Welding, burning, or grinding?	NO	N/A	[SURFAC]
	Hammering, chipping or scraping?	NO	N/A	[SURFAC]
	Abrasive blasting?	NO	N/A	[SURFAC]
	Dust-collecting equipment or systems?	NO	N/A	
	Decontamination and clean-up?	NO	N/A	
	Rad Waste Storage and Disposal Required	NO	N/A	[RWSTOR/WASTE/CHAR]
	Other (Specify)	NO	N/A	
Sources:	X-Ray machine/generator	NO	N/A	[XRAY]
	Sealed radioactive sources	NO	N/A	
	Unsealed radioactive sources	NO	N/A	
Controls:	Radiological Work Permit	NO	N/A	[RWP/RWP=JS/RWP=N/R/RPGEN]
	ALARA Plan	NO	N/A	[ALARA]
	Air Flow Studies	NO	N/A	[AIRFLOW/CAM]
	Urinalysis program	NO	N/A	
	Preliminary or in-process characterization	NO	N/A	[SURVPS/SURVIP]
	Anti-contamination clothing	NO	N/A	
	Respiratory protection	NO	N/A	[RESP]
	Needs Analysis Evaluation	NO	N/A	
	Hazards Analysis	NO	N/A	
	Engineering Controls	NO	N/A	
	Administrative Controls	NO	N/A	
	Supplemental dosimetry	NO	N/A	
	Shielding	NO	N/A	
	Personnel monitoring (frisking)	NO	N/A	

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

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

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

	Quantity Expected	Work Package Phase	Radiological Characterization	Packaging Requirements	Mode of Disposal
Types: Solid Waste (list types):	Total 4455 cu.yds.	3	No elevated radioactivity levels	30 Cu. Yd. Roll-Off/End Dumps	Offsite disposal via Waste Management Operations/Journey LTD
Concrete					
Steel & Copper Piping					
Metal Roofing					
PVC					
Electrical Wiring					
Fiberglass Insulation					
Wood					
RCRA Hazardous Waste (list types)	Non-hazardous				
Asbestos Waste	None				All non-regulated asbestos disposed with construction debris
Low Level Waste	N/A				
TRU Waste	N/A				
NOTE: 1. Sealed pressure vessels will need to be at <1.5 atmosphere if present. 2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal.					
Other:					

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

EMERGENCY PREPAREDNESS

- Site Notification Procedures

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

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

- Evacuation Route/Assembly Areas

Assembly area is North of Building 99. 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 the first floor of Building 99. See map per Appendix C.

APPLICABLE LESSONS LEARNED – See Appendix E

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

Work Location/ ~~Buidings G-GW-W Slabs~~ Approximate Volume ~~660cyds~~
Source of material
Requestor Project Group BOSS Project Point of Contact Lee Koehmstedt

Name/Phone Ext 3659

MSR # 35691 Charge # EE00WJ

Process Knowledge (attach documentation, if more space needed):
~~Non – Rad Building~~

PRS # N/A PRS Binning Status: NFA RA FA 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: X <PP-1059F, Table 2-2 criteria > PP-1059F, Table 2-2 criteria
SEE MARSSA SURVEY PLANS W-01 G-01 GW-01

In Process monitoring of excavating equipment: X <PP-1059F, Table 2-2 criteria > PP-1059F, Table 2-2 criteria
SLAB ONGOING AT POINT WHERE IN CONTACT WITH SOIL

Activation Concerns: No Yes If yes, explain

Material is released for recycle /reuse Yes No

Sending Rad POC Signature		**Date**	7-1-03
Sending Project ~~Manager~~ Engineer Signature		**Date**	7/1/03

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**

018-648

The BOSS Project has determined that all solid waste streams resulting from safe shutdown, decontamination, and/or demolition of Building(s) G-GW-W Slab 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 Kurt Kehler, Project Manager, at 4169. This data may include radiological surveys and data sheets and/or process knowledge utilized according to the above procedures.

Waste Coordinator

6/30/03
Date

Project/Activity: Building G, GW, and W Demolition
Name: Lee Koehmstedt/Mark Tibbs

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

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

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV – 35691

SIGNATURES

ORIGINATOR:

REVIEW/REV:

REVIEW/REV:

REVIEW/REV:

APPROVED: R.C. Bombaltom for R.L. Kehler

DATE: 6/20/2003	_X_ NEW ___ REV	**BUILDING:** W, GW & G	**JOB:** Demolish Buildings W, GW, & G
DEPARTMENT/COMPANY: SMPP-TFV Project/CH2M Hill Mound, Inc.			**SECTION:** N/A

OCCUPATIONS: : Heavy Duty Operators, Demolition Techs, Demolition Crafts, & Electricians.
Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety

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

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

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary
Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily.	N/A	-This project engages in Enhanced Work Planning(EWP), a ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed.
1. Site Preparation & Mobilization	Standard construction hazards.	-Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel.
1a. Site Access Control Emergency egress/access	Struck by equipment, debris Blocked access	-Once the work area is defined, only authorized personnel are permitted in the construction perimeter. -Unescorted, Non-project and Non-emergency personnel, must have acceptance of the SMPP/TFV Project Manager for entry. -Emergency access to the work zone will be maintained to the extent possible. BLDG 99 emergency egress will be maintained for occupants.
1b. Clear Area and Mark/Protect Utility Equipment	Running into fire hydrants, monitoring wells, manhole covers, or grates over field drains.	-Mark/protect fire prevention water lines and hydrants around BLDGS – W, GW & G area and other utility equipment with wooden boxes, visible stakes, and/or colored flags. -Cover field grates to protect

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2 Building & Slab Demolition	Vehicle Traffic Hazard	-Control traffic with flagmen as necessary
2a. Operation of heavy equipment near electric overhead lines	Shock Hazard	-All utilities to the building including electrical have been disconnected by project electricians at a point away from the building. -Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit.
2b. Demolish building, pipe stanchions slabs using excavator mounted shear, hoe ram, grapple, loader, and bobcat	Struck by flying debris Struck by moving equipment Noise Hazard Elevated work	-Establish construction boundary. -Wear hard hats, safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Install traffic control with sufficient flagmen. -Wear hearing protection while running heavy duty equipment. Follow the requirements of MD-10286 D9. Requires fall protection training and equipment.
2c.. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-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. no. H-1. Wear proper PPE, have fire extinguishers in the construction zone. -Test for lead paint; do not torch cut lead paint or other materials that give off toxic flumes.
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. Slab removal	Strike underground utilities Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5. -Coordinate in-process Rad Surveys with Rad Techs.
3 Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary.

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

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

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SIGN-OFF SHEET

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

SIGNATURE	**Date**	**Department**

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Appendix B

PRE-JOB BRIEFING/JOB STATUS LOG

PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

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

HP#	SIGNATURE	HP#	SIGNATURE

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

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

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

_____ _____

Job Supervisor/Foreman Date

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

Daily Toolbox Safety Meeting

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

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

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

PRE-JOB UPDATE

Continuation Sheet for _____/_____/_____

HP#	SIGNATURE	HP#	SIGNATURE

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PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

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

HP#	SIGNATURE	HP#	SIGNATURE

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

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

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

_____

Job Supervisor/Foreman Date

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JOB STATUS LOG

Work Package Title: Building W, GW & G Demolition

Work Package No: SMPP/TFV xxxxxxx

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

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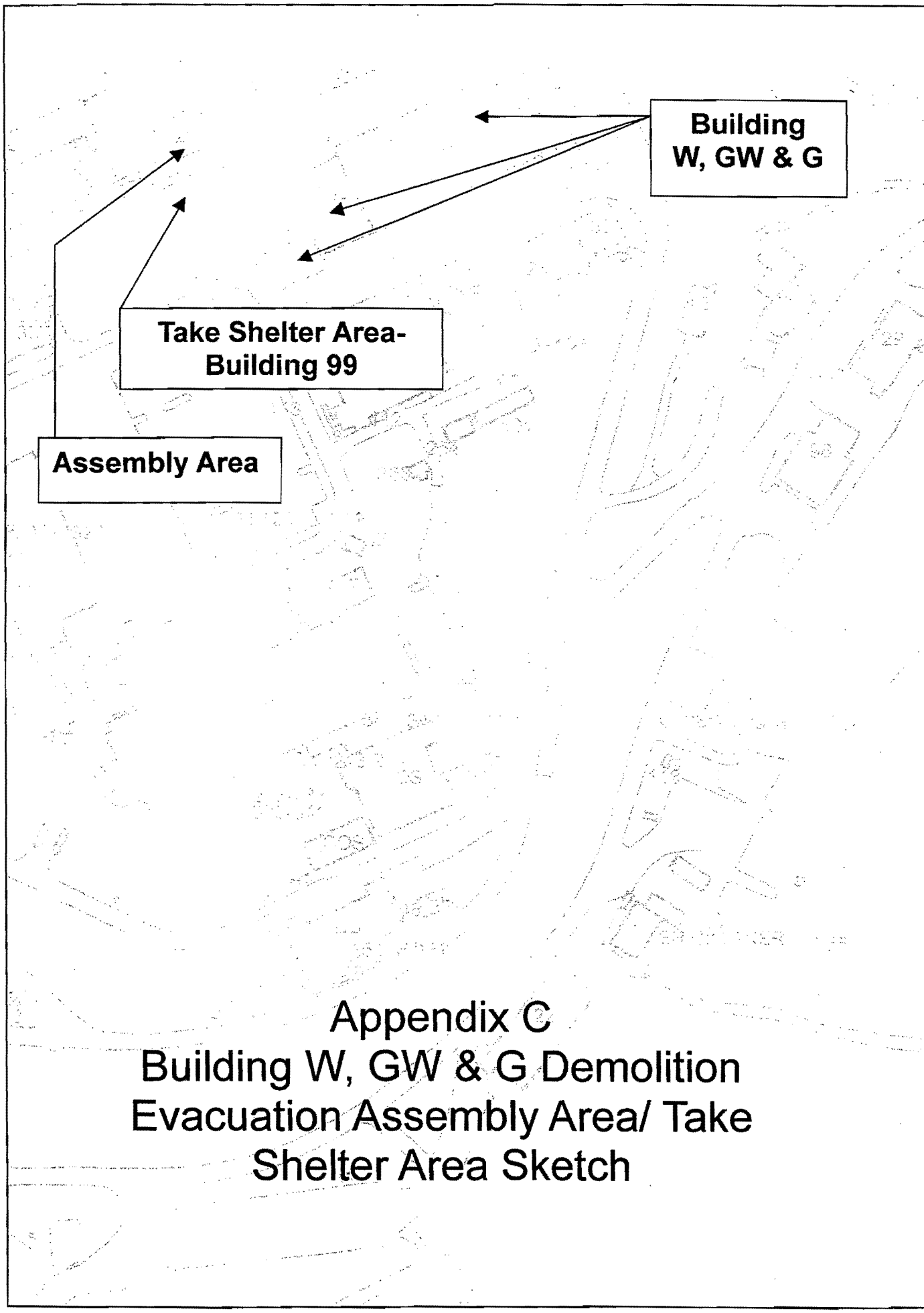
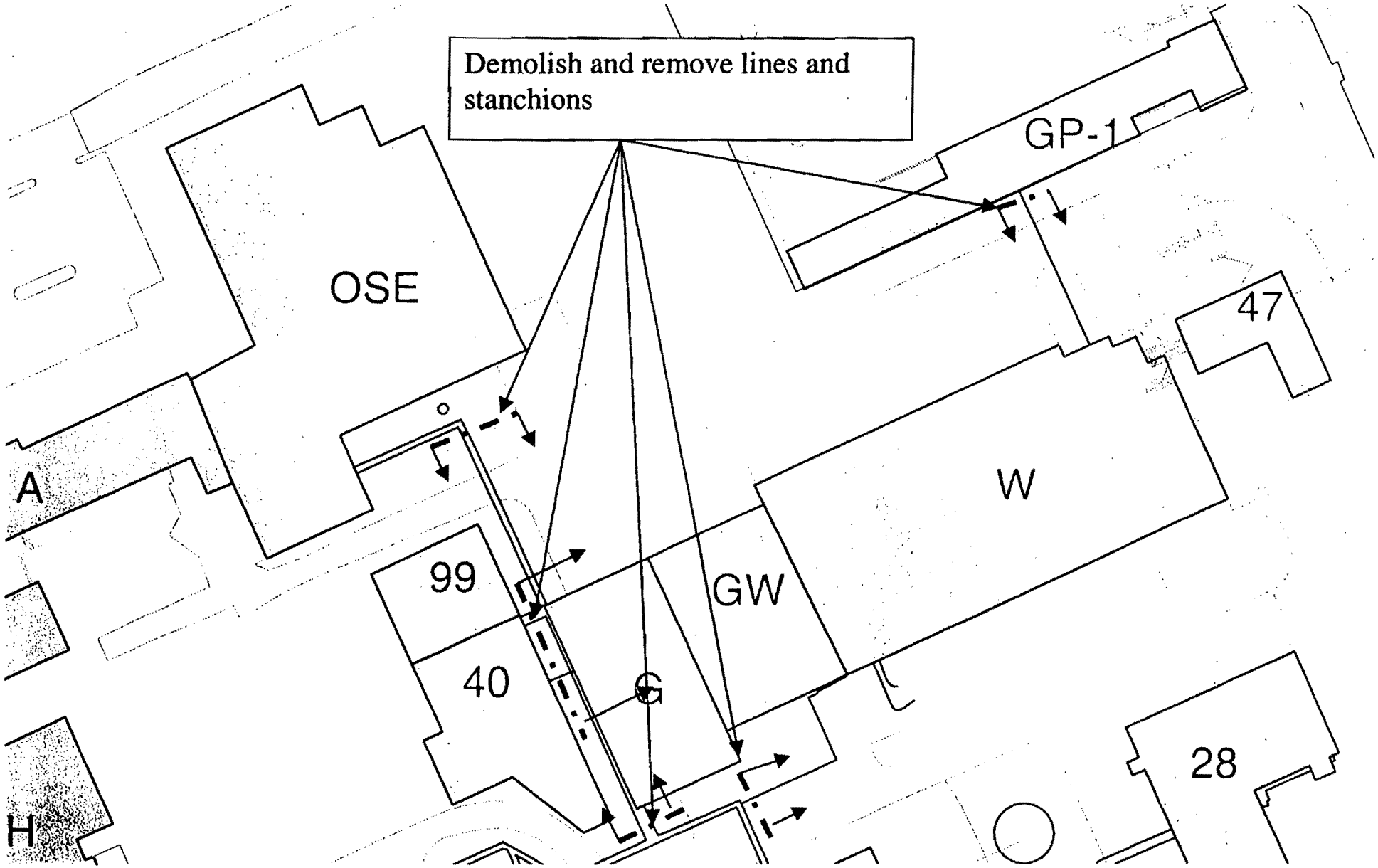
Appendix C

DRAWINGS/SKETCHES

- Evacuation Assembly Area/Take Shelter Area Sketch
- Site Utilities Demolition Area Sketch
- Floor plans BLDGS- W, GW, & G
- BLDGS- W, GW, & G Foundation Plan and Wall Section
- BLDGS- W, GW, & G Wall Reinforcement
- BLDGS- W, GW, & G Structural Details
- BLDGS- W, GW, & G Siltation Controls

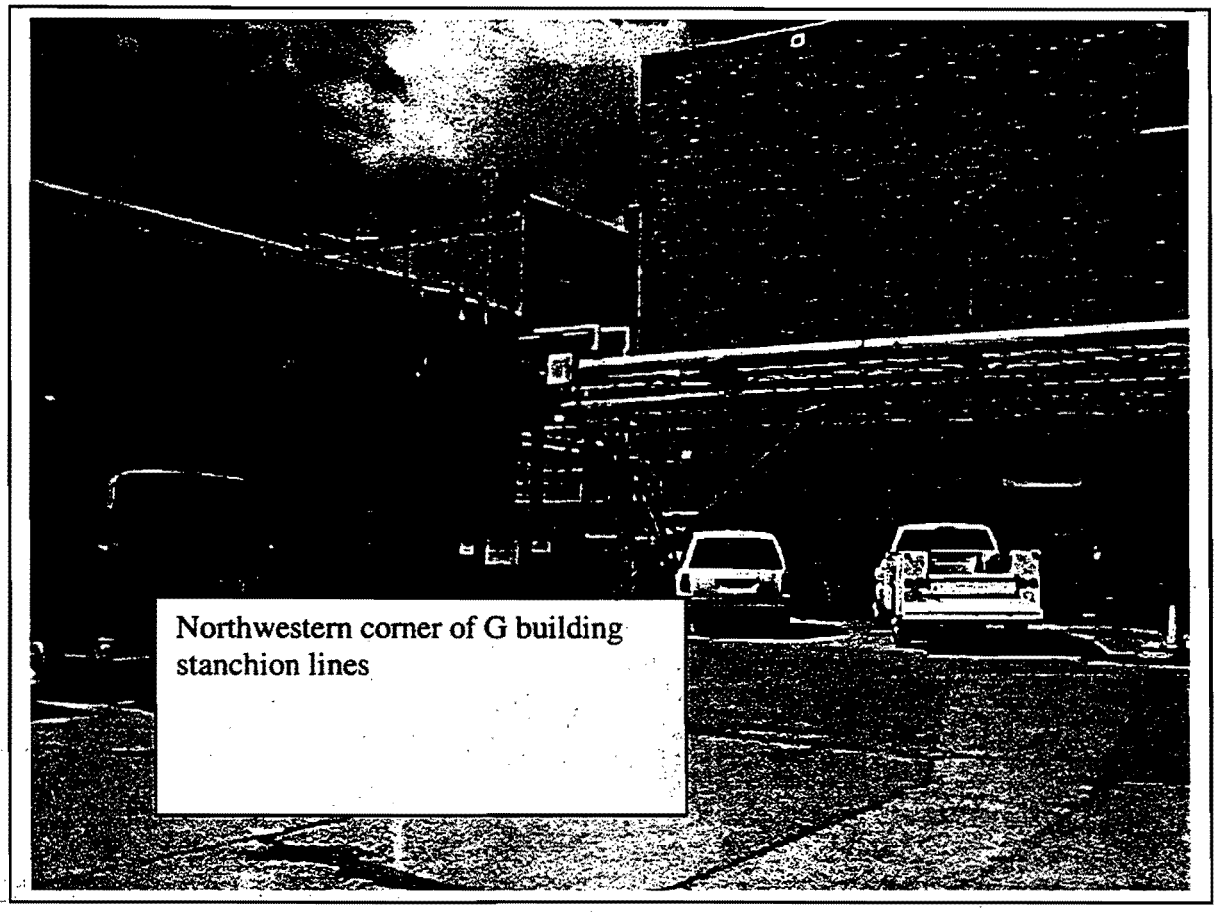


Appendix C
Building W, GW & G Demolition
Evacuation Assembly Area/ Take
Shelter Area Sketch

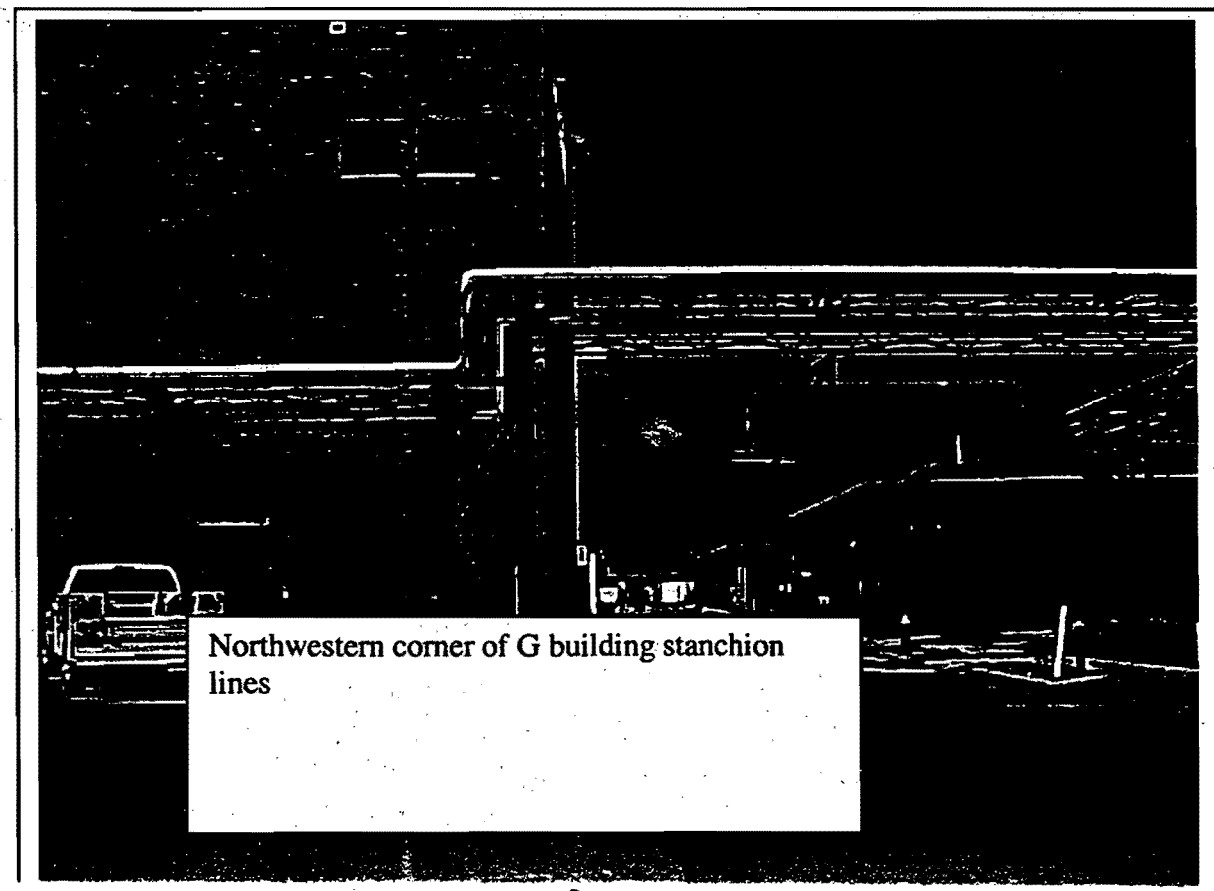


Legend-
Demolish this Side of cut line

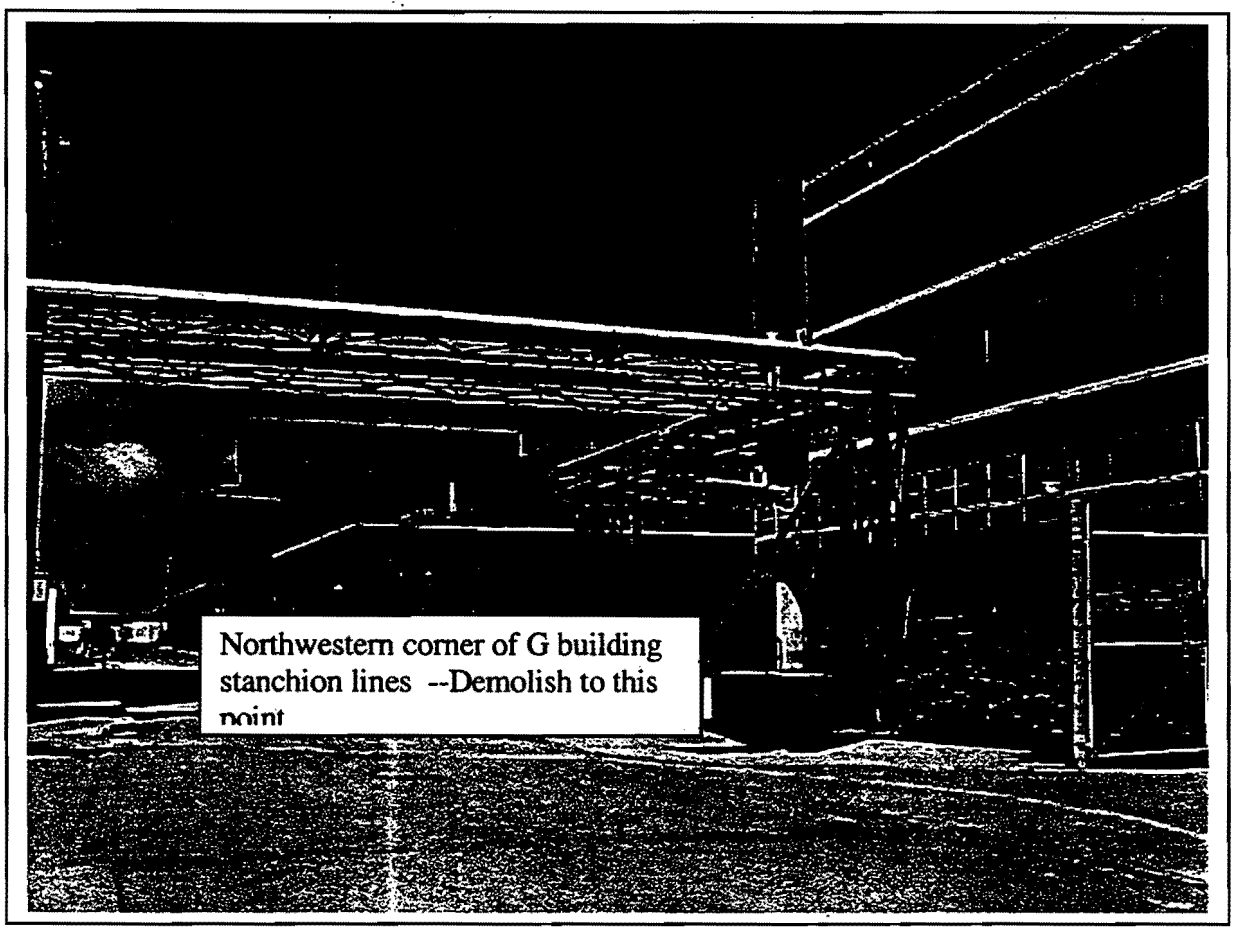
Stanchion Lines

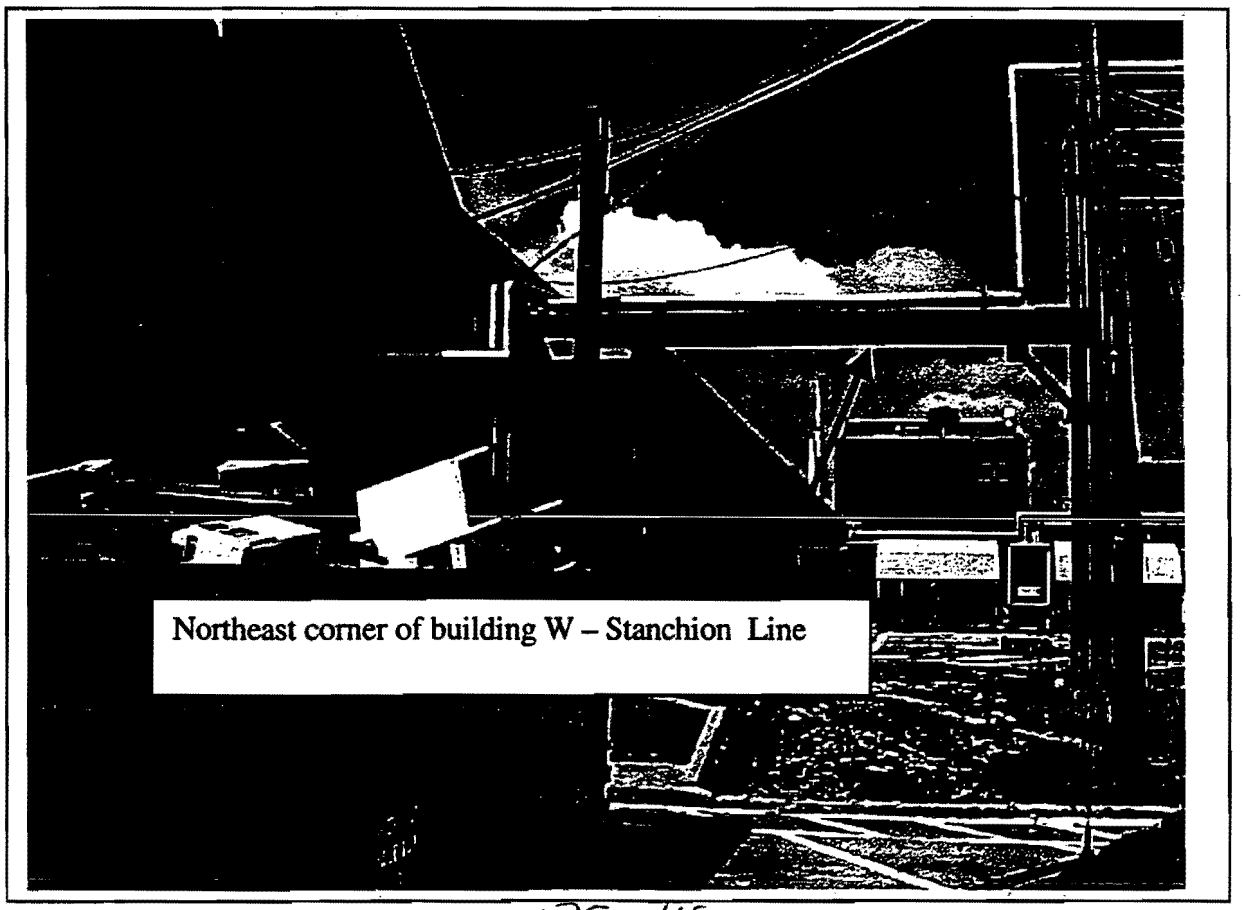


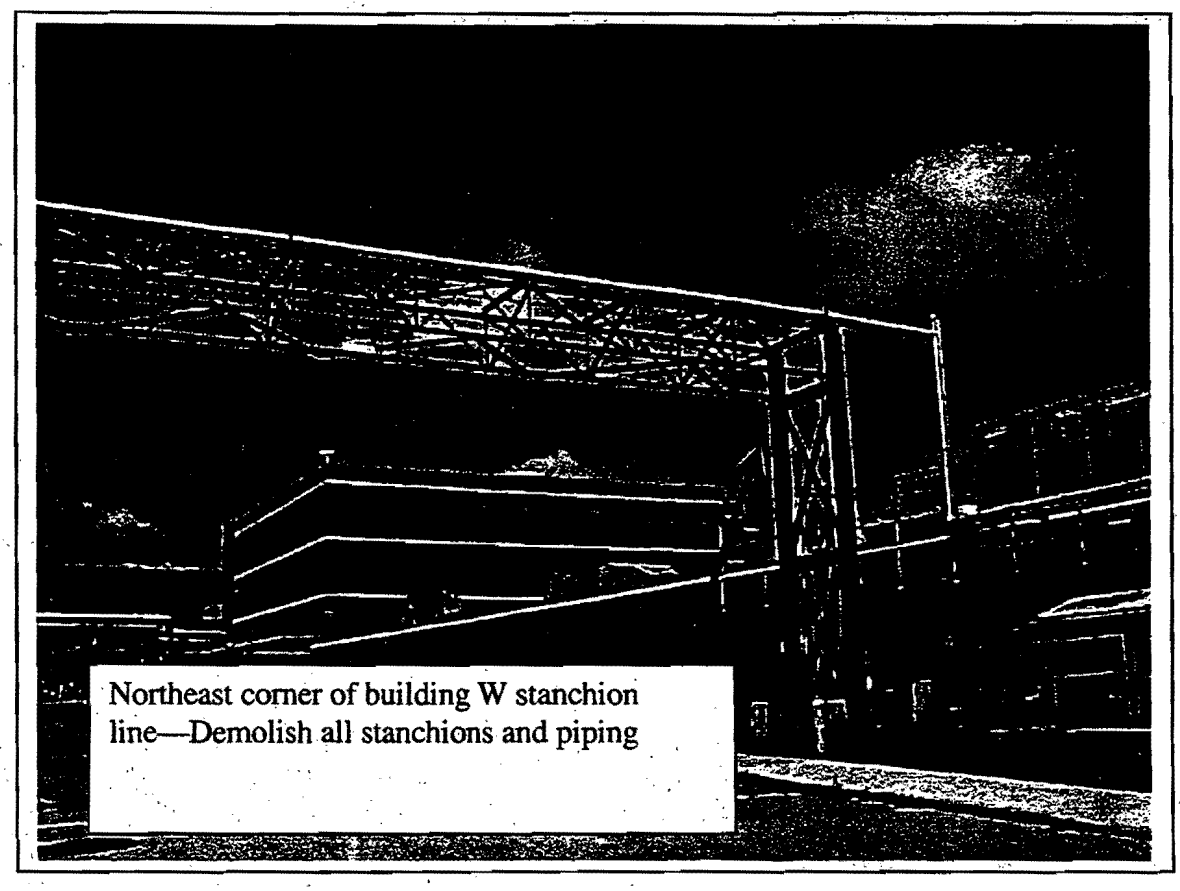
Northwestern corner of G building stanchion lines

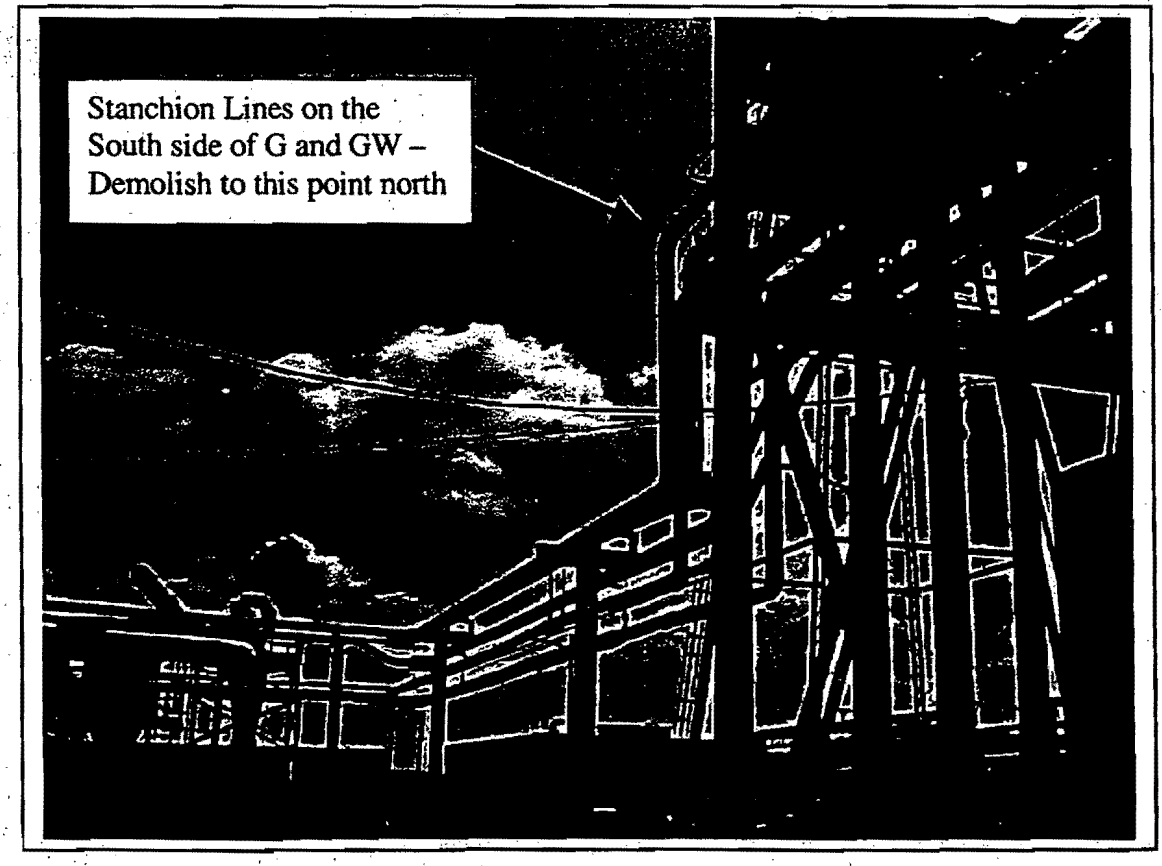


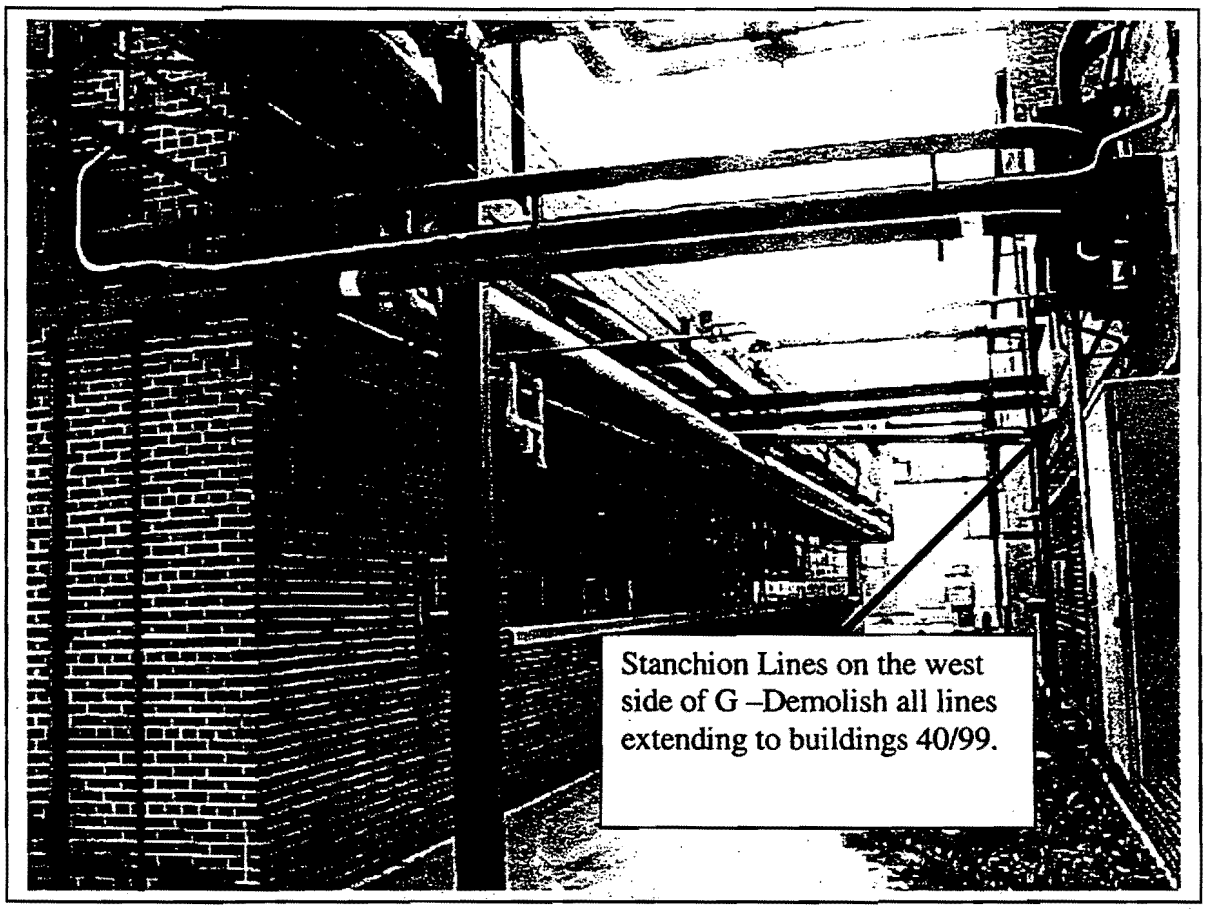
Northwestern corner of G building stanchion lines


Northwestern corner of G building
stanchion lines --Demolish to this
point

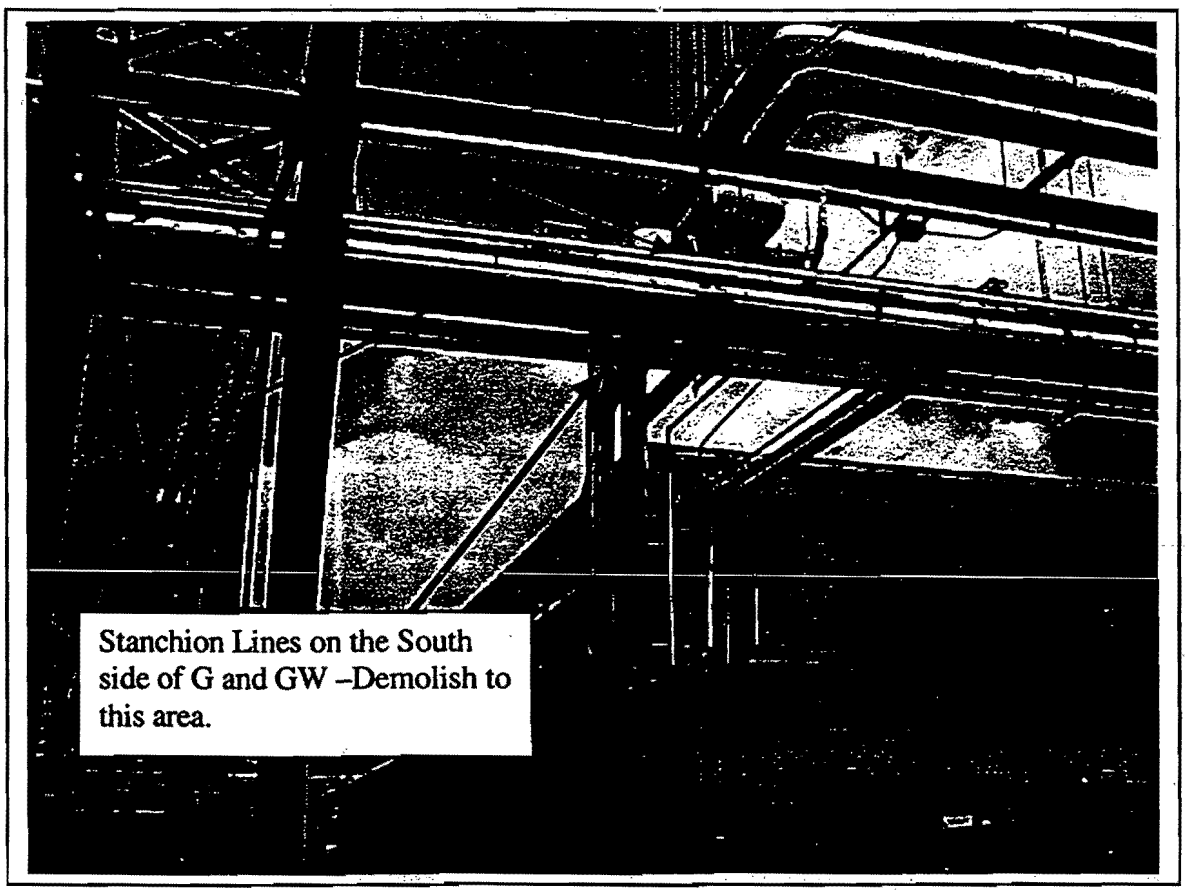

Northeast corner of building W – Stanchion Line


Northeast corner of building W stanchion line—Demolish all stanchions and piping


Stanchion Lines on the South side of G and GW – Demolish to this point north

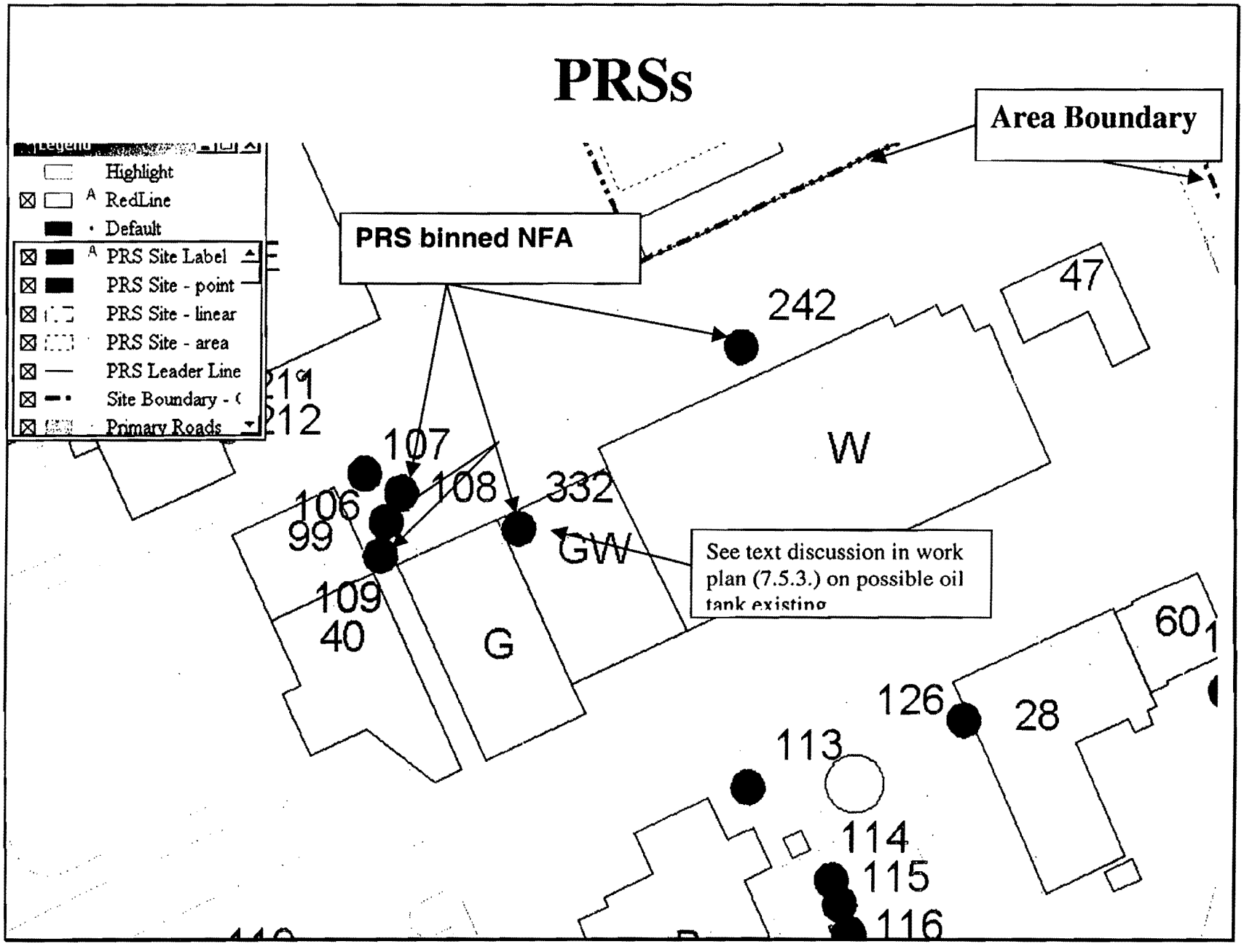


Stanchion Lines on the west side of G –Demolish all lines extending to buildings 40/99.

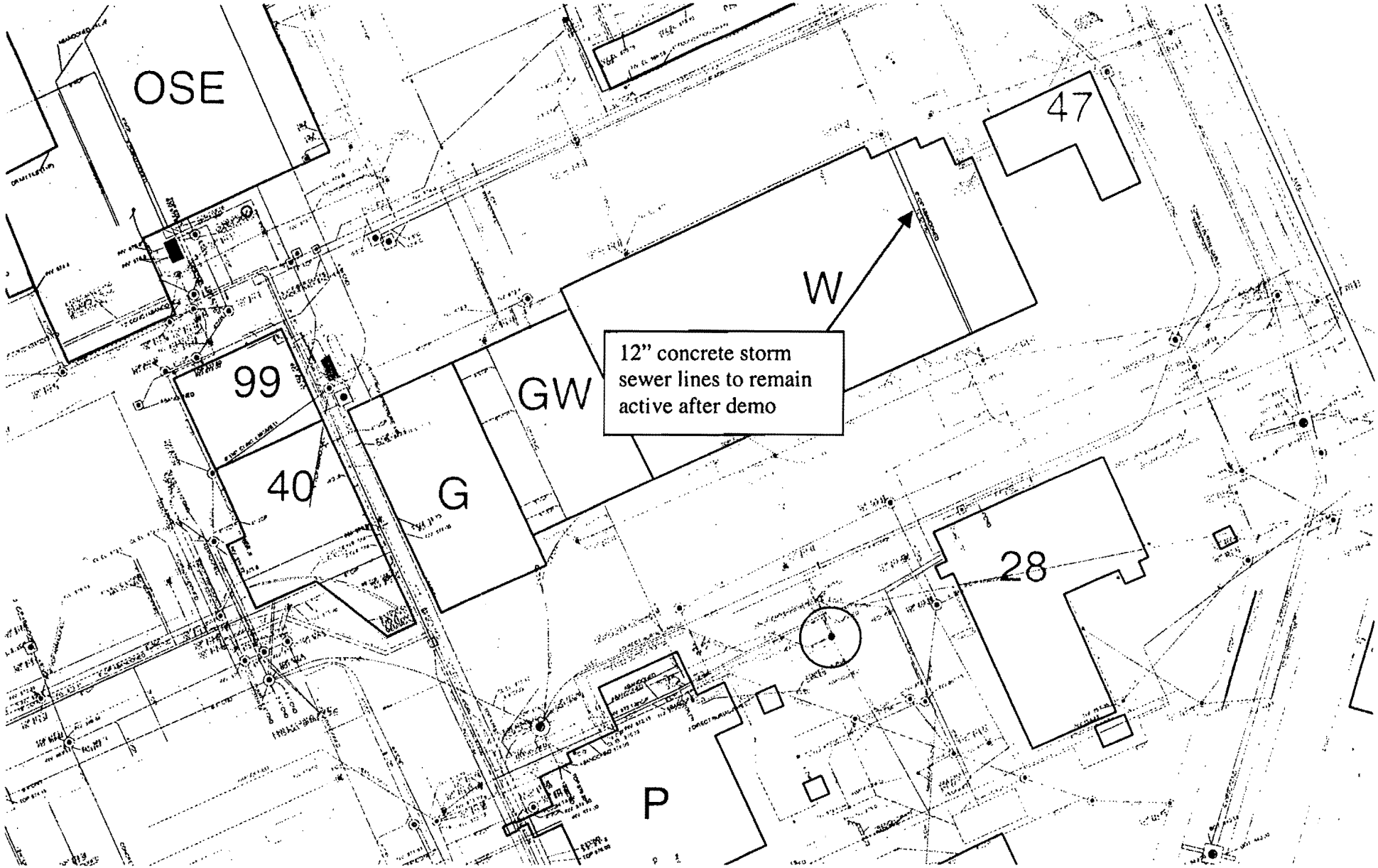


Stanchion Lines on the South side of G and GW –Demolish to this area.

PRSs

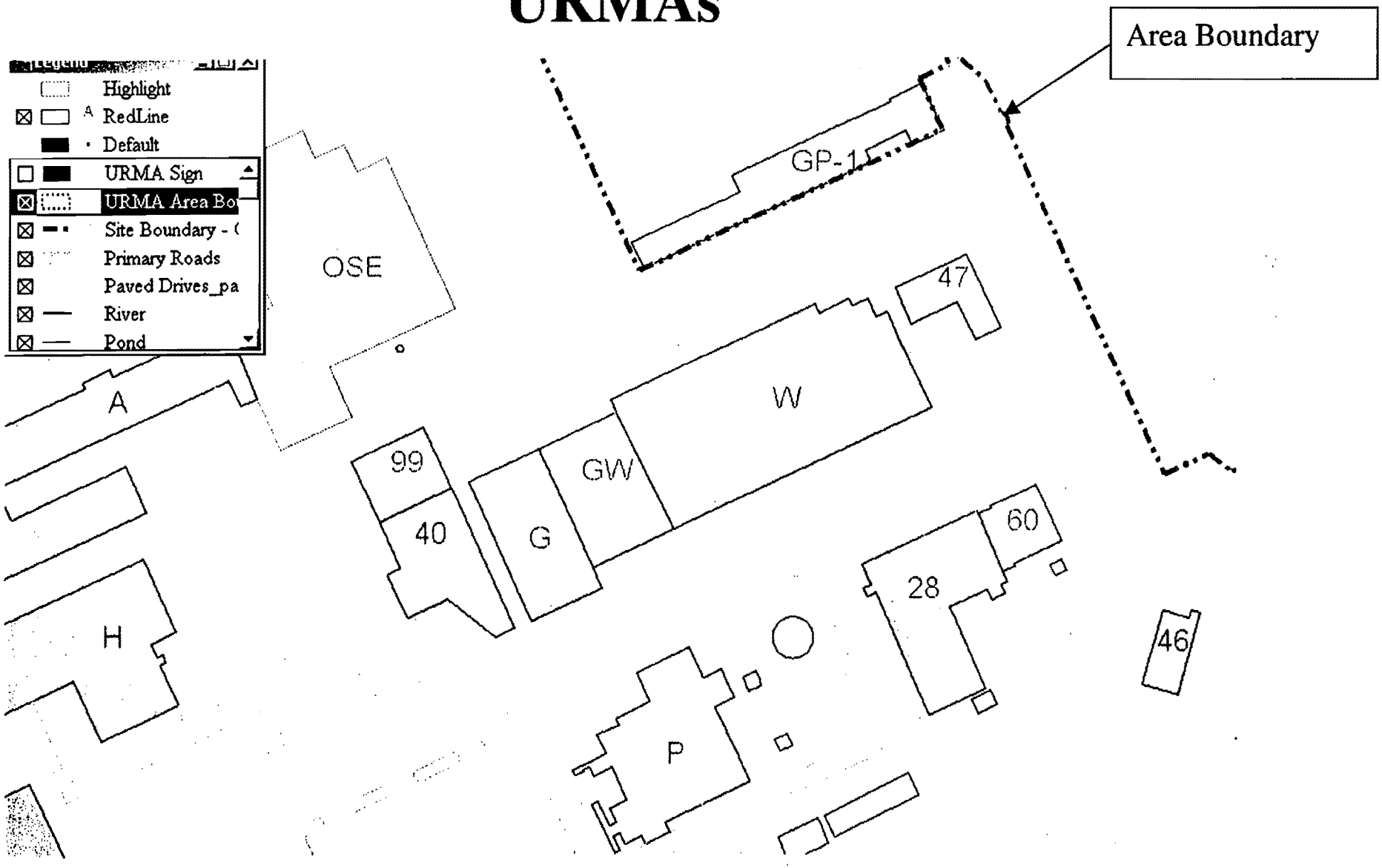


035 of 48



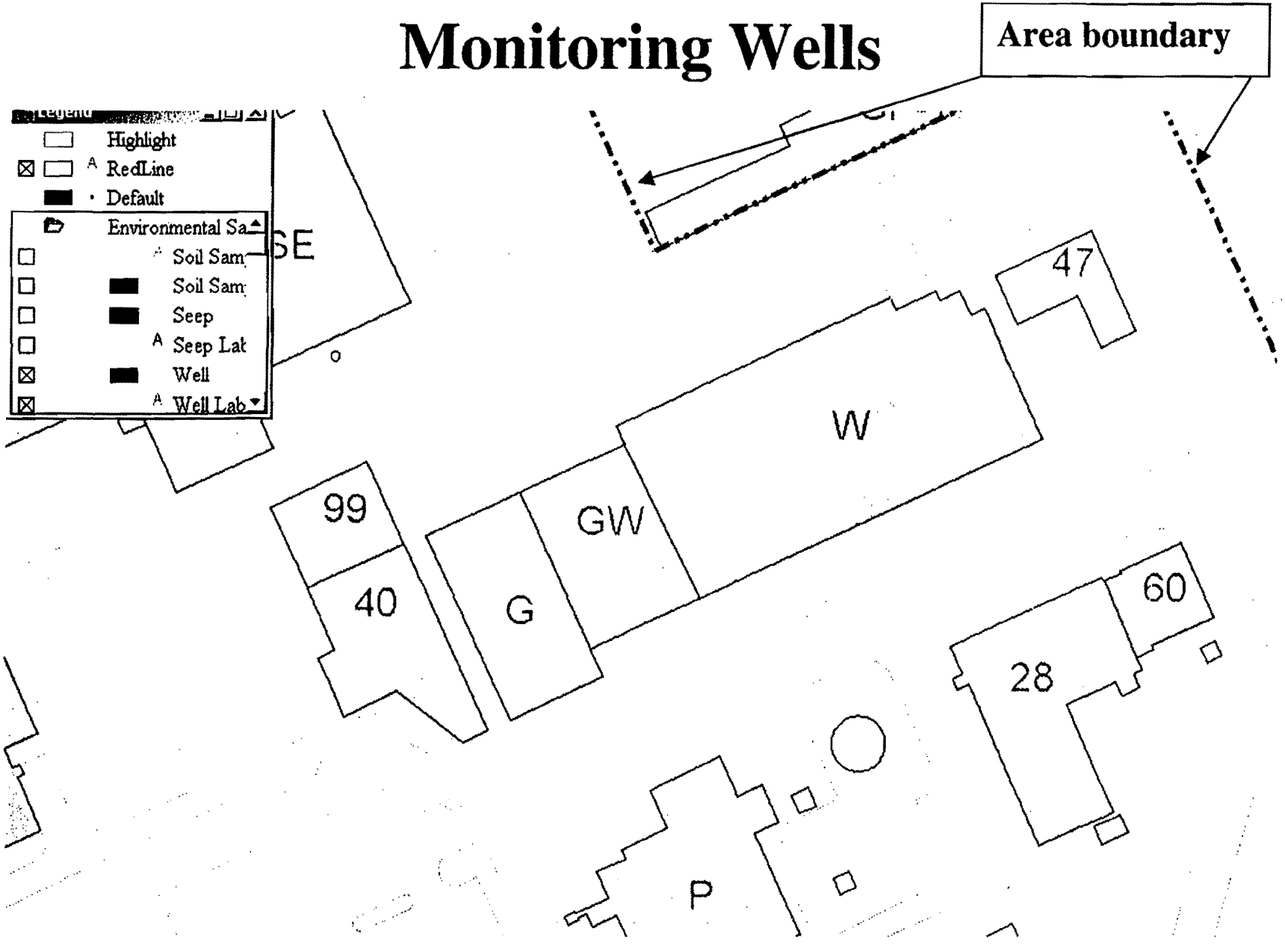
The 12" storm sewer line identified above must remain active after W is demolished.

URMAs



Check 48

Monitoring Wells



Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

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

INTER OFFICE MEMO CH2MHILL MOUND, INC.

Date: March 26, 2003 cc. L. Koehmstedt

From: W. L. Johanan – OSW-430

Subject: Structural Survey of Buildings W,GW, and G- RE: 29 CFR 1926.850 (a)

To: Kurt Kehler-Project Manager

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

Please call me if you have any further questions.

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

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

04306 48

Appendix E

POST-JOB CONFERENCE/LESSONS LEARNED

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

Lessons Learned Statement:

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

Discussion:

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

Analysis:

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

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

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

Recommended Actions:

1) Following changes to the work package, numbering and sequencing should be reviewed and verified by a peer reviewer.

2) A formal revision to the work package is triggered by changes other than minor editorial revisions. Based on the type of change, further reviews must be performed.

3) Editorial changes, comments, and other suggested changes should be documented during the LMSA and discussed at closing to assure that they have been incorporated.

Excavator Damaged During Demolition Work

Lesson Learned Statement:

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

Discussion of Activities:

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

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

Analysis

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

POST JOB CONFERENCE

6. WHAT WENT WELL?

What could be improved?

Other Comments:

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

LESSONS LEARNED INPUT FORM

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

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

Submitted by: _____ **Date:** _____

OPTIONAL

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