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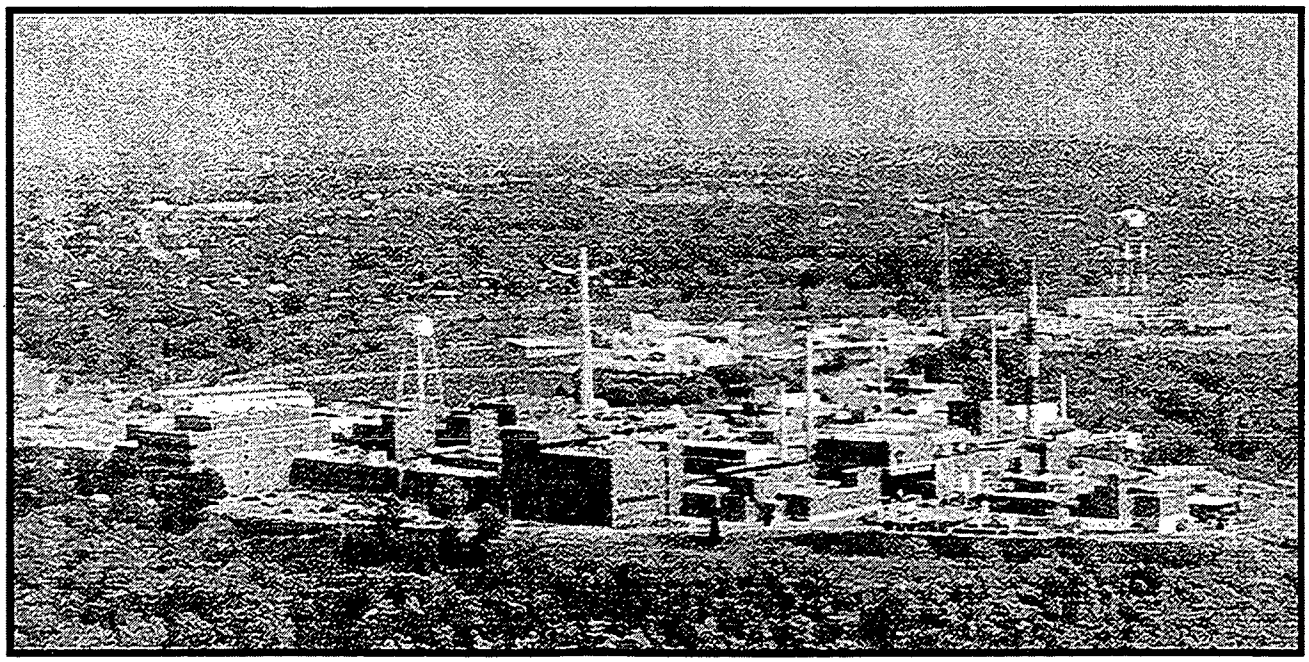
Environmental
Restoration
Program

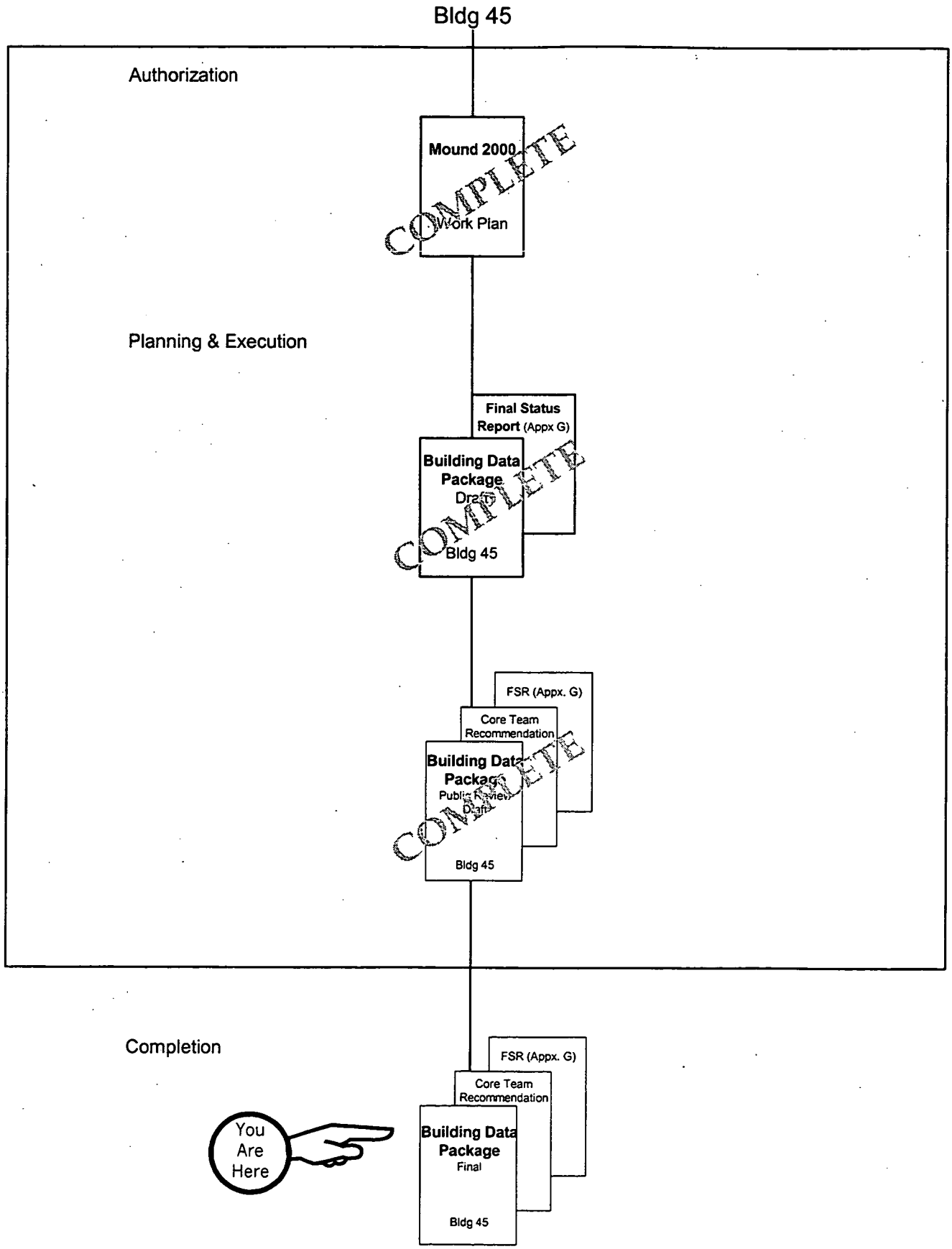
Miamisburg Closure Project
Building Data Package

Building 45
(Transition)

Final
September 2005



Building 45



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The Mound Core Team
500 Capstone Circle
Miamisburg, OH 45342

June 2005

Mr. Frank Bullock, PE
Director of Operations
Miamisburg Mound Community Improvement Corporation
720 Mound Road
COS Bldg. 4221
Miamisburg, Ohio 45342-6714

Dear Mr. Bullock:

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 review of the Building 45 Data Package, Public Review Draft, May 2005 and your concurrence with the planned transition of the building to Miamisburg Mound Community Improvement Corporation.

If there area any questions, please contact Paul Lucas at (513) 246-0071 and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MCP:	Paul Lucas, Remedial Project Manager	6/14/05 date
USEPA:	Timothy J. Fischer, Remedial Project Manager	6/14/05 date
OEPA:	Brian K. Nickel, Project Manager	6/14/05 date

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From: "Frank Bullock" <FBullock@mound.com>
To: "Paul Lucas (E-mail)" <Paul.Lucas@ohio.doe.gov>
Date: 6/13/05 10:01AM
Subject: Bldg 45 BDP Review Comments

Attached are comments on the Bldg 45 BDP review. MMCIC appreciates the opportunity to review & comment on these packages. We concur with EHS comments.

Thanks

Frank Bullock, PE
MMCIC
Director of Operations
Miamisburg, Oh 45342
(937) 865-4052
www.Mound.com

<<Expericenter - Building 45 BDP - Jun 05.pdf>>

CC: "Beth Moore (E-mail 2)" <beth.moore@cityofmiamisburg.com>, "Ellen Stanifer (E-mail)" <estanifer@ehstech.com>, "Becky Burrell (E-mail)" <bburrell@expericenter.com>, "David Rakel (E-mail)" <RAKEDA@doe-md.gov>, "Tim Fischer (E-mail)" <fischer.timothy@epa.gov>, "Brian. Nickel (E-mail)" <brian.nickel@epa.state.oh.us>

Technical Review of the Mound Site
Summary
by EHS TECHNOLOGY GROUP, LLC

Reference Document: Building 45 Data Package (Transition); Public Review Draft, May 2005

Purpose: The purpose of this document is to notify the public of the Transition Activity proposed for Building 45.

Assessment of Review: EHS has had the opportunity to review and comment on this Building Data Package. We concur with the planned transition of Building 45 to the Miamisburg Mound Community Improvement Corporation (MMCIC). This data package was prepared in accordance with the requirements specified in the *Work Plan for Environmental Restoration (ER) of the DOE Mound Site, The Mound 2000 Approach*. As such, all appropriate inquiry was made into the condition of the building and any associated environmental concerns that would impact the demolition activities were assessed.

Technical Analysis: Building 45 was originally constructed in 1969 as the Neutron Standards and Multiplication Test Facility. During this time, the building may have been used to conduct small-scale experiments in order to provide a firm basis for establishing the criticality safety of plutonium 238. Otherwise, there was little documentation on the specific activities that took place in this building during the early years of operation. During the 1980s, the building was used to perform the radiation survey on the Galileo RTG. In 1989, an addition was constructed to the southwest side of the original structure. A second addition was constructed in 1994. From the early 1990's through 2004, the building was used as support to the Health Physics Organization then as the Health Physics Calibration Laboratory.

Substantive Comments: EHS concurs with the planned transfer of Building 45 to the Miamisburg Mound Community Improvement Corporation. We understand that all known environmental issues associated with this building have been resolved. One such issue included the potential of radiological contamination. Historic documentation does not describe all the uses of the building or potential destructive and non-destructive tests performed in the building. In addition, there were three radioactive source storage wells (one neutron and two gamma) located in Room 107 of the building. In order to determine if any radiological contamination exists in the building, a MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual) study was performed. Seven areas of significance were determined during the survey; however, all potentially contaminated materials were either removed or investigated further. The review team concluded that the building meets the radiological surface release criteria established by DOE.

It is known that asbestos containing materials and lead based paint exist in the building. These materials were inspected and found to be in good condition and do not pose a concern in this current condition.

Coordination between CH2M Hill, the DOE and MMCIC is important to ensure the building area (prior to transfer) is left in a condition consistent with the Mound Reuse Plan.

AFFIDAVIT OF PUBLICATION

State of Ohio

SS: CH2M HILL MOUND

Montgomery County

MIAMISBURG CLOSURE PROJECT

BUILDING DATA PACKAGE

The following document is available (May 16, 2005) for public information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

Building 45
(Health Physics Calibration Facility)
Building Data Package

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

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

5287205 5-15-05

Before me, the undersigned, a Notary public in and for said County, personally came Tina Sears, who being first duly sworn says she is the Legal Advertising Agent of the DAYTON DAILY NEWS, which she says is a newspaper of general circulation in Montgomery, Clark, Warren, Butler, Clinton, Greene, Preble, Miami, Darke, Mercer, Shelby, Fayette, Logan, Auglaize, and Champaign Counties, and State of Ohio, and she furthur says that the Legal Advertisement, a copy of which is hereunto attatched, has been published in the said DAYTON DAILY NEWS

19 Lines, 1 Time(s), last day of publication

being 5/16/05, and he/she furthur says

that the bona fide daily paid circulation of the said DAYTON DAILY NEWS was over Twenty-five Thousand (25,000) at the time the said advertisement was published, and that the price charged for same does not exceed the rates charged on annual contract for the like amount of space to other advertisers in the general display advertising columns.

Signed

Sworn or affirmed to, and subscribed before me, this

16 day of May 2005

In Testimony Whereof, I have hereunto set my hand and affixed my official seal, the day and year aforesaid.

Notary Public in and for the State of Ohio

NOTARIAL SEAL
STATE OF OHIO

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RECOMMENDATION

Building 45

Background:

Originally built in 1969, Building 45 was a single-story 2,028 square-foot, six room, reinforced concrete block structure with a penthouse for housing mechanical equipment. In 1989, a two room, 747 square-foot addition was attached to the southwest side of the original structure, increasing the total floor space to 2,775 square feet. A second addition built in 1994, consisting of two stories and a penthouse, added approximately 6,800 square feet of floor space to the building. With its two additions, Building 45 has 9,582 square feet of floor space. Building 45 contains offices, operations rooms, a lobby, a vestibule, a training room, a conference room, an uninterruptible power supply (UPS)/telephone equipment room, restrooms, a janitor's closet, staircases, and an elevator.

Originally built as the Neutron Standards and Multiplication Test Facility, Building 45 has been used for many purposes (BDP Table 1), including the nondestructive testing of encapsulated radioactive components and a Health Physics Calibration Laboratory. Building 45 has been vacant since mid-2004.

All radiological surface data and radon data are below applicable screening levels. No lead-based paint or asbestos hazards currently exist in the building. No spills or releases associated with Building 45 were reported. All known environmental issues (BDP Table 2) associated with Building 45 have been resolved.

Recommendation:

After thorough review of the environmental data and the Building Data Package, the Core Team agrees that all existing environmental issues associated with Building 45 have been resolved. Future use of Building 45 will be restricted to commercial/industrial use. The Core Team hereby recommends that the U.S. Department of Energy submit a letter to the Administrator of the U.S. EPA for final approval of the lease or sale of this property, as required by Section 120(h) of CERCLA.

DOE/MCP:	Paul Lucas, Remedial Project Manager	5/5/05 Date
USEPA:	Timothy J. Fischer, Remedial Project Manager	5/5/05 Date
OEPA:	Brian K. Nickel, Project Manager	5/9/05 Date

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BDP Building 45

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**March 2005**
DRAFT (to Core Team)	The regulator review period was from March 29, 2005 through April 29, 2005.	**March 2005**
DRAFT PROPOSED FINAL (incorporates Core Team comments)	Regulator comments were received and incorporated.	**May 2005**
PUBLIC REVIEW DRAFT	The public review period was May 16, 2005 through June 15, 2005.	**May 2005**
FINAL	No public comments	**September 2005**

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1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the transfer of Building 45 (Health Physics Calibration Facility) to the Miamisburg Mound Community Improvement Corporation (MMCIC) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and building.

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

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for Building 45 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 *American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process* (Designation E 1527-00).

The scope of the investigation included Building 45, the soil beneath, and a 15-foot wide perimeter around the building. The investigation of Building 45 included the following:

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

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

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

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

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

2.0 BUILDING 45 OVERVIEW

Originally built in 1969, Building 45 was a single-story 2,028 square-foot, six room, reinforced concrete block structure with a penthouse for housing mechanical equipment. In 1989, a two room, 747 square-foot addition was attached to the southwest side of the original structure, increasing the total floor space to 2,775 square feet. A second addition built in 1994, which consisted of two stories and a penthouse, added approximately 6,800 square feet of floor space to the building. As shown in Figure 3 (Appendix C), the building was constructed into a hillside. Building 45, including its two additions, has 9,582 square feet of floor space. Building 45 contains offices, operations rooms, a lobby, a vestibule, a training room, a conference room, an uninterruptible power supply (UPS)/telephone equipment room, restrooms, a janitor's closet, staircases, and an elevator. One of the operations rooms (Room 001) is two-stories high and has aluminum grating at the mezzanine level and an equipment access hatch in the roof. Another operations room (Room 107) contains three wells that were used for the storage of radiological sources (one neutron and two gamma). These wells, which are steel-lined and encased in concrete, extend 30 feet below the floor slab of the building. Floor plans for Building 45 are provided as Appendix D.

Building 45 previously used central steam for heating and chilled water for cooling. Currently, the building has a direct expansion refrigeration system for cooling, but no heating system. Electrical service is 480 volts. The building has potable and service water,

a fire sprinkler system, and sanitary services. The roof drains discharge to the storm water ditch that runs parallel to the eastern side of the facility, along the roadway.

2.1 Past Uses of Building 45

Building 45 has supported two major program organizations (Radioisotope Thermoelectric Generator [RTG] Program and Health Physics Support) during its operational history, although the building has been used for many purposes (Table 1). From initial construction through the late 1980s, the building was used to support the "heat source" or RTG Program. By the early 1990s, Building 45 began operating as a support building to the site Health Physics organization.

Table 1 – Programs and Processes Housed in Building 45

Timeframe	Process or Function
1969 to 1972	Neutron Standards and Multiplication Test Facility
1969 to late 1980s	Heat Source or Radioisotope Thermoelectric Generator (RTG) Program support
1972	Neutron Emission and Neutron Spectral Measurements
1973 to 1984	Neutron Standards
1974	Nondestructive Testing of Encapsulated Radioactive Components
1986 to 1988	Neutron Standards and Weld Development Personnel Office
1989	Department of Energy Laboratory Accredited Program (DOELAP) Calibration Facility
Early 1990s to 2004	Health Physics Organization support building
1994 to 2004	Health Physics Calibration Laboratory

Originally built as the Neutron Standards and Multiplication Test Facility, Building 45 may have been used to conduct small-scale experiments in order to provide a firm basis for establishing the criticality safety of plutonium 238. Other than this use, there is little information available to describe the specific activities that took place in Building 45 during the early years of operation. Former Heat Source Program personnel recall that in the Mid-1980s, Building 45 was used to perform the radiation survey on the Galileo RTG. Although Building 45 was designated as a facility for nondestructive testing of heat sources or RTGs, surviving literature does not indicate what other tests were performed there. When used as the Health Physics Calibration Laboratory, activities in the building included the repair, testing, and calibration of health physics instrumentation and personnel dosimeters.

2.2 Current Uses of Building 45

Building 45 continued to function as the Health Physics Calibration Laboratory through mid-2004 when the function was relocated to Building 61. The building is currently vacant and awaiting transition.

2.3 Summary of Environmental Concerns and Findings – Building 45

Table 2: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data could be found for Building 45. Paint coatings observed were intact and no potential hazards were observed. Although untested paint coatings should be assumed to contain lead, the observed condition of the paint indicates that there are currently no lead paint hazards within the building (Appendix J).	No paint analysis 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.) during future renovations or modifications to the building. If these types of activities are planned, the affected paint coatings should be tested to verify the absence of lead. These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.
Chemicals	Appendix K provides a list of chemicals and products reportedly used or stored in Building 45.	All chemicals and products have been removed from Building 45.
Ballasts associated with Fluorescent Lamps and Polychlorinated Biphenyls (PCBs)	There are no capacitors or transformers containing PCBs located in the building. Fluorescent lamps are used in the building; ballasts may contain PCBs.	Integral ballasts that may contain PCBs will remain in place. During the building walkthrough on February 1, 2005, no leaking ballasts were observed.
Air Emissions	There are no air emission sources in Building 45.	N/A

Table 2: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Asbestos	Previous asbestos surveys (1989 and 1993) identified pipe insulation in the penthouse as asbestos-containing material. The asphalt roofing and resilient floor coverings (floor tiles and/or sheet vinyl flooring) located within the building are assumed to contain asbestos and are Nonfriable Category I materials in accordance with NESHAP. A walk-through survey of all accessible areas of Building 45 was performed in order to identify any existing or potential asbestos hazards. All materials previously identified as asbestos-containing (pipe insulation in the penthouse) were found to be in good condition.	Any known or suspect materials which may be disturbed by any future renovations or modifications to the building should be removed prior to such activities by a Licensed Asbestos Abatement Contractor. Existing asbestos material should be managed in-place. These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist.
Drainage Sumps	There are two sumps in Building 45. The first sump is one foot deep and is located at the bottom of the elevator shaft pit. The other sump is also one foot deep and is located in the bottom of the pit in the Lower Low Scatter Area (Room 001). There is one floor trench in Room 110. There are also three radioactive source storage wells (one neutron and two gamma) located in Room 107. Each well is steel-lined and is 30 feet deep.	Radiological evaluations of the sumps, floor trench, and source storage wells were performed and documented in the Final Status Report (Appendix G): Sump, elevator shaft, pages A1-A6; Sump, Room 001, pages 201-211; Trench, Room 110, pages 261-266; Neutron source storage well, Room 107, page 259; and pages A7-A11; and Neutron/Gamma source storage wells, Room 107, pages A7-A11. Survey results found no activity above background levels.
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Radiological surveys were performed and the building meets permissible surface contamination guidelines (see Section 2.4 and Appendix G).	No further radiological surveys are required.
Septic System	N/A	N/A
Wastewater	Handled by site wastewater facility.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	There are no aboveground or underground storage tanks within 15-feet of the Building 45 perimeter.	N/A
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	Within acceptable limits (Appendix H).	N/A

Table 2: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Energetic Materials	N/A	N/A
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 15 feet of the Building 45 perimeter, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). Borehole soil tests indicate elevated Thorium 232 results as shown in Table 3. Soil test results for Thorium 232 at Boreholes C0018, SCR476, SCR487, SCR488, and SCR500 are equal to or exceed the Cleanup Objective (2.1 pCi/g). One sample at the 3-foot depth at Borehole C0018 exceeds the Hot Spot Criteria (3.5 pCi/g). All other results are equal to or below applicable screening levels (Core Team approved or the more stringent of either 10^{-6} Risk-Based Guideline Value [RBGV] plus background or Hazard Index = 1).	The borehole locations with the elevated levels of Thorium-232 (C0018, SCR476, SCR487, SCR488, and SCR500) are not within a PRS boundary. These sample locations will be included in the residual risk evaluation for parcel 6.

N/A: Not applicable

The above information will be disclosed to the new owner via the Environmental Summary.

Table 3: Maximum Results Exceeding Screening Levels (pCi/g)

Analyte	Maximum Result	Background	RBGV (10^{-6})	Screening Level
Thorium-232	4.52*	1.4	0.07	1.47

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

* Result exceeds Cleanup Objective (2.1 pCi/g) and Hot Spot Criteria (3.5 pCi/g).

2.4 Radiological Information for Building 45

A radiological assessment of Building 45 was performed by reviewing historic and operational records and performing radiological surveys. Building 45 was constructed in 1969 as the Neutron Standards and Multiplication Test Laboratory. The original building and first addition consisted of a single-story concrete block structure with a penthouse for housing heating and air conditioning systems, electrical, and other mechanical equipment. The second addition was a two-story structure with a penthouse. The present-day building has 9,582 square feet of floor space. Building 45 is scheduled for transfer to the MMCIC in accordance with MCP goals.

Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Items of significance during the surveys were: 1) roof – direct alpha measurements greater than 100 dpm/100cm^2, determined to be polonium-210 by isotopic analysis; survey results were compared to DOE Order 5400.5, Group 3 limit of 5000 dpm/100cm^2; 2) asphalt area outside the north side of the building – direct alpha measurement greater than 100 dpm/100cm ^{2}: area of elevated activity was removed; 3) room 110A – direct alpha measurement greater than 100 dpm/100cm^2 on four floor tiles: contaminated tiles were removed, entire floor resurveyed, and no further activity was detected; 4) Room 001 source storage well – neutron activation of source well internal metal sleeve: entire source well was dismantled and removed from the building; the pit was surveyed judgmentally prior to well removal, and surveys were performed during well removal; no further activity was detected (see RSDS 04-TF-0335 and 05-TF-0014, Appendix G); 5) Room 107 source deep wells – historical information shows that scheduled source leak checks were performed without incident, and that no removable contamination was found during contamination surveys performed at the time the sources were removed for disposition. Surveys performed during removal of the neutron source did, however, show that neutron activation had occurred in the source holder materials. The source holder was dismantled and removed for disposal as radioactive waste. MARRSIM surveys were conducted of all three wells, which included lowering a Geiger-Mueller detector down the entire length of the neutron well to evaluate possible activation of the source well liner, removal and direct survey of the two gamma source holder assemblies, and contamination surveys of accessible areas down the opening of each source well; no activity was detected; 6) Room 007 – past occurrence report regarding a leaking source – cabinets in affected area were moved to gain access to scan floor areas underneath, and the remaining accessible areas of the room floor were scanned; no activity was detected; 7) Room 121 – one anomalous fixed point alpha measurement greater than 100 dpm/100cm^2; resurvey with two different instruments could not reproduce the anomalous reading. These items are discussed in greater detail in the Building 45 Final Status Report (FSR) (Appendix G). The final fixed point, scanning, and smear surveys found no residual activity above the permissible surface contamination guideline. Smear samples, sediment samples, and water samples taken in floor drains and ventilation units found no activity above background levels. The review team concluded that the building meets the radiological surface release criteria established by DOE Order 5400.5 and no further radiological surveys are required. Supporting documentation for the information summarized in Table 4 is contained in the FSR.

Table 4: Radiological Summary

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 Group 1 Alpha Smearable Activity	04-TF-0312	Floor	4.14	20
Highest Group 3 Alpha Smearable Activity	04-TF-0305	Roof	1.92	1,000
Highest Group 1 Alpha Fixed Activity	04-TF-0313	Floor	83	100
Highest Group 3 Alpha Fixed Activity	04-TF-0305	Roof	256	5,000
Highest Beta Smearable Activity	04-TF-0302	Wall	8.79	1,000
Highest Beta Fixed Activity	04-TF-0322	Wall	3,570	5,000
Highest Tritium Smearable Activity	04-TF-0318	Floor	180	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.

The above table presents the highest values of the building surface radiological results. The complete FSR is provided in Appendix G, and includes details of the evaluation and testing processes, and the corresponding results. The worksheet of the building surface results (that support the above table) can be found on pages G 15-22.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 45 is located at the DOE MCP site, formerly known as the Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

The Mound Plant at one time was situated on approximately 300 acres of land and contained approximately 130 buildings with a total of approximately 1.4 million square feet of floor space (the number of buildings is constantly diminishing as buildings are decommissioned and either sold or demolished). The original 182-acre site, purchased by the Manhattan Engineer District in 1946, consisted of two hills and an intervening valley that runs approximately east and west. The 124-acre tract acquired in 1981 was an

undeveloped mixture of fields and woods that undulates and slopes downward to the west, away from the main site. This area was acquired to serve as a buffer and has been used as a staging area and parking area for contractors working onsite.

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

3.2 Description of Structures, Roads, and Other Improvements in Proximity to Building 45

As shown in Appendix C Figures, Building 45 is bordered on the north by an up gradient grass-covered hillside, the current site fenceline, and an asphalt parking lot; on the east by an asphalt roadway, the former location of Building 29, and the excavation for PRS 66; on the south by an asphalt roadway and the former location of Building 98; and on the west by an asphalt parking lot, the former location of Building 46, an asphalt roadway, an up gradient grass-covered hillside, Building 28, and the former location of Building 60.

3.3 Current and Past Uses of Buildings in Proximity to Building 45

Buildings currently in the vicinity (Figure 1) of Building 45:

- Building 28 (Ceramic Fabrication Facility), located west of Building 45, is an 11,329 square-foot, single story, reinforced concrete and masonry, slab-on-grade structure that was used for plastics development and ceramic production. The building was binned No Further Assessment (NFA) by the Core Team in July 2003, and is scheduled for transition to MMCIC. From 1995 to the present, Building 28 has been leased from DOE to MMCIC for private industry use as a machine shop.

Buildings previously in the vicinity (Figure 1) of Building 45:

- Building 60 (Ceramic Facility), demolished in April/May 2003, was located west of Building 45. Built in 1980, Building 60 was a 3,958 square-foot, two-story, reinforced concrete and masonry structure that was used for ceramic development and non-destructive testing. Building 60 was demolished as an industrial demolition project.

- Building 46 (Weld Development Facility), demolished in June/July 2003, was located west of Building 45. Built in 1969, Building 46 was a 2,439 square-foot, single-story, reinforced concrete block, slab-on-grade structure (with a penthouse) that was used for welding and weld development. Building 46 was demolished as an industrial demolition project.

- Building 29 (Plastics Formulation Facility), demolished in June/July 2002, was located east of Building 45. Built in 1965, Building 29 was a 6,600 square-foot, two-story (with the second story penthouse covering about one-third of the first floor), concrete masonry block structure that was used for fabricating (e.g., injection molding) plastic parts. A solvent storage shed on the southwest side of the Building 29 was identified as PRS 85, which was binned NFA in October 1996. A copy of the Recommendation page for PRS 85 is provided in Appendix N. Building 29 and the solvent storage shed were demolished as an industrial demolition project.

- Building 98 (Central Fire Station), demolished in August/September 2002, was located south of Building 45. Built in 1986, Building 98 was a 8,517 square-foot, two-story, reinforced concrete and split-faced block building that was used as a fire station. Building 98 was demolished as an industrial demolition project. The Building 98 slab was removed as part of the PRS 66 Removal Action.

Temporary 'construction era' (1947) buildings previously in the vicinity (Figure 1) of Building 45:

- Building FS (Fire Station), demolished in 1949, was located northeast of Building 45. Constructed as a temporary structure in 1947, the building had approximately 1,300 square feet of floor space and was used as a fire station. The removal of the Fire Station was considered a standard industrial demolition.

- Building WH-2 (Warehouse 2), demolished in 1949, was located east of Building 45 in close proximity to the former Building 29 location (Plastics Formulation Facility). Constructed as a temporary structure in 1947, the wood-framed building had approximately 1,050 square feet of floor space. The use of WH-2 is unknown, although it is possible that WH-2's purpose was administrative in nature. The removal of WH-2 was considered a standard industrial demolition.

- Building WH-15 (Warehouse 15), dismantled between 1965 and 1968, was located south of Building 45 in the approximate location of the former Building 98 (Central Fire Station). Constructed as a temporary structure in 1947, the wood-framed building (with a concrete floor) had approximately 5,900 square feet of floor space and was used as a general storage area for radioactive materials and as a truck loading facility. Thorium redrumming operations were performed in this warehouse. Warehouse 15 was identified as PRS 79, which was binned NFA in August 1996. A copy of the Recommendation page for PRS 79 is provided in Appendix N.

- Building WH-15a (Warehouse 15a), dismantled between 1965 and 1968, was located south of Building 45, adjacent to and just south of Building WH-15 (Warehouse 15). Constructed as a temporary structure in 1947, the wood-framed warehouse was primarily used for the loading of radioactive waste for offsite shipment. Warehouse 15A was identified as PRS 80. In August 1996, the Core Team recommended Further Assessment (FA) for PRS 80. In September

2001, PRS 80 was binned a Removal Action (RA). A copy of the Recommendation page for PRS 80 is provided in Appendix N. After the building was dismantled and sold for salvage, the floor of the warehouse was bulldozed into the adjacent ravine that is now known as Area 7 (PRS 66). The Core Team declared PRS 66 a Removal Action in February 2000. A copy of the Recommendation page for PRS 66 is included in Appendix N. PRS 80 will be closed as part of PRS 66 and the data will be presented in the On-Scene Coordinator (OSC) Report for PRS 66.

These buildings are believed to have had no adverse environmental impact on Building 45.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that no reportable chemicals were stored in Building 45.

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

The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach*. The Mound 2000 Process system divided the site into geographical parcels containing more than 400 PRSs with approximately equal numbers of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had releases of radioactive and/or hazardous materials. The PRSs were initially

identified and documented as part of the Mound site scoping process under the Federal Facility Agreement (FFA). The original list of PRSs can be found in the OU9- Site Scoping Report Volume 12, Site Summary Report, 1994. One of the objectives of the Site Scoping report was to provide a comprehensive summary of PRSs identified through the scoping process. Subsequent to the 1994 Site Scoping Report, additional PRSs have been identified as information became available. The assignment of a PRS does not necessarily mean that there is a threat to human health or the environment. The tabulation of all PRSs simply provides an explicit means of tracking and evaluating all potential releases onsite, the need for further action, and the identification of the authority responsible for action.

Through the process described above, the specific PRSs in the vicinity of Building 45 (Section 4.2.3) are listed in Table 5 along with their binning status. Their locations are shown on Figure 2. Of the two PRSs in the vicinity of Building 45, one is a Removal Action and the other has been determined by the Core Team to require No Further Assessment (NFA). For a PRS to be binned NFA or as a completed RA, the Core Team has reviewed the PRS data and agrees that all existing environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with Building 45 have been identified.

4.2 Specific Record Sources for Building 45

4.2.1 Occurrence Reports

A search of the occurrence reporting system revealed three reports, all of which were minor and without environmental impact:

- *Building 45 Inoperable Water Flow Alarm (June 1995),*

- *Loss of Control of Sealed Radioactive Sources – Building 45 (July 1998)*: Seventy-one radioactive sources were reported missing as a result of a routine semi-annual leak test/physical inventory that was conducted during April and May of 1998. There is a high likelihood that the missing sources entered the radioactive waste system. The missing sources do not pose a threat to personnel or the environment as they are low in activity and are sealed against dispersion. Forty-three of the missing 71 sources are response check sources, which previously were exempt under DOE regulation, leaving 28 missing calibration sources. Of these 28 sources, 7 are exempt quantity and therefore do not require accountability controls, 9 have nanocurie levels of activity, 4 have microcurie levels of activity, and 8 have unknown activity levels (assay paperwork is missing and no activity is present in the database, but believed to be low activity sources). Many of the 28 sources are believed to have been disposed of as radioactive waste, however, paperwork was not found to substantiate this action (Appendix M), and

- *Leaking Source Found in Building 45 (December 1998):* A leak test was performed on radiological sources that were to be transferred off site. One

source was found to have radiological activity (5,000 disintegrations per minute [dpm] alpha removable) that exceeded the reporting criteria (20 dpm alpha removable). The source was bagged (internal contamination stickers were added to the bag) and placed in a waste container for shipment to the Nevada Test Site. The file cabinet where the sources were kept and the area where the leak tests were conducted were surveyed and no contamination above 20 dpm alpha removable was found. There were no personnel injuries, no environmental or human health concerns, and no impacts to safety systems or production (Appendix M).

4.2.2 Spills and Releases

There were no Spills and Released associated with Building 45.

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the FFA/DOE ER Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Two PRSs are at or near Building 45, as identified in Table 5. The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N.

Table 5: PRSs in Proximity to Building 45

PRS*	CERCLA or Bldg. Related	Binning Status	Comments
66	CERCLA	RA	Area 7, Thorium and Polonium Wastes
85	CERCLA	NFA	Building 29 Solvent Storage Shed

* Recommendation sheets for PRSs 79 and 80 are also in Appendix N; see reference on page 10.

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 1968 (prior to construction), 1973 (recently constructed), 1994 (following construction of addition #1 [1989]), 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 R. A. Ward was interviewed via a building manager questionnaire (included in Appendix F). The current Building Manager, Gary Weidenbach, was

interviewed regarding past facility operations and current conditions. No significant items in the building were identified based on the interview.

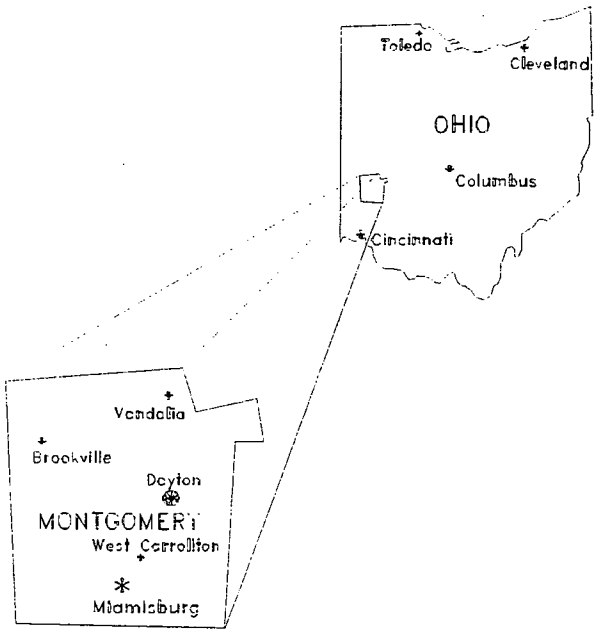
Appendix A

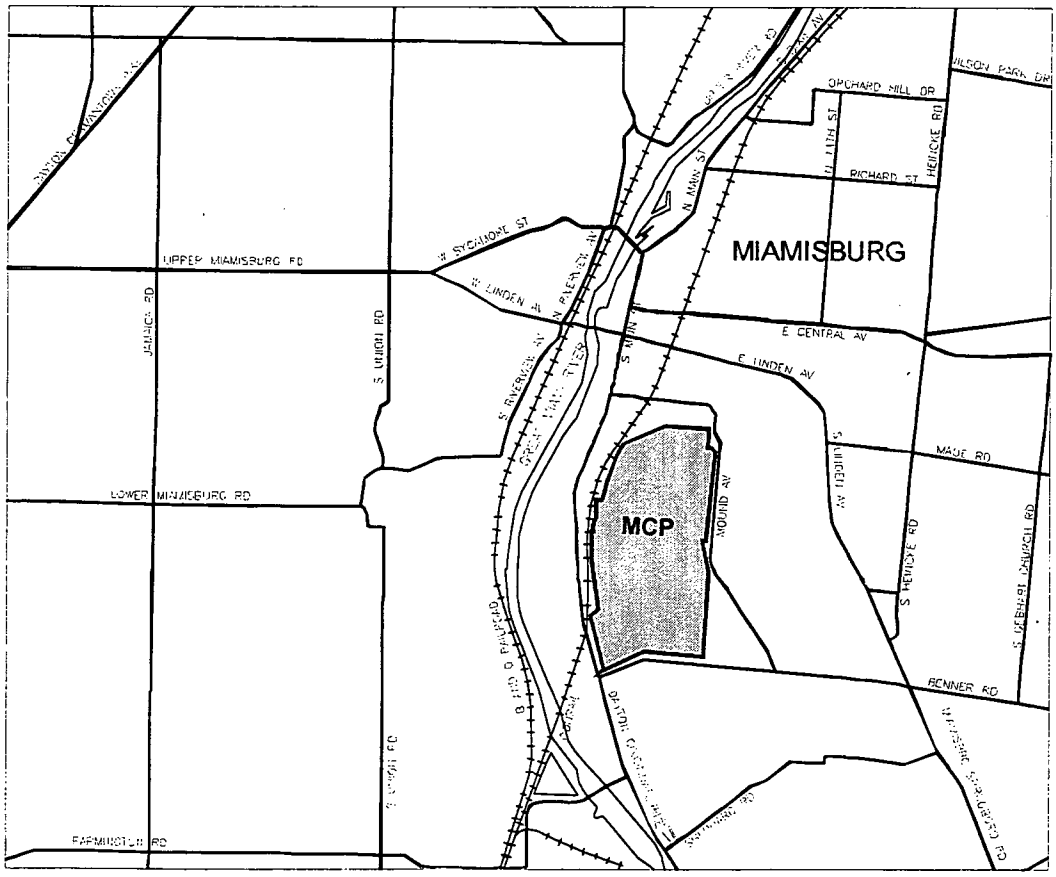
General Listing of Acronyms

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
JAMICA RD
S UNION RD
S SYCAMORE ST
W LINDEN AV
N RIVERVIEW AV
S RIVERVIEW AV
N MAIN ST
S MAIN
E CENTRAL AV
E LINDEN AV
S UNION AV
MOUND AV
S HEMPLE RD
MAUE RD
BONNER RD
ORCHARD HILL DR
RICHARD ST
HEDICKE RD
WILSON PARK DR
GREAT MIAMI RIVER
B & O RAILROAD

B1 of 1

Appendix C

Figures

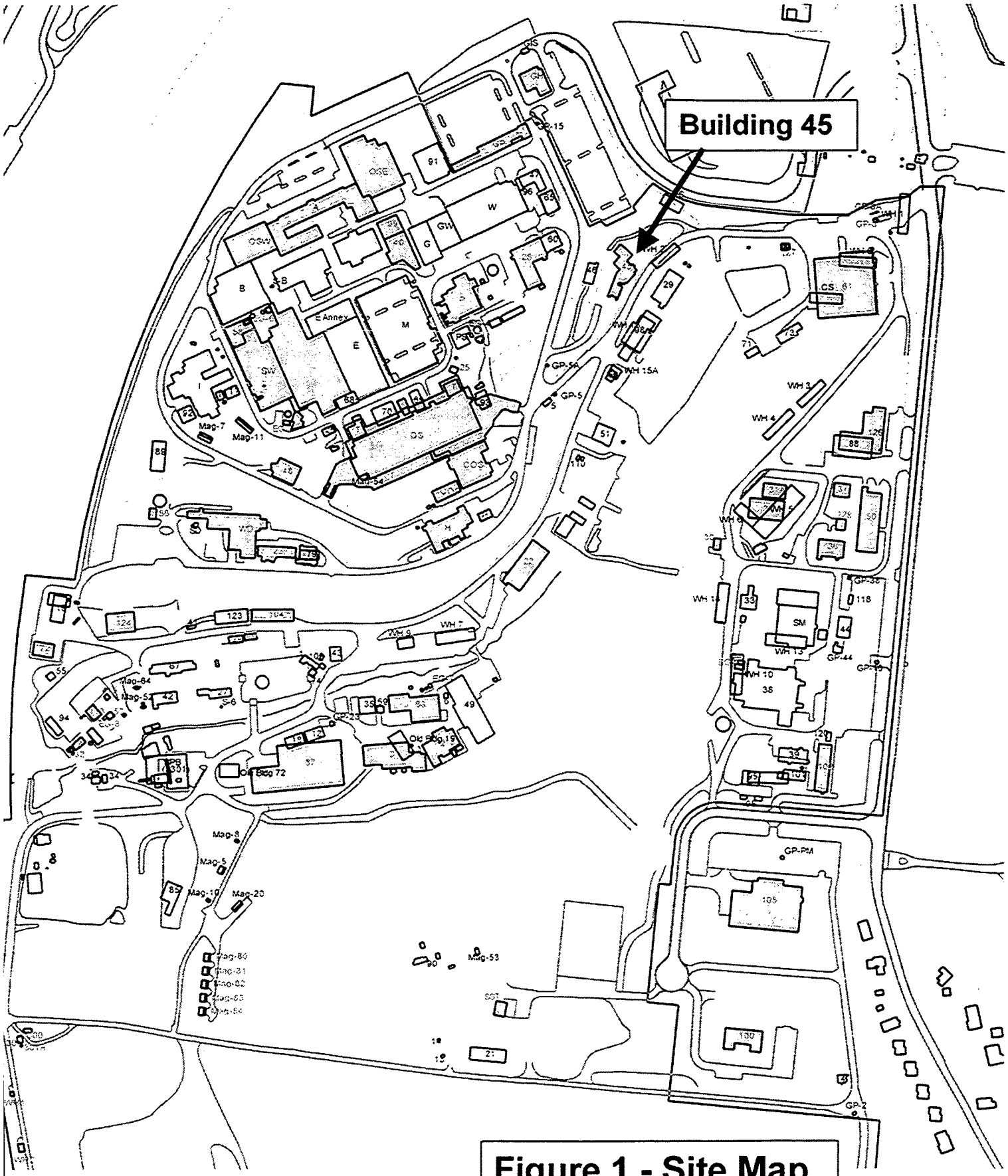
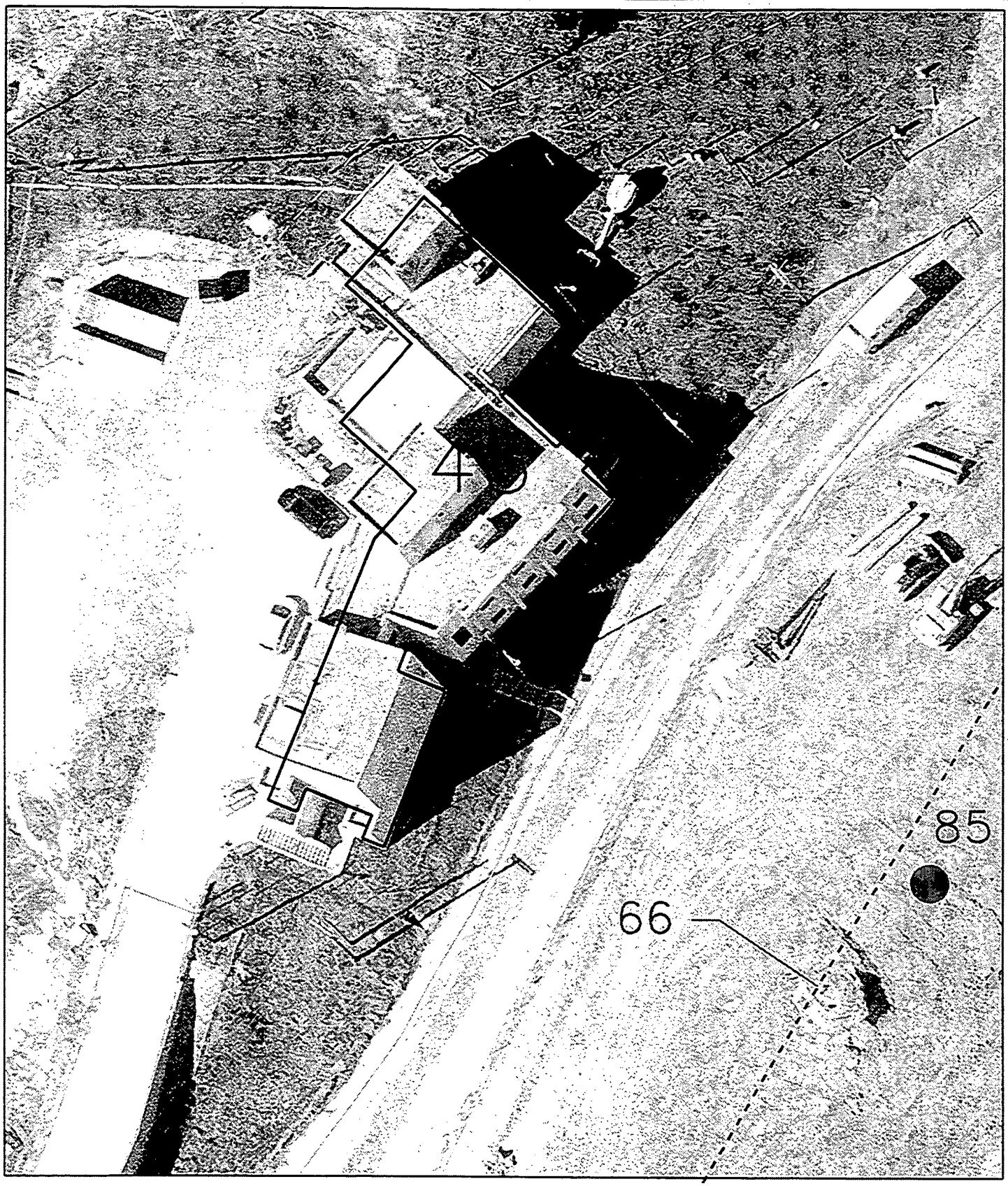


Figure 1 - Site Map



PRS Point

PRS Area

PRS Line

20 10 0 20 40FT

GRAPHIC SCALE

MOUND

Environmental Restoration Geographic Information System

	08/25/04		SSF			
ISS	DATE	REVISION	BY	CHKR	ENG	UPDT	APVD	#

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

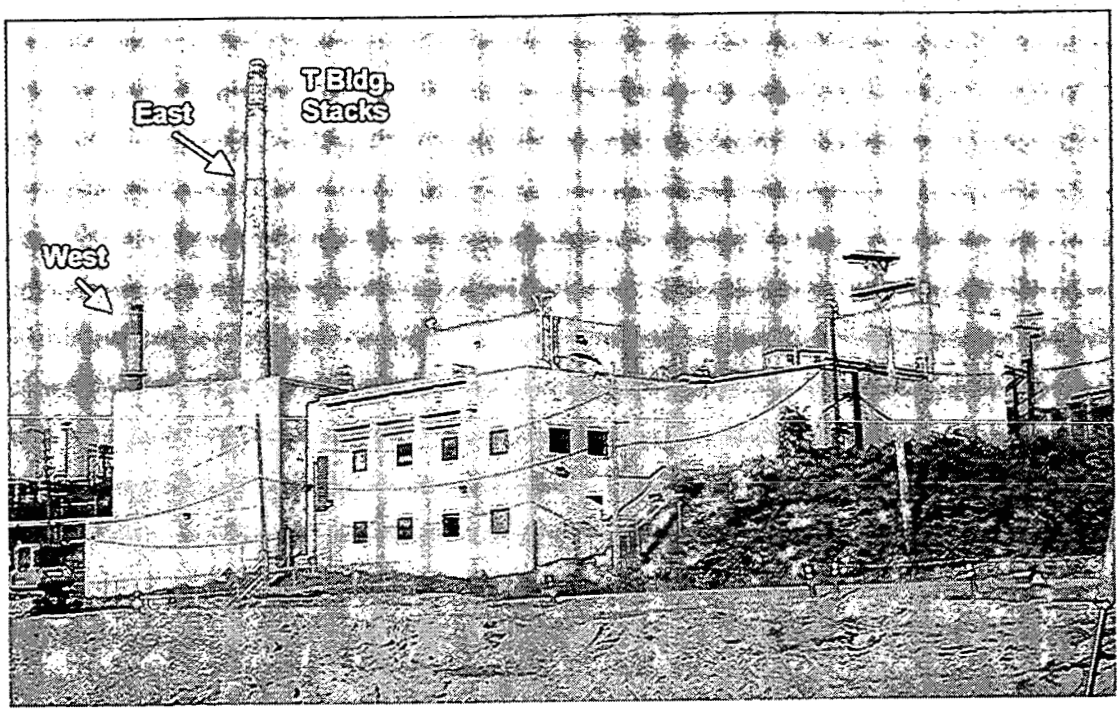
SIZE | DRAWING NUMBER: vicinity.dgn | JOB NUMBER

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

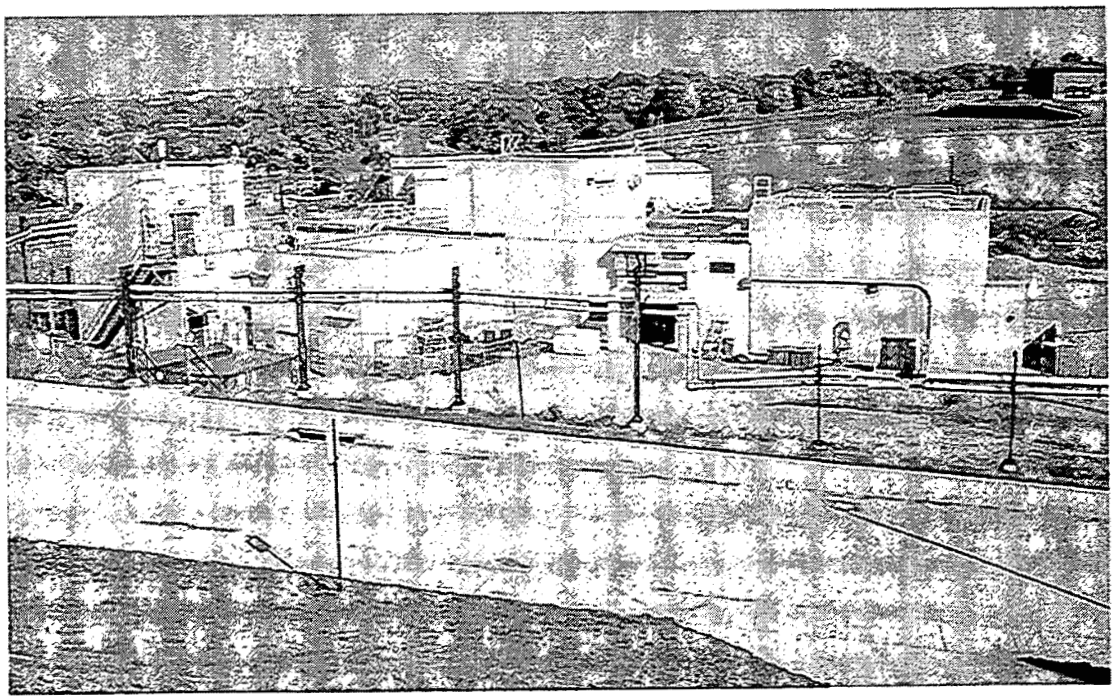
STATUS MD-REL-**/**/** | ORIGIN MSTATION / J

Figure 2
Building 45
and Vicinity

C2 of 3



View from the East



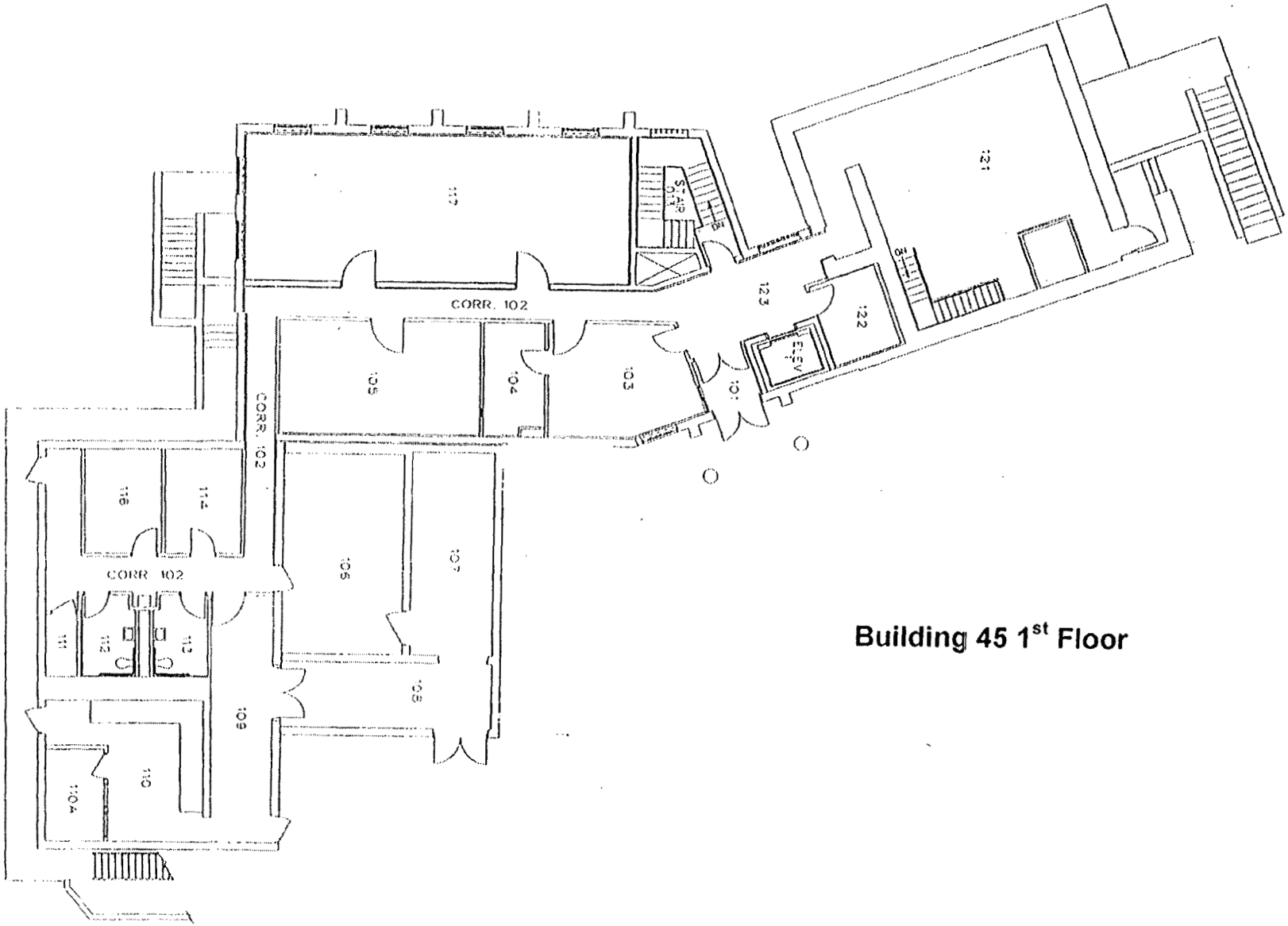
View from the West

Figure 3 – Building 45

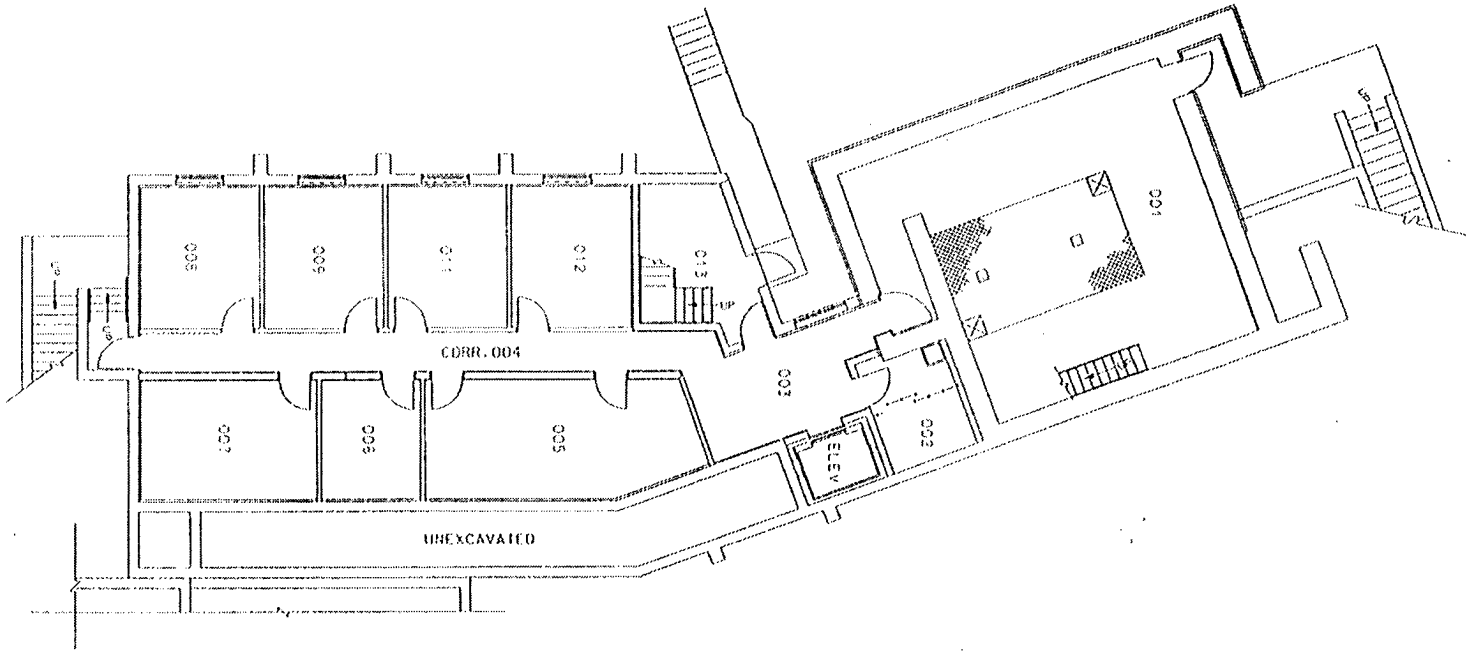
C 3 of 3

Appendix D

Floor Plans



Building 45 1st Floor



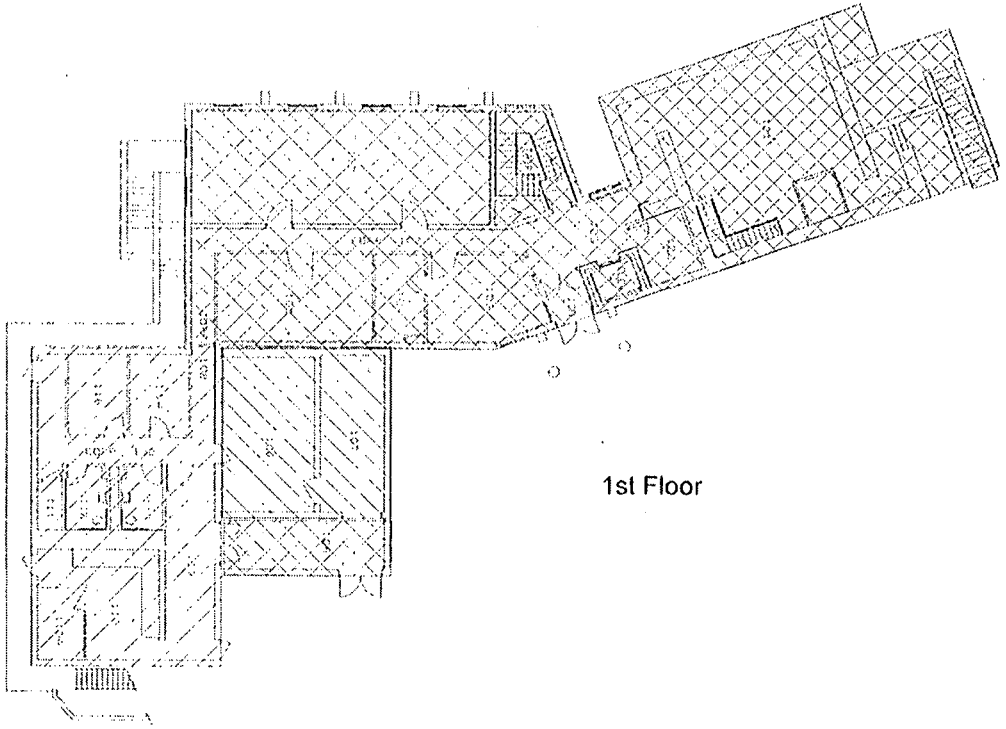
Building 45 Basement

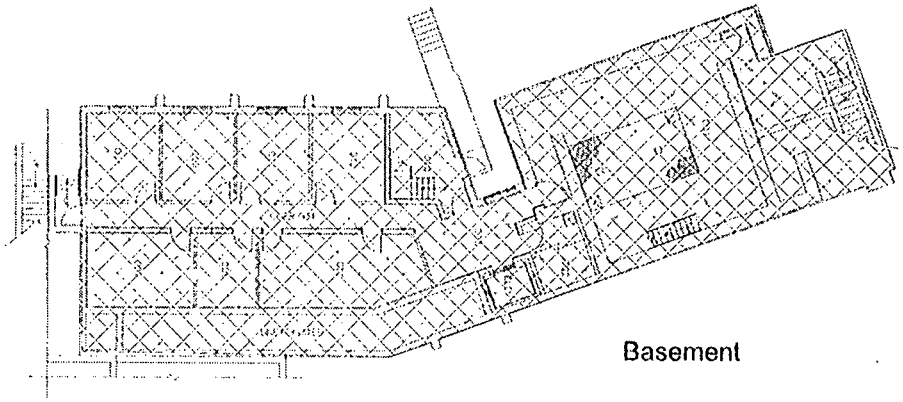
Building 45 Construction

1969

1989

1994





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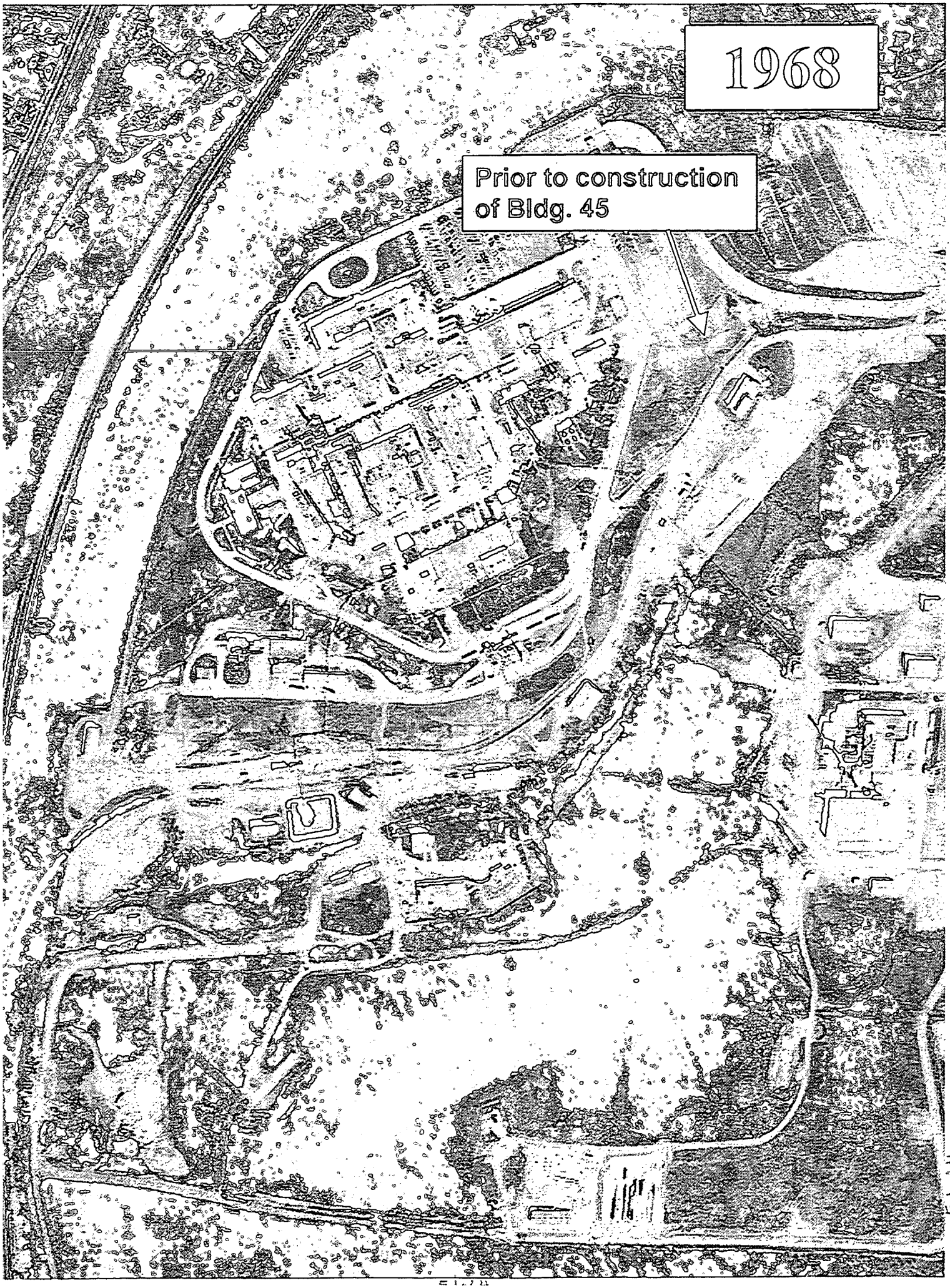
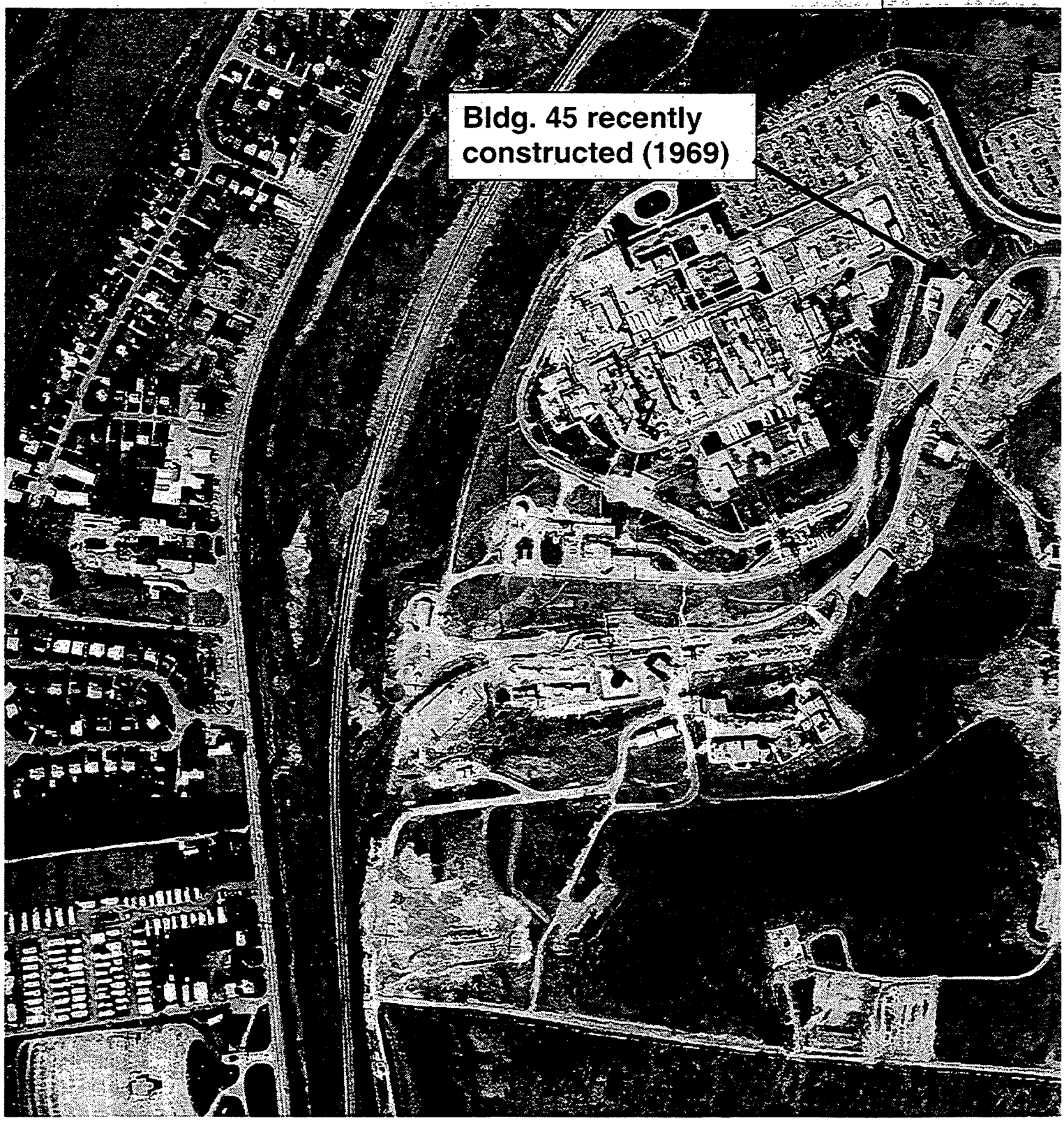
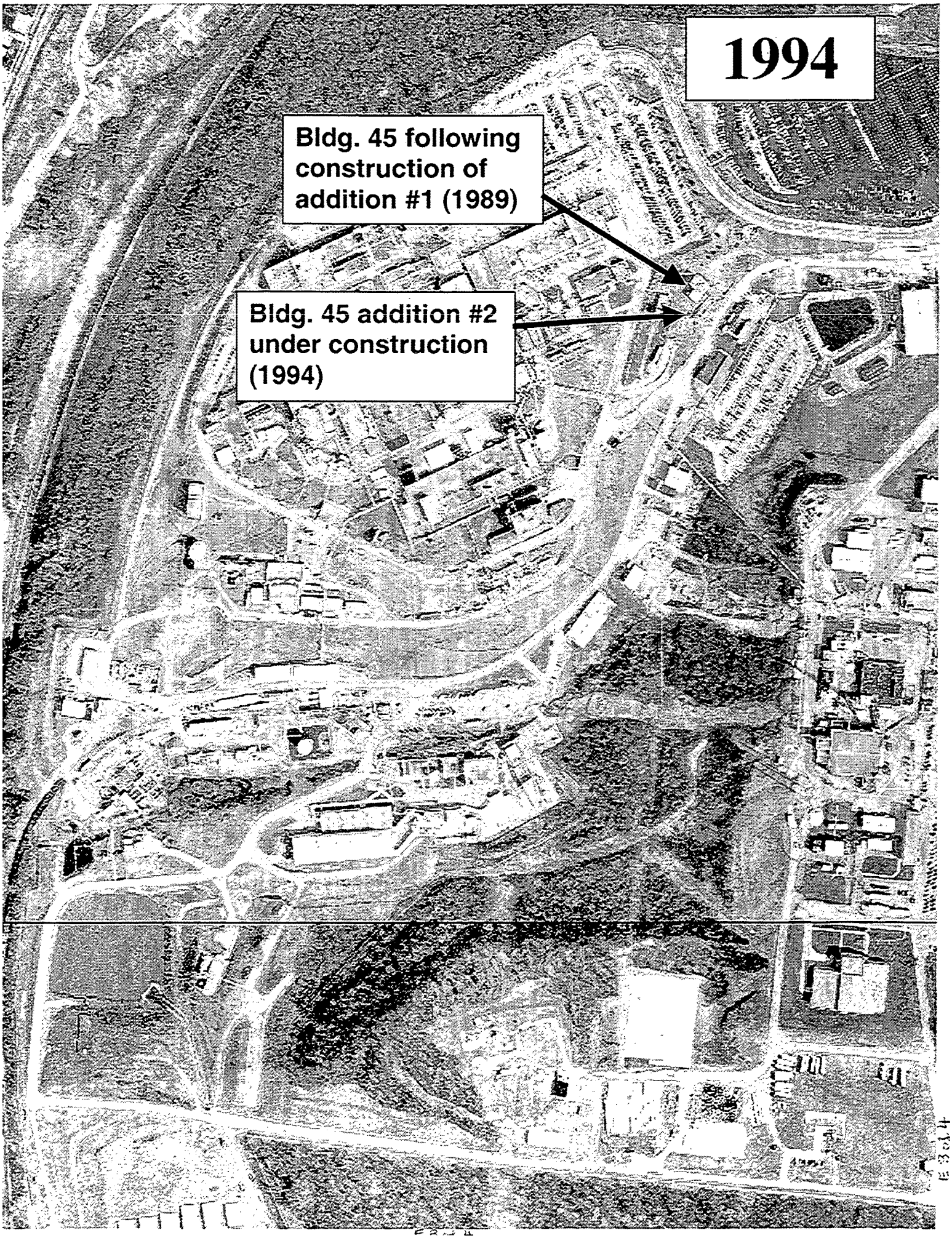
Appendix E

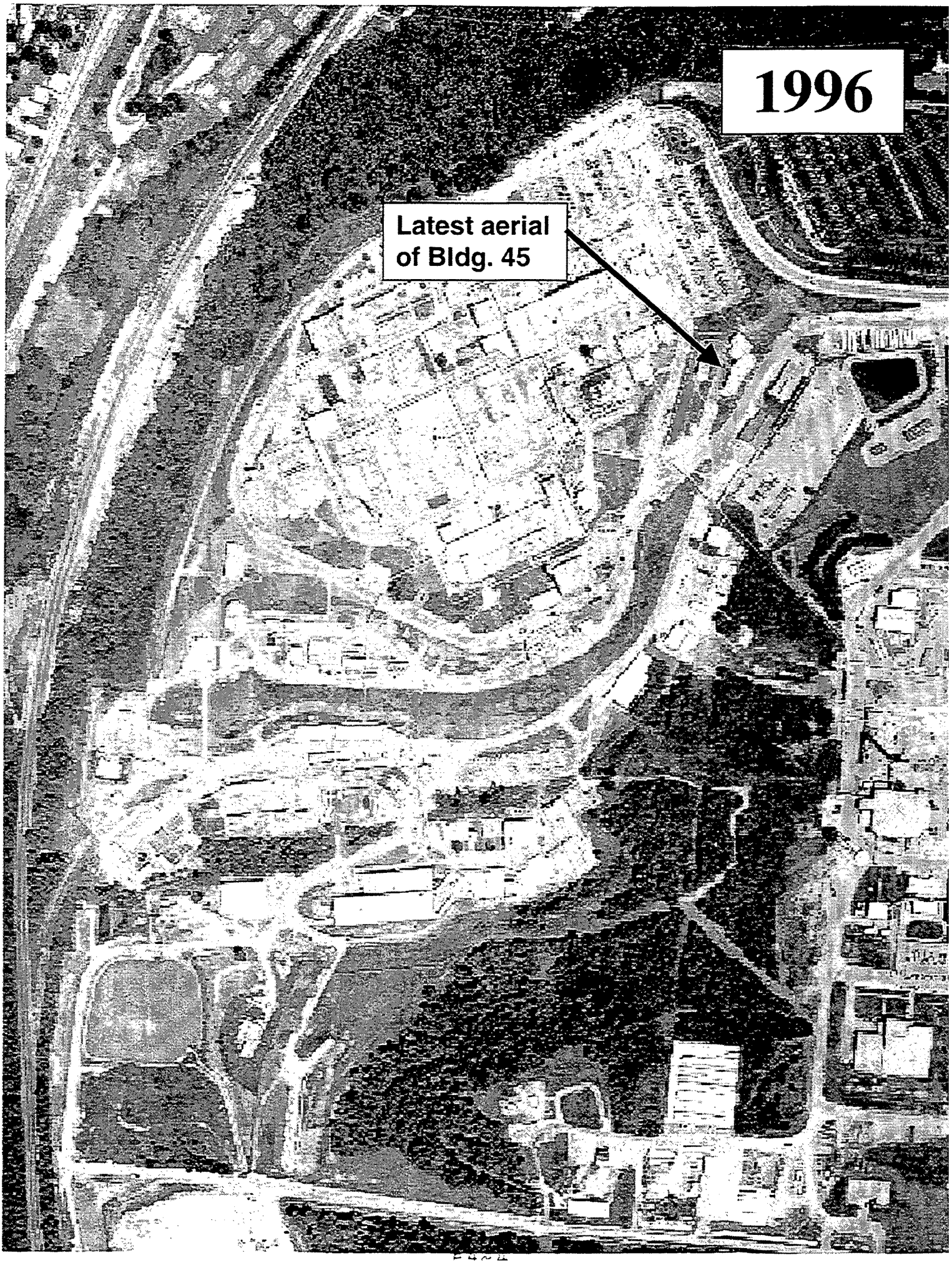
Aerial Photographs


1968
Prior to construction of Bldg. 45

1973




1994
Bldg. 45 following construction of addition #1 (1989)
Bldg. 45 addition #2 under construction (1994)


1996
Latest aerial of Bldg. 45

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

The Environmental Appraisal Report was prepared in 1996 and documents the observed conditions at the time of the inspection. Information provided in the Building Data Package text supersedes information provided in this appendix.

Based on a review by subject mater experts, hand-written corrections have been made to the report provided in this appendix. Only the text portion of the report is provided herein.

9.67 BUILDING 45

9.67.1 Scope of Building 45 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 45 on the morning of February 20, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.67.6.1). The appraisers were not accompanied by the building manager, however, the health physics calibration manager and a senior health physicist did accompany the team. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.67.6.2).

9.67.2 Description of Building 45

Building 45, the Health Physics calibration lab, is a 9,582-square-foot facility consisting of an original single-story concrete block structure and addition totaling 2,784 square feet with a penthouse. The second addition totals approximately 6,800-square-foot. Its location is shown in Attachment 3 (Section 9.67.6.3). The facility is located on the hillside between Buildings 60 and 29. The building is situated on a man-made plateau created by removing top soil from a bedrock formation. The facility's heating and air conditioning system is serviced by central plant steam and chilled water. Electrical power is 480V three-phase. The radiation source handling systems and computers are provided with an uninterruptible power supply (UPS). Floor plans are presented as Attachment 4 (Section 9.67.6.4).

The original Building 45 structure was constructed in 1968 with a small addition made in 1988. The original building and first addition consist of a single-story concrete block structure with a penthouse for housing heating and air conditioning systems, electrical and other mechanical equipment. The second addition was completed in 1995 and consists of a two-story structure ~~on the south side of the original building~~ as viewed from the east and a one-story structure ~~on the north side of the original facility.~~ as viewed from the west. The additions are constructed of masonry load-bearing walls. D.C. Kramer 10-3-04

The facility houses equipment and space necessary for the calibration of Health Physics instrumentation and personnel dosimeters. The facility contains a beta calibration area, a calibration/repair area, a dosimeter preparation area and X-ray calibration area, a calibration well area, and a low scatter neutron and maximum field calibration room. The facility has been used for the same purpose since construction. No research, development, or production activities using radioactive or energetic materials have occurred in the buildings (*Mound Facility Physical Characterization*, 12-1-03), although sealed radioactive sources are used in the calibration of Health Physics instrumentation.

9.67.3 Summary of Findings

A facility walk-through was conducted and the facility was found to be in excellent condition. The health physics calibration manager demonstrated a thorough understanding of the facility and all processes within the facility. There was one issue of environmental concern noted during the facility tour.

9.67.4 Observations

9.67.4.1 Air Emissions

There are no air emission sources in Building 45. There is no evidence of fugitive dust. No air emission permit applications have been submitted to the Regional Air Pollution Control Agency (RAPCA) for activities in the building.

9.67.4.2 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.

* Subsequently, MCP effluent was re-routed around the canal via a covered pipe to the Mound Overflow Creek.

D.C. Kramer 10-3-04

9.67.4.2.1 Sanitary

The facility is serviced by a sanitary sewer line as shown in the diagram of underground utility lines presented in Attachment 5 (Section 9.67.6.5). Facility drawings indicate that the building restroom facilities and janitor sink drain to this line. Additionally, the penthouse floor drains are indicated as being serviced by this line.

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 45 does not deviate from that expected by the sanitary treatment plant manager.

9.67.4.2.2 Storm Wastewater

The roof drains discharge to the storm water ditch which runs parallel to the eastern side of the facility, along the roadway.

9.67.4.2.3 Chemicals

A list of chemicals residing in Building 45 is included in the BMQ in Attachment 2 (Section 9.67.6.2). The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994. Confirmation of the 1994 inventory was not attempted as 1995 data were being compiled at the time of the appraisal.

Storage, handling, and disposal of chemicals listed in the BMQ in Attachment 2 (Section 9.67.6.2) were reviewed to assure conformance to regulations related to 40 CFR 122, 40 CFR 261-265, 40 CFR 268, and 29 CFR 1910. None of the chemicals listed in the BMQ are Clean Water Act priority pollutants. There is no evidence that chemicals stored in the building have entered the wastewater collection system. There have been no reported spills from Building 45.

The facility does not use a large quantity of chemicals, according to the 1994 chemical inventory included with the BMQ in Attachment 2 (Section 9.67.6.2). The typical use for chemicals is small quantity use in the repair of health physics calibration equipment.

9.67.4.3 Potable and Service Water

The facility is serviced by potable and service water. Service water is distributed within the building, including the fire sprinkler system. Backflow preventers were installed at all visible points of 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.

9.67.4.4 Chemical Storage and Hazardous Materials

As noted, the facility does not contain a large chemical inventory. Chemicals were found to be properly stored. There are many commercial alkaline batteries stored in the facility for use in the Health Physics monitoring equipment. The facility also has three californium-252 sources (0.7 micrograms, 0.7 milligrams and 2 milligrams), four Cs-137 sources (20 Ci, 30 Ci, 17 Ci and 30 μCi) and one 10 Ci Co-60 source. These sources are all non-dispersible, being encapsulated, electroplated, or otherwise sealed. All sources are stored in secured shielded containers, except during actual exposure operations.

A review of the Mound Active Underground Storage Tank Plan and visual inspection indicated that there are no underground storage tanks in or around the building. Additionally, visual inspection revealed there are no aboveground storage tanks in or around the facility. The facility does contain pits which house the radioactive sources when not in use. These pits are not expected to contain liquid.

The building was tested and does contain asbestos-containing building material (MD-10391, *Asbestos Program Manual*, 9-14-95). There was no evidence of friable asbestos noted during the facility walk-through.

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

9.67.4.5 Solid, Hazardous and Radioactive Wastes

Solid non-hazardous wastes include paper, plastics and packaging materials all in low volume. Any excess chemicals are collected by Waste Management for disposal. Used alkaline batteries are collected in the facility for subsequent pickup by Mound Waste Management. In the future, lithium batteries will be used and the manufacturer will be responsible for disposing of all used batteries.

The radioactive standards used for instrument calibration will ultimately become radioactive waste. However the facility does not routinely generate this type of waste. Additionally, health physics instrumentation which has outlived its usefulness and may be contaminated at low levels is occasionally returned to the lab. These instruments are disposed of as low-specific activity (LSA) waste in an LSA wastebox outside the facility. Compliance with Department of Energy (DOE) Order 5820.2A was not addressed.

9.67.4.5 Waste Minimization and Pollution Prevention

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

9.67.5 Findings and Recommendations

Photographs were taken to document the environmental appraisal. They are included as Attachment 6 (Section 9.67.6.6). The environmental appraisal of Building 45 indicates that the following action item should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

45-1 Perform DOE 5820.2A Radioactive Waste Management compliance assessment.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 45

Appraisers:

Name	Discipline
MARCIA VANNET	CHEMIST
MARK GILLIAT	ENGINEER
MYRON SMITH	ENGINEER

Building Manager: Bob Ward

Process Manager: Ron Daily

Date: 2/20/96

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ENVIRONMENTAL APPRAISAL CHECKLIST

Table of Contents

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RCRA Hazardous Waste	8
TSCA and NESHAP Requirements for Asbestos	13
TSCA—PCB	14
Low-level and Transuranic Waste	17
Waste Minimization/Pollution Prevention Activities	22

Environmental Appraisal Checklist

Building Name: 45 Appraisers: TEAM 4 Date: 2/20/96

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	chemical
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	There is no process which discharges to storm or sewer
	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	pits contain the rad sources when not in use - not expected to hold water
	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)	chemicals not stored near drains

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

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	BLANK
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: 45 Appraisers: TEAM 4 Date: 2/20/96

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: Appraisers: Date:

Hazardous Materials (HM) Screening Checklist

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

HM Checklist

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

Environmental Appraisal Checklist

Building Name: Appraisers: Date:

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	
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	
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: Appraisers: Date:

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)	
	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
		BLANK		Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N

Source: _____

Environmental Appraisal Checklist

Building Name: 45 Appraisers: TEAM 4 Date: 2/20/96

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	* Two water coolers (drain) w/ no model numbers

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TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
		BLANK	

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Source: _____

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

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)	* Alkaline batteries are used & waste goes to waste man.
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	

* minor amounts of solvent are used (solvents allowed to evaporate)

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Environmental Appraisal Checklist

Building Name: 45 Appraisers: TEAM 4 Date: 2/20/96

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. BLANK	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: Appraisers: Date:

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:	BLANK	
	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: 45 Appraisers: TEAM 4 Date: 2/20/96

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	BLANK
	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: Appraisers: Date:

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

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

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	
	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	N/A
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: Appraisers: Date:

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

Building Name: Appraisers: Date:

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	BLANK
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: Appraisers: Date:

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 BLANK	
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: 45 Appraisers: TEAM 4 Date: 2/20/96

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	Used rad monitors that have outlived usefulness are treated as LLW
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	LLW container outside Bld 45
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	~~UNKNOWN~~
	Is the waste stored in a configuration that protects ground-water resources?	(Y) / N	~~UNKNOWN~~
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	UNKOWN
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N	UNKOWN

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

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 count rate
	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?		surface wipes
	How were the concentrations of radionuclides determined? Indirect methods?		N/A
DOE Order 5820.2A Chapter III, 3.h	Is the storage configuration in long term storage sufficient to meet the performance standard?	Y / N	N/A Not long term storage
	Are records maintained at the facility enabling this waste to be traced from its origin?	Y / N	

Environmental Appraisal Checklist

Building Name: 45 Appraisers: TEAM 4 Date: 2/20/96

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	NOT TRU WASTE
	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: Appraisers: Date:

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	BLANK
	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: 45 Appraisers: TEAM 4 Date: 2/20/96

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	BLANK
	Has the TRU waste been protected from unauthorized access?	Y / N	
	Has the TRU waste been monitored periodically to ensure that it is not releasing its radioactive and/or hazardous constituents?	Y / N	
	Has this TRU waste storage area been designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or accidental release of its radioactive and/or hazardous constituents?	Y / N	
	Does the facility have a contingency plan designed to minimize the adverse impacts of fire, explosion, or accidental release of its radioactive and/or hazardous constituents?	Y / N	

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Screening Checklist

Does this facility generate waste or use chemicals?	(Y) / N	If yes, conduct the following survey.

Waste Minimiaztion/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Based on available information and a walk through, are there any apparent opportunities to curtail the consumption of raw materials (including but not limited to paper, chemicals, electricity, and etc.). If yes, list candidate areas in the comment section.	Y / (N)	
	Are there solvent wastes?	(Y) / N	~~small quantities~~
	Is vehicle maintenance performed?	Y / (N)	
	Are oils used ?	(Y) / N	Mineral Oil in X-ray unit *
	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)	N/A
	Is waste sludge generated?	Y / N	N/A
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N	N/A
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

* not routinely chosed out

Environmental Appraisal Checklist

Building Name: 45 Appraisers: TEAM 4 Date: 2/20/96

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

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

Environmental Appraisal Checklist

Building Name: 45 Appraisers: Team 4 Date: 2/20/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are cleaned parts drained on the sink to minimize solvent spills?	Y / N	N/A
	Are drip tanks used to capture losses?	Y / N	
	Is a solvent sink used for mineral solvents rather than a dunk bucket or dip tank?	Y / N	
	Does a waste hauler collect solvent waste for recycling or treatment?	Y / N	
OILS			
	What kind of oils are used?		Mineral Oil in X-ray machine *
	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	No
	Are these good housekeeping and operation practices used to minimize oil waste production?		yes
	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	

* not routinely changed out

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

* small quantities of solvents are used. It will evaporate - no waste solvents are generated

Environmental Appraisal Checklist

Building Name: AS Appraisers: TEAM 4 Date: 2/20/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	If there is a recycling program, what technique is used?	(Y) N	4 paper & cans
	Distillation?	Y / N	N/A
	Solids removal?	Y / N	
	Dispersion breaking?	Y / N	
	Dissolved and emulsified organics recovery?	Y / N	
	Are any of these housekeeping procedures used to minimize the production of solvent wastes?		N/A
	Separators cleaned and checked?	Y / N	
	Parts not allowed to enter the degreaser while wet?	Y / N	
	Sludge from the bottom of the tank not allowed to accumulate?	Y / N	
	Lids kept on tanks?	Y / N	
	Freeboard space on tanks increased?	Y / N	
	Are better operating practices used to reduce waste?	Y / (N)	
	How long is solvent waste stored and where?	_____ _____	N/A

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9.67-35

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward Phone: 3821 Date: 12-07-95
Alternate: K. KOEHLER Phone: 4886

COPY

1. What are the access requirements (training, clearance, etc.)?
Radiworker II, Building orientation, + Calibration Laboratory Manager's Approval

2. What protective equipment is required to enter the building?
~~None~~ Safety glasses in posted rooms

3. Are there any restricted areas? (Yes) No
Where are they? 001, 121 Low scattering room, 106 X-ray Room, Walls room + other areas posted with Radiological signs

4. Provide a physical description of the building. D.C. Kramer 2-1-05

Building ~~will~~ contains ~~9,500~~ 9,582 ft² ~~after addition is completed~~ of floor space. It is constructed of concrete blocks and reinforced concrete with a BUM roof (coal tar). HVAC systems are central steam and ~~chilled water~~ DX units. Asbestos has been found in the building; but it is not contaminated with either radiological or energetic materials.

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

5. Provide a drawing of the building.

Attached

6. What is the current building use?

Building is used for repair and calibration of radiation instrumentation and dosimetry.

Source: Mound Buildings, 5-9-95

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

Same use since construction.

Source: Mound Buildings, 5-9-95

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward 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: Health Physics Interim Calibration Facility

How Wastes Are Generated:

~~This building is being prepared for calibration of dosimetry equipment. When it is fully operational, there will be two Cf-232 sources (57 micrograms and 380 micrograms) and three Cs-137 sources (45 mCi, 350 mCi, and 17 Ci). Sources will be returned to the supplier at the end of their useful lifetimes. No radioactive wastes will be generated.~~

Solvents may ocasionally be used in small amounts for cleaning. They evaporate. No waste solvent is generated.

Mineral oil in the x-ray machine may be removed and disposed of if there is an equipment failure. Otherwise, the oil will not be changed.

Contact:
Phone #:

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

This building is designed and used for calibration of health physics instrumentation and dosimetry equipment. There are 3 Cf-252 sources (2 milligrams, 0.7 micrograms and 0.7 milligrams) and 4 Cs-137 (20 Ci, 30 Ci, 17 Ci & 3 as well as 1 Co-60 source at 10 Ci. All sources are returned to the supplier at the e of their useful lifetimes.

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward 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
   Major Addition To Mat 10 CFR 835 needs

10. Does the building have air emission sources? No

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

Source: Mound Air Emissions Database 11/30/95

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward 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? NO

14. Does the building discharge to the storm sewer? (Yes) No
Where? Roof Drains To Lower Road

15. Does the building discharge to the sanitary sewer? (Yes) No
Where? Rest Rooms - To Line along Lower Road

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: 45 Building Manager: R.A. Ward 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	
2 TON EPOXY	L	
2-PROPANAL	L	
3 IN 1 OIL	L	
BUTANE SOLDERING IRON	G	
CORRECTION FLUID	L	5 OZ
DESSICANT	S	1 LB
DEUTERIUM OXIDE	L	15 KG
DISINFECTANT DEODORANT	L	28 OZ
FLUX-OFF	L	28 OZ
FOGPRUF LENS CLEANER	L	5 OZ
FREEZ-IT	L	20 OZ
FREON TF SOLVENT	L	16 OZ
ISOPROPYL ALCOHOL	L	1 GA
LACQUER BLACK	L	6 OZ
RTV SEALANT	S	3 OZ
SILICONE LUB # 888	L	18 OZ
SOFT GUARD	L	3 OZ
SOLDER	S	35 OZ
SUPER GLUE 5	L	0.2 OZ
SUPER WASH	L	50 OZ
WAS INSECT SPRAY	L	17 OZ
WD-40	L	20 OZ
WINDA SHINE	L	20 OZ
ZNAG	S	30 OZ
ABOVE FLOOR FINISH	L	8 GA
CONQUEST CLEANER	L	1 GA
DMQ DAMP MOP	L	4 GA
NABC BATHROOM CLEANER	L	3 QT
SPRAY PAINTT, BLACK	L	590 ML
SPRAY'N GLUE	L	326 G
DIFF PUMP OIL	O	500 ML
ETHYL ALCOHOL	L	1 PT
MINERAL OIL	L	40 GA

Attach New List for #19

Source: ~~Chemical~~ Inventory 1994
* see attached 1995 Inventory F39 of 46

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward 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? Evaporate During use
waste management picks-up unused chemicals

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

Included in #19

23. Where do excess janitorial supplies go?

~~Ed Industrial Hygiene~~ Waste Management

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: ~~Included in #19~~

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward 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 Dry - Not expected to have liquids contains ERRadiation System
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
ETHYLENE GLYCOL, MASTIC, WATER	270.4
WASTE	
FUEL OIL SPILL CLEANUP, SOIL	490.4
FUEL OIL SPILL CLEANUP, SOIL	728.3
SODIUM HYPOCHLORITE	9.7

Source: HP Calibration Manager ~~Characterization of Mounds Hazardous, Radioactive, and Mixed Wastes 08/15/90~~

Excess chemicals are picked up by waste management.
Used batteries are disposed of by waste management

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9.67-45

Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward 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: 45 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

33. Is TRU radioactive waste generated, stored, or disposed of from the building?
Yes
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: _____

Radioactive standards used for Instrument Calibration will eventually become waste.

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward 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
~~Contaminated~~ ~~In~~ Calibration	contaminated instruments	Y / (N)	(Y) / N LSA Box	(Y) / N Rm 012
		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: S. Mondlay

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

Instruments with Contamination are occationally returned to the Lab. Disposal is via ~~LSA~~ LSA box at BLDG# 45.

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Building Manager's Questionnaire

Building Name: 45 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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9.67-49

HEALTH PHYSICS CALIBRATION FACILITY
1995 CHEMICAL INVENTORY

CHEMICAL	MANUFACTURER	MAX. DAY AMOUNT	TYPICAL AMOUNT	# OF DAYS Held	BLDG. & ROOM	CHEM FORM	CHEM STATE	STORAGE CODE	PRESSURE CONDITION	TEMP. COND.	MSDS
2 TON EPOXY	Devon Corp	2 G	2 G	200	45-105 & 117	M	L	R	1	4	Y
3 IN ONE OIL	Boyle-Midway	10 oz	5 oz	200	45-105 & 117	P	L	F	1	4	Y
Aero Duster	Miller-Stephenson	400 g	350 g	100	45-105 & 117	M	L	F	2	4	Y
Butane soldering iron	Master Appliance	28 ml	< 28ml	5	45-105 & 117	P	G	R	2	4	N
Correction Fluid	Liquid Paper corp	5 oz	5 oz	365	45-105 & 117	M	L	M	1	4	N
De-Ox-Id cnt cleaner	G. C. Electronics	10 oz	5 oz	200	45-105 & 117	M	L	F	2	4	N
Dessicant	Dvison Chem. Div.	5 lb	4 lb	365	45-105 & 117	M	S	F	1	4	Y
Deuterium Oxide	Cambrdige Isotope Labs	15 kg	15 kg	365	45-106	P	L	M	1	4	Y
Diff pump oil	unknown - old	500 ml	500 ml	365	45-106	P	L	M	1	4	Y
Ethyl Alchohol	Commercial Solvents Corp.	1 pt	1 pt	365	45-106	P	L	M	1	4	Y
Flux-Off	Chemtronics	25 oz	20 oz	200	45-105 & 117	M	L	F	2	4	Y
High Vacuum Grease	Dow Corning	50 oz	40 oz	200	45-105 & 117	M	S	R	1	4	Y
Isopropyl Alchohol	Mound stock room	1 ga	.5 ga	300	45-105 & 117	P	L	F	1	4	N
LPS-2 lub	Holt LLoyd Corp.	11 oz	5 oz	50	45-105 & 117	M	L	F	2	4	Y
Lacquer black	Eberline	48 oz	40 oz	200	45-105 & 117	M	L	M	1	4	Y
Lqd Solder Flux 11	Oatey Co.	4 oz	3 oz	25	45-105 & 117	M	L	F	2	4	Y
Mineral Oil	Shell Oil co.	40 ga	40 ga	200	45-106	P	L	D	1	4	Y
RTV sealant	Dow Corning	27 oz	20 oz	200	45-105 & 117	M	S	R	1	4	Y
SPRAY ADHESIV	3M corp	25 oz	20 oz	200	45-105 & 117	M	L	F	2	4	Y
Scotch Spray-Mount	3M	25 oz	20 oz	200	45-105 & 117	M	L	F	2	4	Y
Silicone lub #888	Camie-Campbell	150 oz	150	200	45-105 & 117	M	L	F	2	4	Y
Solder ["44"]	Kester	145 oz	100 oz	365	45-105 & 117	M	S	R	1	4	Y
Solvent & Flux Remover	Miller-Stephenson	455 g	400 g	200	45-105 & 117	M	S	N	1	4	Y
Statnul anti static	Weston Instrument Inc.	32 oz	15 oz	200	45-105 & 117	M	L	N	1	4	N
Super Glue-5	Duro	1.5 oz	1 oz	200	45-105 & 117	M	L	R	1	4	N
Super Wash	MCM Electronics	50 oz	25 oz	50	45-105 & 117	M	L	F	2	4	Y
WD-40	WD-40 Co.	100 oz	50 oz	180	45-105 & 117	M	L	F	2	4	Y
ZNAG	G.E.	130 oz	100 oz	200	45-105 & 117	M	S	J	1	4	Y
JANATORIAL:											
Above Floor Finish	Butchers	8 ga	6 ga	?	45-002 & 111	M	L	N	1	4	N
Conquest Cleaner	Chardon	1 ga	<1 ga	?	45-002 & 111	M	L	N	1	4	N
DMQ Damp Mop	Spartan Chem. Co.	4 ga	2 ga	?	45-002 & 111	M	L	N	1	4	N
NABC Bath Rm Cleaner	Spartan Chem. Co.	3 qt	2 qt	?	45-002 & 111	M	L	N	1	4	N

SUPERVISOR

4998
H.P.#

NA out side security island
AUTORIZED DERIVATIVE CLASSIFIER
The Autorized Derivative Classifier certifies that the information contained on this form is UNCLASSIFIED

DATE

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U57-50

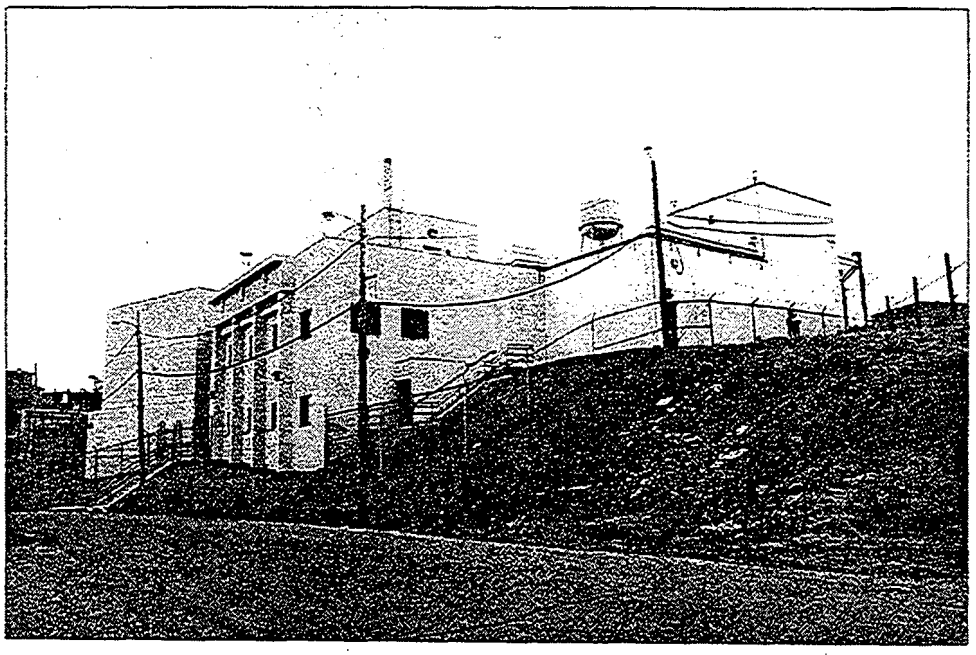
Appendix G

Radiological Information

Final Status Report (FSR) for Building 45	G1 through 309
Surveys No. 05-TF-0080 and 05-TF-0081*	GA1 through 11

*Surveys are part of FSR; surveys were added after Appendix G pages through 309 were numbered

Final Status Report
For
Building 45



Prepared by:	**Robert Coblentz /**	**Date:**	**January 28, 2005**
Reviewed by:	**Stephen E. Lehrer /**	**Date:**	02/01/05
Approved by:	**A. Stephen Collas /**	**Date:**	2/11/05

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1.0 Historical Overview

Building 45 was constructed in 1969 as the Neutron Standards and Multiplication Test Laboratory. Building 45 also carried the names "Neutron Standards Building", Neutron Standards & Weld Development Offices", Health Physics", "Health Physics Calibration Laboratory. The original building and first addition consisted of a single-story concrete block structure with a penthouse for housing heating and air conditioning systems, electrical and other mechanical equipment. The second addition was completed in 1995 and consists of a two-story structure on the south side of the original building and a one-story structure on the north side of the original facility. The present-day building has a total area of 9,582 square feet.

Building 45 appears to have supported two major program organizations during its approximately 35 years of life. From construction, into the late 1980s, the building was in use for support operations for the "heat source" or RTG Program. By the early 1990s, Building 45 began operating as a support building to site Health Physics activities.

The recent function of Building 45 was to calibrate health physics instrumentation and personnel dosimeters. The facility contains an X-ray Calibration Area, a Calibration Well Area, and a Free Air Calibration Area. The operations performed in this facility ensured that all instrumentation and dosimeter equipment used in the external dosimetry program would be calibrated to all applicable standards.

A significant component to the calibration function of the building was the use of gamma and neutron radioactive sources. The sources were stored in wells thirty feet below ground and were extracted as necessary to calibrate health physics instruments.

A complete history of Building 45 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 45 satisfy the site release criteria. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains or ventilation systems. The survey data is compared to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined on the Survey Plan Form (see Enclosures).

Table 1 is based on DOE Order 5400.5, and these limits are the Derived Concentration Guidelines (DCGL's) for building and structure release.

Table 1

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

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

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

2.1 Survey Design

The characterization survey was designed to evaluate the building internal and external surfaces. Area classification was based on operating history. Testing and radioactive storage areas are Class 2 areas. Administrative and support areas are Class 3. The building was divided into survey units as follows:

Building 45 Survey Units

Survey Unit	Room	Class	Area (Sq.Ft.)	Scan %
1	001	2	955	50
2	121	2	955	50
3	117	2	432	50
4	106, 107, 108	2	884	50
5	109, 110, 110A	2	513	50
6	103, 105, 104	3	756	10
7	007, 002, 003, 005, 006, 008-013	3	2,542	10
8	001 Walls	3	992	10
9	121 Walls	3	992	10
10	117 Walls	3	672	10
11	106-108 Walls	3	884	10
12	109-110A Walls	3	513	10
13	111-114, 116, 123, Corridor 102	3	596	10
14	1st Floor Ceilings	3	5,116	10
15	Basement Ceilings	3	4,192	10
16	Exterior Walls	3	8,740	10
17	Roof	3	5,423	10

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

In the Class 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

(Note: L values are listed on individual survey maps attached to each respective Radiological Survey Data Sheet.)

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 smear samples and water samples were collected from floor drains and ventilation units. Direct alpha and beta readings were taken at each sediment sample location.

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

Replicate surveys were performed in accordance with Reference 3.

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

2.2 Survey Data

The gross alpha and beta fixed point measurements from each survey unit were averaged and compared to the $DCGL_w$. All final measurements inside the building and on exterior walls were below the $DCGL_w$ The maximum data point alpha measurement, excluding the roof, was 83 dpm/100cm^2. The maximum data point beta measurement, excluding the roof, was 3570 dpm/100cm^2.

Two roof data points were above the Group 1 alpha $DCGL_w$, with the max being 189 dpm/100cm^2. Acid etch was performed on one roof data point to identify radionuclides. The predominant radionuclide detected was Polonium-210. The measured roof survey results were therefore compared to the 5400.5, Group 3 contamination limit of 5000 dpm/100cm^2. (RSDS 04-TF-0305)

Surveys were conducted to downpost the Radioactive Material Area located outside on the north side of the building, including smears and scans of approximately 80% of the area. A rusty-colored spot on the asphalt was found to have a direct alpha reading of 256 dpm/100cm^2. Direct scans of 100% of the area directly surrounding the spot showed no elevated measurements (RSDS 04-TF-0401). A piece of the asphalt containing the entire localized elevated measurement was removed and submitted to the environmental laboratory to identify radionuclides. Radionuclides detected were as follows:

Isotope	Dpm/sample	Uncertainty +/-	LDL
Pu-238	2.32	0.43	0.18
Pu-239/240	0.27	0.13	0.18
Th-227	2.15	0.46	0.22
Th-228	4.38	0.70	0.22
Th-230	11.08	1.34	0.61
Th-232	4.55	0.72	0.22
U-233/234	4.23	1.20	0.76
U-235	<LDL	<LDL	0.76
U-238	2.54	0.90	0.76

A survey of the removed asphalt was performed prior to and after laboratory analysis. The respective measurements were: 120 dpm/100cm^2 and 16 dpm/100cm^2 alpha, indicating surface contamination only (RSDS 05-TF-0023). In that no other measurements were found above the $DCGL_w$, and that the contamination was removed by sampling, no further action is required.

An anomalous elevated direct alpha reading of 150 dpm/100cm^2 was initially measured in Survey unit 2, data point #9. Field investigation with portable instruments was unable to reproduce the reading. A follow-up L2350 data reading was performed with another instrument. The follow-up reading was 19 dpm/100cm^2. (RSDS 04-TF-0315 and 04-TF-0345)

Surveys of the shielded neutron storage well in the lower pit of room 1 revealed that neutron activation of the inner metal sleeve had occurred. Direct measurement with a Ludlum 2360 with 43-89 detector showed readings in the beta channel of 29,844 dpm/100cm^2 (7461 cpm) (RSDS 04-TF-0374). The source well was dismantled, and removed from the building. Contamination surveys during and after removal showed no contamination above the $DCGL_w$. A gamma survey of the source storage sleeve after removal, showed readings of 5 to 10 micro rem per hour (RSDS 05-TF-0014).

The deep-well neutron source storage in room 107 was evaluated for neutron activation, due to activation having been detected on the source holder materials at the time that the source was removed for disposition. The evaluation was performed by the use of a PUG-1 count rate meter with a P-11 pancake-style beta-gamma detector attached to a 30 foot cable. The probe was slowly lowered to the bottom of the well, while monitoring the instrument count rate. The background count rate produced a meter swing from 50 to 100 counts per minute. The survey showed no change from background levels down the entire length of the source storage well. (RSDS 04-TF-0362). The gamma source storage deep-wells were surveyed via withdrawal of the source mounting plates from each of the two wells for direct survey. All three source deep-

wells were surveyed by direct survey and smear samples. The highest direct reading was 32 dpm/100cm^2 alpha, and no detectable beta. The highest smear sample result was 1.74 dpm/100cm^2 alpha, 1.98 dpm/100cm^2 beta, and 0.49 dpm/100cm^2 tritium (RSDS # 05-TF-0081).

Surveys were conducted at the bottom of the elevator shaft, including a drain pit. The highest direct reading was 40 dpm/100cm^2 alpha, and 204 dpm/100cm^2 beta. The highest smear sample result was 1.71 dpm/100cm^2 alpha, 2.57 dpm/100cm^2 beta, and 0.0 dpm/100cm^2 tritium (RSDS # 05-TF-0080).

Floor scans of room 110A detected fixed contamination on floor tile in the northeast corner of the room. The maximum alpha measurement was 556 dpm/100cm^2. The affected area was approximately one square foot, and involved 4 tiles. The tiles were removed, and a sample tile was submitted for isotopic analysis. Pu-238 was the predominant radionuclide. The undersides of the removed tiles, as well as the exposed floor surfaces, were surveyed to verify that contamination was only present on top of the tiles. No contamination was detected above the $DCGL_w$. Room 110A floor was reclassified as Class 1, and a 100% resurvey of the floor was performed following tile removal. No further contamination was detected. Follow-up surveys of the room were performed, including above the drop-ceiling, a ceiling vent fan, and on top of the room. No contamination was detected. (RSDS 04-TF-0361, 0363, 0366, and 0379)

A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 2. A retrospective power curve (Attachment 1) demonstrates that the survey design had sufficient power (probability) to meet the DQO's for this survey plan. The average alpha measurement is 18.67 dpm/100 cm^2 ±2.17 dpm/100 cm^2 and the standard deviation (σ) is 11.7. The relative shift (Δ/σ) = 4.24. The retrospective number of data points (n) per Equation 5-2, Reference 2 is 14. All measurements were below the $DCGL_w$, therefore the statistical test is not required.

The following table shows the maximum and average Fixed Point survey results.

Data Point Survey Results

Building 45	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
Average	.395	1.27	4.55	23.7	1997
Standard Deviation	.846	1.68	13.87	23.4	545
Maximum	4.14	8.79	180	83	3570
Confidence Interval	± 0.09	± 0.18	± 1.47	± 2.57	± 57.9

Note: Roof data was excluded due to Polonium-210 anomalies

Judgmental surveys were performed on ceilings. The highest observed activity was 76 dpm/100cm^2 alpha and 3118 dpm/100cm^2 beta (RSDS# 04-TF-0330, 0331, 0355, and 0367). The average activity was 23.6 (±4.11) dpm/100cm^2 alpha and 2178 (±157) dpm/100cm^2 beta.

Judgmental surveys were performed on roof areas. The highest observed activity was 256 dpm/100cm^2 alpha and 2020 dpm/100cm^2 beta. The average activity was 73.8 (±22.7) dpm/100cm^2 alpha and 1255 (±123.0) dpm/100cm^2 beta (RSDS# 04-TF-0305). Acid etch sampling was performed. Isotopic analysis showed the predominant radionuclide to be Polonium-210. The roof readings were therefore compared to the DOE Order 5400.5, Table 1, Group 3 limit of 5000 dpm/100cm^2.

2.3 Sediment Sample Data

Sediment smear samples were obtained from the ventilation systems located in the penthouses. Smear samples were analyzed for gross alpha, beta and tritium. Direct alpha and beta measurements were taken at each sample location. No activity was detected above the $DCGL_W$. (RSDS # 04-TF-0305)

Floor drains and sink drains were surveyed and sampled. Samples showed no activity above environmental background values. Smears and direct measurements were less than 5400.5, Table 1 limits. (RSDS# 04-TF-0335)

2.4 Quality Control

Quality control measurements were taken to assess the precision of the measurement system in accordance with Reference 3. Sixteen data points were selected at random from the sample group of 56 non-judgmental data points. Replicate measurements were taken at these locations using the same instruments and performed in the same manner as the original survey. The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is within a factor of two of the variance in the replicate samples (at 95% confidence level). The results of the replicate surveys are shown in the following table:

Replicate Analysis Results

Replicate Fixed Point QC

		alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	RSDS#	Initial	2σ	replicate	initial	2σ	replicate
SU1-08	0334	83	18.22	21	2588	101.74	2181
SU2-09	0334	19	8.72	35	1770	84.14	1406
SU3-04	0334	46	13.56	28	2031	90.13	1721
SU4-04	0334	45	13.42	17	1619	80.47	1730
SU5-02	0334	38	12.33	21	1960	88.54	2156
SU6-09	0334	39	12.49	28	1814	85.18	1738
SU7-02	0334	17	8.25	62	1431	75.66	1627
SU7J-17	0334	28	10.58	3	1696	82.37	1678
SU8-06	0334	15	7.75	7	1965	88.66	1849
SU9-14	0334	23	9.59	21	2449	98.97	2070
SU10-18	0334	23	9.59	17	1607	80.17	1900
SU11-02	0334	11	6.63	14	2594	101.86	2342
SU12-11	0334	57	15.10	10	3194	113.03	2880
SU13-19	0334	24	9.80	35	1465	76.55	1619
SU14-02	0334	45	13.42	35	2927	108.20	3340
SU15-11	0334	35	11.83	31	3076	110.92	2871
Variance (S2) =		342.6		202.5958	342503.6		294924.6
Ratio				1.691052			1.161326
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.

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

2.5 Conclusion

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 45 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).

All of the DQO's for this survey plan have been met and no further surveys of building surfaces are required. Building 45 meets the surface release criteria established by DOE Order 5400.5. The average and maximum residual contamination in each survey unit is less than the $DCGL_W$ and the survey is accepted as the Final Status Survey in accordance with the Survey Plan. The following table shows the maximum fixed and removable activity on the inside and outside building surfaces.

Building 45 Survey Results

TYPE	RSDS#	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2)
Highest Group 1 Alpha Smearable Activity	04-TF-0312	Floor	4.14	20
Highest Group 3 Alpha Smearable Activity	04-TF-0305	Roof	1.92	1000
Highest Group 1 Alpha Fixed Activity	04-TF-0313	Floor	83	100
Highest Group 3 Alpha Fixed Activity	04-TF-0305	Roof	256	5000
Highest Beta Smearable Activity	04-TF-0302	Wall	8.79	1000
Highest Beta Fixed Activity	04-TF-0322	Wall	3570	5000
Highest Tritium Smearable Activity	04-TF-0318	Floor	180	10,000
Note 1: DOE Order 5400.5 (DCGLw)				

3.0 Attachments and Enclosures

Attachment 1 – Retrospective Power Curve

Attachment 2 – Average and Max Total Alpha and Beta Graphs

Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 45-01

4.0 References

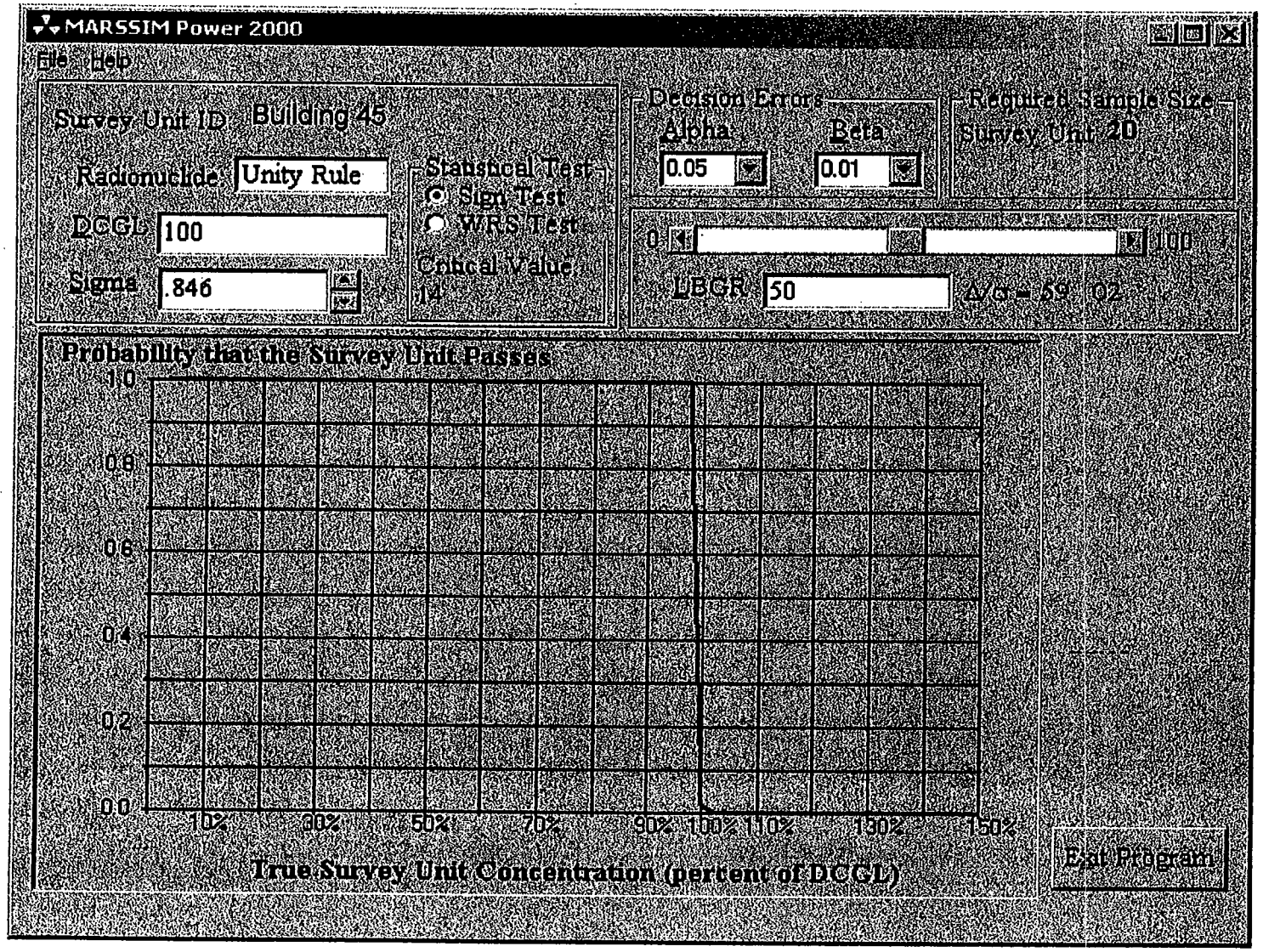
1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 45 Structural History and Process History Summary Background Document, January 2003
2. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)

3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op. 402

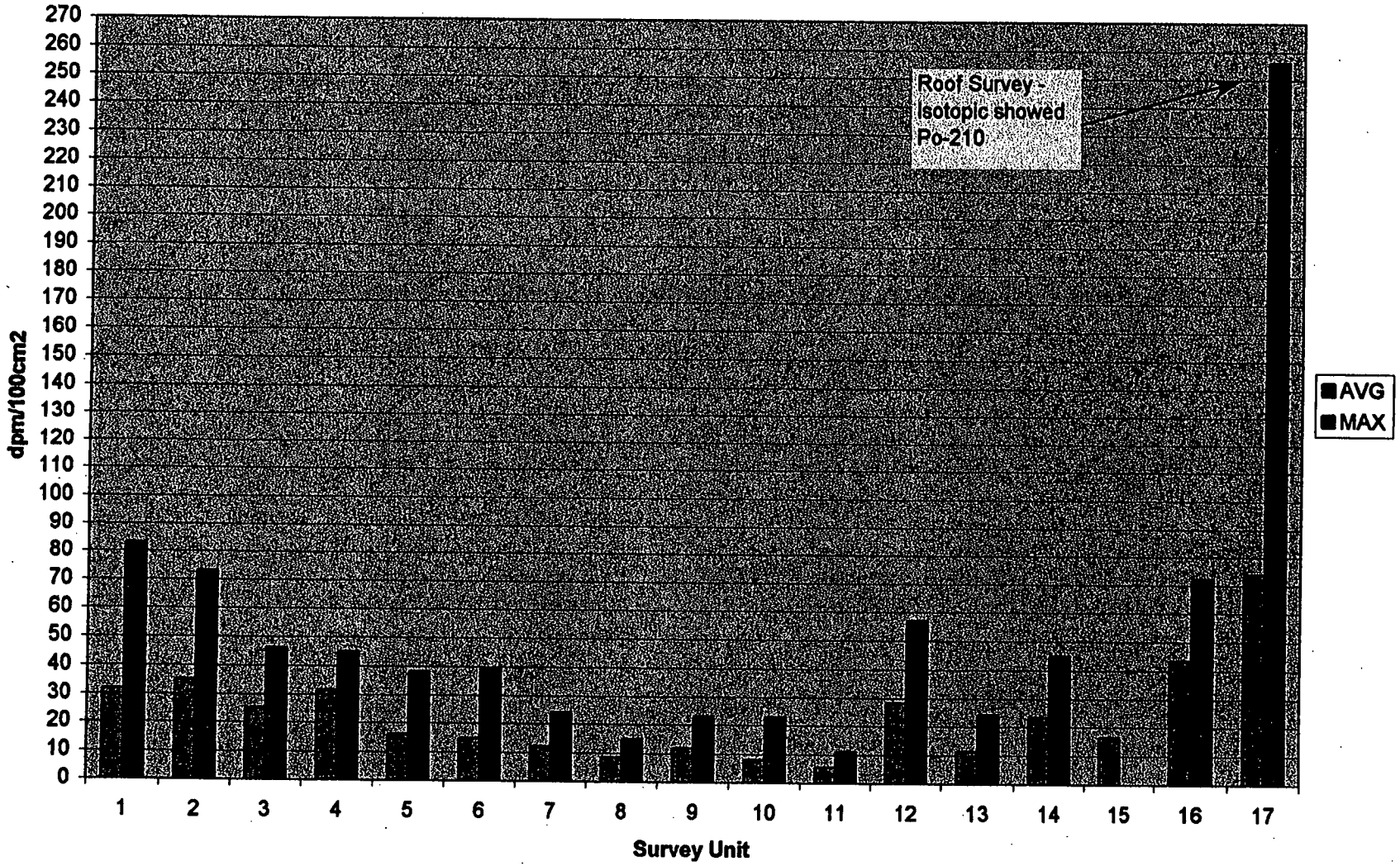
4. MD80036, Op. No. 30031,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator,* Section 6.3

Attachment 1

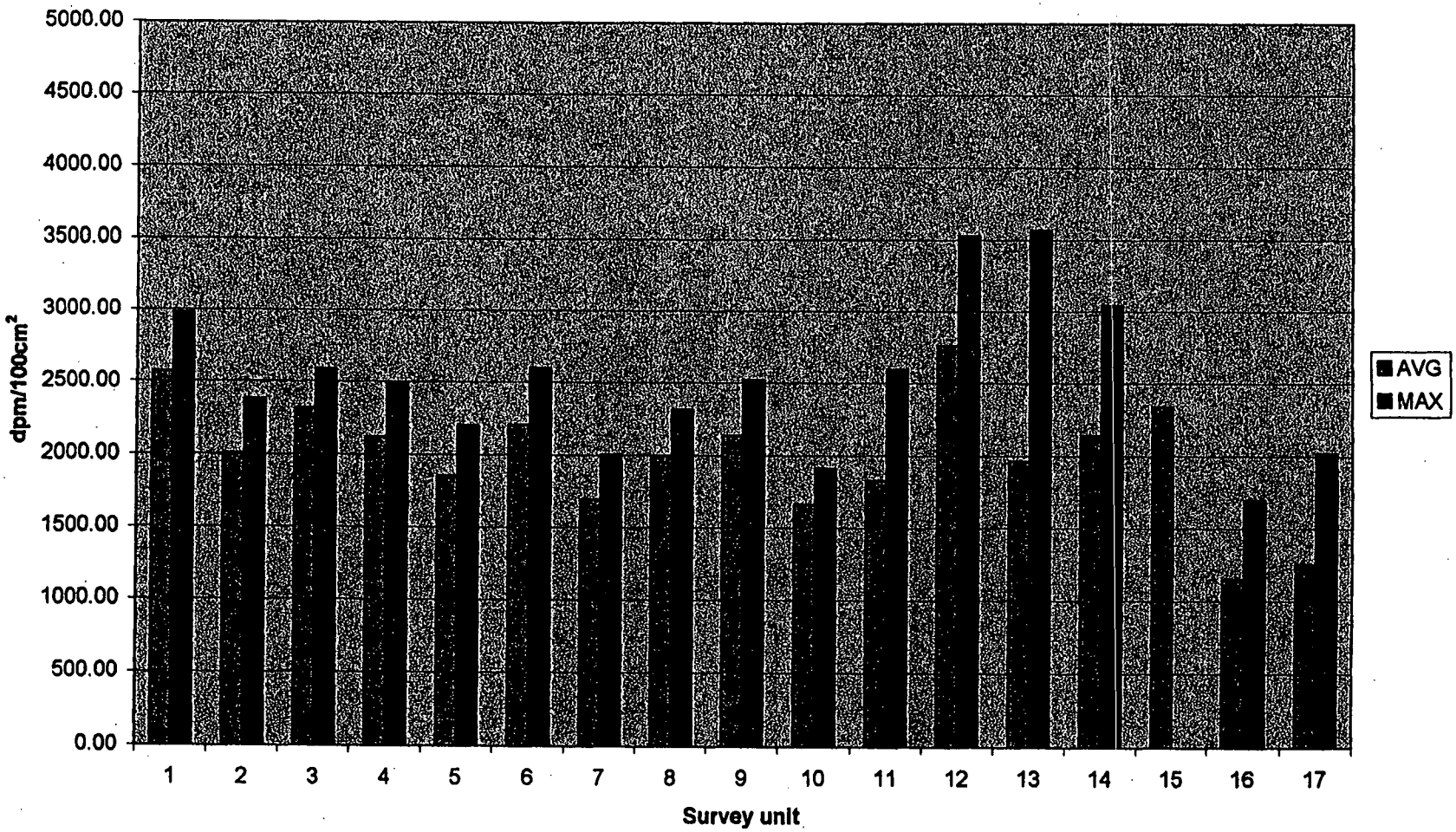
Retrospective Power Curve



Attachment 2
Building 45 Average & Maximum Total Alpha Activity



Attachment 2
Building 45 Average and Maximum Total Beta Activity



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Building 45 Survey Data Collection Sheet

		Smearable dpm/100cm^2			Fixed dpm/100cm^2		
Location	RSDS#	α	β	H^3	α	β	α Scan
SU1-01	04-TF-0313	1.92	0	0	34	2424	6
SU1-02	04-TF-0313	0	1.79	0	26	2530	14
SU1-03	04-TF-0313	0	4.14	3.57	15	2761	18
SU1-04	04-TF-0313	0	3.6	0	23	2722	11
SU1-05	04-TF-0313	0	0	0.81	26	2713	21
SU1-06	04-TF-0313	0	0	0	34	2953	6
SU1-07	04-TF-0313	1.51	1.15	0	26	2761	14
SU1-08	04-TF-0313	0	0	9.64	83	2588	9
SU1-09	04-TF-0313	4.12	0.13	0	30	1905	21
SU1-10	04-TF-0313	0	0	0	30	1664	39
SU1-11	04-TF-0313	0	0	0	30	1655	33
SU1-12	04-TF-0313	0	1.24	1.42	11	2915	
SU1-13	04-TF-0313	0	0	2.92	19	2597	
SU1-14	04-TF-0313	2.02	0	2.1	19	2982	
SU1-15	04-TF-0313	1.18	4.06	0	45	2809	
SU1-16	04-TF-0313	0	0.63	0	23	2530	
SU1-17	04-TF-0313	1.91	0.79	0	42	2646	
SU1-18	04-TF-0313	0	1.79	0	49	2636	
SU1-19	04-TF-0313	0	2.92	1.15	19	2848	
SU1-20	04-TF-0313	0	2.38	4.21	49	2732	
SU2-01	04-TF-0315	0	0.96	0	39	2154	
SU2-02	04-TF-0315	0	1.79	0	73	2123	
SU2-03	04-TF-0315	1.6	0	0	27	2092	
SU2-04	04-TF-0315	0	0	0	58	2072	
SU2-05	04-TF-0315	1.68	1.89	3.58	31	1907	
SU2-06	04-TF-0315	1.49	3.24	0	35	1876	
SU2-07	04-TF-0315	0	1.32	0	46	1814	
SU2-08	04-TF-0315	1.48	1.39	0	39	1763	
SU2-09	04-TF-0345	0	3.17	0	19	1770	
SU2-10	04-TF-0315	0.95	0	0	23	1927	
SU2-11	04-TF-0315	0	0	0	8	2031	
SU2-12	04-TF-0315	0	0	0	15	2278	
SU2-13	04-TF-0315	2.78	4.25	0	27	2381	
SU2-14	04-TF-0315	0	1.26	0	31	2216	
SU2-15	04-TF-0315	0	1.37	0	23	1773	
SU2-16	04-TF-0315	0	1.98	0	35	2092	
SU2-17	04-TF-0315	0	3.49	0	73	1845	
SU2-18	04-TF-0315	0	0.54	0	42	2195	
SU2-19	04-TF-0315	1.6	0.28	0	19	1701	
SU2-20	04-TF-0315	0	2.38	0	39	2020	
SU3-01	04-TF-0318	0	0	45.79	8	2443	9
SU3-02	04-TF-0318	0	1.79	180.44	19	2587	15
SU3-03	04-TF-0318	0	0	4.39	12	2298	
SU3-04	04-TF-0318	3.39	3.27	11.2	46	2031	
SU3-05	04-TF-0318	0	0	2.44	23	2494	
SU3-06	04-TF-0318	0	1.11	0	35	2278	

Building 45 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	α Scan
SU3-07	04-TF-0318	0	1.32	0	15	2525	
SU3-08	04-TF-0318	0	1.56	5.29	23	2350	
SU3-09	04-TF-0318	0	0.5	36.56	19	2340	
SU3-10	04-TF-0318	0	0	10.27	12	2268	
SU3-11	04-TF-0318	0	0	6.6	23	2278	
SU3-12	04-TF-0318	0	3.75	28.8	42	2072	
SU3-13	04-TF-0318	1.05	0	16.2	23	2206	
SU3-14	04-TF-0318	0	1.26	0.66	42	2525	
SU3-15	04-TF-0318	1.54	0	19.86	42	2154	
SU3-16	04-TF-0318	0	0	1.58	27	2350	
SU3-17	04-TF-0318	0	0	4.45	23	2278	
SU3-18	04-TF-0318	0	0.54	7.44	42	2195	
SU3-19	04-TF-0318	0	0.48	5.83	12	2257	
SU3-20	04-TF-0318	1.4	2.21	3.58	12	2412	
SU4-01	04-TF-0316	0	2.23	0	17	2079	16
SU4-02	04-TF-0316	0	0.54	10.22	28	2104	22
SU4-03	04-TF-0316	3.73	0.09	51.9	24	1934	
SU4-04	04-TF-0316	0	1.15	1.47	45	1619	
SU4-05	04-TF-0316	0	0	92.31	38	2130	
SU4-06	04-TF-0316	0	1.11	9.21	3	2207	
SU4-07	04-TF-0316	1.51	0	17.74	41	2403	
SU4-08	04-TF-0316	0	0.43	0	17	2403	
SU4-09	04-TF-0316	0	0	0	28	2198	
SU4-10	04-TF-0316	0.94	0.78	8.23	41	2139	
SU4-11	04-TF-0316	0	0	1.47	41	2198	
SU4-12	04-TF-0316	0	2.49	4.27	31	2479	
SU4-13	04-TF-0316	0.85	1.56	1.52	38	1874	
SU4-14	04-TF-0316	0	0	3.4	41	1951	
SU4-15	04-TF-0316	0	0	0	41	2147	
SU4-16	04-TF-0316	0	4.69	0	38	2078	
SU4-17	04-TF-0316	0	0.96	1.46	17	2275	
SU4-18	04-TF-0316	1.74	1.62	0	41	2079	
SU4-19	04-TF-0316	0	1.7	0	17	2156	
SU4-20	04-TF-0316	0	3.6	0.51	41	1934	
SU5 -01	04-TF-0316	0	0.97	3.7	10	1781	
SU5 -02	04-TF-0316	3.48	0	0	38	1960	
SU5 -03	04-TF-0316	0	0	7.12	21	1926	
SU5 -04	04-TF-0316	1.48	1.39	1.48	21	1798	
SU5 -05	04-TF-0316	0	4.5	15.62	17	2019	
SU5 -06	04-TF-0316	0	2.31	0.11	14	1934	
SU5 -07	04-TF-0316	0	0	0.51	14	1738	
SU5 -08	04-TF-0316	1.51	1.07	0	14	1874	
SU5 -09	04-TF-0316	0	0.3	3.35	17	1840	
SU5 -10	04-TF-0316	0	0.01	4.49	7	1943	
SU5 -11	04-TF-0316	1.27	2.66	7.6	21	1551	
SU5 -12	04-TF-0316	0	0.63	0	21	1704	
SU5 -13	04-TF-0316	0	0.96	6.64	14	1977	

Building 45 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	α Scan
SU5 -14	04-TF-0316	0	1.79	7.21	14	1713	
SU5 -15	04-TF-0316	0	2.92	0	17	1994	
SU5 -16	04-TF-0316	0	3.6	1.45	10	1610	
SU5 -17	04-TF-0316	0	3.2	4.61	17	1730	
SU5 -18	04-TF-0316	0	1.11	3.66	3	1840	
SU5 -19	04-TF-0316	0	0	6.23	17	1883	
SU5 -20	04-TF-0316	0	6.07	0.5	14	2198	
SU6 -01	04-TF-0318	0	2.09	6.23	12	2237	
SU6 -02	04-TF-0318	1.49	0	5.31	23	2412	
SU6 -03	04-TF-0318	0	2.55	2.53	35	1958	
SU6 -04	04-TF-0318	0	2.69	0	15	2432	
SU6 -05	04-TF-0318	0	0	0.62	0	2092	
SU6 -06	04-TF-0318	0	0	2.49	4	1907	
SU6 -07	04-TF-0318	0	8.03	3.48	8	2195	
SU6 -08	04-TF-0318	0	0	3.45	8	2072	
SU6 -09	04-TF-0318	2.68	5.67	0	39	1814	
SU6 -10	04-TF-0318	0	2.5	8.91	8	2216	
SU6 -11	04-TF-0318	0	1.37	0	15	2340	
SU6 -12	04-TF-0318	0	0	2.1	8	2515	
SU6 -13	04-TF-0318	0	0	21.6	12	2123	
SU6 -14	04-TF-0318	0	0.54	4.54	15	2278	
SU6 -15	04-TF-0318	0	1.7	5.29	23	1927	
SU6 -16	04-TF-0318	0	3.6	2.51	15	2154	
SU6 -17	04-TF-0318	0	0.97	0.26	12	2494	
SU6 -18	04-TF-0318	0	1.11	11.85	19	1938	
SU6 -19	04-TF-0318	0	2.55	7.08	15	2319	
SU6 -20	04-TF-0318	0	0	6.35	8	2597	
SU7 -01	04-TF-0312	0	0	0	10	1644	23
SU7 -02	04-TF-0312	1.74	1.62	10.17	17	1431	6
SU7 -03	04-TF-0312	0	0.48	0	10	1747	12
SU7 -04	04-TF-0312	0	0	0.28	3	1448	12
SU7 -05	04-TF-0312	0	0	0	17	1713	6
SU7 -06	04-TF-0312	1.49	0.9	7.07	10	1593	15
SU7 -07	04-TF-0312	0	0	0	3	1670	30
SU7 -08	04-TF-0312	0	0	0	3	1713	30
SU7 -09	04-TF-0312	0	5.85	0.92	7	1764	36
SU7 -10	04-TF-0312	0	3.64	0.72	7	1508	
SU7 -11	04-TF-0312	0	0	0	14	1627	
SU7 -12	04-TF-0312	0	0	0	10	1627	
SU7 -13	04-TF-0312	3.19	0	30.06	10	1874	
SU7 -14	04-TF-0312	4.14	3.18	4.94	17	1687	
SU7 -15	04-TF-0312	1.27	2.66	0	21	1772	
SU7 -16	04-TF-0312	0	0	1.37	14	1568	
SU7 -17	04-TF-0312	0	0.96	3.32	24	1815	
SU7 -18	04-TF-0312	0	3.04	41.95	21	1738	
SU7 -19	04-TF-0312	0	0	0	21	2002	
SU7 -20	04-TF-0312	1.4	0	0	3	1855	
SU8-01	04-TF-0280	0	0	1.84	8	1955	
SU8-02	04-TF-0280	0	3.04	15.19	15	1771	

Building 45 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	b	H^3	α	b	α Scan
SU8-03	04-TF-0280	1.59	2.72	0.08	15	1965	4
SU8-04	04-TF-0280	1.4	0	1.77	11	2313	4
SU8-05	04-TF-0280	0	3.2	3.64	11	2023	
SU8-06	04-TF-0280	0	0	2.13	15	2120	
SU8-07	04-TF-0280	0	0.1	4.56	11	1936	
SU8-08	04-TF-0280	0	0	5.45	8	1994	
SU8-09	04-TF-0280	0	0.5	0.84	4	2158	
SU8-10	04-TF-0280	0	2.31	1.4	15	1878	
SU8-11	04-TF-0280	0	0.22	0	8	2062	
SU8-12	04-TF-0280	0	1.24	0	11	1742	
SU8-13	04-TF-0280	3.09	0	0	4	1829	
SU8-14	04-TF-0280	0	0.01	0	4	1897	
SU8-15	04-TF-0280	0	2.78	1.12	11	2042	
SU8-16	04-TF-0280	0	0	2.68	8	2003	
SU8-17	04-TF-0280	0	0	0	0	2168	
SU8-18	04-TF-0280	0	3.04	0	4	2197	
SU8-19	04-TF-0280	0	0	2.68	4	1955	
SU8-20	04-TF-0280	0	2.38	0	4	1868	
SU9-01	04-TF-0297	0	0	0	11	2042	30
SU9-02	04-TF-0297	1.74	0.37	0	15	2158	
SU9-03	04-TF-0297	0	1.7	7.87	23	2023	
SU9-04	04-TF-0297	0	2.38	9.23	8	2081	
SU9-05	04-TF-0297	0	0	8.08	8	2371	
SU9-06	04-TF-0297	1.49	0	8.9	11	2081	
SU9-07	04-TF-0297	0	0	12.98	8	2023	
SU9-08	04-TF-0297	0	0.43	8.51	8	2129	
SU9-09	04-TF-0297	0	3.17	8.93	15	2216	
SU9-10	04-TF-0297	0	3.64	0	0	1268	
SU9-11	04-TF-0297	0	1.52	8.17	8	2091	
SU9-12	04-TF-0297	0	3.75	0	15	2294	
SU9-13	04-TF-0297	3.09	0	9.75	11	2284	
SU9-14	04-TF-0297	0	0	9.41	23	2449	
SU9-15	04-TF-0297	0	0	8.69	11	1936	
SU9-16	04-TF-0297	0.48	0	24.91	4	2226	
SU9-17	04-TF-0297	0	0.96	11.97	18	2516	
SU9-18	04-TF-0297	0	5.55	8.09	11	2226	
SU9-19	04-TF-0297	0	4.14	0	23	1955	
SU9-20	04-TF-0297	0	0	9.61	8	2265	
SU10-01	04-TF-0295	1.92	2.05	5.64	4	1723	
SU10-02	04-TF-0295	0	0.54	7.49	8	1665	
SU10-03	04-TF-0295	0	0	0	4	1907	
SU10-04	04-TF-0295	0	3.6	5.36	4	1520	
SU10-05	04-TF-0295	0	0	2.87	4	1878	
SU10-06	04-TF-0295	0	0	7.47	4	1607	
SU10-07	04-TF-0295	0	1.32	0	11	1578	
SU10-08	04-TF-0295	0	0	0	11	1791	
SU10-09	04-TF-0295	0	0.5	8.39	0	1694	
SU10-10	04-TF-0295	0	0	1.03	11	1558	
SU10-11	04-TF-0295	1.75	0	1.03	8	1520	
SU10-12	04-TF-0295	0	0	2.86	8	1732	
SU10-13	04-TF-0295	0	4.57	0	8	1742	

Building 45 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	α Scan
SU10-14	04-TF-0295	0	0	2.8	11	1413	
SU10-15	04-TF-0295	1.18	4.06	4.53	8	1491	
SU10-16	04-TF-0295	0.48	0	0	8	1607	
SU10-17	04-TF-0295	0	0	0.11	4	1781	
SU10-18	04-TF-0295	0	0.54	0	23	1607	
SU10-19	04-TF-0295	0	0.48	0	8	1674	
SU10-20	04-TF-0295	0	6.05	0.11	11	1752	
SU11-01	04-TF-0302	1.92	0	0	0	2584	8
SU11-02	04-TF-0302	0	1.79	0	11	2594	19
SU11-03	04-TF-0302	0	0.48	2.56	8	2304	15
SU11-04	04-TF-0302	0	0	1.62	8	1249	4
SU11-05	04-TF-0302	0	5.43	0	4	1510	26
SU11-06	04-TF-0302	1.49	0	0.48	8	1471	23
SU11-07	04-TF-0302	0	2.55	1.02	8	1645	11
SU11-08	04-TF-0302	0	0	0	8	1878	15
SU11-09	04-TF-0302	0	0	0	0	2071	11
SU11-10	04-TF-0302	0	0	2.86	4	2139	15
SU11-11	04-TF-0302	0	1.52	2.62	4	2033	15
SU11-12	04-TF-0302	0	8.79	1.48	4	1355	11
SU11-13	04-TF-0302	2.99	1.41	0	8	1326	11
SU11-14	04-TF-0302	2.02	2.22	3.51	4	1626	11
SU11-15	04-TF-0302	0	5.59	0	8	1762	
SU11-16	04-TF-0302	0	0	0	8	1423	
SU11-17	04-TF-0302	0	0	0	0	1307	
SU11-18	04-TF-0302	0	0	0	8	1916	
SU11-19	04-TF-0302	0	0.48	0.74	0	2352	
SU11-20	04-TF-0302	1.4	2.21	0	8	1878	
SU12 -01	04-TF-0294	0	8.53	7.05	23	3308	
SU12 -02	04-TF-0294	0	3.04	6.52	11	1644	
SU12 -03	04-TF-0294	0	0	4.71	30	1625	
SU12 -04	04-TF-0294	1.4	3.44	0	49	3127	
SU12 -05	04-TF-0294	0	0.97	0.18	23	1511	
SU12 -06	04-TF-0294	3.47	4.21	1.1	26	3070	
SU12 -07	04-TF-0294	0	0	2.01	42	3526	
SU12 -08	04-TF-0294	0	1.56	0	11	3108	
SU12 -09	04-TF-0294	0	1.84	9.77	38	2870	
SU12 -10	04-TF-0294	0	0	0	34	3004	
SU12 -11	04-TF-0294	1.75	0	3.86	57	3194	
SU12 -12	04-TF-0294	0	0	3.8	11	3222	
SU12 -13	04-TF-0294	2.78	4.25	1.64	15	2823	
SU12 -14	04-TF-0294	0	3.74	0	38	2756	
SU12 -15	04-TF-0294	0	1.37	4.68	23	2367	
SU12 -16	04-TF-0294	0	7.39	11.95	30	2994	
SU12 -17	04-TF-0294	0	0.96	3.83	34	1492	
SU12 -18	04-TF-0294	0	0.54	0	23	3175	
SU12 -19	04-TF-0294	0	0	13.94	15	3431	
SU12 -20	04-TF-0294	0	0	0	30	2899	
SU13 -01	04-TF-0322	1.92	0	8.63	7	1874	49
SU13 -02	04-TF-0322	0	4.3	2.97	10	3570	23
SU13 -03	04-TF-0322	0	0	1.29	21	3144	53

Building 45 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	α Scan
SU13 -04	04-TF-0322	0	0	4.74	3	1960	
SU13 -05	04-TF-0322	1.69	0	3.11	7	2079	
SU13 -06	04-TF-0322	0	0	7.37	14	1372	
SU13 -07	04-TF-0322	0	1.32	0	17	3025	
SU13 -08	04-TF-0322	0	0	7.99	7	1832	
SU13 -09	04-TF-0322	0	0	0	7	2036	
SU13 -10	04-TF-0322	0	0	0	17	1772	
SU13 -11	04-TF-0322	0	0	3.09	14	1883	
SU13 -12	04-TF-0322	0	1.24	0	14	1653	
SU13 -13	04-TF-0322	0	0	6.23	14	1926	
SU13 -14	04-TF-0322	0	0	0	3	1823	
SU13 -15	04-TF-0322	0	0	0	7	1696	
SU13 -16	04-TF-0322	2.77	0	0.92	14	1840	
SU13 -17	04-TF-0322	0	0.96	0.3	0	1525	
SU13 -18	04-TF-0322	0	1.79	2.96	10	1568	
SU13 -19	04-TF-0322	0	0	5.57	24	1465	
SU13 -20	04-TF-0322	1.4	3.44	3.83	17	1184	
SU14 -01	04-TF-0330	0	3.49	0	34	2861	26
SU14 -02	04-TF-0330	0	0	0	45	2927	38
SU14 -03	04-TF-0330	0	0.48	1.25	15	3004	49
SU14 -04	04-TF-0330	0	0	0	15	1711	53
SU14 -05	04-TF-0330	0	2.09	0	30	1673	38
SU14 -06	04-TF-0330	0	0	0	23	1625	76
SU14 -07	04-TF-0330	0	0	0	45	1521	57
SU14 -08	04-TF-0330	0	0.43	0	23	2329	42
SU14 -09	04-TF-0330	0	0	0	23	1635	15
SU14 -10	04-TF-0330	0	0	0	8	2528	15
SU14 -11	04-TF-0330	0	0	0	19	1378	
SU14 -12	04-TF-0330	1.51	0	0	19	1682	
SU14 -13	04-TF-0330	2.89	2.83	1.24	30	2680	
SU14 -14	04-TF-0330	0	0	1.25	11	2785	
SU14 -15	04-TF-0330	0	1.37	0	15	1939	
SU14 -16	04-TF-0330	0	0.63	0	38	2585	
SU14 -17	04-TF-0330	0	0.96	3.94	19	1454	
SU14 -18	04-TF-0330	0	3.04	0	11	1540	
SU14 -19	04-TF-0330	1.6	0	0	19	1834	
SU14 -20	04-TF-0330	0	3.6	0	23	3042	
SU15-01	04-TF-0331	0	0.96	0	10	1874	26
SU15-02	04-TF-0331	0	3.04	0	10	3118	34
SU15-03	04-TF-0331	0	1.7	11.34	28	2991	23
SU15-04	04-TF-0331	0	3.6	2.9	21	2769	
SU15-05	04-TF-0331	0	4.32	5.7	3	1542	
SU15-06	04-TF-0331	0	2.28	5.8	10	1636	
SU15-07	04-TF-0331	0	0	2.03	10	2991	
SU15-08	04-TF-0331	0	0	10.13	21	2846	
SU15-09	04-TF-0331	0	0	4.74	17	2735	
SU15-10	04-TF-0331	0	3.64	0	7	1500	
SU15-11	04-TF-0331	1.75	0	4.72	35	3076	
SU15-12	04-TF-0331	0	0	3.77	28	2599	

Building 45 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	b	H^3	α	β	α Scan
SU15-13	04-TF-0331	1.15	0	8.64	21	1568	
SU15-14	04-TF-0331	0	0	7.03	10	1704	
SU15-15	04-TF-0331	0	0	12.31	17	2709	
SU15-16	04-TF-0331	0	0	0	21	1806	
SU15-17	04-TF-0331	0	2.09	2.99	10	1576	
SU15-18	04-TF-0331	0	0	0	10	1806	
SU15-19	04-TF-0331	0	3.77	0	21	3118	
SU15-20	04-TF-0331	1.47	4.78	0	14	2837	
SU16-01	04-TF-0303	1.92	0	0	44	1128	
SU16-02	04-TF-0303	0	3.04	0.19	48	1248	
SU16-03	04-TF-0303	0	5.36	0	72	1014	
SU16-04	04-TF-0303	0	1.15	0	36	1262	
SU16-05	04-TF-0303	1.68	4.12	0	36	1262	
SU16-06	04-TF-0303	0	1.11	0	44	1680	
SU16-07	04-TF-0303	0	0	2.93	16	1680	
SU16-08	04-TF-0303	0	1.56	0.18	44	1698	
SU16-09	04-TF-0303	0	0	1.1	24	1646	
SU16-10	04-TF-0303	0	3.64	0	68	1290	
SU16-11	04-TF-0303	0	0	3.92	40	1282	
SU16-12	04-TF-0303	0	0	1.09	32	1048	
SU16-13	04-TF-0303	0	0	3.83	32	788	
SU16-14	04-TF-0303	2.02	0	7.49	24	802	
SU16-15	04-TF-0303	1.54	0	0	52	762	
SU16-16	04-TF-0303	0	0	0	68	930	
SU16-17	04-TF-0303	0	2.23	0	68	1122	
SU16-18	04-TF-0303	0	3.04	0	28	724	
SU16-19	04-TF-0303	0	0.48	0	60	784	
SU16-20	04-TF-0303	0	0	2.93	32	772	
SU17-01	04-TF-0305	1.92	0	116.37	72	1580	17
SU17-02	04-TF-0305	0	1.79	1.95	32	1058	10
SU17-03	04-TF-0305	0	1.7	0	36	1100	
SU17-04	04-TF-0305	1.4	0	0	60	1202	
SU17-05	04-TF-0305	0	0	0	56	1014	
SU17-06	04-TF-0305	1.49	0.9	3.83	128	1380	
SU17-07	04-TF-0305	0	0	3.77	76	1412	
SU17-08	04-TF-0305	0	0	0	28	962	
SU17-09	04-TF-0305	0	3.17	0	24	1092	
SU17-10	04-TF-0305	0	0	0	36	1420	
SU17-11	04-TF-0305	0	0	0	16	1078	
SU17-12	04-TF-0305	0	0	0	256	1512	
SU17-13	04-TF-0305	1.26	0	0	96	1226	
SU17-14	04-TF-0305	0	1.26	4.33	96	1080	
SU17-15	04-TF-0305	0	0	10.57	80	1118	
SU17-16	04-TF-0305	0	0	0	60	1266	
SU17-17	04-TF-0305	0	0	0	76	1332	
SU17-18	04-TF-0305	0	0	0	64	1522	
SU17-19	04-TF-0305	0	0	0	96	2020	
SU17-20	04-TF-0305	0	1.15	0	88	728	

ALL SURVEY UNITS EXCLUDING ROOF

	α	β	H^3	α	β
Average	0.395118	1.267294	4.551559	23.74375	1997.241
Standard Dev	0.846461	1.679013	13.86741	23.41522	544.5831
Max	4.14	8.79	180.44	83	3570
#	340	340	340	340	340
+/-'	0.089975	0.178472	1.474049	2.488943	57.88697

Building 45 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	Survey Unit 1				
	α	β	H^3	α	β
Number	20	20	20	20	20
Avg	0.633	1.231	1.291	31.65	2568.55
SD	1.1250268	1.464905	2.3730547	16.17755	387.201
Max	4.12	4.14	9.64	83	2982
+/-	0.4930647	0.642023	1.0400371	7.090124	169.6983
	Survey Unit 2				
Number	20	20	20	20	20
Avg	0.579	1.4655	0.179	35.1	2001.5
SD	0.8669056	1.310422	0.8005123	17.35663	192.9512
Max	2.78	4.25	3.58	73	2381
+/-	0.3799381	0.574318	0.35084	7.606879	84.56458
	Survey Unit 3				
Number	20	20	20	20	20
Avg	0.369	0.8895	19.569	25	2317.05
SD	0.8645954	1.142184	39.915642	12.26463	149.5405
Max	3.39	3.75	180.44	46	2587
+/-	0.3789257	0.500584	17.493802	5.375209	65.53902
	Survey Unit 4				
Number	20	20	20	20	20
Avg	0.4385	1.1475	10.1855	31.4	2119.35
SD	0.9453781	1.304066	22.653439	11.86503	198.6733
Max	3.73	4.69	92.31	45	2479
+/-	0.4143302	0.571532	9.9283074	5.200079	87.07241
	Survey Unit 5				
Number	20	20	20	20	20
Avg	0.387	1.6745	3.714	16.05	1850.65
SD	0.8943807	1.701651	3.9469167	7.014834	152.7748
Max	3.48	6.07	15.62	38	2198
+/-	0.3919796	0.745781	1.7298125	3.074387	66.9565
	Survey Unit 6				
Number	20	20	20	20	20
Avg	0.2085	1.7685	4.73	14.7	2201
SD	0.6701553	2.116709	5.0925239	9.559234	224.3339
Max	2.68	8.03	21.6	39	2597
+/-	0.2937085	0.927688	2.231897	4.189519	98.31865
	Survey Unit 7				
Number	20	20	20	20	20
Avg	0.6615	1.1165	5.04	12.1	1689.8
SD	1.2005406	1.67892	11.115504	6.742637	142.6046
Max	4.14	5.85	41.95	24	2002
+/-	0.5261601	0.735819	4.8715843	2.955091	62.49921

Building 45 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
		Survey Unit 8			
	α	β	H^3	α	β
Number	20	20	20	20	20
Avg	0.304	1.077	2.169	8.55	1993.8
SD	0.8009166	1.3278	3.4772734	4.559259	146.9538
Max	3.09	3.2	15.19	15	2313
+/-	0.3510172	0.581934	1.5239823	1.998183	64.40536
		Survey Unit 9			
Number	20	20	20	20	20
Avg	0.34	1.3805	7.755	11.95	2131.7
SD	0.8180272	1.766586	5.8800998	6.219452	256.751
Max	3.09	5.55	24.91	23	2516
+/-	0.3585162	0.77424	2.5770674	2.725795	112.5261
		Survey Unit 10			
Number	20	20	20	20	20
Avg	0.2665	1.1855	2.4845	7.9	1662
SD	0.6048599	1.861399	2.9584926	4.756159	129.8376
Max	1.92	6.05	8.39	23	1907
+/-	0.2650915	0.815794	1.2966166	2.084479	56.90382
		Survey Unit 11			
Number	20	20	20	20	20
Avg	0.491	1.6235	0.8445	5.55	1821.15
SD	0.9195359	2.40132	1.1762406	3.440854	424.4319
Max	2.99	8.79	3.51	11	2594
+/-	0.4030044	1.052425	0.5155102	1.508021	186.0155
		Survey Unit 12			
Number	20	20	20	20	20
Avg	0.47	2.092	3.752	28.15	2757.3
SD	1.0355217	2.518806	4.2259158	12.71251	659.694
Max	3.47	8.53	13.94	57	3526
+/-	0.4538374	1.103916	1.8520893	5.571503	289.1236
		Survey Unit 13			
Number	20	20	20	20	20
Avg	0.389	0.6525	2.95	11.35	1961.35
SD	0.8318964	1.239995	2.9465537	6.285112	604.6852
Max	2.77	4.3	8.63	24	3570
+/-	0.3645947	0.543452	1.2913841	2.754572	265.015

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Building 45 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
		Survey Unit 14			
Number	20	20	20	20	20
Avg	0.3	0.946	0.384	23.25	2136.65
SD	0.7743316	1.307289	0.9524782	10.71091	600.5078
Max	2.89	3.6	3.94	45	3042
+/-	0.3393658	0.572945	0.417442	4.694265	263.1841
		Survey Unit 15			
Number	20	20	20	20	20
Avg	0.2185	1.509	4.105	16.52632	2340.05
SD	0.542463	1.762346	4.080496	8.302399	643.0144
Max	1.75	4.78	12.31	35	3118
+/-	0.2377449	0.772382	1.7883562	3.638687	281.8135
		Survey Unit 16			
Number	20	20	20	20	20
Avg	0.358	1.2865	1.183	43.4	1146.1
SD	0.7397553	1.694055	2.0233118	16.63351	333.9641
Max	2.02	5.36	7.49	72	1698
+/-	0.3242121	0.742453	0.8867555	7.289958	146.3662
		Survey Unit 17			
Number	20	20	20	20	20
Avg	0.3035	0.4985	7.041	73.8	1255.1
SD	0.6329486	0.88535	25.867701	51.90234	280.7107
Max	1.92	3.17	116.37	256	2020
+/-	0.277402	0.388022	11.33702	22.7472	123.0269

Building 45 Survey and Sample Data
Enclosure 1

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg (cpm)	β Bkg (cpm)
1	L2350	5857	9/15/2005	0313	1	192
2	L2350	5855	6/9/2005	0315	1.4	193
3	L2350	5855	6/9/2005	0318	1	172
4	L2350	5857	9/15/2005	0316	0.8	193
5	L2350	5857	9/15/2005	0316	0.8	193
6	L2350	5855	6/9/2005	0318	1	172
7	L2350	5857	9/15/2005	0312	1.6	133
8	L2350	5673	7/29/2005	0280	0.6	137
9	L2350	5673	7/29/2005	0297	1.2	119
10	L2350	5673	7/29/2005	0295	0.8	158
11	L2350	5673	7/29/2005	0302	0.4	196
12	L2350	5854	7/20/2005	0294	2	166
13	L2350	5857	9/15/2005	0322	1.4	181
14	L2350	5854	7/20/2005	0330	1.2	151
15	L2350	5857	9/15/2005	0331	1.2	192
16	L2360	5708	8/17/2005	0303	2	221
17	L2360	5752	10/23/2004	0305	2.2	193
7J	L2350	5857	9/15/2005	0325	1	165
QC	L2350	5857	9/15/2005	0334	1.4	194

Replicate Fixed Point QC

			alpha (dpm/100cm2)			beta (dpm/100cm2)		
	Location #	RSDS#	initial	2σ	replicate	initial	2σ	replicate
1	SU1-08	0334	83	18.22	21	2588	101.74	2181
2	SU2-09	0334	19	8.72	35	1770	84.14	1406
3	SU3-04	0334	46	13.56	28	2031	90.13	1721
4	SU4-04	0334	45	13.42	17	1619	80.47	1730
5	SU5-02	0334	38	12.33	21	1960	88.54	2156
6	SU6-09	0334	39	12.49	28	1814	85.18	1738
7	SU7-02	0334	17	8.25	62	1431	75.66	1627
8	SU7J-17	0334	28	10.58	3	1696	82.37	1678
9	SU8-06	0334	15	7.75	7	1965	88.66	1849
10	SU9-14	0334	23	9.59	21	2449	98.97	2070
11	SU10-18	0334	23	9.59	17	1607	80.17	1900
12	SU11-02	0334	11	6.63	14	2594	101.86	2342
13	SU12-11	0334	57	15.10	10	3194	113.03	2880
14	SU13-19	0334	24	9.80	35	1465	76.55	1619
15	SU14-02	0334	45	13.42	35	2927	108.20	3340
16	SU15-11	0334	35	11.83	31	3076	110.92	2871
	Variance (S2) =		342.6		202.5958	342503.6		294924.6
	Ratio				1.691052			1.161326
	Agreement				YES			YES

		Smearable dpm/100cm^2		Fixed dpm/100cm^2			
Location	RSDS#	α	β	H^3	α	β	a Scan
SU7J-01	04-TF-0325	0	3.2	0.09	10	1491	
SU7J-02	04-TF-0325	0	0	0	10	1201	
SU7J-03	04-TF-0325	0	0	2.96	14	1457	
SU7J-04	04-TF-0325	0	0	2.04	10	1321	
SU7J-05	04-TF-0325	1.83	0.32	1.16	14	1193	
SU7J-06	04-TF-0325	0	0	0	14	1414	
SU7J-07	04-TF-0325	1.75	1.35	0	10	1500	
SU7J-08	04-TF-0325	0	2.49	0	3	1542	
SU7J-09	04-TF-0325	0.74	2.99	0	17	1457	
SU7J-10	04-TF-0325	0	11.19	0	14	1218	
SU7J-11	04-TF-0325	0	0	0	3	1431	
SU7J-12	04-TF-0325	0	0.63	0.27	14	1372	
SU7J-13	04-TF-0325	0	0	2.74	10	1312	
SU7J-14	04-TF-0325	0	0	0	0	1559	
SU7J-15	04-TF-0325	0	3.77	0	21	1218	
SU7J-16	04-TF-0325	0	6.07	0	14	1457	
SU7J-17	04-TF-0325	0	3.17	0	28	1696	
SU7J-18	04-TF-0325	0	0	0.15	3	2241	
SU7J-19	04-TF-0325	0	0	0	10	1252	
SU7J-20	04-TF-0325	3.53	4.69	0	10	1414	

SURVEY PLAN FORM

SPF NUMBER	45-01	DATE OF REQUEST	July 28, 2004
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 45		
PURPOSE	The purpose of this SPF is to characterize Building 45 to support decisions on final disposition.		
SURVEY UNIT	(See Attachment 1)	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A

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 43-68 Hand Probe		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L-2350	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 2 minute alpha counts and 1 minute beta counts at specified locations not more than ¼" from surface
		PROBE TYPE	43-68 Hand Probe		
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
DOSE RATE MEASURE-MENT	☐ BETA ☒ GAMMA ☐ ALPHA	INST. TYPE	Bicron Micro Rem	DETECTOR DISTANCE FROM SURFACE	General area dose rates at 3' from floor
		PROBE TYPE	Internal		

OTHER SURVEY TYPES OR COMMENTS	All surveys shall be performed and documented in accordance with Mound Radiological Control procedures. Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Radiological Survey Data Sheet (RSDS). Perform sediment sampling and surface scan surveys prior to performing static measurements. Ensure the surfaces of interest in the survey unit are dry and free of loose debris or other material that may obscure alpha measurement.

SPF NUMBER	45-01	DATE OF REQUEST	July 28, 2004

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.

Sediment Samples

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

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

1. Set the Ludlum 2350-1 datalogger to alarm at 75dpm/100cm^2 in the ratemeter mode.
2. Scan at least 50% of the surface in Class 2 Survey Units using a serpentine method with rows spaced one probe width apart.
3. Scan at least 10% of the surface in Class 3 Survey Units using the professional judgment of the surveyor.
4. 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.
5. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

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

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

Data Point Location

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

Continued Next Page

Specific Survey and Sampling Instructions (continued)

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

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

Loose Surface Contamination

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

Dose Rate Measurement with Bicron Micro REM meter

1. Obtain general area dose rates at various locations in normally occupied areas of each interior survey unit.
2. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

Quality Control

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

APPROVAL SIGNATURES			
MARSSIM Engineer	Roderick C. Case	DATE	July 28, 2004
Technical Reviewer	Robert Coblentz	DATE	7-29-04
Rad Con Manager	A. Stephen Collas	DATE	7-29-04
SP CLOSE-OUT SIGNATURES			
MARSSIM Engineer		DATE	2-11-05
Technical Reviewer		DATE	2/11/05
Rad Con Manager		DATE	2/11/05
COMMENTS			

Building 45 Survey Units

Survey Unit	Room	Class	Area (Sq.Ft.)	Scan %	Floor	Walls	Ceilings
1	001	2	955	50	X		
2	121	2	955	50	X		
3	117	2	432	50	X		
4	106, 107, 108	2	884	50	X		
5	109, 110, 110A	2	513	50	X		
6	103, 105, 104	3	756	10	X		
7	007, 002, 003, 005, 006, 008-013	3	2,542	10	X	X	X
8	001 Walls	3	992	10		X	
9	121 Walls	3	992	10		X	
10	117 Walls	3	672	10		X	
11	106-108 Walls	3	884	10		X	
12	109-110A Walls	3	513	10		X	
13	111-114, 116, 123, Corridor 102	3	596	10	X	X	X
14	1st Floor Ceilings	3	5,116	10			X
15	Basement Ceilings	3	4,192	10			X
16	Exterior Walls	3	8,740	10		X	
17	Roof	3	5,423	10		X	

Sample Data Collection Sheet
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
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									
45-01-									

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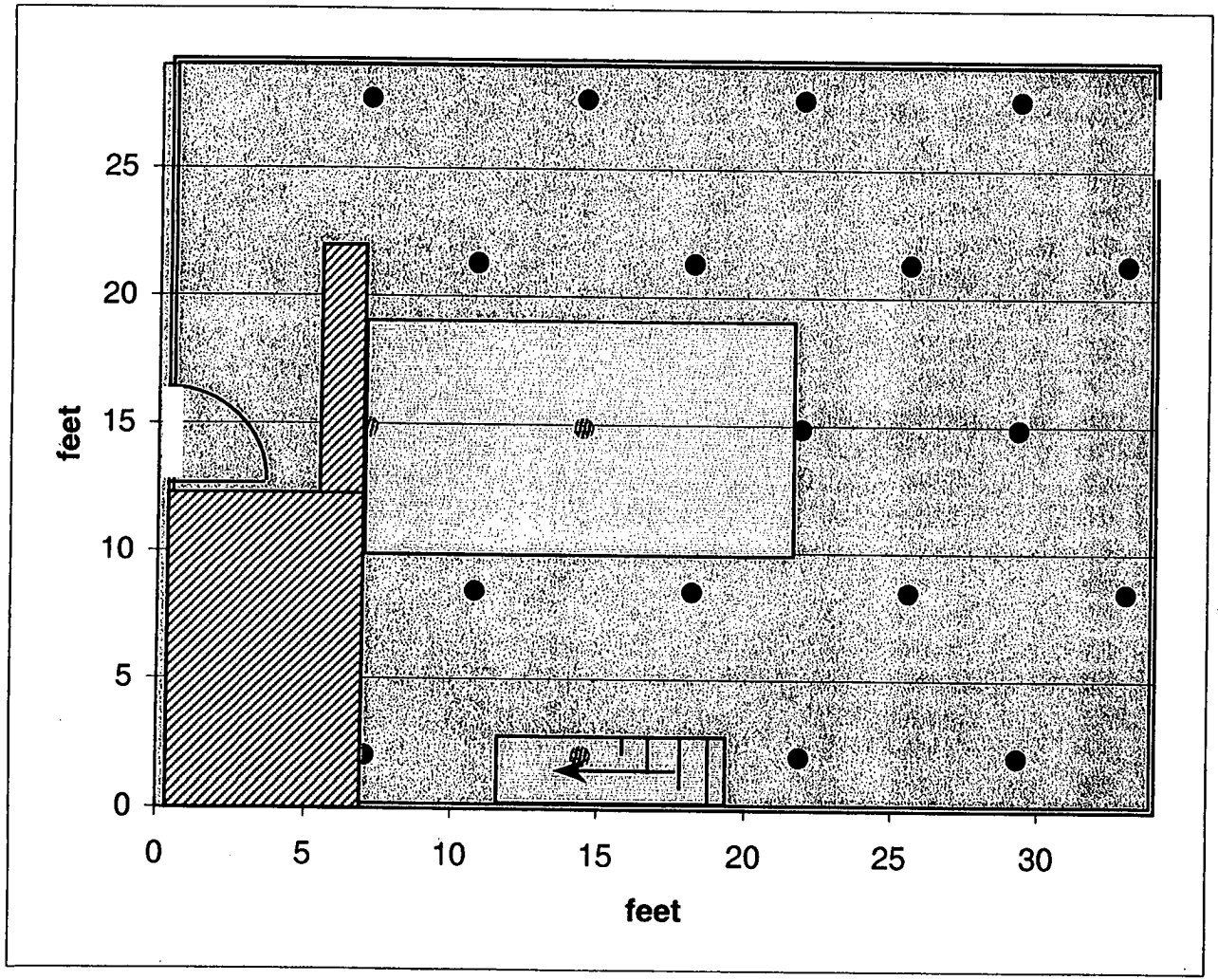
SPF 45-01
Attachment 3



	Room 001		Area =	955sqft
	SU 1		L =	7
	Coordinates		L' =	6
	X'	Y'		
	33.5	28.5		
1	7.0	2.0		
2	14.4	2.0		
3	21.8	2.0		
4	29.3	2.0		
5	10.7	8.4		
6	18.1	8.4		
7	25.6	8.4		
8	33.0	8.4		
9	7.0	14.9		
10	14.4	14.9		
11	21.8	14.9		
12	29.3	14.9		
13	10.7	21.3		
14	18.1	21.3		
15	25.6	21.3		
16	33.0	21.3		
17	7.0	27.7		
18	14.4	27.7		
19	21.8	27.7		
20	29.3	27.7		

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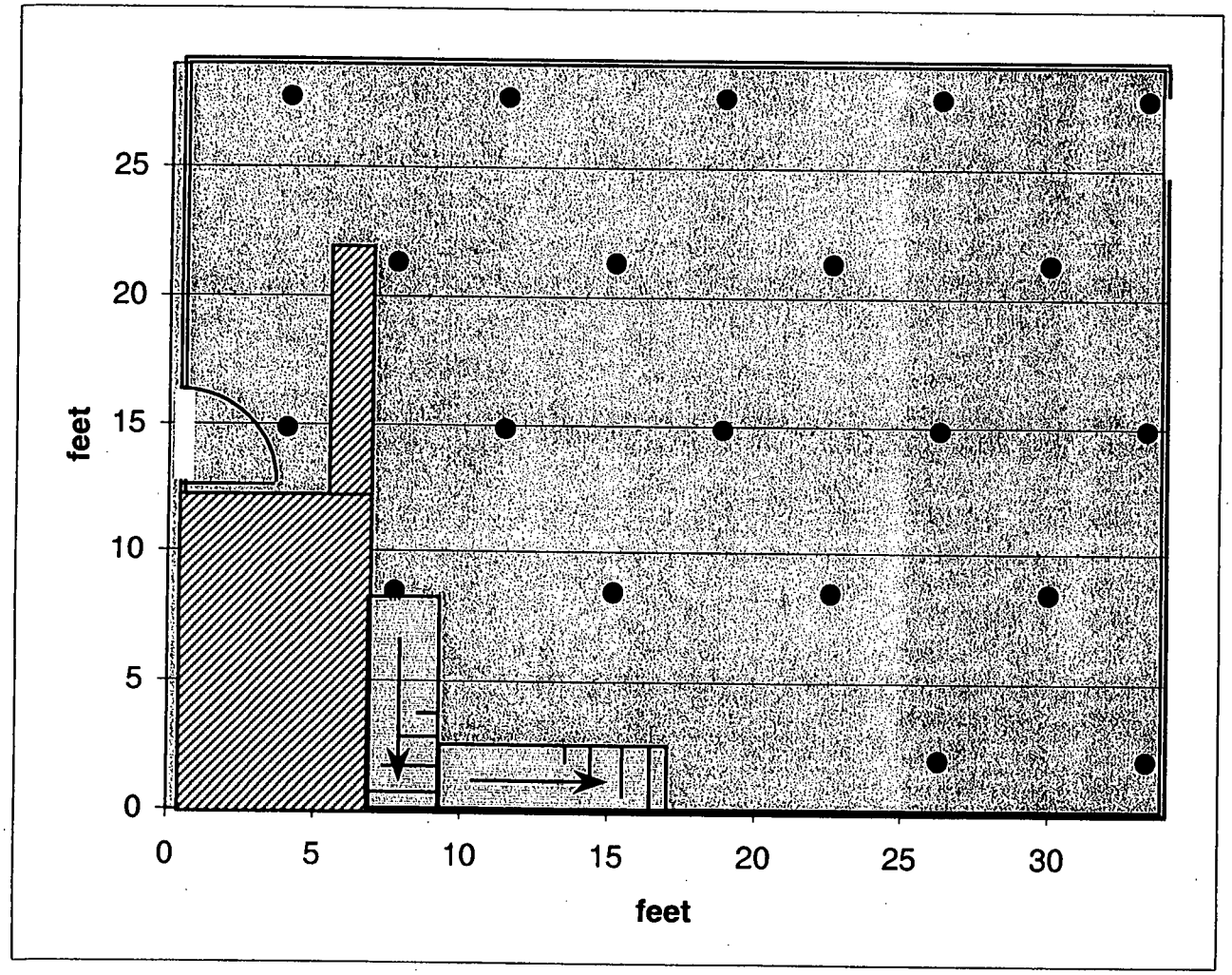

	Room 121	
	SU 2	
	Coordinates	
	X'	Y'
	33.5	28.5
1	33.3	2.0
2	33.3	27.7
3	33.3	14.9
4	26.3	2.0
5	7.7	8.4
6	15.1	8.4
7	22.6	8.4
8	30.0	8.4
9	4.0	14.9
10	11.4	14.9
11	18.8	14.9
12	26.3	14.9
13	7.7	21.3
14	15.1	21.3
15	22.6	21.3
16	30.0	21.3
17	4.0	27.7
18	11.4	27.7
19	18.8	27.7
20	26.3	27.7

Area =	955sqft
L =	7
L' =	6

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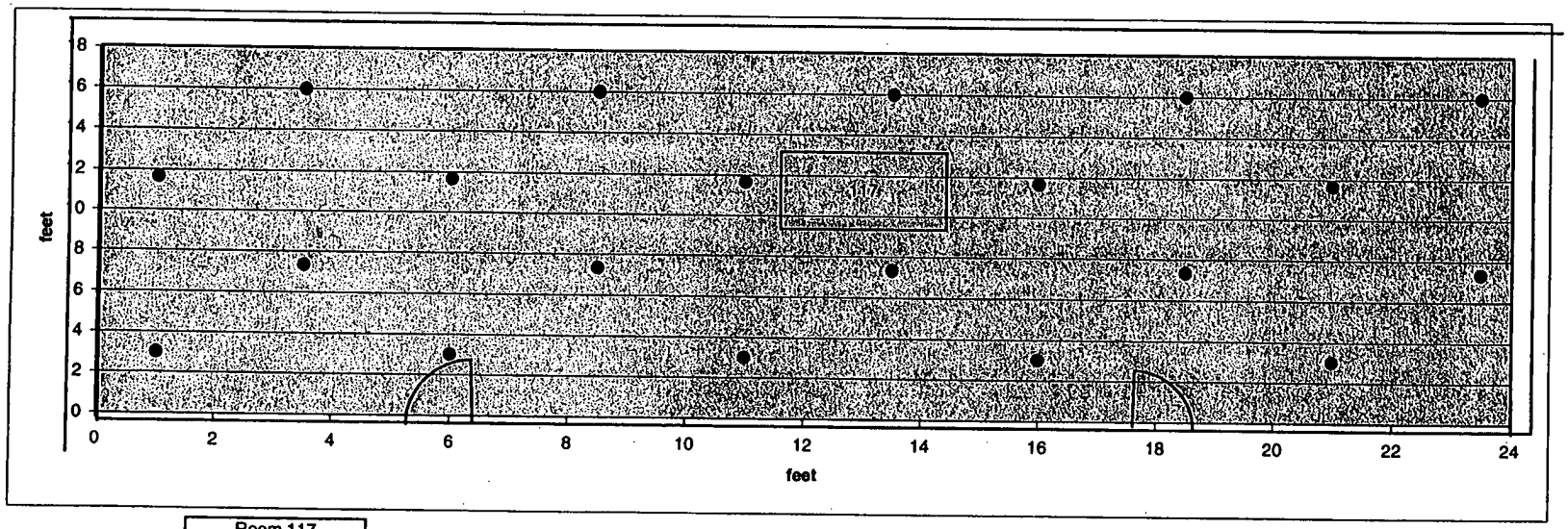

	Room 117	
	SU 3	
	Coordinates	
	18	24
1	1.0	3.0
2	6.0	3.0
3	11.0	3.0
4	16.0	3.0
5	21.0	3.0
6	3.5	7.3
7	8.5	7.3
8	13.5	7.3
9	18.5	7.3
10	23.5	7.3
11	1.0	11.6
12	6.0	11.6
13	11.0	11.6
14	16.0	11.6
15	21.0	11.6
16	3.5	16.0
17	8.5	16.0
18	13.5	16.0
19	18.5	16.0
20	23.5	16.0

Area =	432sqft
L =	5
L' =	4

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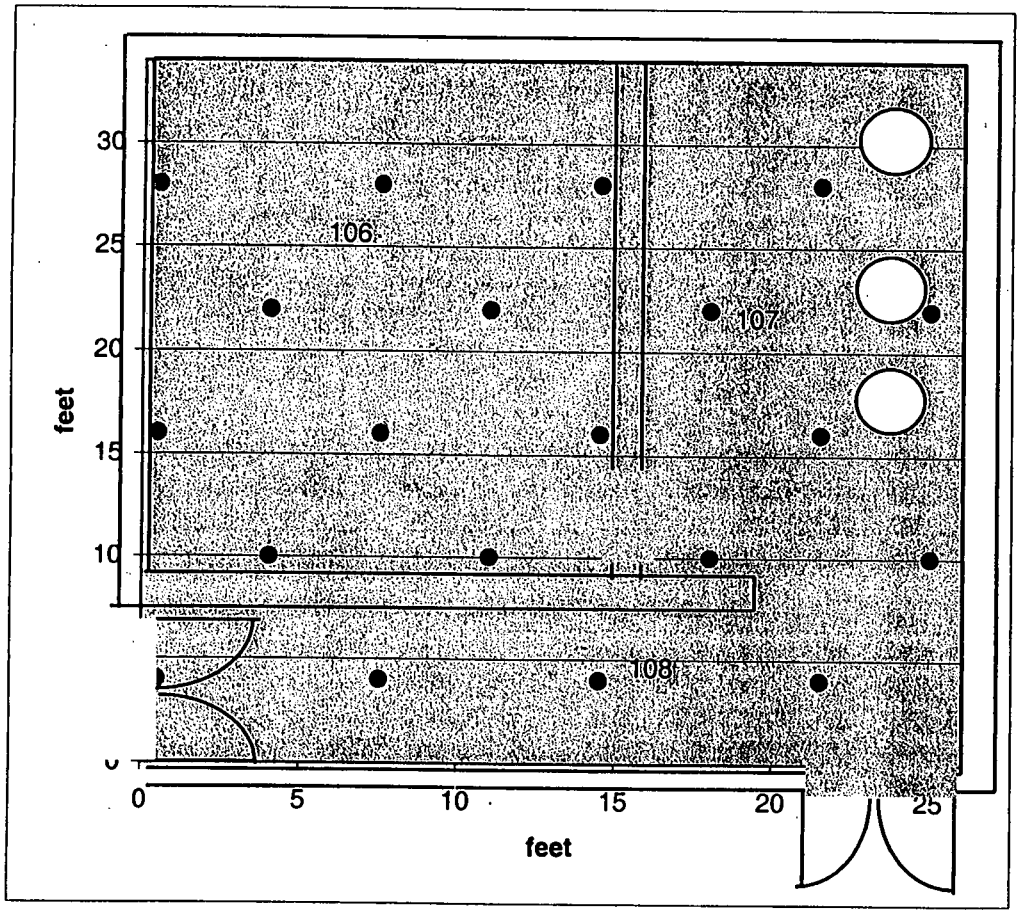

	Room 106,107,108				
	SU 4 Coordinates				
	X'	Y'	Area	L	L'
	26	34	884sqft	7.ft	6.ft
1	0.5	4			
2	7.5	4	Start	X	Y
3	14.5	4	Rand X:Y	1.0	2.0
4	21.5	4			
5	4.0	10			
6	11.0	10			
7	18.0	10			
8	25.0	10			
9	0.5	16			
10	7.5	16			
11	14.5	16			
12	21.5	16			
13	4.0	22			
14	11.0	22			
15	18.0	22			
16	25.0	22			
17	0.5	28			
18	7.5	28			
19	14.5	28			
20	21.5	28			

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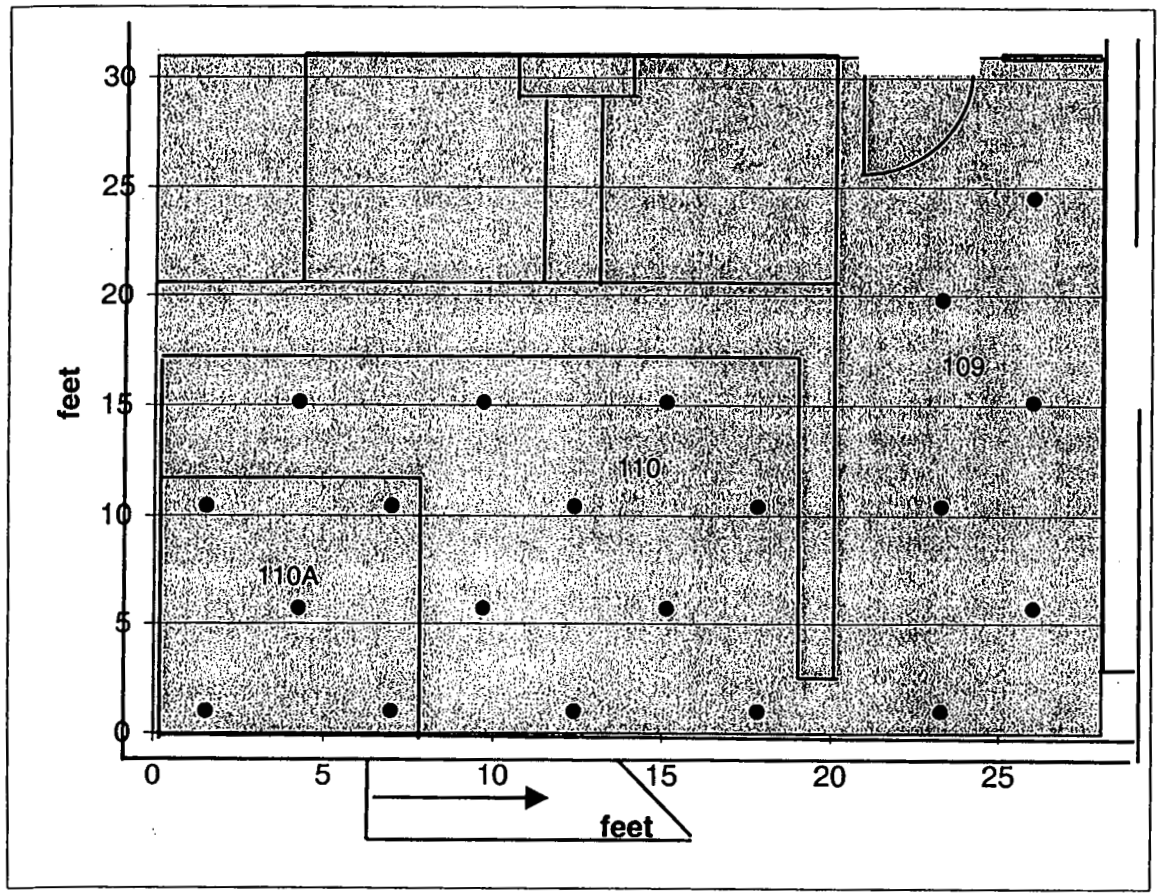

	Room 109,110,110A				
	SU 5 Coordinates				
	X	Y	Area	L	L'
	28.5	18	513sqft	5.4ft	4.7ft
1	1.5	1			
2	6.9	1	Start	X	Y
3	12.4	1	Rand X:Y	0.5	2.0
4	17.8	1			
5	23.3	1			
6	4.2	5.7			
7	9.7	5.7			
8	15.1	5.7			
9	26.0	24.5			
10	26.0	5.7			
11	1.5	10.4			
12	6.9	10.4			
13	12.4	10.4			
14	17.8	10.4			
15	23.3	10.4			
16	4.2	15.1			
17	9.7	15.1			
18	15.1	15.1			
19	23.3	19.8			
20	26.0	15.1			

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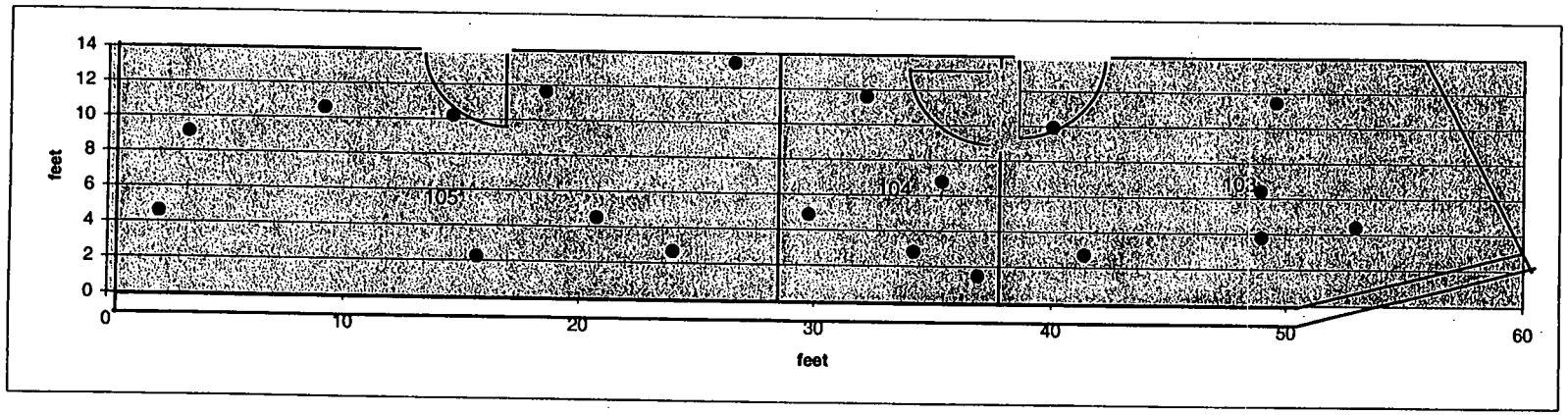

	Room 103, 104,105	
	SU 6 Coordinates	
	X	Y
	54	14
1	9	11
2	27	13
3	34	3
4	16	2
5	49	6
6	35	7
7	37	1
8	19	12
9	32	12
10	21	5
11	3	9
12	49	4
13	2	5
14	50	11
15	30	5
16	53	4
17	24	3
18	40	10
19	41	3
20	15	10

Area
756sqft

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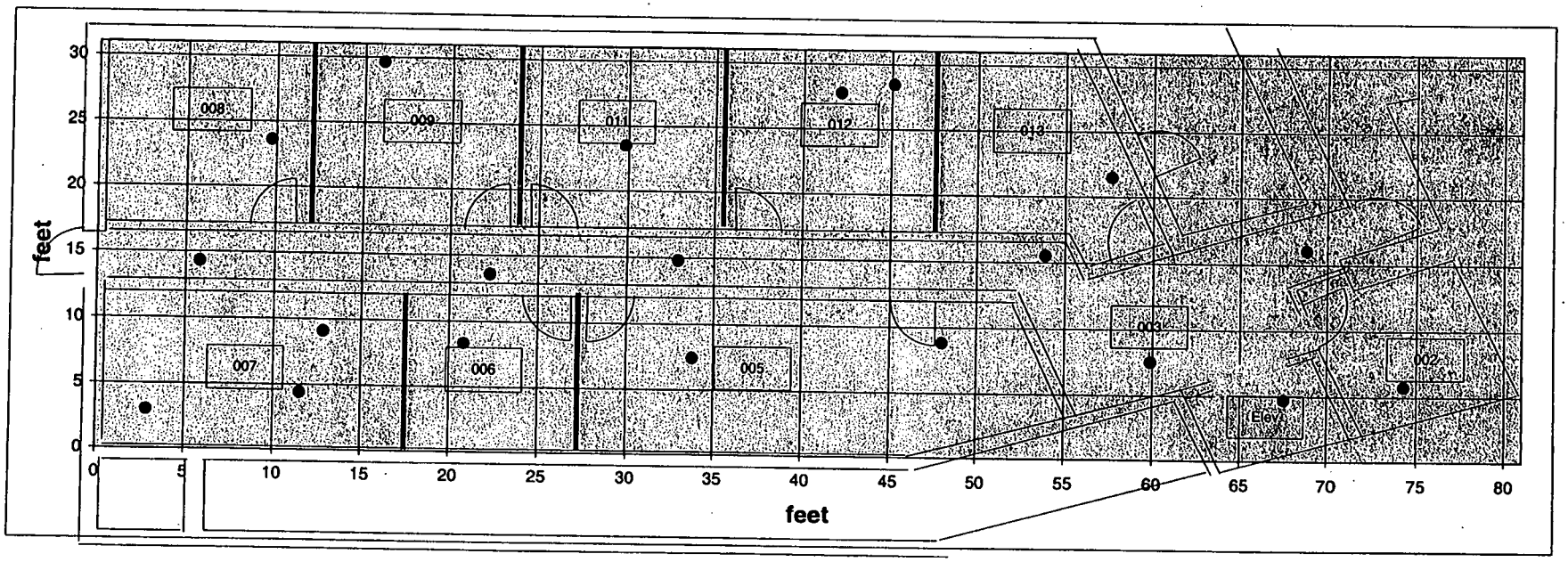
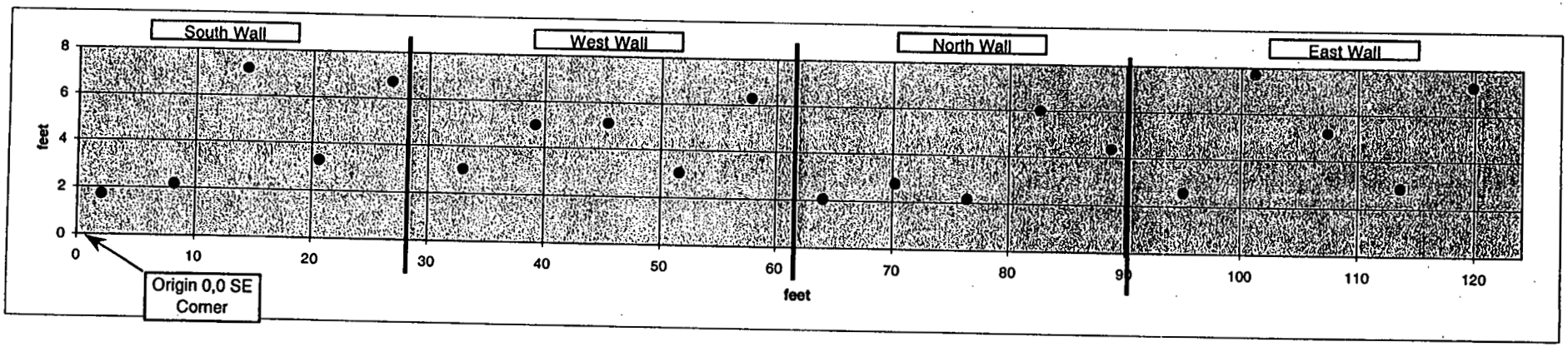
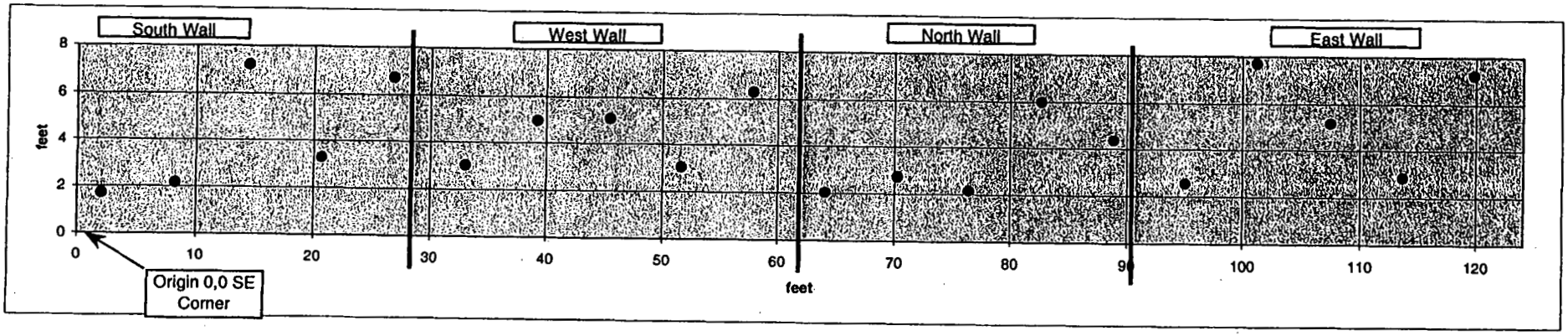


	Basement Level		
	SU 7 Coordinates		
	X	Y	Area
	82	31	2542sqft
1	58	21	
2	68	5	
3	60	8	
4	33	15	
5	48	9	
6	21	8	
7	30	24	
8	6	14	
9	42	28	
10	69	16	
11	3	3	
12	13	9	
13	10	24	
14	16	30	
15	54	16	
16	34	7	
17	12	4	
18	45	28	
19	74	6	
20	22	14	



Room 001 33.5 X 28.5
L = 124ft
W = 8ft
Area = 992sqft

	Room 001 Walls SU 8 Coordinates	
	X	Y
1	2	2
2	8	2
3	14	7
4	21	3
5	27	7
6	33	3
7	39	5
8	45	5
9	52	3
10	58	6
11	64	2
12	70	3
13	76	2
14	83	6
15	89	4
16	95	3
17	101	8
18	107	5
19	114	3
20	120	7



Room 121 33.5 X 28.5
L = 124ft
W = 8ft
Area = 992sqft

	Room 121 Walls SU 9 Coordinates	
	X	Y
1	2	2
2	8	2
3	14	7
4	21	3
5	27	7
6	33	3
7	39	5
8	45	5
9	52	3
10	58	6
11	64	2
12	70	3
13	76	2
14	83	6
15	89	4
16	95	3
17	101	8
18	107	5
19	114	3
20	120	7

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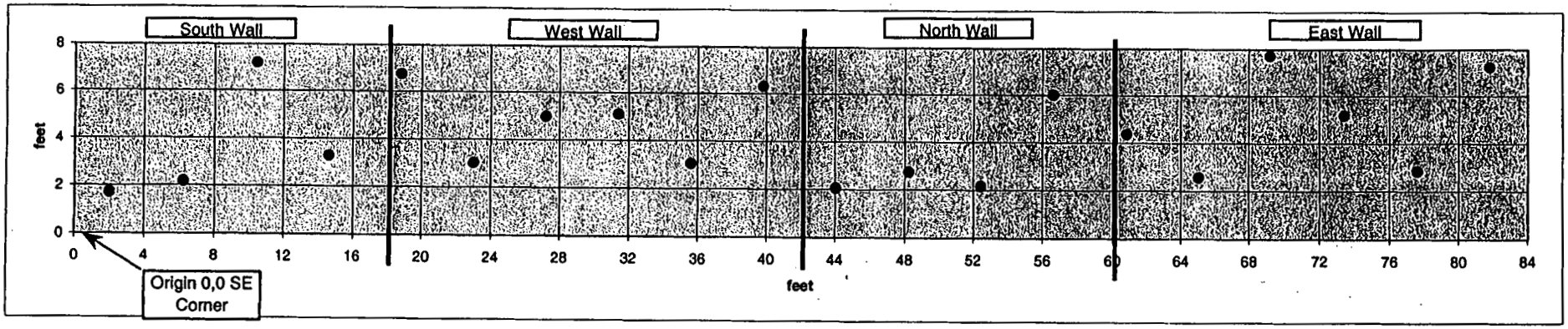

Room 117 18 x 24
L = 84ft
W = 8ft
Area = 672sqft

	Room 117 Walls SU 10 Coordinates	
	X	Y
1	2	2
2	6	2
3	10	7
4	15	3
5	19	7
6	23	3
7	27	5
8	31	5
9	36	3
10	40	6
11	44	2
12	48	3
13	52	2
14	57	6
15	61	4
16	65	3
17	69	8
18	73	5
19	78	3
20	82	7

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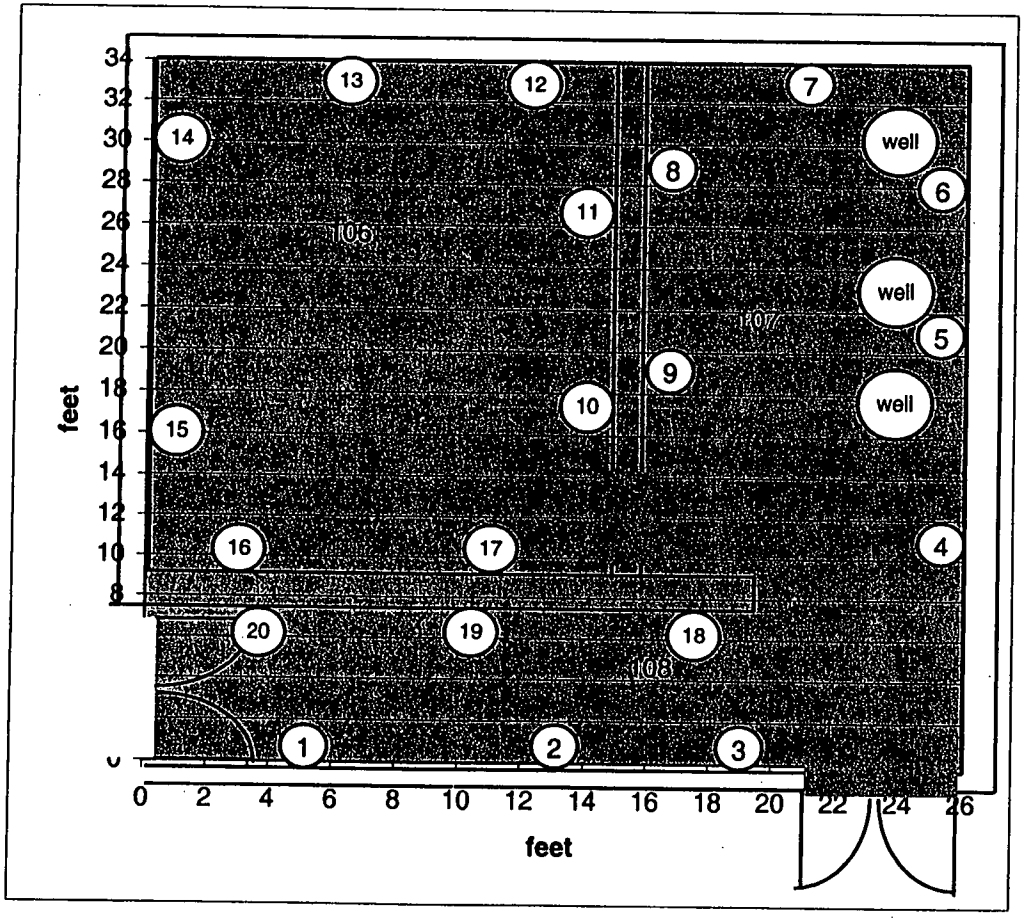

	Room 106,107,108	
	SU 11 Coordinates	
	X'	Z'
	26	34
1	5	3
2	13.0	7
3	19.0	3
4	11.0	5
5	21.0	6
6	28.0	2
7	4.0	5
8	5.0	4
9	15.0	3
10	8.0	6
11	16.0	2
12	2.0	2
13	7.0	5
14	4.0	3
15	18.0	2
16	3.0	2
17	11.0	3
18	8.0	1
19	15.0	8
20	4.0	8

Area
884sqft

Note: X coordinates are measured from the right edge of each wall

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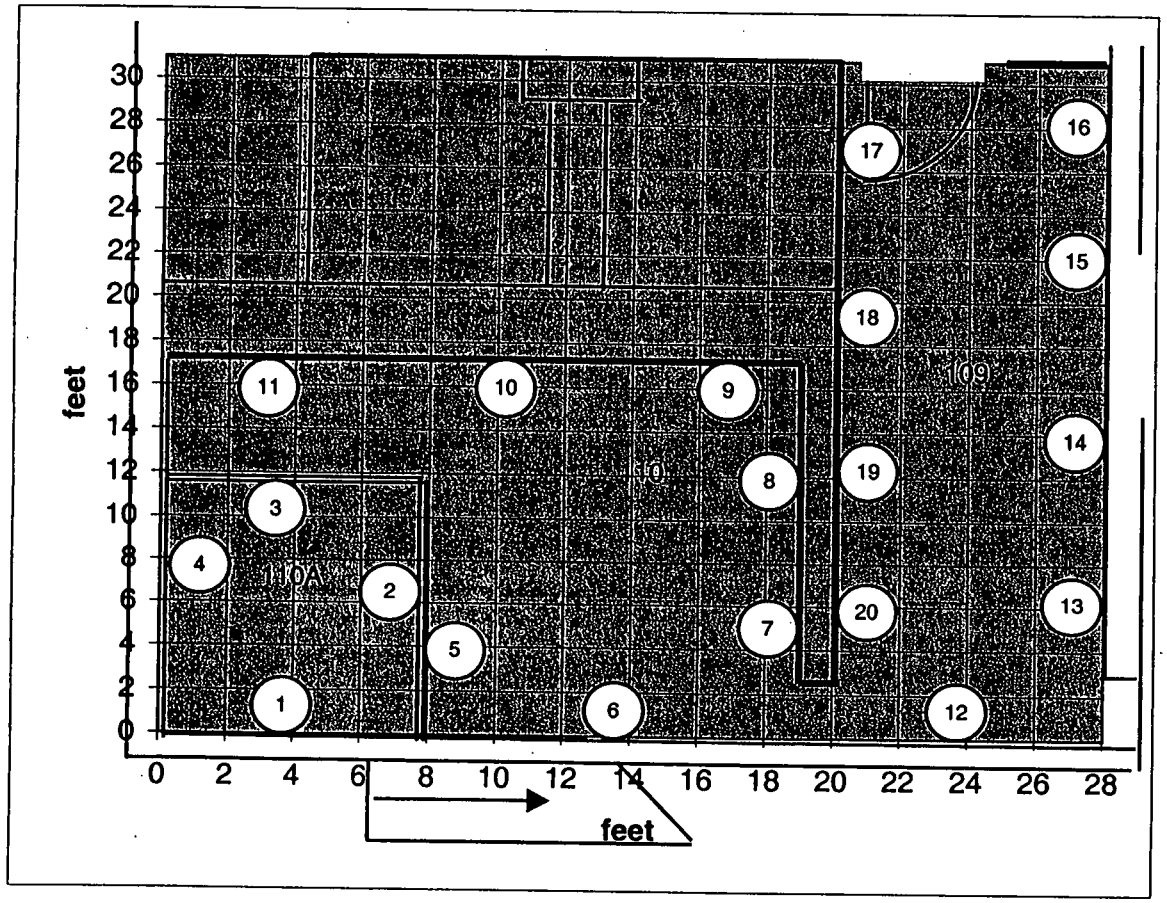

	Room 109,110,110A	
	SU 12 Coordinates	
	X	Z
	28.5	18
1	3	5
2	7.0	3
3	5.0	3
4	4.0	5
5	8.0	8
6	6.0	5
7	5.0	7
8	12.0	5
9	3.0	3
10	9.0	1
11	16.0	4
12	4.0	3
13	6.0	6
14	14.0	5
15	22.0	6
16	28.0	6
17	5.0	7
18	11.0	5
19	19.0	3
20	25.0	3

Area
513sqft

Note: X coordinates are measured from the right edge of each wall

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) 45 - Rm. 001	SURVEY NO. 04-TF-0280
PURPOSE: MARSSIM Survey Plan Unit-8 (walls)	RWP NO. N/A
	DATE: 9/16/04
	TIME: 1630

MAP / DRAWING

See Attached

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

△# = mrem/hr neutron

= air sample number

(#) = swipe number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5749-5799	10-8-04
2350-1	5673-5862	7-29-05
	A	
	N	

[redacted] Date: 9/16/04

Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Print Name)		
Reviewe[redacted]	HP# 7707	Date: 9/23/04
Reviewed/Approved by: (Print [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0280

RADIOLOGICAL SURVEY DATA SHEET

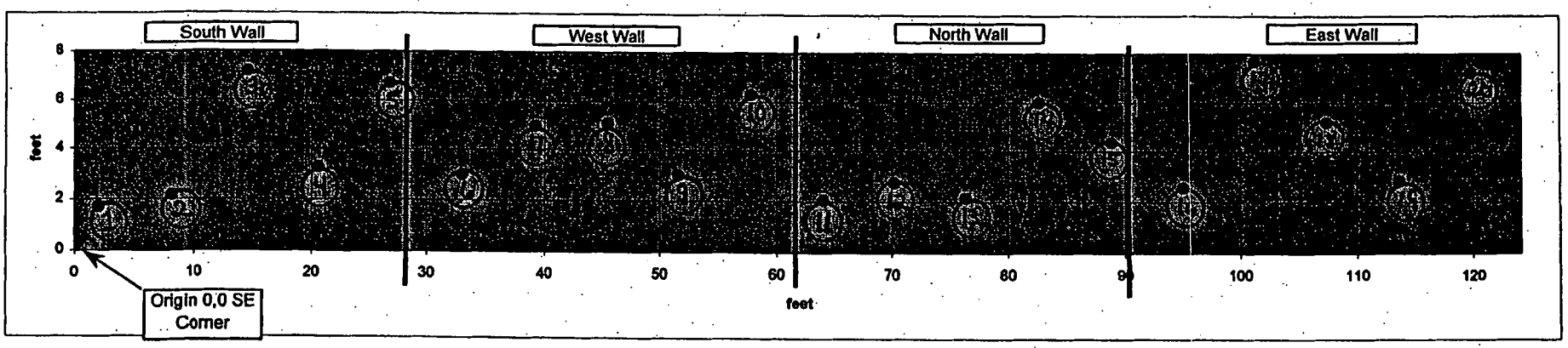
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			walls
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
		NFE		

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

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)



Room 001 33.5 X 28.5
L = 124ft
W = 8ft
Area = 992sqft

	Room 001 Walls SU 8 Coordinates	
	X	Y
1	2	2
2	8	2
3	14	7
4	21	3
5	27	7
6	33	3
7	39	5
8	45	5
9	52	3
10	58	6
11	64	2
12	70	3
13	76	2
14	83	6
15	89	4
16	95	3
17	101	8
18	107	5
19	114	3
20	120	7

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04-TF-0280

45-Building Final Status Survey Unit-8

RSDS# 04-TF-0280 RCT: J.M.C. RCT: JR

Alpha	43-68 BKG	0	EFF	0.24	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.184	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.219	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	SRC BKG	5673	7244	5862	1		1/1/90	2:36	3	300	5
ALPHA	SRC CHECK	5673	7244	5862	1		1/1/90	2:41	1979	60	14958
ALPHA	SRC CHECK	5673	7244	5862	1		1/1/90	2:42	2047	60	15472
ALPHA	SRC CHECK	5673	7244	5862	1		1/1/90	2:44	2067	60	15624
ALPHA	SRC CHECK	5673	7244	5862	1		1/1/90	2:45	2022	60	15283
ALPHA	U-8 01	5673	7244	5862	1	1	9/16/04	1:39	2	120	8
ALPHA	U-8 02	5673	7244	5862	1	2	9/16/04	1:45	4	120	15
ALPHA	U-8 03	5673	7244	5862	1	3	9/16/04	1:50	4	120	15
ALPHA	U-8 04	5673	7244	5862	1	4	9/16/04	1:53	3	120	11
ALPHA	U-8 05	5673	7244	5862	1	5	9/16/04	1:58	3	120	11
ALPHA	U-8 06	5673	7244	5862	1	6	9/16/04	2:02	4	120	15
ALPHA	U-8 07	5673	7244	5862	1	7	9/16/04	2:05	3	120	11
ALPHA	U-8 08	5673	7244	5862	1	8	9/16/04	2:09	2	120	8
ALPHA	U-8 09	5673	7244	5862	1	9	9/16/04	2:13	1	120	4
ALPHA	U-8 10	5673	7244	5862	1	10	9/16/04	2:17	4	120	15
ALPHA	U-8 11	5673	7244	5862	1	11	9/16/04	2:20	2	120	8
ALPHA	U-8 12	5673	7244	5862	1	12	9/16/04	2:25	3	120	11
ALPHA	U-8 13	5673	7244	5862	1	13	9/16/04	2:29	1	120	4
ALPHA	U-8 14	5673	7244	5862	1	14	9/16/04	2:32	1	120	4
ALPHA	U-8 15	5673	7244	5862	1	15	9/16/04	2:36	3	120	11
ALPHA	U-8 16	5673	7244	5862	1	16	9/16/04	2:40	2	120	8
ALPHA	U-8 17	5673	7244	5862	1	17	9/16/04	2:43	0	120	0
ALPHA	U-8 18	5673	7244	5862	1	18	9/16/04	2:47	1	120	4
ALPHA	U-8 19	5673	7244	5862	1	19	9/16/04	2:51	1	120	4
ALPHA	U-8 20	5673	7244	5862	1	20	9/16/04	2:55	1	120	4
BETA	SRC BKG	5673	7244	5862	2	0	1/1/90	2:52	687	300	1330
BETA	SRC CHECK	5673	7244	5862	2	0	1/1/90	2:55	2615	60	25310
BETA	SRC CHECK	5673	7244	5862	2	0	1/1/90	2:57	2368	60	22919
BETA	SRC CHECK	5673	7244	5862	2	0	1/1/90	2:58	2712	60	26249
BETA	SRC CHECK	5673	7244	5862	2	0	1/1/90	2:59	2764	60	26752
BETA	U-8 01	5673	7244	5862	2	1	9/16/04	1:41	202	60	1955
BETA	U-8 02	5673	7244	5862	2	2	9/16/04	1:46	183	60	1771
BETA	U-8 03	5673	7244	5862	2	3	9/16/04	1:51	203	60	1965
BETA	U-8 04	5673	7244	5862	2	4	9/16/04	1:54	239	60	2313
BETA	U-8 05	5673	7244	5862	2	5	9/16/04	1:59	209	60	2023
BETA	U-8 06	5673	7244	5862	2	6	9/16/04	2:03	219	60	2120
BETA	U-8 07	5673	7244	5862	2	7	9/16/04	2:06	200	60	1936
BETA	U-8 08	5673	7244	5862	2	8	9/16/04	2:10	206	60	1994

45-Building Final Status Survey Unit-8

RSDS# 04-TF-0280 RCT: J.M.C RCT: JR

Alpha	49-68 BKG	0	EFF	0.24	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-88 BKG	0	EFF	0.164	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	46-37 BKG	0	EFF	0.219	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-8 09	5673	7244	5862	2	9	9/16/04	2:14	223	60	2158
BETA	U-8 10	5673	7244	5862	2	10	9/16/04	2:18	194	60	1878
BETA	U-8 11	5673	7244	5862	2	11	9/16/04	2:22	213	60	2062
BETA	U-8 12	5673	7244	5862	2	12	9/16/04	2:26	180	60	1742
BETA	U-8 13	5673	7244	5862	2	13	9/16/04	2:30	189	60	1829
BETA	U-8 14	5673	7244	5862	2	14	9/16/04	2:33	196	60	1897
BETA	U-8 15	5673	7244	5862	2	15	9/16/04	2:37	211	60	2042
BETA	U-8 16	5673	7244	5862	2	16	9/16/04	2:41	207	60	2003
BETA	U-8 17	5673	7244	5862	2	17	9/16/04	2:45	224	60	2168
BETA	U-8 18	5673	7244	5862	2	18	9/16/04	2:49	227	60	2197
BETA	U-8 19	5673	7244	5862	2	19	9/16/04	2:53	202	60	1955
BETA	U-8 20	5673	7244	5862	2	20	9/16/04	2:56	193	60	1868

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR003
Batch Ended: 9/16/04 10:42

Crosstalk correction performed.

Batch ID: RENFRO 04-TF-0280 (20) JC

Recalibration Date: 03/18/05
Serial Number: 26966-1

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.16		0.00	1.34	
A2	2	0.00	2.24		3.04	2.54	
A3	3	1.59	2.22		2.72	2.47	
A4	4	1.40	2.04		0.00	1.78	
B1	5	0.00	2.01		3.20	2.77	
B2	6	0.00	2.07		0.00	2.08	
B3	7	0.00	1.95		0.10	2.17	
B4	8	0.00	1.89		0.00	1.65	
C1	9	0.00	2.37		0.50	2.73	
C2	10	0.00	2.21		2.31	3.03	
C3	11	0.00	2.11		0.22	2.31	
C4	12	0.00	2.09		1.24	2.57	
D1	13	3.09	3.08		0.00	2.52	
D2	14	0.00	2.20		0.01	1.80	
D3	15	0.00	1.96		2.78	2.86	
D4	16	0.00	2.15		0.00	1.44	
A1	17	0.00	2.17		0.00	1.83	
A2	18	0.00	2.24		3.04	2.54	
A3	19	0.00	2.16		0.00	1.27	
A4	20	0.00	2.07		2.38	2.49	

JC JC

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9/16/04 ~~Page 1 of 1~~

J. Collins

16 Sep 2004 11:02 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 4 Pw-H3 #403728 User : 2324

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	7.54
Region B:	2.0 -	18.6	0	0.0	7.16
Region C:	40.0 -	2000	0	0.0	13.19

Quench Indicator: tSIE/AEC
Ext ~~Std Terminator~~: Count
RENPRO 04-TF-0280 1-20 JC
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA4.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	2Sigma	FLAG
-1	10.00	7.54	7.16	13.19	3	573.52		0.00	B
0	2.00	702.95	665.24	2.31	0	621.98	1322.37	106.46	
1	2.00	0.96	0.07	0.00	6	594.32	1.84	8.62	
2	2.00	7.96	7.05	0.31	3	605.28	15.19	11.17	
3	2.00	0.04	0.00	0.00	6	614.08	0.08	8.08	
4	2.00	0.96	1.34	0.00	0	643.17	1.77	8.26	
5	2.00	1.96	1.16	0.00	5	636.14	3.64	8.72	
6	2.00	1.13	0.71	0.00	6	620.99	2.13	8.50	
7	2.00	2.46	2.34	0.00	0	637.39	4.56	8.91	
8	2.00	2.96	3.34	0.00	0	646.02	5.45	9.04	
9	2.00	0.46	0.12	0.00	0	646.87	0.84	8.03	
10	2.00	0.75	0.63	0.00	0	626.04	1.40	8.30	
11	2.00	0.00	0.00	0.00	0	610.30	0.00	8.09	
12	2.00	0.00	0.00	0.00	0	641.75	0.00	0.00	
13	2.00	0.00	0.00	0.00	0	638.09	0.00	0.00	
14	2.00	0.00	0.00	0.00	0	636.00	0.00	0.00	
15	2.00	0.61	0.00	4.31	0	647.43	1.12	8.09	
16	2.00	1.46	0.62	0.00	0	646.19	2.68	8.45	
17	2.00	0.00	0.00	0.00	0	607.07	0.00	0.00	
18	2.00	0.00	0.00	0.00	0	635.13	0.00	0.00	
19	2.00	1.46	1.48	0.00	0	648.19	2.68	8.43	
20	2.00	0.00	0.00	0.00	0	610.91	0.00	0.00	

JC.

J. Collins

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 001, 002, 003, 004, 005	SURVEY NO. 04-TF-0285
PURPOSE: MARSSIM SURVEY FLOOR AREAS SCANS + INTEGRATED COUNTS SU 1+7 (PARTIAL)	RWP NO. N/A
	DATE: 9/16/04
	TIME: 1500

MAP / DRAWING

SEE ATTACHED SHEETS FOR LOCATIONS + RESULTS

INDICATES AREAS SCANNED

SCO # INTEGRATED COUNTS

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

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

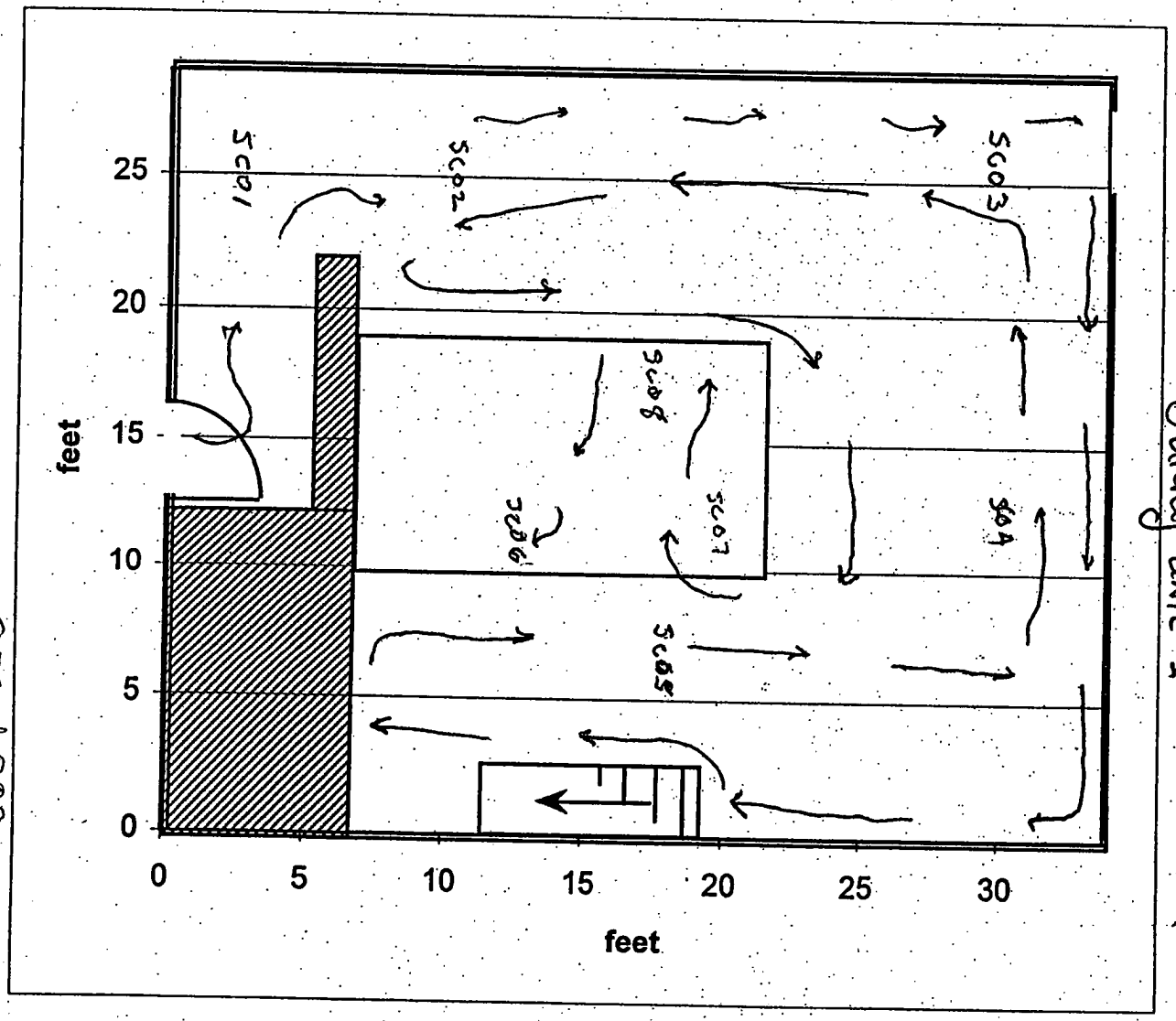
INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Ludlum 2350	5854/5852	7/20/05
	N/A	

Completed by: [redacted]	HP# 7759	Date: 9/16/04
Completed by: [redacted]		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Review[redacted]	HP# 7707	Date: 9-23-04
Reviewed/Approved by: (P[redacted]		

ML-9620 (2-98) Computer Generated

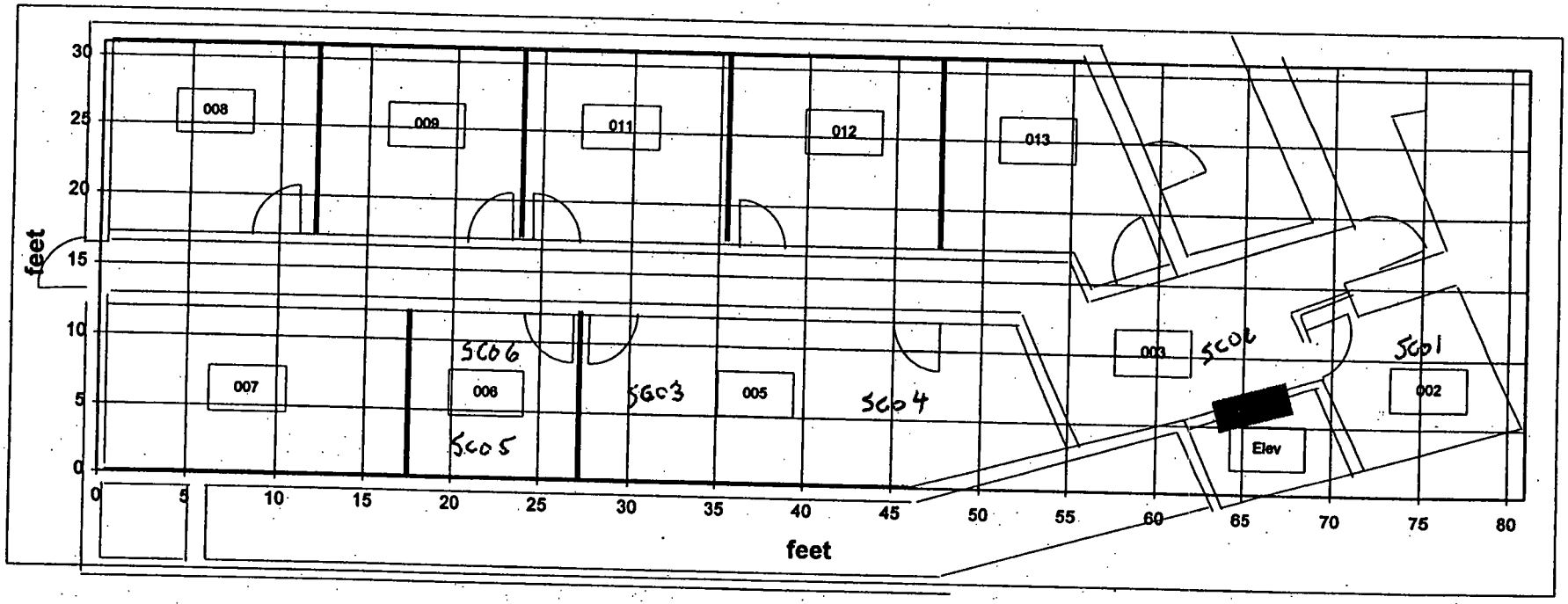
SPF 45-01
Attachment 3



Room 001
Survey Unit 1

RSD# 04-TF-0285
Page 2 of 4

SPF 45-01
Attachment 3



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RSDS# 04-TF-0285
Page 3 of 4

Page 12

Building 45 Survey unit 1 & 7(partial)

RSDS# 0285 RCT: [redacted] 759 RCT: N/A

Alpha	43-68 BKG	0	EFF	0.226	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.17	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.226	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100c
SCAN	SRC BKG	5854	7759	5852	3		9/16/04	7:39	26	300	8
SCAN	SRC CHECK	5854	7759	5852	3		9/16/04	7:43	2127	60	3223
SCAN	SRC CHECK	5854	7759	5852	3		9/16/04	7:45	2219	60	3363
SCAN	SRC CHECK	5854	7759	5852	3		9/16/04	7:46	2260	60	3425
SCAN	SRC CHECK	5854	7759	5852	3		9/16/04	7:47	2131	60	3229
SCAN	SRC CHECK	5854	7759	5852	3		9/16/04	7:49	2169	60	3287
SCAN	SRC CHECK	5854	7759	5852	3		9/16/04	7:50	2215	60	3356
SCAN	SU1 SC01	5854	7759	5852	3	1	9/16/04	9:52	4	60	6
SCAN	SU1 SC02	5854	7759	5852	3	2	9/16/04	9:55	9	60	14
SCAN	SU1 SC03	5854	7759	5852	3	3	9/16/04	9:57	12	60	18
SCAN	SU1 SC04	5854	7759	5852	3	4	9/16/04	9:59	7	60	11
SCAN	SU1 SC05	5854	7759	5852	3	5	9/16/04	10:02	14	60	21
SCAN	SU1 SC06	5854	7759	5852	3	6	9/16/04	10:05	4	60	6
SCAN	SU1 SC07	5854	7759	5852	3	7	9/16/04	10:08	9	60	14
SCAN	SU1 SC08	5854	7759	5852	3	8	9/16/04	10:13	6	60	9
SCAN	SU7 SC01	5854	7759	5852	3	9	9/16/04	12:56	15	60	23
SCAN	SU7 SC02	5854	7759	5852	3	10	9/16/04	13:02	4	60	6
SCAN	SU7 SC03	5854	7759	5852	3	11	9/16/04	13:14	8	60	12
SCAN	SU7 SC04	5854	7759	5852	3	12	9/16/04	13:16	8	60	12
SCAN	SU7 SC05	5854	7759	5852	3	13	9/16/04	13:24	4	60	6
SCAN	SU7 SC06	5854	7759	5852	3	14	9/16/04	13:38	10	60	15

RSDS #04-TF-0285

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - various	SURVEY NO. 04-TF-0289
PURPOSE: MARSSIM Survey Unit 7	RWP NO. NA
	DATE: 9-21-04
	TIME: 1345

MAP / DRAWING

see attached

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
L2360	5831/5804	4-13-05
L2350	5673/5862	7-29-05 ~~5-26-2~~ GM 9-21
	N	
		A

[redacted]	# 7244	Date: 9-21-04
Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Print Name) [redacted]		
Reviewe[redacted]	HP# 7707	Date: 9-23-04
Reviewed/Approved by: (Print Nam[redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0289

RADIOLOGICAL SURVEY DATA SHEET

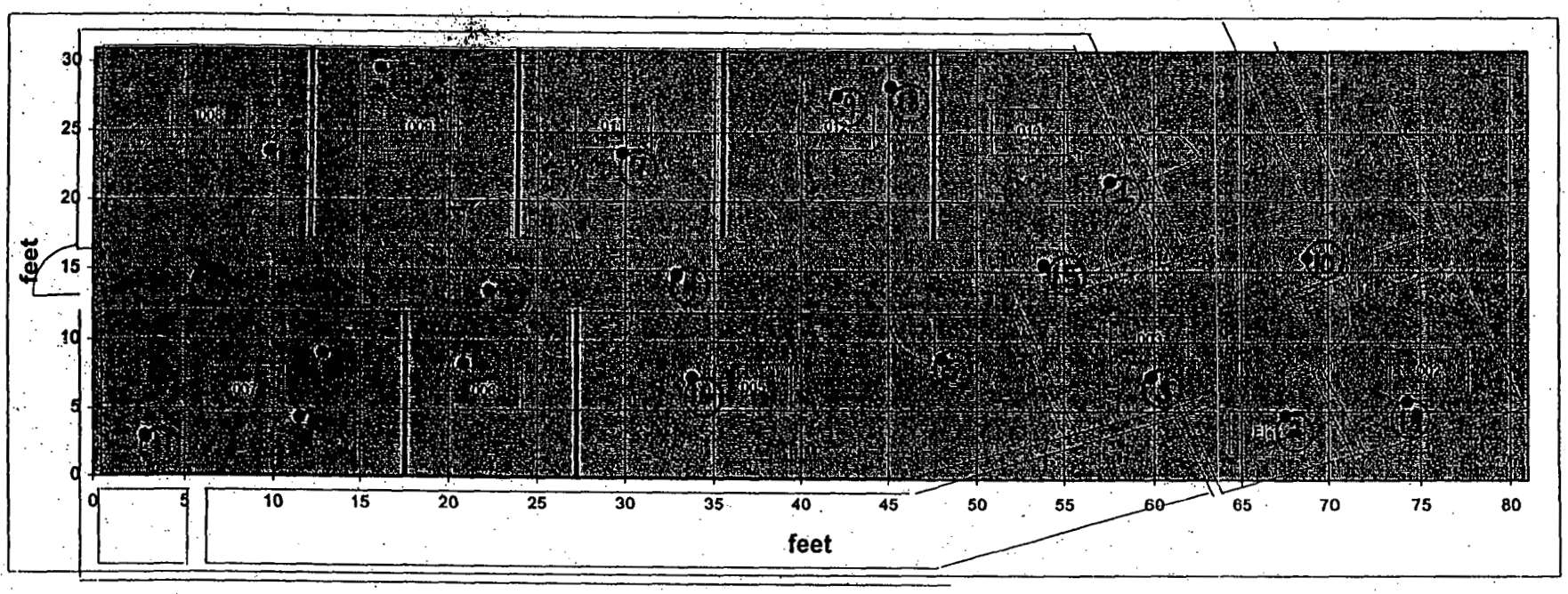
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See	attached	sheets	Floor
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			N/A	

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

COMMENTS: swipes field counted using L2360

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)



	Basement Level SU 7 Coordinates		
	X	Y	Area
	82	31	2542sqft
1	58	21	
2	68	5	
3	60	8	
4	33	15	
5	48	9	
6	21	8	
7	30	24	
8	6	14	
9	42	26	
10	69	16	
11	3	3	
12	13	9	
13	10	24	
14	16	30	
15	54	16	
16	34	7	
17	12	4	
18	45	26	
19	74	6	
20	22	14	

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04-TF-0289

~~Page 12~~ 8/9/22/04
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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR005
Batch Ended: 9/21/04 12:35

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: COLLINS 04-TF-0289 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.17		0.00	1.83	
A2	2	1.73	2.24		2.88	2.54	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.07		2.38	2.49	
B1	5	0.00	1.99		2.09	2.54	
B2	6	0.00	2.07		0.00	2.08	
B3	7	0.00	1.96		1.32	2.50	
B4	8	0.00	1.92		1.56	2.30	
C1	9	0.00	2.36		0.00	2.38	
C2	10	0.00	2.16		0.00	1.96	
C3	11	0.00	2.14		2.82	2.95	
C4	12	0.00	2.09		1.24	2.57	
D1	13	0.85	2.22		1.56	2.90	
D2	14	0.00	2.30		3.74	2.81	
D3	15	0.00	1.98		5.59	3.49	
D4	16	0.19	2.18		3.22	3.07	
A1	17	0.00	2.16		0.00	1.33	
A2	18	1.74	2.20		0.00	1.30	
A3	19	0.00	2.24		4.14	2.76	
A4	20	0.00	2.07		2.38	2.49	

JC JC

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~~Page 1 of 1~~ JC 9/21/04

1 Sep 2004 12:54 ALPHA/BETA - 1.09 ~~Page #1~~ 9/21/04
rotocol #: 5 410462 User : 2324

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	5.60
egion B:	2.0	- 18.6	0	0.0	5.28
egion C:	40.0	- 2000	0	0.0	8.12

~~uench Indicator:~~ tSIE/AEC
Ext Std Terminator: Count
OLLINS 04-TF-0289 1-20 JC
~~uminescence Correction~~ On
oincidence Time(ns): 18
elay Before Burst(ns): Normal
rotocol Data Filename: C:\DATA\PROT2.DAT
ount Data Filename: C:\DATA\SDATA5.DAT
pectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	5.60	2	B	597.14		0.00	8.12
0	2.00	691.13	0		643.05	1279.45	97.76	1.33
1	2.00	2.90	0		611.43	5.52	8.35	0.88
2	2.00	1.90	0		598.96	3.65	7.99	1.38
3	2.00	2.90	0		576.03	5.69	8.61	0.00
4	2.00	1.58	0		539.86	3.21	8.27	0.00
5	2.00	4.57	0		616.96	8.66	9.01	3.88
6	2.00	0.00	0		627.09	0.00	0.00	0.00
7	2.00	2.90	0		593.74	5.60	8.48	0.38
8	2.00	0.77	0		571.63	1.52	7.63	3.42
9	2.00	0.00	0		595.04	0.00	0.00	0.00
10	2.00	0.90	0		632.45	1.68	7.29	2.88
11	2.00	0.40	0		655.04	0.73	6.92	0.38
12	2.00	0.00	0		640.11	0.00	0.00	1.88
13	2.00	0.00	0		629.26	0.00	0.00	0.00
14	2.00	0.57	0		648.58	1.05	7.04	0.00
15	2.00	3.90	0		629.97	7.30	8.64	6.88
16	2.00	0.00	0		651.03	0.00	0.00	0.00
17	2.00	1.90	0		619.78	3.59	7.84	0.88
18	2.00	1.40	0		631.08	2.62	7.54	0.76
19	2.00	0.00	0		569.03	0.00	0.00	2.88
20	2.00	1.40	0		631.85	2.62	7.53	0.00

JC.

45-Building Final Status Survey Unit 7

RSDS# 04-TF-0289 RCT: J.M.C. RCT: JA

Alpha	43-68 BKG:	0	EFF:	0.21	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:
Beta	43-68 BKG:	0	EFF:	0.164	PROBE AREA:	126	cm	Surface Eff:		0.5	Detector #:
Scan	43-37 BKG:	0	EFF:	0.249	PROBE AREA:	584	cm	Surface Eff:		0.5	Detector #:
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	*DATE	*TIME	CNTS	CT TIME	dpm/100c
ALPHA	SRC BKG	5673	5708	5862	1		*9/20/04	20:54	9	300	14
ALPHA	SRC CHECK	5673	5708	5862	1		9/20/04	20:58	1916	60	14482
ALPHA	SRC CHECK	5673	5708	5862	1		9/20/04	20:59	1794	60	13560
ALPHA	SRC CHECK	5673	5708	5862	1		9/20/04	21:00	1822	60	13772
ALPHA	SRC CHECK	5673	5708	5862	1		9/20/04	21:01	1899	60	14354
ALPHA	U-7 01	5673	5708	5862	1	1	9/21/04	1:18	5	120	19
ALPHA	U-7 02	5673	5708	5862	1	2	9/21/04	1:22	26	120	98
ALPHA	U-7 03	5673	5708	5862	1	3	9/21/04	1:26	3	120	11
ALPHA	U-7 04	5673	5708	5862	1	4	9/21/04	1:30	1	120	4
ALPHA	U-7 05	5673	5708	5862	1	5	9/21/04	1:34	6	120	23
ALPHA	U-7 06	5673	5708	5862	1	6	9/21/04	1:38	1	120	4
ALPHA	U-7 07	5673	5708	5862	1	7	9/21/04	1:42	4	120	15
ALPHA	U-7 08	5673	5708	5862	1	8	9/21/04	1:46	3	120	11
ALPHA	U-7 09	5673	5708	5862	1	9	9/21/04	1:51	4	120	15
ALPHA	U-7 10	5673	5708	5862	1	10	9/21/04	1:55	3	120	11
ALPHA	U-7 11	5673	5708	5862	1	11	9/21/04	1:59	6	120	23
ALPHA	U-7 12	5673	5708	5862	1	12	9/21/04	2:03	3	120	11
ALPHA	U-7 13	5673	5708	5862	1	13	9/21/04	2:06	3	120	11
ALPHA	U-7 14	5673	5708	5862	1	14	9/21/04	2:10	7	120	26
ALPHA	U-7 15	5673	5708	5862	1	15	9/21/04	2:14	5	120	19
ALPHA	U-7 16	5673	5708	5862	1	16	9/21/04	2:17	1	120	4
ALPHA	U-7 17	5673	5708	5862	1	17	9/21/04	2:21	2	120	8
ALPHA	U-7 18	5673	5708	5862	1	18	9/21/04	2:26	3	120	11
ALPHA	U-7 19	5673	5708	5862	1	19	9/21/04	2:30	7	120	26
ALPHA	U-7 20	5673	5708	5862	1	20	9/21/04	2:34	2	120	8
BETA	SRC BKG	5673	5708	5862	2		*9/20/04	*21:08	440	300	852
BETA	SRC CHECK	5673	5708	5862	2		9/20/04	21:10	2142	60	20732
BETA	SRC CHECK	5673	5708	5862	2		9/20/04	21:12	2041	60	19754
BETA	SRC CHECK	5673	5708	5862	2		9/20/04	21:14	2202	60	21312
BETA	SRC CHECK	5673	5708	5862	2		9/20/04	21:16	2076	60	20093
BETA	U-7 01	5673	5708	5862	2	1	9/21/04	1:19	164	60	1587
BETA	U-7 02	5673	5708	5862	2	2	9/21/04	1:23	176	60	1703
BETA	U-7 03	5673	5708	5862	2	3	9/21/04	1:27	179	60	1732
BETA	U-7 04	5673	5708	5862	2	4	9/21/04	1:31	159	60	1539
BETA	U-7 05	5673	5708	5862	2	5	9/21/04	1:35	155	60	1500
BETA	U-7 06	5673	5708	5862	2	6	9/21/04	1:39	157	60	1520
BETA	U-7 07	5673	5708	5862	2	7	9/21/04	1:43	202	60	1955
BETA	U-7 08	5673	5708	5862	2	8	9/21/04	1:48	197	60	1907

*Date and time programmed into 2350 is incorrect
Correct date 9-21-04
time 0910 ∝

45-Building Final Status Survey Unit 7

RSDS# 04-TF-0289 RCT: JMC RCT: JH

Alpha	43.68 BKG	0	EFF	0.21	PROBE AREA	126	cm	Surface Eff	0.5	Detector #	1
Beta	43.68 BKG	0	EFF	0.164	PROBE AREA	126	cm	Surface Eff	0.5	Detector #	2
Scan	43.37 BKG	0	EFF	0.219	PROBE AREA	584	cm	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-7 09	5673	5708	5862	2	9	9/21/04	1:52	179	60	1732
BETA	U-7 10	5673	5708	5862	2	10	9/21/04	1:56	176	60	1703
BETA	U-7 11	5673	5708	5862	2	11	9/21/04	2:00	157	60	1520
BETA	U-7 12	5673	5708	5862	2	12	9/21/04	2:04	180	60	1742
BETA	U-7 13	5673	5708	5862	2	13	9/21/04	2:08	180	60	1742
BETA	U-7 14	5673	5708	5862	2	14	9/21/04	2:11	185	60	1791
BETA	U-7 15	5673	5708	5862	2	15	9/21/04	2:15	182	60	1762
BETA	U-7 16	5673	5708	5862	2	16	9/21/04	2:19	192	60	1858
BETA	U-7 17	5673	5708	5862	2	17	9/21/04	2:22	172	60	1665
BETA	U-7 18	5673	5708	5862	2	18	9/21/04	2:27	187	60	1810
BETA	U-7 19	5673	5708	5862	2	19	9/21/04	2:31	228	60	2207
BETA	U-7 20	5673	5708	5862	2	20	9/21/04	2:35	170	60	1645

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - 109, 110, 110A	SURVEY NO. 04-TF-0294
PURPOSE: MARSSIM Survey Unit 12 (walls)	RWP NO. N/A
	DATE: 9-22-04
	TIME: 1630

MAP / DRAWING

See Attached

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
2350-1	5854/5861	7-20-05
2360-89	5804/5831	4-13-05
	A	
	N	

[redacted]	HP# 7244	Date: 9-27-04
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewe[redacted]	HP# 7707	Date: 9-28-04
Reviewed/Approved by: (Print N[redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0294

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			U-12 walls room 110A
2				
3				
4				
5				room 110 walls
6				
7				
8				
9				
10				
11				
12				room 109 walls
13				
14				
15				
16				
17				
18				
19				
20				
		NFE		

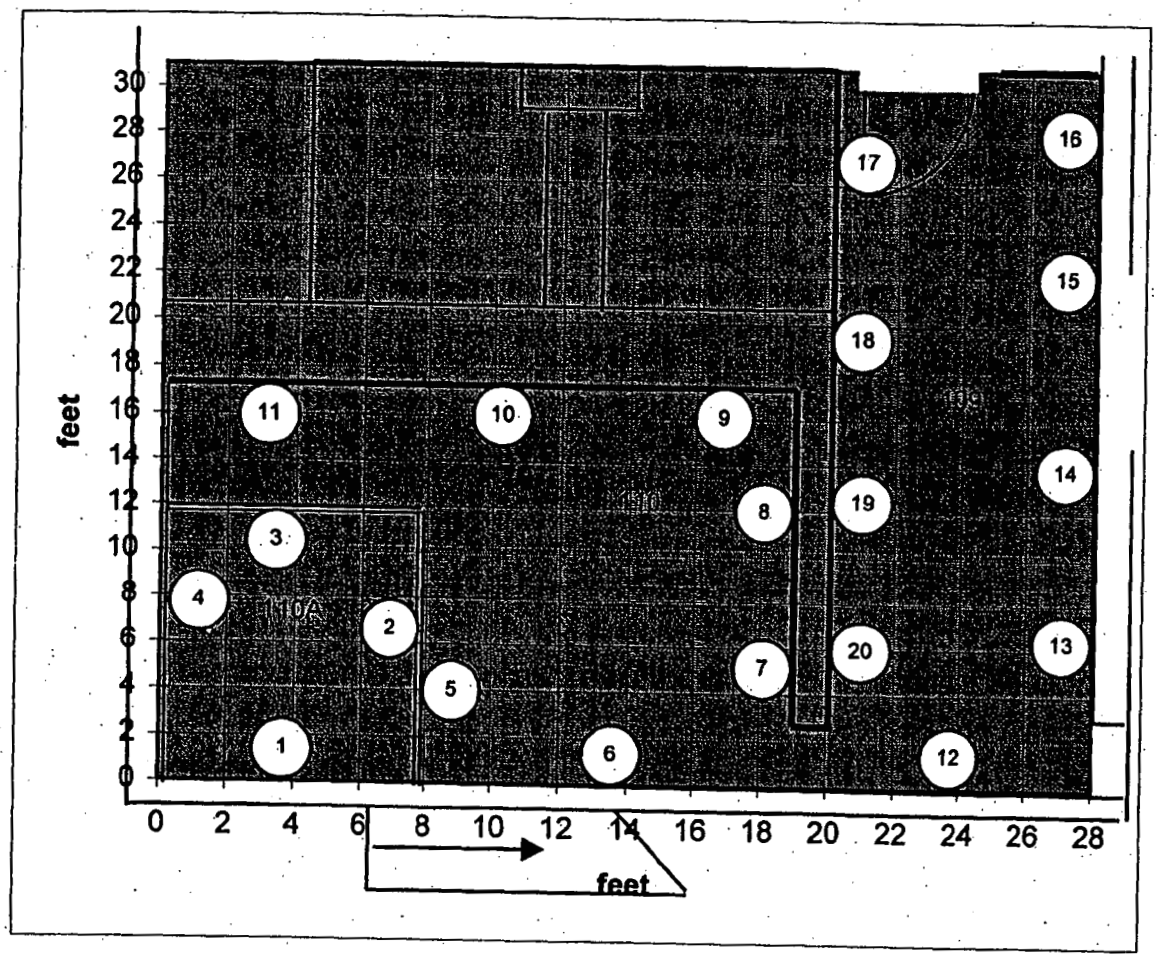
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
		NFE		

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)

SPF 45-01
Attachment 3



	Room 109,110,110A	
	SU 12 Coordinates	
	X	Z
	28.5	18
1	3	5
2	7.0	3
3	5.0	3
4	4.0	5
5	8.0	8
6	6.0	5
7	5.0	7
8	12.0	5
9	3.0	3
10	9.0	1
11	16.0	4
12	4.0	3
13	6.0	6
14	14.0	5
15	22.0	6
16	28.0	6
17	5.0	7
18	11.0	5
19	19.0	3
20	25.0	3

Area
513sqft

Note: X coordinates are measured from the right edge of each wall

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR002
Batch Ended: 9/23/04 8:27

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: COLLINS 04-TF-0294 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.29		8.53	3.82	
A2	2	0.00	2.24		3.04	2.54	
A3	3	0.00	2.16		0.00	1.27	
A4	4	1.40	2.08		3.44	2.77	
B1	5	0.00	1.97		0.97	2.28	
B2	6	3.47	2.93		4.21	3.14	
B3	7	0.00	1.93		0.00	1.80	
B4	8	0.00	1.92		1.56	2.30	
C1	9	0.00	2.39		1.84	3.04	
C2	10	0.00	2.16		0.00	1.96	
C3	11	1.75	2.08		0.00	1.39	
C4	12	0.00	2.06		0.00	1.85	
D1	13	2.78	3.10		4.25	3.53	
D2	14	0.00	2.30		3.74	2.81	
D3	15	0.00	1.96		1.37	2.48	
D4	16	0.00	2.20		7.39	3.87	
A1	17	0.00	2.19		0.96	2.23	
A2	18	0.00	2.21		0.54	1.81	
A3	19	0.00	2.16		0.00	1.27	
A4	20	0.00	2.03		0.00	1.29	

JC JC

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JC 9/27/04 ~~Page 1 of 1~~

J. Collins

23 Sep 2004 08:48 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 4 Pw-H3 #403728 User : 2324

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	7.40
Region B:	2.0	- 18.6	0	0.0	7.26
Region C:	40.0	- 2000	0	0.0	10.85

Quench Indicator: tSIE/AEC
Ext ~~Std Terminator~~: Count
COLLINS 04-T-0294 1-20 JC
~~Coincidence Time(ns)~~: 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA4.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	2Sigma	FLAG
-1	10.00	7.40	7.26	10.85	4	579.36		0.00	B
0	2.00	748.43	709.54	2.65	0	630.54	1397.50	110.96	
1	2.00	3.85	3.99	0.00	0	653.47	7.05	9.25	
2	2.00	3.60	3.35	0.00	0	665.39	6.52	9.06	
3	2.00	2.60	2.35	7.15	0	665.99	4.71	8.69	
4	2.00	0.00	0.00	0.65	0	657.92	0.00	0.00	
5	2.00	0.10	0.00	0.00	0	664.94	0.18	7.68	
6	2.00	0.60	0.37	0.00	0	652.03	1.10	7.98	
7	2.00	1.10	0.74	0.00	0	653.52	2.01	8.18	
8	2.00	0.00	0.00	0.00	0	659.75	0.00	0.00	
9	2.00	5.35	4.83	7.63	0	656.02	9.77	9.76	
10	2.00	0.00	0.00	0.00	0	654.08	0.00	0.00	
11	2.00	2.10	1.02	0.00	0	649.01	3.86	8.62	
12	2.00	2.10	2.24	0.00	0	666.07	3.80	8.49	
13	2.00	0.90	0.66	0.00	0	656.14	1.64	8.08	
14	2.00	0.00	0.00	0.00	0	665.61	0.00	0.00	
15	2.00	2.60	1.93	0.00	0	672.63	4.68	8.64	
16	2.00	6.60	5.35	5.65	0	667.05	11.95	10.10	
17	2.00	2.10	1.86	0.00	0	658.38	3.83	8.55	
18	2.00	0.00	0.00	0.00	0	659.30	0.00	0.00	
19	2.00	7.61	7.25	0.00	0	653.65	13.94	10.55	
20	2.00	0.00	0.00	0.00	0	658.83	0.00	0.00	

JC.

J. Collins

Building 45 Survey unit 12 (Walls)

RSDS# 04-TF-0294 RCT: JMC RCT: N/A

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #
Beta	43-68 BKG	0	EFF	0.167	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #
Scan	6-47 BKG	0	EFF	0.226	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5854	7244	5861	1		9/22/04	13:03	10	300	15
ALPHA	SRC CHECK	5854	7244	5861	1		9/22/04	13:05	1996	60	15087
ALPHA	SRC CHECK	5854	7244	5861	1		9/22/04	13:07	2010	60	15193
ALPHA	SRC CHECK	5854	7244	5861	1		9/22/04	13:08	2064	60	15601
ALPHA	SRC CHECK	5854	7244	5861	1		9/22/04	13:10	2096	60	15843
ALPHA	U-12 01	5854	7244	5861	1	1	9/22/04	13:49	6	120	23
ALPHA	U-12 02	5854	7244	5861	1	2	9/22/04	13:53	3	120	11
ALPHA	U-12 03	5854	7244	5861	1	3	9/22/04	13:57	8	120	30
ALPHA	U-12 04	5854	7244	5861	1	4	9/22/04	14:01	13	120	49
ALPHA	U-12 05	5854	7244	5861	1	5	9/22/04	14:05	6	120	23
ALPHA	U-12 06	5854	7244	5861	1	6	9/22/04	14:10	7	120	26
ALPHA	U-12 07	5854	7244	5861	1	7	9/22/04	14:14	11	120	42
ALPHA	U-12 08	5854	7244	5861	1	8	9/22/04	14:18	3	120	11
ALPHA	U-12 09	5854	7244	5861	1	9	9/22/04	14:22	10	120	38
ALPHA	U-12 10	5854	7244	5861	1	10	9/22/04	14:26	9	120	34
ALPHA	U-12 11	5854	7244	5861	1	11	9/22/04	14:30	15	120	57
ALPHA	U-12 12	5854	7244	5861	1	12	9/22/04	14:34	3	120	11
ALPHA	U-12 13	5854	7244	5861	1	13	9/22/04	14:38	4	120	15
ALPHA	U-12 14	5854	7244	5861	1	14	9/22/04	14:41	10	120	38
ALPHA	U-12 15	5854	7244	5861	1	15	9/22/04	14:45	6	120	23
ALPHA	U-12 16	5854	7244	5861	1	16	9/22/04	14:49	8	120	30
ALPHA	U-12 17	5854	7244	5861	1	17	9/22/04	14:53	9	120	34
ALPHA	U-12 18	5854	7244	5861	1	18	9/22/04	14:58	6	120	23
ALPHA	U-12 19	5854	7244	5861	1	19	9/22/04	15:01	4	120	15
ALPHA	U-12 20	5854	7244	5861	1	20	9/22/04	15:05	8	120	30
BETA	SRC BKG	5854	7244	5861	2		9/22/04	13:15	828	300	1574
BETA	SRC CHECK	5854	7244	5861	2		9/22/04	13:17	2540	60	24142
BETA	SRC CHECK	5854	7244	5861	2		9/22/04	13:19	2663	60	25311
BETA	SRC CHECK	5854	7244	5861	2		9/22/04	13:21	2839	60	26984
BETA	SRC CHECK	5854	7244	5861	2		9/22/04	13:23	2712	60	25777
BETA	U-12 01	5854	7244	5861	2	1	9/22/04	13:50	348	60	3308
BETA	U-12 02	5854	7244	5861	2	2	9/22/04	13:54	173	60	1644
BETA	U-12 03	5854	7244	5861	2	3	9/22/04	13:58	171	60	1625
BETA	U-12 04	5854	7244	5861	2	4	9/22/04	14:02	329	60	3127
BETA	U-12 05	5854	7244	5861	2	5	9/22/04	14:06	159	60	1511
BETA	U-12 06	5854	7244	5861	2	6	9/22/04	14:11	323	60	3070
BETA	U-12 07	5854	7244	5861	2	7	9/22/04	14:15	371	60	3526
BETA	U-12 08	5854	7244	5861	2	8	9/22/04	14:19	327	60	3108
BETA	U-12 09	5854	7244	5861	2	9	9/22/04	14:23	302	60	2870

Building 45 Survey unit 12 (Walls)

RSDS# 04-TF-0294 *RCT:* J.M.C. *RCT:* N/A

Alpha	45-68 BKG	0	EFF:	0.21	PROBE AREA	126	cm²	Surface Eff:	0.5	Detector #:	1
Beta	45-68 BKG	0	EFF:	0.187	PROBE AREA	126	cm²	Surface Eff:	0.5	Detector #:	2
Scan	45-37 BKG	0	EFF:	0.226	PROBE AREA	584	cm²	Surface Eff:	0.5	Detector #:	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-12 10	5854	7244	5861	2	10	9/22/04	14:27	316	60	3004
BETA	U-12 11	5854	7244	5861	2	11	9/22/04	14:31	336	60	3194
BETA	U-12 12	5854	7244	5861	2	12	9/22/04	14:35	339	60	3222
BETA	U-12 13	5854	7244	5861	2	13	9/22/04	14:39	297	60	2823
BETA	U-12 14	5854	7244	5861	2	14	9/22/04	14:43	290	60	2756
BETA	U-12 15	5854	7244	5861	2	15	9/22/04	14:46	249	60	2367
BETA	U-12 16	5854	7244	5861	2	16	9/22/04	14:50	315	60	2994
BETA	U-12 17	5854	7244	5861	2	17	9/22/04	14:54	157	60	1492
BETA	U-12 18	5854	7244	5861	2	18	9/22/04	14:59	334	60	3175
BETA	U-12 19	5854	7244	5861	2	19	9/22/04	15:02	361	60	3431
BETA	U-12 20	5854	7244	5861	2	20	9/22/04	15:06	305	60	2899

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 - RM 117	SURVEY NO. 04-TF-0295
PURPOSE: ~~MARRISMS~~ CM 9-27-04 Survey unit 10 - Final Status (WALLS)	RWP NO. N/A
	DATE: 9-22-04
	TIME: 1630

MAP / DRAWING

See Attached

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
L2337	5673	7-29-05
	N/A	

[redacted] HP# [illegible] Date: 9-22-04

Counted by: (Signature) See Attached HP# Date:

Counted by: (Print Name)

Revie[redacted] HP# [illegible] Date: 09-27-04

Reviewed/App[redacted]

Survey No. 04-TF-0295

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
1	see	attached	sheet	wall
2	↓	↓	↓	↓
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			N/A	

Removable Contamination				
Swipes (dpm/100cm^2)				
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)

JW

45-Building Final Status Survey Unit 10 (walls)

RSDS# 04-TF-0295 RCT: GH RCT: JWH

Alpha	43-68 BKG	0	EFF	0.22	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.164	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.219	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

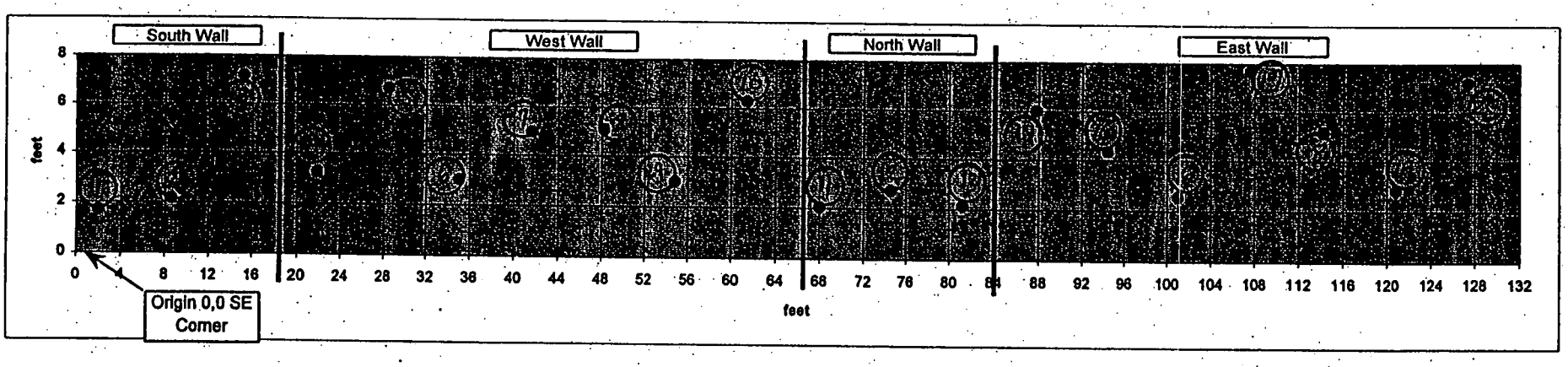
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	* TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5673	7759	5862	1		9/22/04	1:25	4	300	6
ALPHA	SRC CHECK	5673	7759	5862	1		9/22/04	1:27	1835	60	13870
ALPHA	SRC CHECK	5673	7759	5862	1		9/22/04	1:28	1801	60	13613
ALPHA	SRC CHECK	5673	7759	5862	1		9/22/04	1:29	1970	60	14890
ALPHA	SRC CHECK	5673	7759	5862	1		9/22/04	1:31	1837	60	13885
ALPHA	U-10 01	5673	7759	5862	1	1	9/22/04	1:50	1	120	4
ALPHA	U-10 02	5673	7759	5862	1	2	9/22/04	1:55	2	120	8
ALPHA	U-10 03	5673	7759	5862	1	3	9/22/04	1:58	1	120	4
ALPHA	U-10 04	5673	7759	5862	1	4	9/22/04	2:02	1	120	4
ALPHA	U-10 05	5673	7759	5862	1	5	9/22/04	2:05	1	120	4
ALPHA	U-10 06	5673	7759	5862	1	6	9/22/04	2:10	1	120	4
ALPHA	U-10 07	5673	7759	5862	1	7	9/22/04	2:14	3	120	11
ALPHA	U-10 08	5673	7759	5862	1	8	9/22/04	2:17	3	120	11
ALPHA	U-10 09	5673	7759	5862	1	9	9/22/04	2:21	0	120	0
ALPHA	U-10 10	5673	7759	5862	1	10	9/22/04	2:24	3	120	11
ALPHA	U-10 11	5673	7759	5862	1	11	9/22/04	2:28	2	120	8
ALPHA	U-10 12	5673	7759	5862	1	12	9/22/04	2:31	2	120	8
ALPHA	U-10 13	5673	7759	5862	1	13	9/22/04	2:35	2	120	8
ALPHA	U-10 14	5673	7759	5862	1	14	9/22/04	2:38	3	120	11
ALPHA	U-10 15	5673	7759	5862	1	15	9/22/04	2:42	2	120	8
ALPHA	U-10 16	5673	7759	5862	1	16	9/22/04	2:46	2	120	8
ALPHA	U-10 17	5673	7759	5862	1	17	9/22/04	2:49	1	120	4
ALPHA	U-10 18	5673	7759	5862	1	18	9/22/04	2:53	6	120	23
ALPHA	U-10 19	5673	7759	5862	1	19	9/22/04	2:57	2	120	8
ALPHA	U-10 20	5673	7759	5862	1	20	9/22/04	3:00	3	120	11
BETA	SRC BKG	5673	7759	5862	2		9/22/04	1:37	788	300	1525
BETA	SRC CHECK	5673	7759	5862	2		9/22/04	1:40	2752	60	26636
BETA	SRC CHECK	5673	7759	5862	2		9/22/04	1:41	2669	60	25832
BETA	SRC CHECK	5673	7759	5862	2		9/22/04	1:43	2641	60	25561
BETA	SRC CHECK	5673	7759	5862	2		9/22/04	1:44	2864	60	27720
BETA	U-10 01	5673	7759	5862	2	1	9/22/04	1:51	178	60	1723
BETA	U-10 02	5673	7759	5862	2	2	9/22/04	1:56	172	60	1665
BETA	U-10 03	5673	7759	5862	2	3	9/22/04	2:00	197	60	1907
BETA	U-10 04	5673	7759	5862	2	4	9/22/04	2:03	157	60	1520
BETA	U-10 05	5673	7759	5862	2	5	9/22/04	2:07	194	60	1878
BETA	U-10 06	5673	7759	5862	2	6	9/22/04	2:11	166	60	1607
BETA	U-10 07	5673	7759	5862	2	7	9/22/04	2:15	163	60	1578
BETA	U-10 08	5673	7759	5862	2	8	9/22/04	2:19	185	60	1791

* Times programmed into 2350-1 is incorrect
correct times for bkgd. & source check
see 1340 α 1350 β

45-Building Final Status Survey Unit 10 (walls)

RSDS# 04-TF-0295 *RCT:* GH *RCT:* JWH

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.164	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.219	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-10 09	5673	7759	5862	2	9	9/22/04	2:22	175	60	1694
BETA	U-10 10	5673	7759	5862	2	10	9/22/04	2:26	161	60	1558
BETA	U-10 11	5673	7759	5862	2	11	9/22/04	2:29	157	60	1520
BETA	U-10 12	5673	7759	5862	2	12	9/22/04	2:32	179	60	1732
BETA	U-10 13	5673	7759	5862	2	13	9/22/04	2:36	180	60	1742
BETA	U-10 14	5673	7759	5862	2	14	9/22/04	2:40	146	60	1413
BETA	U-10 15	5673	7759	5862	2	15	9/22/04	2:43	154	60	1491
BETA	U-10 16	5673	7759	5862	2	16	9/22/04	2:47	166	60	1607
BETA	U-10 17	5673	7759	5862	2	17	9/22/04	2:50	184	60	1781
BETA	U-10 18	5673	7759	5862	2	18	9/22/04	2:54	166	60	1607
BETA	U-10 19	5673	7759	5862	2	19	9/22/04	2:58	173	60	1674
BETA	U-10 20	5673	7759	5862	2	20	9/22/04	3:02	181	60	1752



Room 117 18 x 48
L = 132ft
W = 8ft
Area = 1056sqft

	Room 117 Walls SU 10 Coordinates	
	X	Y
1	2	2
2	9	2
3	15	7
4	22	3
5	28	7
6	35	3
7	42	5
8	48	5
9	55	3
10	61	6
11	68	2
12	75	3
13	81	2
14	88	6
15	94	4
16	101	3
17	108	8
18	114	5
19	121	3
20	127	7

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23 Sep 2004 08:59 ALPHA/BETA - 1.09 Page #1
Protocol #: 2 PW H3 #403727 User : 232

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	7.94
Region B:	2.0 -	18.6	0	0.0	7.39
Region C:	40.0 -	2000	0	0.0	12.60

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
HODGES 04-TF-0295 1-20 JC
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT2.DAT
Count Data Filename: C:\DATA\SDATA2.DAT

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	7.94	7.39	4	B	583.28		0.00	12.60
0	2.00	715.55	686.17	0		626.57	1366.33	123.65	0.00
1	2.00	3.06	2.82	0		663.88	5.64	9.26	0.00
2	2.00	4.06	4.61	0		661.70	7.49	9.63	0.00
3	2.00	0.00	0.00	0		667.82	0.00	0.00	1.40
4	2.00	2.90	2.94	0		658.51	5.36	9.23	0.00
5	2.00	1.56	1.72	0		663.47	2.87	8.68	0.00
6	2.00	4.06	4.21	0		665.69	7.47	9.61	0.00
7	2.00	0.00	0.00	0		668.78	0.00	0.00	0.00
8	2.00	0.00	0.00	0		664.43	0.00	0.00	0.00
9	2.00	4.56	3.42	0		667.36	8.39	9.79	0.00
10	2.00	0.56	1.11	0		664.05	1.03	8.28	0.00
11	2.00	0.56	0.61	0		662.16	1.03	8.28	0.00
12	2.00	1.56	2.11	0		671.47	2.86	8.65	0.00
13	2.00	0.00	0.00	0		671.10	0.00	0.00	0.00
14	2.00	1.52	1.07	0		666.98	2.80	8.65	0.00
15	2.00	2.46	3.01	0		662.13	4.53	9.04	0.00
16	2.00	0.00	0.00	0		660.74	0.00	0.00	0.00
17	2.00	0.06	0.00	0		662.01	0.11	8.08	0.00
18	2.00	0.00	0.00	0		667.19	0.00	0.00	0.00
19	2.00	0.00	0.00	0		677.54	0.00	0.00	0.00
20	2.00	0.06	0.21	0		669.32	0.11	8.05	0.00

FATAL ERROR:
LOST PIN POS

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR001
Batch Ended: 9/23/04 8:19

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: HODGES 04-TF-0295 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.92	2.21		2.05	2.56	
A2	2	0.00	2.21		0.54	1.81	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.08		3.60	2.77	
B1	5	0.00	1.94		0.00	1.98	
B2	6	0.00	2.05		0.00	1.72	
B3	7	0.00	1.96		1.32	2.50	
B4	8	0.00	1.89		0.00	1.65	
C1	9	0.00	2.37		0.50	2.73	
C2	10	0.00	2.18		0.00	2.37	
C3	11	1.75	2.10		0.00	1.90	
C4	12	0.00	2.07		0.00	2.23	
D1	13	0.00	2.24		4.57	3.53	
D2	14	0.00	2.17		0.00	1.31	
D3	15	1.18	1.97		4.06	3.19	
D4	16	0.48	2.16		0.00	1.98	
A1	17	0.00	2.17		0.00	1.83	
A2	18	0.00	2.21		0.54	1.81	
A3	19	0.00	2.18		0.48	1.76	
A4	20	0.00	2.11		6.05	3.28	

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - Rm. 121	SURVEY NO. 04-TF-0297
PURPOSE: MARSSIM Survey Unit - 9 (walls)	RWP NO. N/A
	DATE: 9-23-04
	TIME: 1630

MAP / DRAWING

See Attached

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

△# - mrem/hr neutron

(#) - swipe number

[#] - air sample number

(#/α) or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5673/5862	7-29-05
2360-89	5831/5804	4-13-05
	A	
	N	

[redacted] HP# [redacted] Date: 9-27-04

Counted by: (Signature) See	HP#	Date:
Counted by: (Printed Name) Attached		
Revi[redacted]	HP# 7707	Date: 9/30/04
Reviewed/Approved by: (Pr[redacted]		

ML-9620 (2-98)

Survey No. 04-TF-0279

RADIOLOGICAL SURVEY DATA SHEET

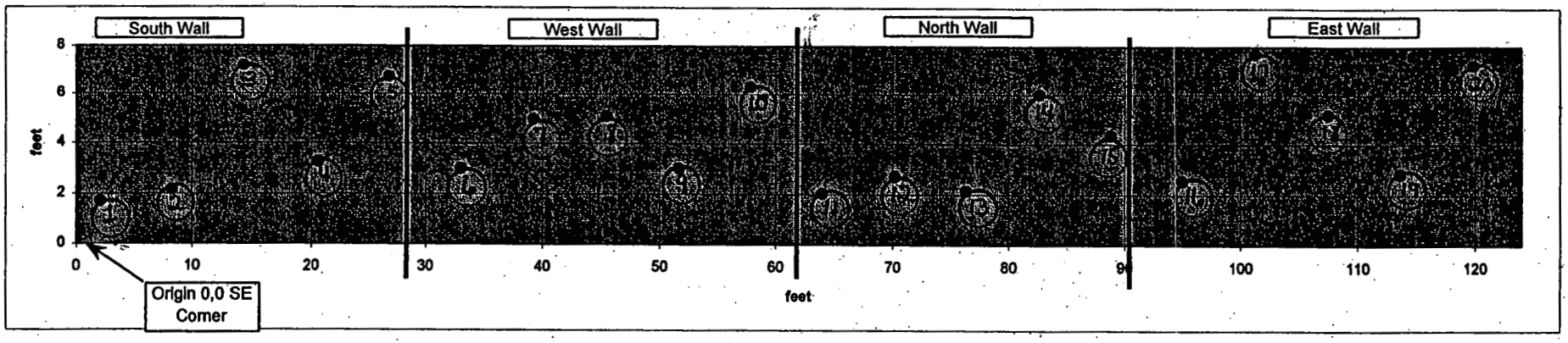
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			walls
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
		NFE		

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

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)



Room 121 33.5 X 28.5
L = 124ft
W = 8ft
Area = 992sqft

	Room 121 Walls SU 9 Coordinates	
	X	Y
1	2	2
2	8	2
3	14	7
4	21	3
5	27	7
6	33	3
7	39	5
8	45	5
9	52	3
10	58	6
11	64	2
12	70	3
13	76	2
14	83	6
15	89	4
16	95	3
17	101	8
18	107	5
19	114	3
20	120	7

04-TF-0279

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JC 9/23/04 ~~Page 14~~

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR000
Batch Ended: 9/27/04 7:49

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: COLLINS 04-TF-0297 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.16		0.00	1.33	
A2	2	1.74	2.21		0.37	1.81	
A3	3	0.00	2.20		1.70	2.15	
A4	4	0.00	2.07		2.38	2.49	
B1	5	0.00	1.92		0.00	1.64	
B2	6	1.49	2.02		0.00	1.26	
B3	7	0.00	1.93		0.00	1.80	
B4	8	0.00	1.90		0.43	2.00	
C1	9	0.00	2.41		3.17	3.32	
C2	10	0.00	2.23		3.64	3.31	
C3	11	0.00	2.12		1.52	2.65	
C4	12	0.00	2.11		3.75	3.13	
D1	13	3.09	3.08		0.00	2.52	
D2	14	0.00	2.17		0.00	1.31	
D3	15	0.00	1.94		0.00	1.48	
D4	16	0.48	2.16		0.00	1.98	
A1	17	0.00	2.19		0.96	2.23	
A2	18	0.00	2.27		5.55	3.10	
A3	19	0.00	2.24		4.14	2.76	
A4	20	0.00	2.03		0.00	1.29	

JC JC.

GB6 of 309.

JC 9/27/04 ~~Page 1 of 4~~ Page 4 of 7

J. Collins

27 Sep 2004 08:10 ALPHA/BETA - 1.09
Protocol #: 1 Pw H3 #403728 User : 2138

JC 9/27/04 ~~Page #1~~

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	7.16
Region B:	2.0 -	18.6	0	0.0	7.07
Region C:	40.0 -	2000	0	0.0	11.29

Quench Indicator: tSIE/AEC
~~Ext Std Terminator~~: Count
04-TF-0297 COLLINS (20) 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\SDATA1.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	7.16	7	B	573.57		0.00	11.29
0	2.00	705.93	0		622.41	1327.55	106.83	3.41
1	2.00	0.00	0		651.24	0.00	0.00	0.00
2	2.00	0.00	0		652.04	0.00	0.00	0.00
3	2.00	0.53	0		650.02	0.98	7.87	0.00
4	2.00	4.31	0		666.69	7.81	9.23	0.00
5	2.00	0.92	0		643.50	1.70	8.08	0.21
6	2.00	3.34	0		663.30	6.06	8.90	0.00
7	2.00	16.14	0		656.24	29.48	12.98	2.21
8	2.00	2.34	0		664.20	4.24	8.51	0.00
9	2.00	3.34	0		659.62	6.08	8.93	0.00
10	2.00	0.00	0		645.95	0.00	0.00	0.00
11	2.00	0.76	0		621.56	1.44	8.17	0.00
12	2.00	0.00	0		616.76	0.00	0.00	0.00
13	2.00	5.34	0		647.70	9.82	9.75	0.21
14	2.00	3.84	0		622.13	7.22	9.41	0.00
15	2.00	2.34	0		639.14	4.33	8.69	1.80
16	2.00	72.51	3		660.55	131.97	24.91	0.00
17	2.00	11.34	0		621.65	21.34	11.97	4.21
18	2.00	1.23	0		661.44	2.23	8.09	0.00
19	2.00	0.00	0		654.14	0.00	0.00	0.21
20	2.00	5.17	0		658.27	9.43	9.61	0.00

JC

AR

45-Building Final Status Survey Unit-9 (walls)

RSDS# 04-TF-0297 RCT: J.M.C. RCT:

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.184	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-47 BKG	0	EFF	0.219	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5673	7244	5862	1		9/23/04	12:49	6	300	9
ALPHA	SRC CHECK	5673	7244	5862	1		9/23/04	12:58	1836	60	13878
ALPHA	SRC CHECK	5673	7244	5862	1		9/23/04	12:59	1795	60	13568
ALPHA	SRC CHECK	5673	7244	5862	1		9/23/04	13:01	1938	60	14649
ALPHA	SRC CHECK	5673	7244	5862	1		9/23/04	13:02	1862	60	14074
ALPHA	U-9 01	5673	7244	5862	1	1	9/23/04	13:28	3	120	11
ALPHA	U-9 02	5673	7244	5862	1	2	9/23/04	13:31	4	120	15
ALPHA	U-9 03	5673	7244	5862	1	3	9/23/04	13:35	6	120	23
ALPHA	U-9 04	5673	7244	5862	1	4	9/23/04	13:39	2	120	8
ALPHA	U-9 05	5673	7244	5862	1	5	9/23/04	13:43	2	120	8
ALPHA	U-9 06	5673	7244	5862	1	6	9/23/04	13:46	3	120	11
ALPHA	U-9 07	5673	7244	5862	1	7	9/23/04	13:52	2	120	8
ALPHA	U-9 08	5673	7244	5862	1	8	9/23/04	13:55	2	120	8
ALPHA	U-9 09	5673	7244	5862	1	9	9/23/04	13:59	4	120	15
ALPHA	U-9 10	5673	7244	5862	1	10	9/23/04	14:02	0	120	0
ALPHA	U-9 11	5673	7244	5862	1	11	9/23/04	14:06	2	120	8
ALPHA	U-9 12	5673	7244	5862	1	12	9/23/04	14:10	4	120	15
ALPHA	U-9 13	5673	7244	5862	1	13	9/23/04	14:14	3	120	11
ALPHA	U-9 14	5673	7244	5862	1	14	9/23/04	14:18	6	120	23
ALPHA	U-9 15	5673	7244	5862	1	15	9/23/04	14:21	3	120	11
ALPHA	U-9 16	5673	7244	5862	1	16	9/23/04	14:25	1	120	4
ALPHA	U-9 17	5673	7244	5862	1	17	9/23/04	14:29	5	120	19
ALPHA	U-9 18	5673	7244	5862	1	18	9/23/04	14:33	3	120	11
ALPHA	U-9 19	5673	7244	5862	1	19	9/23/04	14:37	6	120	23
ALPHA	U-9 20	5673	7244	5862	1	20	9/23/04	14:40	2	120	8
BETA	SRC BKG	5673	7244	5862	2		9/23/04	13:08	595	300	1152
BETA	SRC CHECK	5673	7244	5862	2		9/23/04	13:12	2373	60	22967
BETA	SRC CHECK	5673	7244	5862	2		9/23/04	13:13	2433	60	23548
BETA	SRC CHECK	5673	7244	5862	2		9/23/04	13:15	2530	60	24487
BETA	SRC CHECK	5673	7244	5862	2		9/23/04	13:16	2557	60	24748
BETA	U-9 01	5673	7244	5862	2	1	9/23/04	13:29	211	60	2042
BETA	U-9 02	5673	7244	5862	2	2	9/23/04	13:32	223	60	2158
BETA	U-9 03	5673	7244	5862	2	3	9/23/04	13:36	209	60	2023
BETA	U-9 04	5673	7244	5862	2	4	9/23/04	13:40	215	60	2081
BETA	U-9 05	5673	7244	5862	2	5	9/23/04	13:44	245	60	2371
BETA	U-9 06	5673	7244	5862	2	6	9/23/04	13:47	215	60	2081
BETA	U-9 07	5673	7244	5862	2	7	9/23/04	13:53	209	60	2023
BETA	U-9 08	5673	7244	5862	2	8	9/23/04	13:56	220	60	2129

45-Building Final Status Survey Unit-9 (walls)

RSDS# 04-TF-0297 RCT: J.M.C RCT:

Alpha	43-68 BKG:	0	EFF:	0.21	PROBE AREA:	126	cm	Surface Eff:		0.5	Detector #: 1
Beta	43-68 BKG:	0	EFF:	0.164	PROBE AREA:	126	cm	Surface Eff:		0.5	Detector #: 2
Scan	43-37 BKG:	0	EFF:	0.219	PROBE AREA:	584	cm	Surface Eff:		0.5	Detector #: 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-9 09	5673	7244	5862	2	9	9/23/04	14:00	229	60	2216
BETA	U-9 10	5673	7244	5862	2	10	9/23/04	14:03	131	60	1268
BETA	U-9 11	5673	7244	5862	2	11	9/23/04	14:07	216	60	2091
BETA	U-9 12	5673	7244	5862	2	12	9/23/04	14:11	237	60	2294
BETA	U-9 13	5673	7244	5862	2	13	9/23/04	14:15	236	60	2284
BETA	U-9 14	5673	7244	5862	2	14	9/23/04	14:19	253	60	2449
BETA	U-9 15	5673	7244	5862	2	15	9/23/04	14:23	200	60	1936
BETA	U-9 16	5673	7244	5862	2	16	9/23/04	14:26	230	60	2226
BETA	U-9 17	5673	7244	5862	2	17	9/23/04	14:30	260	60	2516
BETA	U-9 18	5673	7244	5862	2	18	9/23/04	14:35	230	60	2226
BETA	U-9 19	5673	7244	5862	2	19	9/23/04	14:38	202	60	1955
BETA	U-9 20	5673	7244	5862	2	20	9/23/04	14:41	234	60	2265

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) Bldg 45	SURVEY NO. 04-TF-0302
PURPOSE: Final Status Survey - SU11 (Walls)	RWP NO. NA
	DATE: 9-27-04
	TIME: 1000

MAP / DRAWING

See Attached

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
L2350-1	5673	7-29-05
	N/A	

[redacted]	HP# 7809	Date: 9-27-04
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Review [redacted]	HP# 7707	Date: 9/30/04
Reviewed/Approved by: (Print Nam [redacted]		

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Survey No. 04-T-0302

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
1	see	attached	sheets	Wall
2	↓	↓	↓	↓
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
		N/A		

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
		N/A		

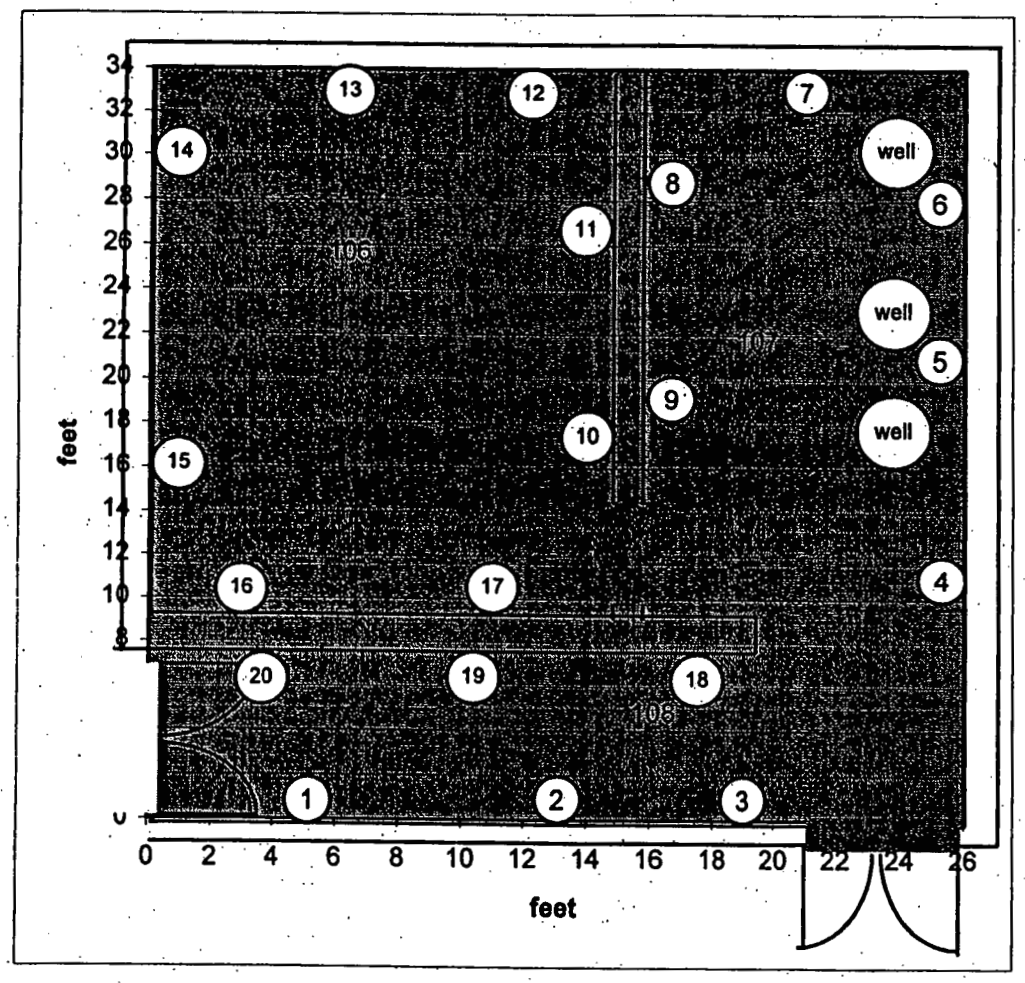
COMMENTS: N/A

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)

04-TF-0302



	Room 106,107,108	
	SU 11 Coordinates	
	X'	Z'
	26	34
1	5	3
2	13.0	7
3	19.0	3
4	11.0	5
5	21.0	6
6	28.0	2
7	4.0	5
8	5.0	4
9	15.0	3
10	8.0	6
11	16.0	2
12	2.0	2
13	7.0	5
14	4.0	3
15	18.0	2
16	3.0	2
17	11.0	3
18	8.0	1
19	15.0	8
20	4.0	8

Area
884sqft

Note: X coordinates are measured from the right edge of each wall

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45-Building Characterization Survey Unit 11

RSDS# 04-tf-0302 RCT: GH RCT: 96

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.164	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.219	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5673	7809	5862	1		9/27/04	10:31	2	300	3
ALPHA	SRC CHECK	5673	7809	5862	1		9/27/04	10:34	1865	60	14097
ALPHA	SRC CHECK	5673	7809	5862	1		9/27/04	10:35	1825	60	13794
ALPHA	SRC CHECK	5673	7809	5862	1		9/27/04	10:36	1753	60	13250
ALPHA	SRC CHECK	5673	7809	5862	1		9/27/04	10:38	1831	60	13840
ALPHA	SU11 01	5673	7809	5862	1	1	9/27/04	13:18	0	120	0
ALPHA	SU11 02	5673	7809	5862	1	2	9/27/04	13:22	3	120	11
ALPHA	SU11 03	5673	7809	5862	1	3	9/27/04	13:27	2	120	8
ALPHA	SU11 04	5673	7809	5862	1	4	9/27/04	13:32	2	120	8
ALPHA	SU11 05	5673	7809	5862	1	5	9/27/04	13:36	1	120	4
ALPHA	SU11 06	5673	7809	5862	1	6	9/27/04	13:40	2	120	8
ALPHA	SU11 07	5673	7809	5862	1	7	9/27/04	13:43	2	120	8
ALPHA	SU11 08	5673	7809	5862	1	8	9/27/04	13:47	2	120	8
ALPHA	SU11 09	5673	7809	5862	1	9	9/27/04	13:51	0	120	0
ALPHA	SU11 10	5673	7809	5862	1	10	9/27/04	13:56	1	120	4
ALPHA	SU11 11	5673	7809	5862	1	11	9/27/04	13:59	1	120	4
ALPHA	SU11 12	5673	7809	5862	1	12	9/27/04	14:03	1	120	4
ALPHA	SU11 13	5673	7809	5862	1	13	9/27/04	14:07	2	120	8
ALPHA	SU11 14	5673	7809	5862	1	14	9/27/04	14:11	1	120	4
ALPHA	SU11 15	5673	7809	5862	1	15	9/27/04	14:15	2	120	8
ALPHA	SU11 16	5673	7809	5862	1	16	9/27/04	14:18	2	120	8
ALPHA	SU11 17	5673	7809	5862	1	17	9/27/04	14:22	0	120	0
ALPHA	SU11 18	5673	7809	5862	1	18	9/27/04	14:26	2	120	8
ALPHA	SU11 19	5673	7809	5862	1	19	9/27/04	14:30	0	120	0
ALPHA	SU11 20	5673	7809	5862	1	20	9/27/04	14:34	2	120	8
BETA	SRC BKG	5673	7809	5862	2		9/27/04	10:45	980	300	1897
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	10:47	2776	60	26868
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	10:48	2772	60	26829
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	10:50	2863	60	27710
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	10:51	2797	60	27071
BETA	SRC BKG	5673	7809	5862	2		9/27/04	10:59	885	300	1713
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	13:01	2738	60	26500
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	13:02	2721	60	26336
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	13:04	2793	60	27033
BETA	SRC CHECK	5673	7809	5862	2		9/27/04	13:05	2909	60	28155
BETA	SU11 01	5673	7809	5862	2	1	9/27/04	13:19	267	60	2584
BETA	SU11 02	5673	7809	5862	2	2	9/27/04	13:23	268	60	2594
BETA	SU11 03	5673	7809	5862	2	3	9/27/04	13:29	238	60	2304

45-Building Characterization Survey Unit 11

RSDS# 04-tf-0302 *RCT:* GH *RCT:* [illegible]

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.164	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.219	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU11 04	5673	7809	5862	2	4	9/27/04	13:33	129	60	1249
BETA	SU11 05	5673	7809	5862	2	5	9/27/04	13:37	156	60	1510
BETA	SU11 06	5673	7809	5862	2	6	9/27/04	13:41	152	60	1471
BETA	SU11 07	5673	7809	5862	2	7	9/27/04	13:44	170	60	1645
BETA	SU11 08	5673	7809	5862	2	8	9/27/04	13:48	194	60	1878
BETA	SU11 09	5673	7809	5862	2	9	9/27/04	13:52	214	60	2071
BETA	SU11 10	5673	7809	5862	2	10	9/27/04	13:57	221	60	2139
BETA	SU11 11	5673	7809	5862	2	11	9/27/04	14:00	210	60	2033
BETA	SU11 12	5673	7809	5862	2	12	9/27/04	14:04	140	60	1355
BETA	SU11 13	5673	7809	5862	2	13	9/27/04	14:08	137	60	1326
BETA	SU11 14	5673	7809	5862	2	14	9/27/04	14:12	168	60	1626
BETA	SU11 15	5673	7809	5862	2	15	9/27/04	14:16	182	60	1762
BETA	SU11 16	5673	7809	5862	2	16	9/27/04	14:19	147	60	1423
BETA	SU11 17	5673	7809	5862	2	17	9/27/04	14:23	135	60	1307
BETA	SU11 18	5673	7809	5862	2	18	9/27/04	14:27	198	60	1916
BETA	SU11 19	5673	7809	5862	2	19	9/27/04	14:31	243	60	2352
BETA	SU11 20	5673	7809	5862	2	20	9/27/04	14:35	194	60	1878

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR002
Batch Ended: 9/28/04 8:08

Crosstalk correction performed.

GH

Batch ID: HESKETT 04-TF-0302 [20] JC

Recalibration Date: 03/18/05
Serial Number: 26966-1

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.92	2.18		0.00	1.83	
A2	2	0.00	2.23		1.79	2.20	
A3	3	0.00	2.18		0.48	1.76	
A4	4	0.00	2.03		0.00	1.29	
B1	5	0.00	2.05		5.43	3.20	
B2	6	1.49	2.02		0.00	1.26	
B3	7	0.00	1.98		2.55	2.78	
B4	8	0.00	1.87		0.00	1.20	
C1	9	0.00	2.34		0.00	1.97	
C2	10	0.00	2.18		0.00	2.37	
C3	11	0.00	2.12		1.52	2.65	
C4	12	0.00	2.16		8.79	4.03	
D1	13	2.99	3.09		1.41	2.90	
D2	14	2.02	2.27		2.22	2.52	
D3	15	0.00	1.98		5.59	3.49	
D4	16	0.00	2.15		0.00	1.44	
A1	17	0.00	2.16		0.00	1.33	
A2	18	0.00	2.20		0.00	1.31	
A3	19	0.00	2.18		0.48	1.76	
A4	20	1.40	2.07		2.21	2.48	

GM GM

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28 Sep 2004 09:25 ALPHA/BETA - 1.09 Page ~~#1~~ GM
Protocol #: 4 Pw-H3 #403728 User : 2138

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	7.60
Region B:	2.0	- 18.6	0	0.0	7.37
Region C:	40.0	- 2000	0	0.0	15.10

Quench Indicator: tSIE/AEC
GM Ext Std Terminator: Count
04-TF-0302 HESKETT (20) AG
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA4.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	2Sigma	FLAG
-1	10.00	7.60	7.37	15.10	9	574.90		0.00	B
0	2.00	724.56	689.46	0.00	0	625.32	1359.08	108.68	
1	2.00	0.00	0.00	0.00	0	644.06	0.00	0.00	
2	2.00	0.00	0.00	0.00	0	654.88	0.00	0.00	
3	2.00	1.40	1.13	0.00	0	653.69	2.56	8.40	
4	2.00	0.90	1.12	0.00	0	667.79	1.62	8.10	
5	2.00	0.00	0.00	0.00	0	666.46	0.00	0.00	
6	2.00	0.26	0.49	0.00	0	634.33	0.48	8.06	
7	2.00	0.51	0.74	0.00	0	556.10	1.02	8.76	
8	2.00	0.00	0.00	0.00	0	653.94	0.00	0.00	
9	2.00	0.00	0.00	0.00	0	654.65	0.00	0.00	
10	2.00	1.56	1.78	0.00	0	647.73	2.86	8.50	
11	2.00	1.40	1.31	0.00	0	626.55	2.62	8.60	
12	2.00	0.81	0.15	0.00	0	662.97	1.48	8.10	
13	2.00	0.00	0.00	0.00	0	650.04	0.00	0.00	
14	2.00	1.90	0.92	0.00	0	643.24	3.51	8.67	
15	2.00	0.00	0.00	0.00	0	654.87	0.00	0.00	
16	2.00	0.00	0.00	0.00	0	657.94	0.00	0.00	
17	2.00	0.00	0.00	0.00	0	648.38	0.00	0.00	
18	2.00	0.00	0.00	0.00	0	634.65	0.00	0.00	
19	2.00	0.40	0.00	0.00	0	647.68	0.74	8.03	
20	2.00	0.00	0.00	0.00	0	643.21	0.00	0.00	

GM

AP

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - outside walls	SURVEY NO. 04-TF-0303
PURPOSE: MARSSIM Survey Unit - 16	RWP NO. NA
	DATE: 9-29-04
	TIME: 1000

MAP / DRAWING

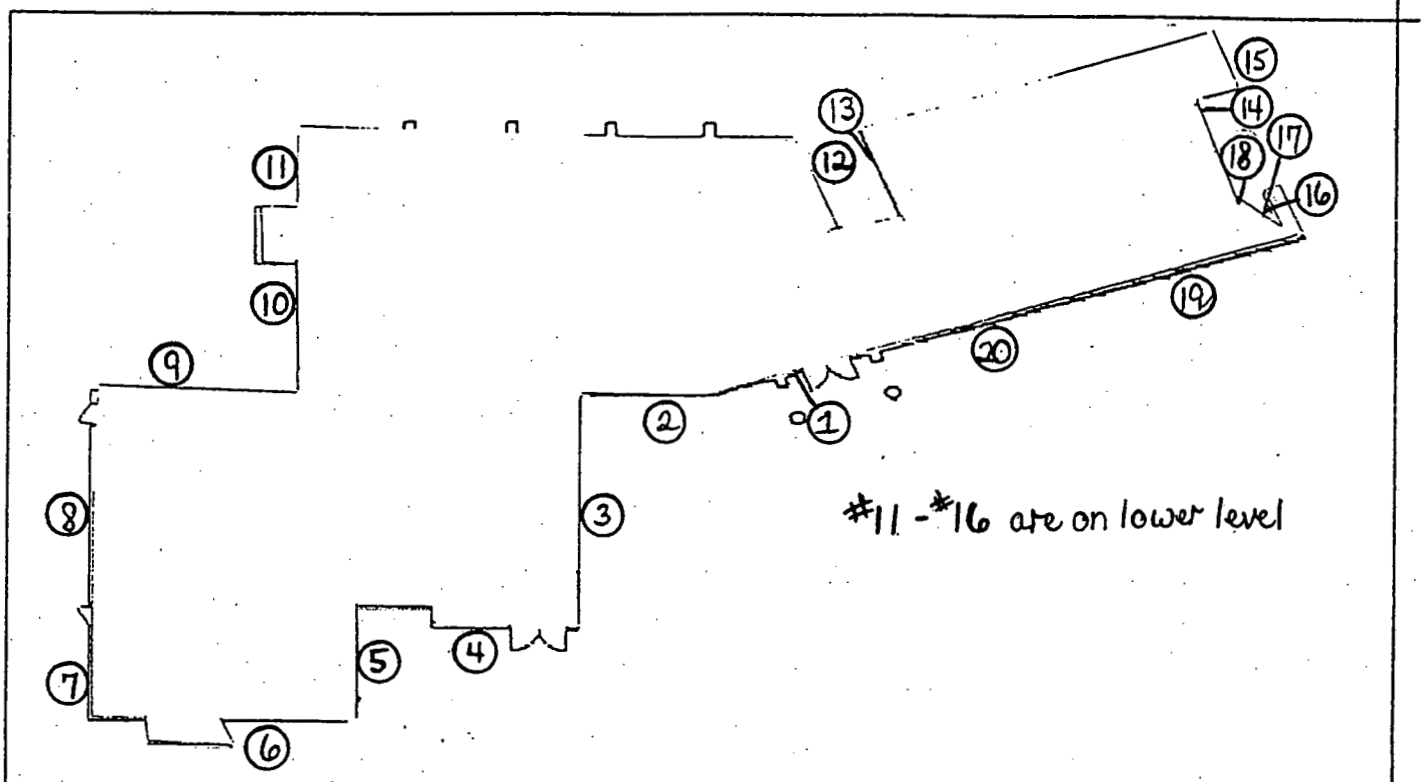

Figure 2-3. Building 45

Direct ~~scan~~ or integrated reading on page
Background = 2.0 cPM (α) & 221 cPM (β)
DL = 1.8 cPM (α) & 20 cPM (β)

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

- # - mrem/hr neutron
- # - swipe number
- # - air sample number
- #/α or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2360	5708/5731	8-17-05
	N/A	

[redacted]	HP# 7809	Date: 9-29-04
Counted by: (Signature) see	HP#	Date:
Counted by: (Printed Name) attached		
Review [redacted]	HP# 7707	Date: 9/30/04
Reviewed/Approved by: [redacted]		

ML-9620 (2-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR006
Batch Ended: 9/28/04 11:11

Crosstalk correction performed.

GH

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: HESKETT 04-TF-0303 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.92	2.18		0.00	1.83	
A2	2	0.00	2.24		3.04	2.54	
A3	3	0.00	2.26		5.36	3.02	
A4	4	0.00	2.05		1.15	2.16	
B1	5	1.68	2.03		4.12	2.99	
B2	6	0.00	2.09		1.11	2.39	
B3	7	0.00	1.93		0.00	1.80	
B4	8	0.00	1.92		1.56	2.30	
C1	9	0.00	2.32		0.00	1.46	
C2	10	0.00	2.23		3.64	3.31	
C3	11	0.00	2.10		0.00	1.90	
C4	12	0.00	2.07		0.00	2.23	
D1	13	0.00	2.20		0.00	2.08	
D2	14	2.02	2.20		0.00	1.80	
D3	15	1.54	1.94		0.00	1.48	
D4	16	0.00	2.15		0.00	1.44	
A1	17	0.00	2.21		2.23	2.56	
A2	18	0.00	2.24		3.04	2.54	
A3	19	0.00	2.18		0.48	1.76	
A4	20	0.00	2.04		0.00	1.78	

GH GH

G100 of 309

28 Sep 2004 11:39 ALPHA/BETA - 1.09 Page ~~#1~~ GH
Protocol #: 2 PW H3 # 410462 User : 2324

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	7.90
Region B:	2.0 -	18.6	0	0.0	7.24
Region C:	40.0 -	2000	0	0.0	11.89

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
HESKETT 04-TF-0303 GH 1-20 JC
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	7.90	7.24	3	B	594.00		0.00	11.89
0	2.00	719.04	663.56	0		646.63	1327.10	100.49	0.00
1	2.00	0.00	0.00	11		615.82	0.00	0.00	0.00
2	2.00	0.10	0.00	0		625.35	0.19	8.23	0.00
3	2.00	0.00	0.00	0		633.79	0.00	0.00	1.40
4	2.00	0.00	0.00	0		651.09	0.00	0.00	0.00
5	2.00	0.00	0.00	0		635.98	0.00	0.00	0.00
6	2.00	0.00	0.11	0		651.31	0.00	0.00	0.00
7	2.00	1.60	2.26	0		654.81	2.93	8.63	0.00
8	2.00	0.10	0.40	0		649.81	0.18	8.06	0.00
9	2.00	0.60	0.26	0		653.21	1.10	8.24	0.00
10	2.00	0.00	0.00	0		650.84	0.00	0.00	0.00
11	2.00	2.10	2.09	0		633.46	3.92	8.98	0.00
12	2.00	0.60	0.87	0		664.66	1.09	8.18	0.00
13	2.00	2.10	1.87	0		664.56	3.83	8.77	0.00
14	2.00	4.10	3.50	0		659.50	7.49	9.53	0.00
15	2.00	0.00	0.00	0		658.19	0.00	0.00	0.00
16	2.00	0.00	0.00	0		615.68	0.00	0.00	0.00
17	2.00	0.00	0.00	0		653.18	0.00	0.00	0.00
18	2.00	0.00	0.00	0		661.03	0.00	0.00	0.00
19	2.00	0.00	0.00	0		662.96	0.00	0.00	0.00
20	2.00	1.60	1.88	0		657.71	2.93	8.61	0.00

GH

J. Collins

Pg 4.0

BLDG 45 CHARACTERIZATION SURVEY Unit-16 (outside walls)

RSDS#: 04-TF-0303 RCT: GH RCT: _____ DETECTOR TYP

43-89 ALPHA BKG:	0	Factor	8	PROBE AREA:	100	cm2	Surface Eff:	1	ALPHA	1
43-89 BETA BKG:	0	Factor	4	PROBE AREA:	100	cm2	Surface Eff:	1	BETA	2

LOCATION	2360#	RCT ID	PROBE	DETECTOR TYPE: 1 or 2	ITEM #	DATE	TIME	CNTS	CT TIME (sec)	dpm/100cm2
U-16 01	5708	7809	5731	1	1	9/29/04	10:00	11	120	44
U-16 02	5708	7809	5731	1	2	9/29/04	10:00	12	120	48
U-16 03	5708	7809	5731	1	3	9/29/04	10:00	18	120	72
U-16 04	5708	7809	5731	1	4	9/29/04	10:00	9	120	36
U-16 05	5708	7809	5731	1	5	9/29/04	10:00	9	120	36
U-16 06	5708	7809	5731	1	6	9/29/04	10:00	11	120	44
U-16 07	5708	7809	5731	1	7	9/29/04	10:00	4	120	16
U-16 08	5708	7809	5731	1	8	9/29/04	10:00	11	120	44
U-16 09	5708	7809	5731	1	9	9/29/04	10:00	6	120	24
U-16 10	5708	7809	5731	1	10	9/29/04	10:00	17	120	68
U-16 11	5708	7809	5731	1	11	9/29/04	10:00	10	120	40
U-16 12	5708	7809	5731	1	12	9/29/04	10:00	8	120	32
U-16 13	5708	7809	5731	1	13	9/29/04	10:00	8	120	32
U-16 14	5708	7809	5731	1	14	9/29/04	10:00	6	120	24
U-16 15	5708	7809	5731	1	15	9/29/04	10:00	13	120	52
U-16 16	5708	7809	5731	1	16	9/29/04	10:00	17	120	68
U-16 17	5708	7809	5731	1	17	9/29/04	10:00	17	120	68
U-16 18	5708	7809	5731	1	18	9/29/04	10:00	7	120	28
U-16 19	5708	7809	5731	1	19	9/29/04	10:00	15	120	60
U-16 20	5708	7809	5731	1	20	9/29/04	10:00	8	120	32
U-16 01	5708	7809	5731	2	1	9/29/04	10:00	564	120	1128
U-16 02	5708	7809	5731	2	2	9/29/04	10:00	624	120	1248
U-16 03	5708	7809	5731	2	3	9/29/04	10:00	507	120	1014
U-16 04	5708	7809	5731	2	4	9/29/04	10:00	631	120	1262
U-16 05	5708	7809	5731	2	5	9/29/04	10:00	716	120	1262
U-16 06	5708	7809	5731	2	6	9/29/04	10:00	840	120	1680
U-16 07	5708	7809	5731	2	7	9/29/04	10:00	810	120	1680
U-16 08	5708	7809	5731	2	8	9/29/04	10:00	849	120	1698
U-16 09	5708	7809	5731	2	9	9/29/04	10:00	823	120	1646
U-16 10	5708	7809	5731	2	10	9/29/04	10:00	645	120	1290

Bldg 45 Characterization survey unit-16 (outside walls) RSDS# 04-TF-0303

LOCATION	2360#	RCT ID	PROBE	TYPE: 1 or 2	ITEM #	DATE	TIME	CNTS	CT TIME (sec)	dpm/100cm2
U-16 11	5708	7809	5731	2	11	9/29/04	10:00	641	120	1282
U-16 12	5708	7809	5731	2	12	9/29/04	10:00	524	120	1048
U-16 13	5708	7809	5731	2	13	9/29/04	10:00	394	120	788
U-16 14	5708	7809	5731	2	14	9/29/04	10:00	401	120	802
U-16 15	5708	7809	5731	2	15	9/29/04	10:00	381	120	762
U-16 16	5708	7809	5731	2	16	9/29/04	10:00	465	120	930
U-16 17	5708	7809	5731	2	17	9/29/04	10:00	561	120	1122
U-16 18	5708	7809	5731	2	18	9/29/04	10:00	362	120	724
U-16 19	5708	7809	5731	2	19	9/29/04	10:00	392	120	784
U-16 20	5708	7809	5731	2	20	9/29/04	10:00	386	120	772

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - roof/penthouses	SURVEY NO. 04 - TF - 0305
PURPOSE: MARSSIM Survey Unit - 17	RWP NO. N/A
	DATE: 9 - 28 - 04
	TIME: 1030

MAP / DRAWING

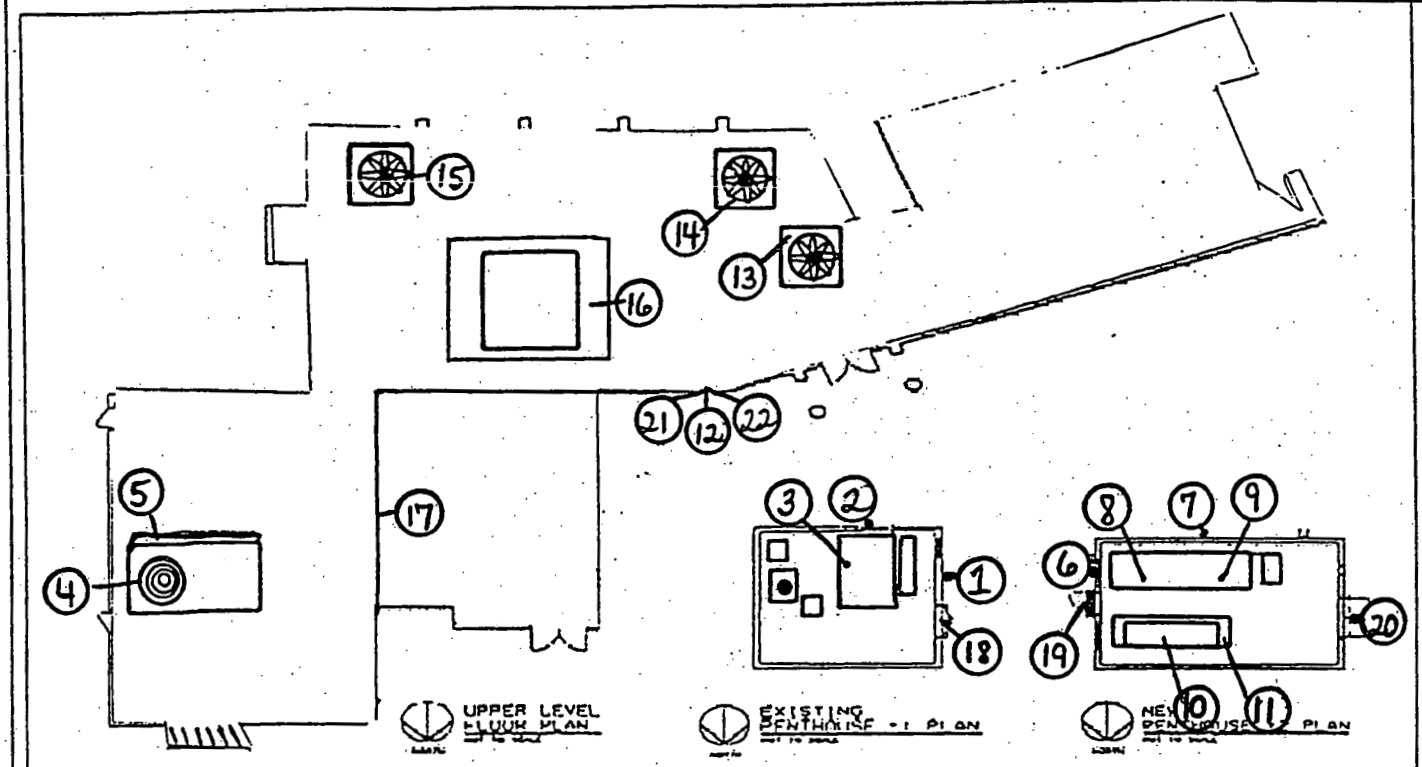

Figure 2-3. Building 45 Upper Level Floor Plan

- Direct scan and pause survey conducted at each smear location
- See attached for integrated count results, Bkgd and D.L.

LEGEND:

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

- # - mrem/hr neutron
- # - swipe number
- # - air sample number
- #/α or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5752/5732	10-23-04
	A	
	N	

[redacted]	HP# 7244	Date: 11-24-04
	HP#	Date:
Counted by: (Printed Name) Attached		
Review [redacted]	HP# 7707	Date: 11/29/04
Reviewed/Approved by: (Pr [redacted]		

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET
MAP/DRAWING Continuation Page

Survey No. 04-TF-0305

MAP/DRAWING

Integrated count results were close to or above 100 dpm/100cm² alpha at locations 6 - 12 - 19
- surfaces were then covered and resurveyed ~~at a later time~~ (Rec 11-29-04) ~ 1.5 hrs later.
- results were still close to or above 100 dpm/100cm² alpha
- a third survey conducted the following day after recovering ~ again with similar results (9-29-04)

Acid Etch required at location #12 See Attached Results on Pages 10 + 11

	9-28-04	9-29-04	10-22-04
2360-89 Bkgd.	2.2 cpm α 192.8 cpm β⁻	2 cpm α 2724 cpm β⁻	2.2 cpm α 314.4 cpm β⁻
D.L.	2.2 cpm α 20 cpm β⁻	1.8 cpm α 20 cpm β⁻	2.2 cpm α 20 cpm β⁻

Acid etch sampling was performed on 10-22-04 - Direct readings performed prior to and after etching. Readings were as follows:

	α dpm/100cm²	β⁻ dpm/100cm²
Prior:	168	3024
After:	88	1420

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

Survey No. 04-TF-0305

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			O/s wall
2				↓
3				I/s vent housing
4				A.C. exhaust
5				intake
6				O/s walls
7				↓
8				I/s vent housing
9				↓
10				pump pedestal
11				↓
12				ledge
13				drain
14				↓
15				↓
16				air conditioner
17				ledge
18				O/s doors
19				↓
20				↓
21				resmear of #12
22	↓	↓	↓	↓
		NFE		

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

COMMENTS: O/s = outside I/s = inside NFE = No Further Entries

All smears field checked with 2360 prior to submitting to count lab.

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)

BLDG 45 CHARACTERIZATION SURVEY UNIT-17 (roof)

RSDS#: 04-TF-0305 RCT: JMC RCT: NA

43-89 ALPHA BKG:	0	Factor	8	PROBE AREA:	100	cm2	Surface Eff:	1	ALPHA	1
43-89 BETA BKG:	0	Factor	4	PROBE AREA:	100	cm2	Surface Eff:	1	BETA	2

LOCATION	2360#	RCT ID	PROBE	TYPE: 1 or 2	ITEM #	DATE	TIME	CNTS	CT TIME (sec)	dpm/100cm2
U-17 01	5752	7244	5732	1	1	9/28/04	10:05	18	120	72
U-17 02	5752	7244	5732	1	2	9/28/04	10:10	8	120	32
U-17 03	5752	7244	5732	1	3	9/28/04	10:15	9	120	36
U-17 04	5752	7244	5732	1	4	9/28/04	10:20	15	120	60
U-17 05	5752	7244	5732	1	5	9/28/04	10:25	14	120	56
U-17 06	**5752**	**7244**	**5732**	**1**	**6**	9/28/04	10:30	**32**	**120**	**128**
U-17 07	5752	7244	5732	1	7	9/28/04	10:35	19	120	76
U-17 08	5752	7244	5732	1	8	9/28/04	10:40	7	120	28
U-17 09	5752	7244	5732	1	9	9/28/04	10:45	6	120	24
U-17 10	5752	7244	5732	1	10	9/28/04	10:50	9	120	36
U-17 11	5752	7244	5732	1	11	9/28/04	10:55	4	120	16
U-17 12	**5752**	**7244**	**5732**	**1**	**12**	9/28/04	11:00	**64**	**120**	**256** (Rea
U-17 13	5752	7244	5732	1	13	9/28/04	11:05	24	120	96
U-17 14	5752	7244	5732	1	14	9/28/04	11:10	24	120	96
U-17 15	5752	7244	5732	1	15	9/28/04	11:15	20	120	80
U-17 16	5752	7244	5732	1	16	9/28/04	11:20	15	120	60
U-17 17	5752	7244	5732	1	17	9/28/04	11:25	19	120	76
U-17 18	5752	7244	5732	1	18	9/28/04	11:30	16	120	64
U-17 19	**5752**	**7244**	**5732**	**1**	**19**	9/28/04	11:35	**24**	**120**	**96**
U-17 20	5752	7244	5732	1	20	9/28/04	11:40	22	120	88
U-17 01	5752	7244	5732	2	1	9/28/04	10:05	790	120	1580
U-17 02	5752	7244	5732	2	2	9/28/04	10:10	529	120	1058
U-17 03	5752	7244	5732	2	3	9/28/04	10:15	550	120	1100
U-17 04	5752	7244	5732	2	4	9/28/04	10:20	601	120	1202
U-17 05	5752	7244	5732	2	5	9/28/04	10:25	507	120	1014
U-17 06	5752	7244	5732	2	6	9/28/04	10:30	690	120	1380
U-17 07	5752	7244	5732	2	7	9/28/04	10:35	706	120	1412
U-17 08	5752	7244	5732	2	8	9/28/04	10:40	481	120	962
U-17 09	5752	7244	5732	2	9	9/28/04	10:45	546	120	1092

LOCATION	2360#	RCT ID	PROBE	TYPE: 1 or 2	ITEM #	DATE	TIME	CNTS	CT TIME (sec)	dpm/100cm2
U-17 10	5752	7244	5732	2	10	9/28/04	10:50	710	120	1420
U-17 11	5752	7244	5732	2	11	9/28/04	10:55	539	120	1078
U-17 12	5752	7244	5732	2	12	9/28/04	11:00	756	120	1512
U-17 13	5752	7244	5732	2	13	9/28/04	11:05	613	120	1226
U-17 14	5752	7244	5732	2	14	9/28/04	11:10	540	120	1080
U-17 15	5752	7244	5732	2	15	9/28/04	11:15	559	120	1118
U-17 16	5752	7244	5732	2	16	9/28/04	11:20	633	120	1266
U-17 17	5752	7244	5732	2	17	9/28/04	11:25	666	120	1332
U-17 18	5752	7244	5732	2	18	9/28/04	11:30	761	120	1522
U-17 19	5752	7244	5732	2	19	9/28/04	11:35	1010	120	2020
U-17 20	5752	7244	5732	2	20	9/28/04	11:40	364	120	728
U-17 06	5752	7244	5732	1	21	9/28/04	12:30	28	120	112
U-17 12	5752	7244	5732	1	22	9/28/04	12:35	56	120	224 (Reading 2)
U-17 19	5752	7244	5732	1	23	9/28/04	12:40	19	120	76
U-17 06	5752	7244	5732	2	21	9/28/04	12:30	697	120	1394
U-17 12	5752	7244	5732	2	22	9/28/04	12:35	695	120	1390
U-17 19	5752	7244	5732	2	23	9/28/04	12:40	966	120	1932
U-17 06	5752	7244	5732	1	24	9/29/04	13:00	23	120	92
U-17 12	5752	7244	5732	1	25	9/29/04	13:05	65	120	260 (Reading 3)
U-17 19	5752	7244	5732	1	26	9/29/04	13:10	18	120	72
U-17 06	5752	7244	5732	2	24	9/29/04	13:00	292	120	584
U-17 12	5752	7244	5732	2	25	9/29/04	13:05	740	120	1480
U-17 19	5752	7244	5732	2	26	9/29/04	13:10	972	120	1944
U-17 06	5752	7244	5732	1	27	10/22/04	11:30	10	120	40
U-17 12	5752	7244	5732	1	28	10/22/04	11:35	22	120	88 (post acid etch)
U-17 19	5752	7244	5732	1	29	10/22/04	11:40	14	120	56
U-17 06	5752	7244	5732	2	27	10/22/04	11:30	290	120	580
U-17 12	5752	7244	5732	2	28	10/22/04	11:35	710	120	1420
U-17 19	5752	7244	5732	2	29	10/22/04	11:40	874	120	1748

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR001
Batch Ended: 9/29/04 7:49

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: COLLINS 04-TF-0305 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.92	2.16		0.00	1.33	
A2	2	0.00	2.23		1.79	2.20	
A3	3	0.00	2.20		1.70	2.15	
A4	4	1.40	2.04		0.00	1.78	
B1	5	0.00	1.90		0.00	1.21	
B2	6	1.49	2.09		0.90	2.39	
B3	7	0.00	1.93		0.00	1.80	
B4	8	0.00	1.89		0.00	1.65	
C1	9	0.00	2.41		3.17	3.32	
C2	10	0.00	2.15		0.00	1.44	
C3	11	0.00	2.08		0.00	1.39	
C4	12	0.00	2.05		0.00	1.35	
D1	13	1.26	2.19		0.00	1.53	
D2	14	0.00	2.23		1.26	2.19	
D3	15	0.00	1.95		0.00	2.04	
D4	16	0.00	2.15		0.00	1.44	
A1	17	0.00	2.16		0.00	1.33	
A2	18	0.00	2.20		0.00	1.30	
A3	19	0.00	2.16		0.00	1.27	
A4	20	0.00	2.05		1.15	2.16	

JC JC

JC ~~Page 1 of 1~~ 9/30/04

J. Collins

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR004
Batch Ended: 11/23/04 10:17

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: COLLINS 04-TF-0305 [2] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1 JC 11/24/04	~~1~~ 21	0.00	2.16		0.00	1.33	
A2 JC 11/24/04	~~2~~ 22	1.74	2.21		0.37	1.81	

JC JC

JG 11/22/04 ~~Page 1 of 1~~ page 7 of 11

J. Collins

29 Sep 2004 08:33 ALPHA/BETA - 1.09
Protocol #: 3 PW 3 403727 User : 213

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	7.98
Region B:	2.0	- 18.6	0	0.0	7.75
Region C:	40.0	- 2000	0	0.0	12.81

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
04-TF-~~0302~~ COLLINS (20) AG 04-TF-0305
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT3.dat
Count Data Filename: C:\DATA\SDATA3.DAT

SC 9.29.04

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.98	7.75	12.81	572.03	4	B		0.00
0	2.00	730.58	701.21	0.83	626.02	0		1395.79	125.87
1	2.00	61.52	54.65	62.52	636.07	1		116.37	24.11
2	2.00	1.02	0.92	0.00	626.99	0		1.95	8.79
3	2.00	0.00	0.00	0.00	512.36	0		0.00	0.00
4	2.00	0.00	0.00	0.00	563.78	0		0.00	0.00
5	2.00	0.00	0.00	0.00	539.90	0		0.00	0.00
6	2.00	2.02	1.57	0.00	636.71	0		3.83	9.11
7	2.00	2.02	1.14	0.00	652.51	0		3.77	8.97
8	2.00	0.00	0.00	0.00	587.25	0		0.00	0.00
9	2.00	0.00	0.00	0.00	647.35	0		0.00	0.00
10	2.00	0.00	0.00	0.00	518.21	0		0.00	0.00
11	2.00	0.00	0.00	0.00	633.59	0		0.00	0.00
12	2.00	0.00	0.00	0.00	639.32	0		0.00	0.00
13	2.00	0.00	0.00	0.00	532.98	13		0.00	0.00
14	2.00	2.02	2.12	0.00	518.41	5		4.33	10.31
15	2.00	4.52	3.69	0.00	450.94	52		10.57	12.43
16	2.00	0.00	0.00	0.00	547.99	0		0.00	0.00
17	2.00	0.00	0.00	0.00	650.16	0		0.00	0.00
18	2.00	0.00	0.00	0.00	562.47	11		0.00	0.00
19	2.00	0.00	0.00	0.00	625.70	0		0.00	0.00
20	2.00	0.00	0.00	0.00	645.79	0		0.00	0.00

JC

23 Nov 2004 13:01 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 6 PW H3 #403727 User : 2138

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5	- 18.6	0	0.0	7.38
Region B:	2.0	- 18.6	0	0.0	7.23
Region C:	40.0	- 2000	0	0.0	11.70

Quench Indicator: tSIE/AEC
~~Ext Std~~ Terminator: Count
04-TF-0305 J COLLINS (2) AG
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

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.38	7.23	11.70	586.78	8	B		0.00
0	2.00	654.30	629.38	1.30	622.92	0		1350.20	124.27
21 ~~1~~	2.00	0.62	0.77	0.00	652.83	0		1.26	8.80
22 ~~2~~	2.00	2.12	1.95	0.00	628.91	0		4.36	9.66

JC

04-TF-0305

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BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
10-22-04	Acid Etch	Hopkins	1
PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:		MAIL STOP:
BOSS			
CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
EA554A	10-22-04		

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
0405981	Bldg. 45 Roof	1	

COMMENTS:

ANALYZED BY: R. A. Hopkins

DATE: 10-23-04

ML-5222 (1-01)

04-TF-0305

Laboratory ID#: 0405981
Project/function: BOSS
Submitted: Oct 22, 2004
Submitted by: L. Hopkins
Point of Contact:
RSDS#: N/A
Date: Oct 26, 2004

Lab ID 0405981
Sample Location Bldg 45 Etch #1

Isotope	pCi/g	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.61
Pu-239/240	<LDL	<LDL	0.77
Th-227	0.47	0.16	0.39
Th-228	0.36	0.12	0.10
Th-230	1.91	0.30	0.10
Th-232	<LDL	<LDL	0.26
U-233/234	<LDL	<LDL	0.75
U-235	<LDL	<LDL	0.75
U-238	<LDL	<LDL	0.75
Po-210	19.12	2.30	1.14

[redacted]

1585 10-26-04
HP # Date

Data Verification 1585 10-26-04
HP # Date

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~~Page 8 of 8~~

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - lower level	SURVEY NO. 04-TF-0312
PURPOSE: MARSSIM Survey Unit-7 (floor)	RWP NO. N/A
	DATE: 10-6-04
	TIME: 1630

MAP / DRAWING

See Attached

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

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5708/5731	8-17-05
2350-1	5857/5859	9-15-05
	A	
	N	

[redacted]	HP# 7244	Date: 10-7-04
Completed by: (Print Na[redacted]		
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewed/A[redacted]	HP# 7707	Date: 10/12/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0312

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			Unit 7 floor
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
		NFE		

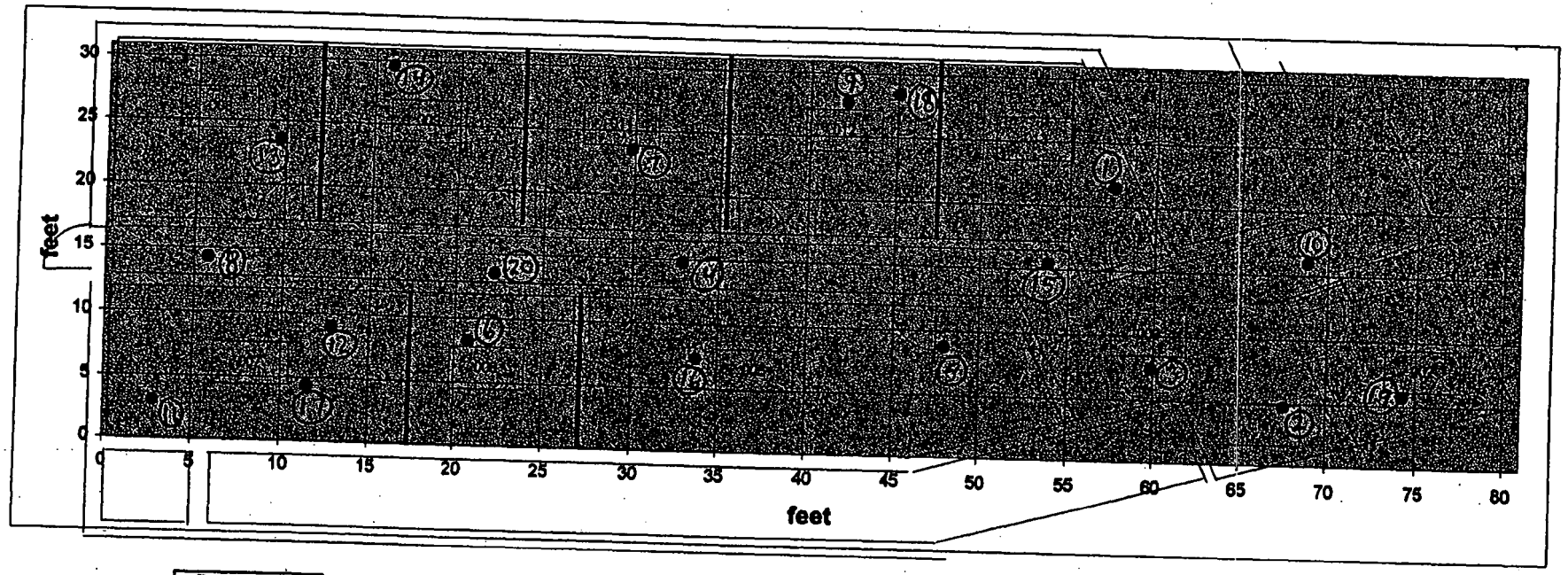
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
		NFE		

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)

04-TF-0312 Pg 3 of 7



	Basement Level SU 7 Coordinates		
	X	Y	Area
	82	31	2542sqft
1	58	21	
2	68	5	
3	60	8	
4	33	15	
5	48	9	
6	21	8	
7	30	24	
8	6	14	
9	42	28	
10	69	18	
11	3	3	
12	13	9	
13	10	24	
14	18	30	
15	54	16	
16	34	7	
17	12	4	
18	45	28	
19	74	6	
20	22	14	

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45-Building Final Status Survey Unit-7 (floors)

RSDS# 04-TF-0312 *RCT:* JMC *RCT:* N/A

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7244	5859	1		10/6/04	8:45	8	300	11
ALPHA	SRC CHECK	5857	7244	5859	1		10/6/04	8:56	2045	60	14132
ALPHA	SRC CHECK	5857	7244	5859	1		10/6/04	8:58	2055	60	14201
ALPHA	SRC CHECK	5857	7244	5859	1		10/6/04	8:59	1980	60	13682
ALPHA	SRC CHECK	5857	7244	5859	1		10/6/04	9:01	1955	60	13510
ALPHA	SU-7 01	5857	7244	5859	1	1	10/6/04	13:03	3	120	10
ALPHA	SU-7 02	5857	7244	5859	1	2	10/6/04	13:08	5	120	17
ALPHA	SU-7 03	5857	7244	5859	1	3	10/6/04	13:13	3	120	10
ALPHA	SU-7 04	5857	7244	5859	1	4	10/6/04	13:17	1	120	3
ALPHA	SU-7 05	5857	7244	5859	1	5	10/6/04	13:21	5	120	17
ALPHA	SU-7 06	5857	7244	5859	1	6	10/6/04	13:25	3	120	10
ALPHA	SU-7 07	5857	7244	5859	1	7	10/6/04	13:28	1	120	3
ALPHA	SU-7 08	5857	7244	5859	1	8	10/6/04	13:32	1	120	3
ALPHA	SU-7 09	5857	7244	5859	1	9	10/6/04	13:36	2	120	7
ALPHA	SU-7 10	5857	7244	5859	1	10	10/6/04	13:40	2	120	7
ALPHA	SU-7 11	5857	7244	5859	1	11	10/6/04	13:43	4	120	14
ALPHA	SU-7 12	5857	7244	5859	1	12	10/6/04	13:47	3	120	10
ALPHA	SU-7 13	5857	7244	5859	1	13	10/6/04	13:50	3	120	10
ALPHA	SU-7 14	5857	7244	5859	1	14	10/6/04	13:54	5	120	17
ALPHA	SU-7 15	5857	7244	5859	1	15	10/6/04	13:58	6	120	21
ALPHA	SU-7 16	5857	7244	5859	1	16	10/6/04	14:01	4	120	14
ALPHA	SU-7 17	5857	7244	5859	1	17	10/6/04	14:05	7	120	24
ALPHA	SU-7 18	5857	7244	5859	1	18	10/6/04	14:09	6	120	21
ALPHA	SU-7 19	5857	7244	5859	1	19	10/6/04	14:12	6	120	21
ALPHA	SU-7 20	5857	7244	5859	1	20	10/6/04	14:16	1	120	3
BETA	SRC BKG	5857	7244	5859	2		10/6/04	9:10	664	300	1131
BETA	SRC CHECK	5857	7244	5859	2		10/6/04	9:21	2783	60	23712
BETA	SRC CHECK	5857	7244	5859	2		10/6/04	9:28	2601	60	22161
BETA	SRC CHECK	5857	7244	5859	2		10/6/04	9:34	2743	60	23371
BETA	SRC CHECK	5857	7244	5859	2		10/6/04	9:43	2535	60	21599
BETA	SU-7 01	5857	7244	5859	2	1	10/6/04	13:04	193	60	1644
BETA	SU-7 02	5857	7244	5859	2	2	10/6/04	13:09	168	60	1431
BETA	SU-7 03	5857	7244	5859	2	3	10/6/04	13:14	205	60	1747
BETA	SU-7 04	5857	7244	5859	2	4	10/6/04	13:18	170	60	1448
BETA	SU-7 05	5857	7244	5859	2	5	10/6/04	13:22	201	60	1713
BETA	SU-7 06	5857	7244	5859	2	6	10/6/04	13:26	187	60	1593
BETA	SU-7 07	5857	7244	5859	2	7	10/6/04	13:29	196	60	1670
BETA	SU-7 08	5857	7244	5859	2	8	10/6/04	13:33	201	60	1713

45-Building Final Status Survey Unit-7 (floors)

RSDS# 04-TF-0312 ***RCT:*** JMC ***RCT:*** _____

Alpha	43-66 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-66 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU-7 09	5857	7244	5859	2	9	10/6/04	13:37	207	60	1764
BETA	SU-7 10	5857	7244	5859	2	10	10/6/04	13:41	177	60	1508
BETA	SU-7 11	5857	7244	5859	2	11	10/6/04	13:44	191	60	1627
BETA	SU-7 12	5857	7244	5859	2	12	10/6/04	13:48	191	60	1627
BETA	SU-7 13	5857	7244	5859	2	13	10/6/04	13:52	220	60	1874
BETA	SU-7 14	5857	7244	5859	2	14	10/6/04	13:55	198	60	1687
BETA	SU-7 15	5857	7244	5859	2	15	10/6/04	13:59	208	60	1772
BETA	SU-7 16	5857	7244	5859	2	16	10/6/04	14:02	184	60	1568
BETA	SU-7 17	5857	7244	5859	2	17	10/6/04	14:06	213	60	1815
BETA	SU-7 18	5857	7244	5859	2	18	10/6/04	14:10	204	60	1738
BETA	SU-7 19	5857	7244	5859	2	19	10/6/04	14:13	235	60	2002
BETA	SU-7 20	5857	7244	5859	2	20	10/6/04	14:17	206	60	1755

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR001
Batch Ended: 10/7/04 9:21

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0312 COLLINS A/B (20) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.17		0.00	1.83	
A2	2	1.74	2.23		1.62	2.20	
A3	3	0.00	2.18		0.48	1.76	
A4	4	0.00	2.04		0.00	1.78	
B1	5	0.00	1.92		0.00	1.64	
B2	6	1.49	2.09		0.90	2.39	
B3	7	0.00	1.92		0.00	1.32	
B4	8	0.00	1.89		0.00	1.65	
C1	9	0.00	2.44		5.84	3.82	
C2	10	0.00	2.23		3.64	3.31	
C3	11	0.00	2.10		0.00	1.90	
C4	12	0.00	2.05		0.00	1.35	
D1	13	3.19	3.07		0.00	2.09	
D2	14	4.14	3.14		3.18	2.81	
D3	15	1.27	1.96		2.66	2.86	
D4	16	0.00	2.16		0.00	1.98	
A1	17	0.00	2.19		0.96	2.23	
A2	18	0.00	2.24		3.04	2.54	
A3	19	0.00	2.16		0.00	1.27	
A4	20	1.40	2.04		0.00	1.78	

JC JC

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JC ~~Page 1 of 1~~
10/7/04
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AP

07 Oct 2004 10:30 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 5 PW H3 405827 User : 2324

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

	LL	UL	LCR	2SI	BKG
Region A:	0.5	18.6	0	0.0	8.75
Region B:	2.0	18.6	0	0.0	7.71
Region C:	40.0	2000	0	0.0	10.90

Quench Indicator: tSIE/AEC
~~Ext Std Terminator~~: Count
COLLINS 04-TF-0312 1-20 JC
~~Luminescence Correction~~ On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT5.dat
Count Data Filename: C:\DATA\SDATA5.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	8.75	7.71	24	B	639.89		0.000	10.90
0	2.00	753.17	691.34	1		643.07	1343.81	99.119	1.05
1	2.00	0.00	0.00	12		598.49	0.00	0.000	0.00
2	2.00	5.49	5.24	3		593.27	10.17	10.656	0.00
3	2.00	0.00	0.00	0		625.66	0.00	0.000	0.00
4	2.00	0.16	1.02	5		615.69	0.28	8.603	0.10
5	2.00	0.00	0.00	9		596.10	0.00	0.000	2.60
6	2.00	3.92	4.47	8		629.81	7.07	9.850	2.60
7	2.00	0.00	0.00	0		613.73	0.00	0.000	2.60
8	2.00	0.00	0.00	17		554.39	0.00	0.000	0.00
9	2.00	0.51	1.23	5		624.06	0.92	8.683	0.00
10	2.00	0.39	0.93	5		617.28	0.72	8.684	0.00
11	2.00	0.00	0.00	0		631.99	0.00	0.000	0.10
12	2.00	0.00	0.00	0		609.88	0.00	0.000	0.00
13	2.00	16.54	15.96	2		618.21	30.06	13.582	9.60
14	2.00	2.75	2.61	0		636.85	4.94	9.404	0.00
15	2.00	0.00	0.00	8		630.68	0.00	0.000	0.00
16	2.00	0.75	0.17	5		619.84	1.37	8.803	0.00
17	2.00	1.82	2.36	5		612.74	3.32	9.244	0.00
18	2.00	23.23	22.28	2		627.13	41.95	15.099	14.60
19	2.00	0.00	0.00	8		594.16	0.00	0.000	0.00
20	2.00	0.00	0.00	6		606.17	0.00	0.000	0.00

JC

J. Collins

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 unit 1	SURVEY NO. 04-TF-0313
PURPOSE: MARSSIM Survey unit 1	RWP NO. NA
	DATE: 10-4-04
	TIME: 1400

MAP / DRAWING

See map

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
L2350	5857	7-15-05
	N	

[redacted] 7816		Date: 10-4-04
Counted by: (Signature) See attached	HP#	Date:
Counted by: (Print Name)		
Reviewed [redacted]	HP# 7707	Date: 10/13/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0313

RADIOLOGICAL SURVEY DATA SHEET

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				
			N/A	

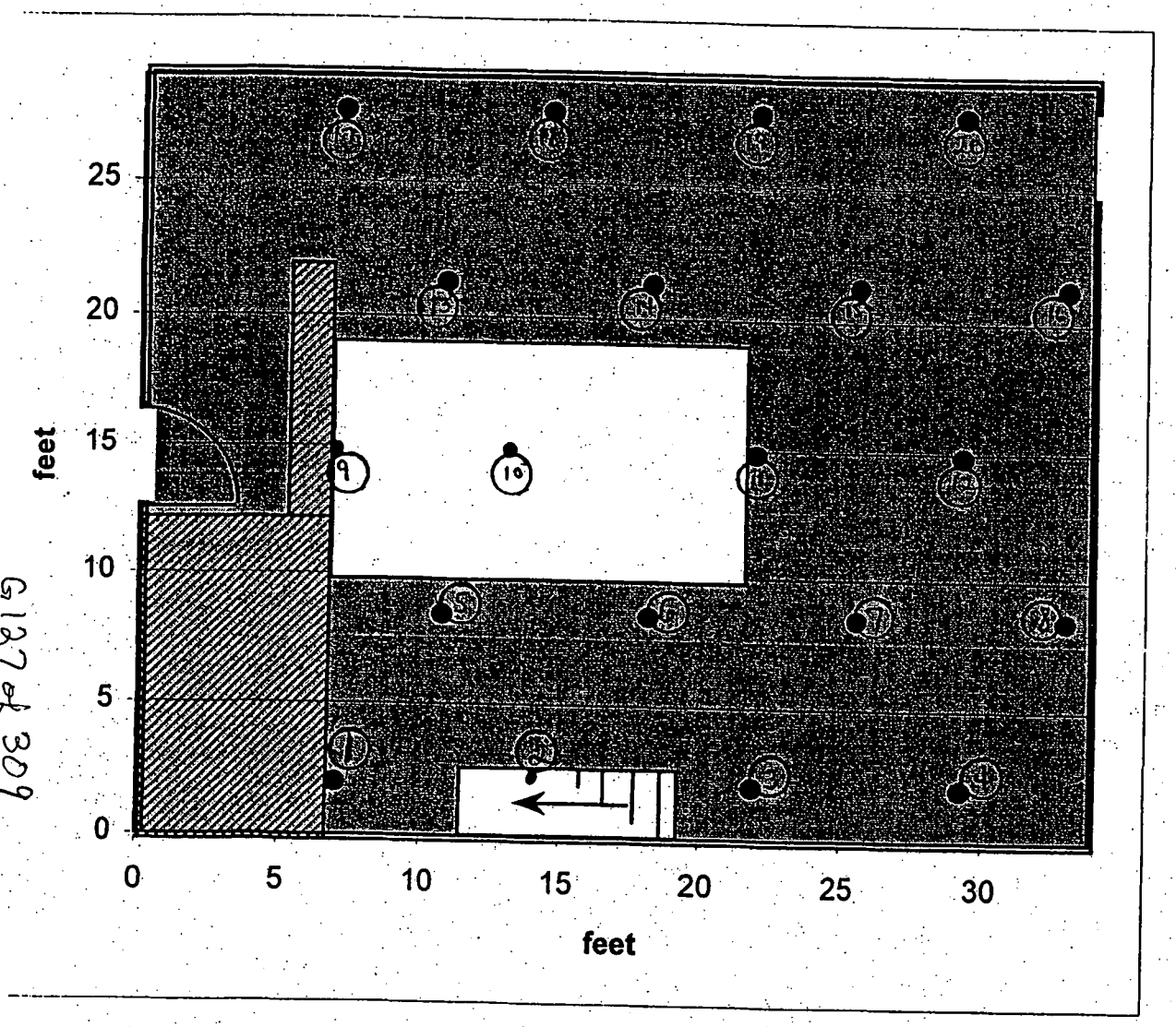
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
		N/A		

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 needed, mark N/A.

ML-9620A (4-98)

SPF 45-01
Attachment 3



	Room 001	
	SU 1	
	Coordinates	
	X'	Y'
	33.5	28.5
1	7.0	2.0
2	14.4	2.0
3	21.8	2.0
4	29.3	2.0
5	10.7	8.4
6	18.1	8.4
7	25.6	8.4
8	33.0	8.4
9	7.0	14.9
10	14.4	14.9
11	21.8	14.9
12	29.3	14.9
13	10.7	21.3
14	18.1	21.3
15	25.6	21.3
16	33.0	21.3
17	7.0	27.7
18	14.4	27.7
19	21.8	27.7
20	29.3	27.7

Area = 955sqft
L = 7
L' = 6

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45-Building Characterization Survey Unit 1

RSDS# 04-TF-0313 *RCT:* LAO *RCT:* GSH

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm^2	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.165	PROBE AREA	126	cm^2	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.206	PROBE AREA	584	cm^2	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7836	5859	1		10/4/04	9:55	5	300	8
ALPHA	SRC CHECK	5857	7836	5859	1		10/4/04	9:57	2106	60	15918
ALPHA	SRC CHECK	5857	7836	5859	1		10/4/04	9:59	1906	60	14407
ALPHA	SRC CHECK	5857	7836	5859	1		10/4/04	10:02	2064	60	15601
ALPHA	SRC CHECK	5857	7836	5859	1		10/4/04	10:04	2098	60	15858
ALPHA	SU-1 01	5857	7836	5859	1	1	10/4/04	13:26	9	120	34
ALPHA	SU-1 02	5857	7836	5859	1	2	10/4/04	13:30	7	120	26
ALPHA	SU-1 03	5857	7836	5859	1	3	10/4/04	13:34	4	120	15
ALPHA	SU-1 04	5857	7836	5859	1	4	10/4/04	13:38	6	120	23
ALPHA	SU-1 05	5857	7836	5859	1	5	10/4/04	13:42	7	120	26
ALPHA	SU-1 06	5857	7836	5859	1	6	10/4/04	13:46	9	120	34
ALPHA	SU-1 07	5857	7836	5859	1	7	10/4/04	13:50	7	120	26
ALPHA	SU-1 08	5857	7836	5859	1	8	10/4/04	13:54	22	120	83
ALPHA	SU-1 09	5857	7836	5859	1	9	10/4/04	13:58	8	120	30
ALPHA	SU-1 10	5857	7836	5859	1	10	10/4/04	14:03	8	120	30
ALPHA	SU-1 11	5857	7836	5859	1	11	10/4/04	14:08	8	120	30
ALPHA	SU-1 12	5857	7836	5859	1	12	10/4/04	14:11	3	120	11
ALPHA	SU-1 13	5857	7836	5859	1	13	10/4/04	14:15	5	120	19
ALPHA	SU-1 14	5857	7836	5859	1	14	10/4/04	14:19	5	120	19
ALPHA	SU-1 15	5857	7836	5859	1	15	10/4/04	14:22	12	120	45
ALPHA	SU-1 16	5857	7836	5859	1	16	10/4/04	14:26	6	120	23
ALPHA	SU-1 17	5857	7836	5859	1	17	10/4/04	14:30	11	120	42
ALPHA	SU-1 18	5857	7836	5859	1	18	10/4/04	14:34	13	120	49
ALPHA	SU-1 19	5857	7836	5859	1	19	10/4/04	14:38	5	120	19
ALPHA	SU-1 20	5857	7836	5859	1	20	10/4/04	14:41	13	120	49
BETA	SRC BKG	5857	7836	5859	2		10/4/04	10:10	961	300	1849
BETA	SRC CHECK	5857	7836	5859	2		10/4/04	10:18	2772	60	26667
BETA	SRC CHECK	5857	7836	5859	2		10/4/04	10:20	2810	60	27032
BETA	SRC CHECK	5857	7836	5859	2		10/4/04	10:21	2870	60	27609
BETA	SRC CHECK	5857	7836	5859	2		10/4/04	10:23	2921	60	28100
BETA	SU-1 01	5857	7836	5859	2	1	10/4/04	13:27	252	60	2424
BETA	SU-1 02	5857	7836	5859	2	2	10/4/04	13:31	263	60	2530
BETA	SU-1 03	5857	7836	5859	2	3	10/4/04	13:35	287	60	2761
BETA	SU-1 04	5857	7836	5859	2	4	10/4/04	13:39	283	60	2722
BETA	SU-1 05	5857	7836	5859	2	5	10/4/04	13:43	282	60	2713
BETA	SU-1 06	5857	7836	5859	2	6	10/4/04	13:47	307	60	2953
BETA	SU-1 07	5857	7836	5859	2	7	10/4/04	13:51	287	60	2761
BETA	SU-1 08	5857	7836	5859	2	8	10/4/04	13:55	269	60	2588

45-Building Characterization Survey Unit 1

RSDS# 04-TF-0313 *RCT:* LAO *RCT:* GSH

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.165	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.208	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU-1 09	5857	7836	5859	2	9	10/4/04	13:59	198	60	1905
BETA	SU-1 10	5857	7836	5859	2	10	10/4/04	14:05	173	60	1664
BETA	SU-1 11	5857	7836	5859	2	11	10/4/04	14:09	172	60	1655
BETA	SU-1 12	5857	7836	5859	2	12	10/4/04	14:12	303	60	2915
BETA	SU-1 13	5857	7836	5859	2	13	10/4/04	14:16	270	60	2597
BETA	SU-1 14	5857	7836	5859	2	14	10/4/04	14:20	310	60	2982
BETA	SU-1 15	5857	7836	5859	2	15	10/4/04	14:24	292	60	2809
BETA	SU-1 16	5857	7836	5859	2	16	10/4/04	14:27	263	60	2530
BETA	SU-1 17	5857	7836	5859	2	17	10/4/04	14:31	275	60	2646
BETA	SU-1 18	5857	7836	5859	2	18	10/4/04	14:35	274	60	2636
BETA	SU-1 19	5857	7836	5859	2	19	10/4/04	14:39	296	60	2848
BETA	SU-1 20	5857	7836	5859	2	20	10/4/04	14:42	284	60	2732

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR004
Batch Ended: 10/6/04 9:54

Crosstalk correction performed.

GM

Batch ID: 04-TF-0313 L.OEFFNER A/B (20) AG

Recalibration Date: 03/18/05
Serial Number: 26966-1

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.92	2.16		0.00	1.33	
A2	2	0.00	2.23		1.79	2.20	
A3	3	0.00	2.24		4.14	2.76	
A4	4	0.00	2.08		3.60	2.77	
B1	5	0.00	1.94		0.00	1.98	
B2	6	0.00	2.07		0.00	2.08	
B3	7	1.51	1.96		1.15	2.50	
B4	8	0.00	1.89		0.00	1.65	
C1	9	4.12	3.30		0.13	2.73	
C2	10	0.00	2.18		0.00	2.37	
C3	11	0.00	2.08		0.00	1.40	
C4	12	0.00	2.09		1.24	2.57	
D1	13	0.00	2.20		0.00	2.08	
D2	14	2.02	2.20		0.00	1.80	
D3	15	1.18	1.97		4.06	3.19	
D4	16	0.00	2.16		0.63	2.39	
A1	17	1.92	2.19		0.79	2.23	
A2	18	0.00	2.23		1.79	2.20	
A3	19	0.00	2.22		2.92	2.47	
A4	20	0.00	2.07		2.38	2.49	

GM GM

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	10.05
Region B:	2.0 -	18.6	0	0.0	9.20
Region C:	40.0 -	2000	0	0.0	10.20

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
OFFNER 04-TF-0313 GM1-20 JC
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT4.DAT
Count Data Filename: C:\DATA\SDATA4.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	10.05	9.20	2	B	572.32		0.00	10.20
0	2.00	775.14	710.19	0		633.27	1409.07	104.84	0.00
1	2.00	0.00	0.00	0		593.78	0.00	0.00	0.00
2	2.00	0.00	0.00	0		623.23	0.00	0.00	0.80
3	2.00	1.95	1.17	0		623.51	3.57	9.70	0.00
4	2.00	0.00	0.00	0		608.14	0.00	0.00	0.00
5	2.00	0.45	0.00	0		628.93	0.81	9.13	0.00
6	2.00	0.00	0.00	0		633.93	0.00	0.00	0.00
7	2.00	0.00	0.00	0		624.78	0.00	0.00	0.00
8	2.00	5.13	1.71	0		593.09	9.64	11.03	0.07
9	2.00	0.00	0.00	0		646.50	0.00	0.00	0.00
10	2.00	0.00	0.00	0		640.83	0.00	0.00	0.00
11	2.00	0.00	0.00	0		609.62	0.00	0.00	0.00
12	2.00	0.76	0.62	0		598.02	1.42	9.48	0.00
13	2.00	1.58	0.00	0		617.10	2.92	9.62	1.80
14	2.00	1.13	0.47	0		602.60	2.10	9.57	0.00
15	2.00	0.00	0.00	0		596.25	0.00	0.00	0.00
16	2.00	0.00	0.00	0		616.01	0.00	0.00	0.80
17	2.00	0.00	0.00	0		595.51	0.00	0.00	0.00
18	2.00	0.00	0.00	0		614.61	0.00	0.00	0.00
19	2.00	0.62	0.00	0		614.03	1.15	9.30	0.00
20	2.00	2.25	1.30	0		597.16	4.21	10.02	0.00

GM

J. Ballesteros

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg-45 Room 121 Unit 2	SURVEY NO. 04-TF-0315
PURPOSE: MARSSIM Final Status survey (floors)	RWP NO. N/A
	DATE: 10-20-04
	TIME: 1500

MAP / DRAWING

* See Map and attachments for results.

See RSDS# 04-TF-0345 For follow up Reading on Location SU-2-09

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
Lud 2350	5855/5864	6-9-05
Lud 2360	5708/5731	8/17/05
	A	
	N	

Completed by: (Sig[redacted]	HP# 7826	Date: 10-20-04
Completed by: (Print Na[redacted]		
Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Print Name)		
Reviewed/Ap[redacted]	HP# 7707	Date: 11/4/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0315

RADIOLOGICAL SURVEY DATA SHEET

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

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

COMMENTS: All smears field counted w/ Lud 2360 ; < 1Kdpm/100 cm² α, β⁻

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)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR005
Batch Ended: 10/6/04 10:05

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0315 OEFFNER A/B (20) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.19		0.96	2.23	
A2	2	0.00	2.23		1.79	2.20	
A3	3	1.60	2.17		0.00	1.27	
A4	4	0.00	2.04		0.00	1.78	
B1	5	1.68	1.99		1.89	2.54	
B2	6	1.49	2.13		3.24	2.91	
B3	7	0.00	1.96		1.32	2.50	
B4	8	1.48	1.92		1.39	2.30	
C1	9	0.00	2.41		3.17	3.32	
C2	10	0.95	2.15		0.00	1.44	
C3	11	0.00	2.08		0.00	1.39	
C4	12	0.00	2.07		0.00	2.23	
D1	13	2.78	3.10		4.25	3.53	
D2	14	0.00	2.23		1.26	2.19	
D3	15	0.00	1.96		1.37	2.48	
D4	16	0.00	2.17		1.98	2.75	
A1	17	0.00	2.22		3.49	2.86	
A2	18	0.00	2.21		0.54	1.81	
A3	19	1.60	2.19		0.28	1.76	
A4	20	0.00	2.07		2.38	2.49	

NO NO

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06 Oct 2004 10:33 ALPHA/BETA - 1.09 Page ~~#1~~ 4 of 20
Protocol #: 3 PW H3 405827 User : 2324

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	11.99
Region B:	2.0 -	18.6	0	0.0	10.22
Region C:	40.0 -	2000	0	0.0	12.60

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
OFFNER 04-TF-0315 1-20 JC
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA3.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	11.99	10.22	22	B	636.84		0.000	12.60
0	2.00	829.70	754.28	2		642.38	1480.96	106.344	0.00
1	2.00	0.00	0.00	15		626.82	0.00	0.000	0.00
2	2.00	0.00	0.00	8		636.27	0.00	0.000	0.00
3	2.00	0.00	0.00	0		644.98	0.00	0.000	0.00
4	2.00	0.00	0.00	7		628.75	0.00	0.000	0.00
5	2.00	2.01	3.42	4		644.61	3.58	10.206	0.00
6	2.00	0.00	0.31	4		627.00	0.00	0.000	1.58
7	2.00	0.00	0.00	0		639.79	0.00	0.000	0.00
8	2.00	0.00	0.00	0		616.77	0.00	0.000	0.40
9	2.00	0.00	0.00	5		622.30	0.00	0.000	0.00
10	2.00	0.00	0.00	5		651.28	0.00	0.000	0.00
11	2.00	0.00	0.00	10		621.04	0.00	0.000	0.00
12	2.00	0.00	0.00	4		634.14	0.00	0.000	0.00
13	2.00	0.00	0.00	7		655.57	0.00	0.000	0.00
14	2.00	0.00	0.28	4		602.68	0.00	0.000	0.00
15	2.00	0.00	0.00	5		614.38	0.00	0.000	0.00
16	2.00	0.00	0.00	7		631.08	0.00	0.000	0.40
17	2.00	0.00	0.00	6		636.27	0.00	0.000	0.00
18	2.00	0.00	0.00	0		614.70	0.00	0.000	0.00
19	2.00	0.00	0.00	0		633.96	0.00	0.000	0.00
20	2.00	0.00	0.00	0		653.96	0.00	0.000	0.00

45-Building Characterization Survey Unit 2 (Floor)

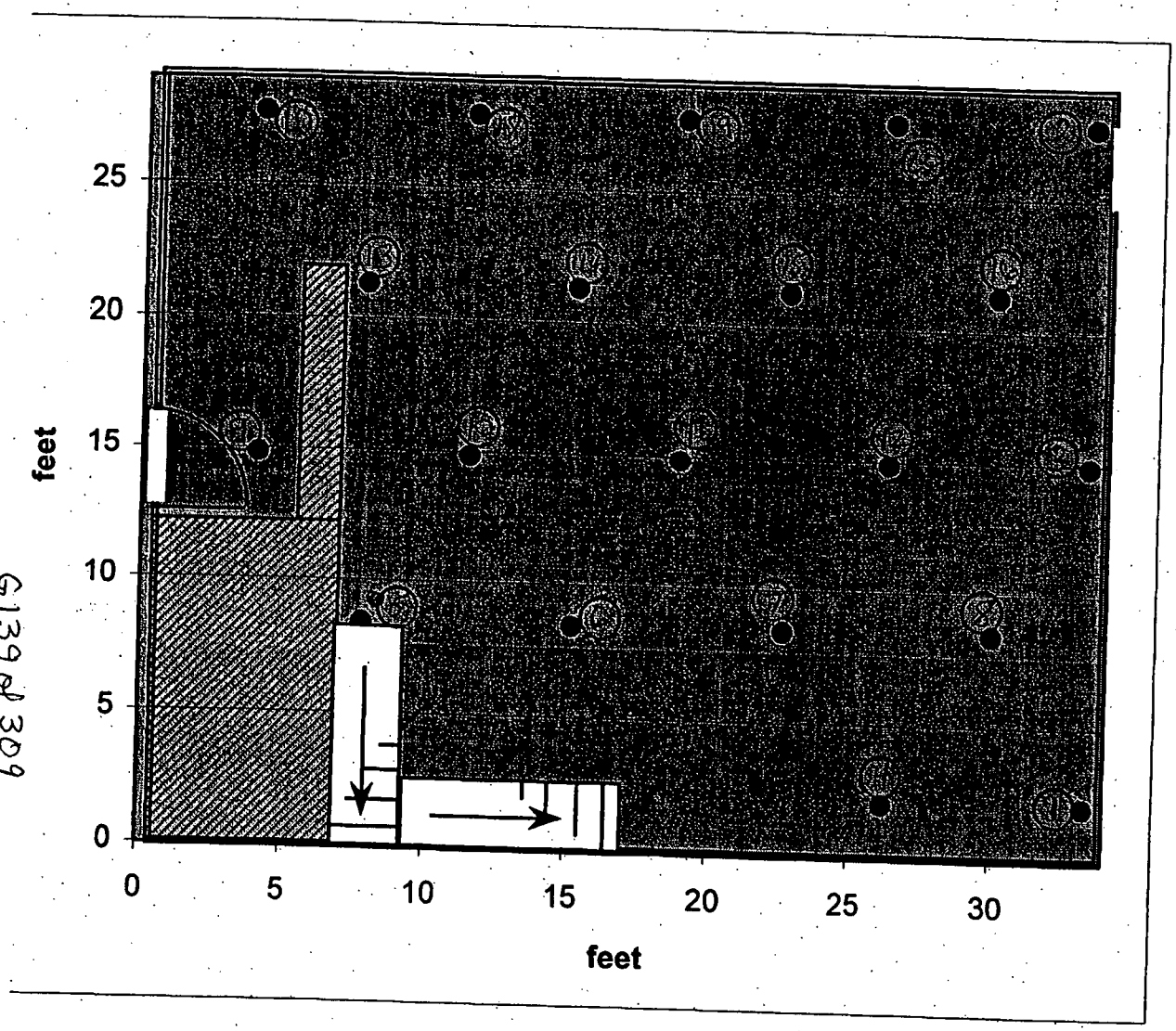
RSDS# 04-TF-0315 *RCT:* LAO *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.206	PROBE AREA	126	cm²	Surface Eff		0.5	Detector # 1
Beta	43-68 BKG	0	EFF	0.154	PROBE AREA	126	cm²	Surface Eff		0.5	Detector # 2
Scan	43-37 BKG	0	EFF	0.22	PROBE AREA	584	cm²	Surface Eff		0.5	Detector # 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	7836	5864	1		10/5/04	10:40	7	300	11
ALPHA	SRC CHECK	5855	7836	5864	1		10/5/04	10:46	1900	60	14640
ALPHA	SRC CHECK	5855	7836	5864	1		10/5/04	10:47	1934	60	14902
ALPHA	SRC CHECK	5855	7836	5864	1		10/5/04	10:48	1909	60	14710
ALPHA	SRC CHECK	5855	7836	5864	1		10/5/04	10:49	1933	60	14894
ALPHA	SU-2 01	5855	7836	5864	1	1	10/5/04	13:10	10	120	39
ALPHA	SU-2 02	5855	7836	5864	1	2	10/5/04	13:14	19	120	73
ALPHA	SU-2 03	5855	7836	5864	1	3	10/5/04	13:19	7	120	27
ALPHA	SU-2 04	5855	7836	5864	1	4	10/5/04	13:23	15	120	58
ALPHA	SU-2 05	5855	7836	5864	1	5	10/5/04	13:27	8	120	31
ALPHA	SU-2 06	5855	7836	5864	1	6	10/5/04	13:31	9	120	35
ALPHA	SU-2 07	5855	7836	5864	1	7	10/5/04	13:35	12	120	46
ALPHA	SU-2 08	5855	7836	5864	1	8	10/5/04	13:39	10	120	39
ALPHA	SU-2 09	5855	7836	5864	1	9	10/5/04	13:43	39	120	150
ALPHA	SU-2 10	5855	7836	5864	1	10	10/5/04	13:47	6	120	23
ALPHA	SU-2 11	5855	7836	5864	1	11	10/5/04	13:51	2	120	8
ALPHA	SU-2 12	5855	7836	5864	1	12	10/5/04	13:54	4	120	15
ALPHA	SU-2 13	5855	7836	5864	1	13	10/5/04	13:58	7	120	27
ALPHA	SU-2 14	5855	7836	5864	1	14	10/5/04	14:02	8	120	31
ALPHA	SU-2 15	5855	7836	5864	1	15	10/5/04	14:06	6	120	23
ALPHA	SU-2 16	5855	7836	5864	1	16	10/5/04	14:10	9	120	35
ALPHA	SU-2 17	5855	7836	5864	1	17	10/5/04	14:14	19	120	73
ALPHA	SU-2 18	5855	7836	5864	1	18	10/5/04	14:18	11	120	42
ALPHA	SU-2 19	5855	7836	5864	1	19	10/5/04	14:22	5	120	19
ALPHA	SU-2 20	5855	7836	5864	1	20	10/5/04	14:26	10	120	39
BETA	SRC BKG	5855	7836	5864	2		10/5/04	10:57	963	300	1985
BETA	SRC CHECK	5855	7836	5864	2		10/5/04	11:05	2647	60	27283
BETA	SRC CHECK	5855	7836	5864	2		10/5/04	11:06	2670	60	27520
BETA	SRC CHECK	5855	7836	5864	2		10/5/04	11:07	2662	60	27438
BETA	SRC CHECK	5855	7836	5864	2		10/5/04	11:08	2777	60	28623
BETA	SU-2 01	5855	7836	5864	2	1	10/5/04	13:11	209	60	2154
BETA	SU-2 02	5855	7836	5864	2	2	10/5/04	13:15	206	60	2123
BETA	SU-2 03	5855	7836	5864	2	3	10/5/04	13:20	203	60	2092
BETA	SU-2 04	5855	7836	5864	2	4	10/5/04	13:24	201	60	2072
BETA	SU-2 05	5855	7836	5864	2	5	10/5/04	13:28	185	60	1907
BETA	SU-2 06	5855	7836	5864	2	6	10/5/04	13:32	182	60	1876
BETA	SU-2 07	5855	7836	5864	2	7	10/5/04	13:36	176	60	1814
BETA	SU-2 08	5855	7836	5864	2	8	10/5/04	13:40	171	60	1763

45-Building Characterization Survey Unit 2 (Floor)

RSDS# 04-TF-0315 *RCT:* L40 *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.206	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.154	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.22	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU-2 09	5855	7836	5864	2	9	10/5/04	13:44	198	60	2041
BETA	SU-2 10	5855	7836	5864	2	10	10/5/04	13:48	187	60	1927
BETA	SU-2 11	5855	7836	5864	2	11	10/5/04	13:52	197	60	2031
BETA	SU-2 12	5855	7836	5864	2	12	10/5/04	13:55	221	60	2278
BETA	SU-2 13	5855	7836	5864	2	13	10/5/04	14:00	231	60	2381
BETA	SU-2 14	5855	7836	5864	2	14	10/5/04	14:03	215	60	2216
BETA	SU-2 15	5855	7836	5864	2	15	10/5/04	14:07	172	60	1773
BETA	SU-2 16	5855	7836	5864	2	16	10/5/04	14:11	203	60	2092
BETA	SU-2 17	5855	7836	5864	2	17	10/5/04	14:15	179	60	1845
BETA	SU-2 18	5855	7836	5864	2	18	10/5/04	14:19	213	60	2195
BETA	SU-2 19	5855	7836	5864	2	19	10/5/04	14:23	165	60	1701
BETA	SU-2 20	5855	7836	5864	2	20	10/5/04	14:27	196	60	2020



Room 121		Area =	955sqft
SU 2		L =	7
Coordinates		L' =	6
	X'	Y'	
	33.5	28.5	
1	33.3	2.0	
2	33.3	27.7	
3	33.3	14.9	
4	26.3	2.0	
5	7.7	8.4	
6	15.1	8.4	
7	22.6	8.4	
8	30.0	8.4	
9	4.0	14.9	
10	11.4	14.9	
11	18.8	14.9	
12	26.3	14.9	
13	7.7	21.3	
14	15.1	21.3	
15	22.6	21.3	
16	30.0	21.3	
17	4.0	27.7	
18	11.4	27.7	
19	18.8	27.7	
20	26.3	27.7	

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - various	SURVEY NO. 04-TF-0316
PURPOSE: MARSSIM Survey Units - 4 & 5 (floors)	RWP NO. N/A
	DATE: 10-5-04
	TIME: 1630

MAP / DRAWING

See Attached

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

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5708/5731	8-19-05
2350-1	5857/5859	9-15-05
	A	
	N	

[redacted]	HP# 7244	Date: 10-6-04
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewed [redacted]	HP# [redacted]	Date: 10/12/04
Reviewed/Approved by: (Print N [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0316

RADIOLOGICAL SURVEY DATA SHEET

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

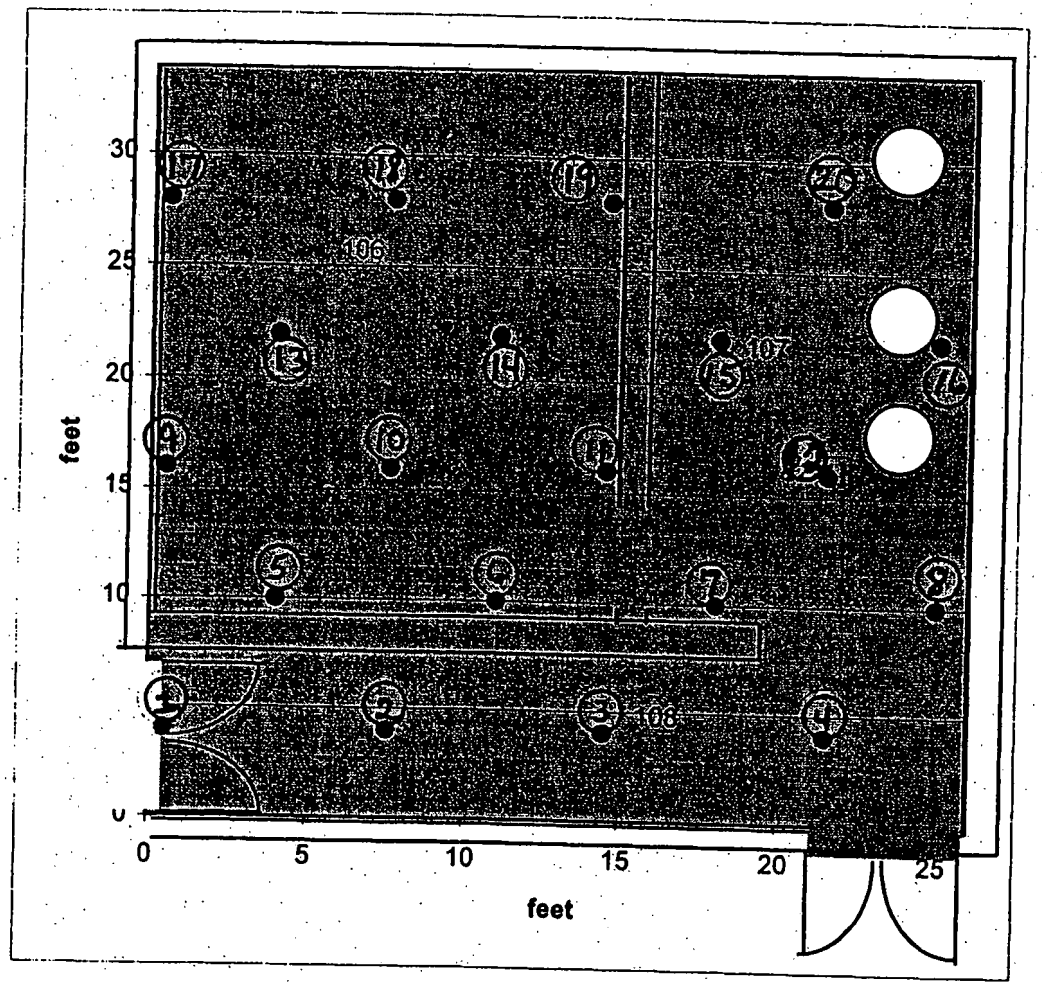
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36	See Attached			Unit-5
37				
38				
39				
40				

NFE

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab

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)



	Room 106,107,108	
	SU 4 Coordinates	
	X'	Y'
	26	34
1	0.5	4
2	7.5	4
3	14.5	4
4	21.5	4
5	4.0	10
6	11.0	10
7	18.0	10
8	25.0	10
9	0.5	16
10	7.5	16
11	14.5	16
12	21.5	16
13	4.0	22
14	11.0	22
15	18.0	22
16	25.0	22
17	0.5	28
18	7.5	28
19	14.5	28
20	21.5	28

Area	L	L'
884sqft	7.ft	6.ft
Start	X	Y
Rand X:Y	1.0	2.0

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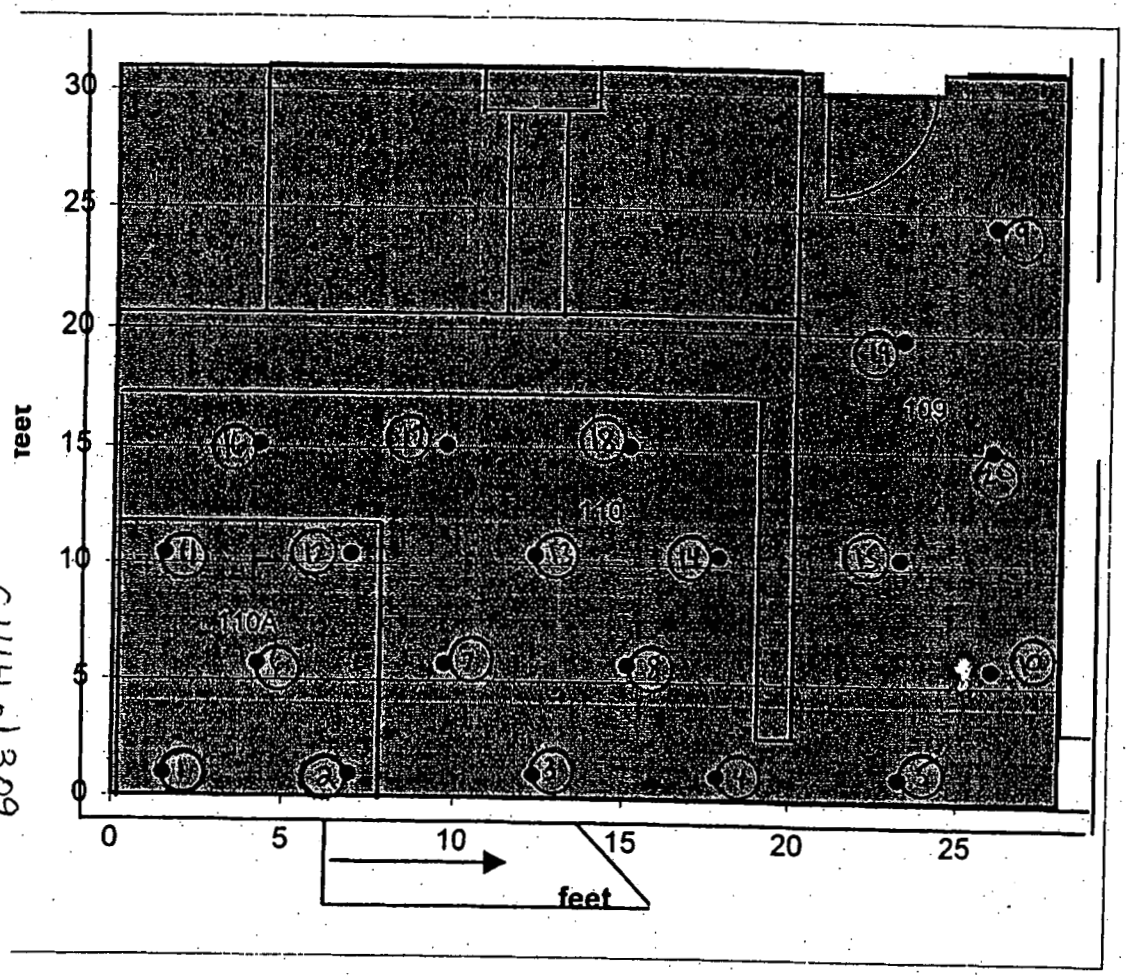
04-TF-0316

SPF 45-01
Attachment 3



	Room 109,110,110A	
	SU 5 Coordinates	
	X	Y
	28.5	18
1	1.5	1
2	6.9	1
3	12.4	1
4	17.8	1
5	23.3	1
6	4.2	5.7
7	9.7	5.7
8	15.1	5.7
9	26.0	24.5
10	26.0	5.7
11	1.5	10.4
12	6.9	10.4
13	12.4	10.4
14	17.8	10.4
15	23.3	10.4
16	4.2	15.1
17	9.7	15.1
18	15.1	15.1
19	23.3	19.8
20	26.0	15.1

Area	L	L'
513sqft	5.4ft	4.7ft
Start	X	Y
Rand X:Y	0.5	2.0

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45-Building Final Status Survey Unit 4 & 5 (floors)

RSDS# 04-TF-0316 *RCT:* JMC *RCT:* N/A

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7244	5859	1		10/5/04	10:33	4	300	6
ALPHA	SRC CHECK	5857	7244	5859	1		10/5/04	12:01	2079	60	14367
ALPHA	SRC CHECK	5857	7244	5859	1		10/5/04	12:03	2006	60	13862
ALPHA	SRC CHECK	5857	7244	5859	1		10/5/04	12:05	2024	60	13986
ALPHA	SRC CHECK	5857	7244	5859	1		10/5/04	12:06	2087	60	14422
ALPHA	SU-4 01	5857	7244	5859	1	1	10/5/04	12:58	5	120	17
ALPHA	SU-4 02	5857	7244	5859	1	2	10/5/04	13:01	8	120	28
ALPHA	SU-4 03	5857	7244	5859	1	3	10/5/04	13:05	7	120	24
ALPHA	SU-4 04	5857	7244	5859	1	4	10/5/04	13:09	13	120	45
ALPHA	SU-4 05	5857	7244	5859	1	5	10/5/04	13:13	11	120	38
ALPHA	SU-4 06	5857	7244	5859	1	6	10/5/04	13:16	1	120	3
ALPHA	SU-4 07	5857	7244	5859	1	7	10/5/04	13:21	12	120	41
ALPHA	SU-4 08	5857	7244	5859	1	8	10/5/04	13:24	5	120	17
ALPHA	SU-4 09	5857	7244	5859	1	9	10/5/04	13:28	8	120	28
ALPHA	SU-4 10	5857	7244	5859	1	10	10/5/04	13:31	12	120	41
ALPHA	SU-4 11	5857	7244	5859	1	11	10/5/04	13:35	12	120	41
ALPHA	SU-4 12	5857	7244	5859	1	12	10/5/04	13:38	9	120	31
ALPHA	SU-4 13	5857	7244	5859	1	13	10/5/04	13:42	11	120	38
ALPHA	SU-4 14	5857	7244	5859	1	14	10/5/04	13:45	12	120	41
ALPHA	SU-4 15	5857	7244	5859	1	15	10/5/04	13:48	12	120	41
ALPHA	SU-4 16	5857	7244	5859	1	16	10/5/04	13:52	11	120	38
ALPHA	SU-4 17	5857	7244	5859	1	17	10/5/04	13:56	5	120	17
ALPHA	SU-4 18	5857	7244	5859	1	18	10/5/04	13:59	12	120	41
ALPHA	SU-4 19	5857	7244	5859	1	19	10/5/04	14:03	5	120	17
ALPHA	SU-4 20	5857	7244	5859	1	20	10/5/04	14:07	12	120	41
ALPHA	SU-5 01	5857	7244	5859	1	21	10/5/04	14:13	3	120	10
ALPHA	SU-5 02	5857	7244	5859	1	22	10/5/04	14:16	11	120	38
ALPHA	SU-5 03	5857	7244	5859	1	23	10/5/04	14:19	6	120	21
ALPHA	SU-5 04	5857	7244	5859	1	24	10/5/04	14:23	6	120	21
ALPHA	SU-5 05	5857	7244	5859	1	25	10/5/04	14:26	5	120	17
ALPHA	SU-5 06	5857	7244	5859	1	26	10/5/04	14:31	4	120	14
ALPHA	SU-5 07	5857	7244	5859	1	27	10/5/04	14:34	4	120	14
ALPHA	SU-5 08	5857	7244	5859	1	28	10/5/04	14:38	4	120	14
ALPHA	SU-5 09	5857	7244	5859	1	29	10/5/04	14:41	5	120	17
ALPHA	SU-5 10	5857	7244	5859	1	30	10/5/04	14:45	2	120	7
ALPHA	SU-5 11	5857	7244	5859	1	31	10/5/04	14:49	6	120	21
ALPHA	SU-5 12	5857	7244	5859	1	32	10/5/04	14:52	6	120	21
ALPHA	SU-5 13	5857	7244	5859	1	33	10/5/04	14:56	4	120	14
ALPHA	SU-5 14	5857	7244	5859	1	34	10/5/04	14:59	4	120	14

45-Building Final Status Survey Unit 4 & 5 (floors)

RSDS# 04-TF-0316 *RCT:* JMC *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	SU-5 15	5857	7244	5859	1	35	10/5/04	15:03	5	120	17
ALPHA	SU-5 16	5857	7244	5859	1	36	10/5/04	15:07	3	120	10
ALPHA	SU-5 17	5857	7244	5859	1	37	10/5/04	15:10	5	120	17
ALPHA	SU-5 18	5857	7244	5859	1	38	10/5/04	15:13	1	120	3
ALPHA	SU-5 19	5857	7244	5859	1	39	10/5/04	15:17	5	120	17
ALPHA	SU-5 20	5857	7244	5859	1	40	10/5/04	15:20	4	120	14
BETA	SRC BKG	5857	7244	5859	2		10/5/04	12:15	963	300	1641
BETA	SRC CHECK	5857	7244	5859	2		10/5/04	12:17	2784	60	23720
BETA	SRC CHECK	5857	7244	5859	2		10/5/04	12:19	2897	60	24683
BETA	SRC CHECK	5857	7244	5859	2		10/5/04	12:20	2681	60	22842
BETA	SRC CHECK	5857	7244	5859	2		10/5/04	12:22	2722	60	23192
BETA	SU-4 01	5857	7244	5859	2	1	10/5/04	12:59	244	60	2079
BETA	SU-4 02	5857	7244	5859	2	2	10/5/04	13:02	247	60	2104
BETA	SU-4 03	5857	7244	5859	2	3	10/5/04	13:06	227	60	1934
BETA	SU-4 04	5857	7244	5859	2	4	10/5/04	13:10	190	60	1619
BETA	SU-4 05	5857	7244	5859	2	5	10/5/04	13:14	250	60	2130
BETA	SU-4 06	5857	7244	5859	2	6	10/5/04	13:18	259	60	2207
BETA	SU-4 07	5857	7244	5859	2	7	10/5/04	13:22	282	60	2403
BETA	SU-4 08	5857	7244	5859	2	8	10/5/04	13:25	282	60	2403
BETA	SU-4 09	5857	7244	5859	2	9	10/5/04	13:29	258	60	2198
BETA	SU-4 10	5857	7244	5859	2	10	10/5/04	13:32	251	60	2139
BETA	SU-4 11	5857	7244	5859	2	11	10/5/04	13:36	258	60	2198
BETA	SU-4 12	5857	7244	5859	2	12	10/5/04	13:39	291	60	2479
BETA	SU-4 13	5857	7244	5859	2	13	10/5/04	13:43	220	60	1874
BETA	SU-4 14	5857	7244	5859	2	14	10/5/04	13:46	229	60	1951
BETA	SU-4 15	5857	7244	5859	2	15	10/5/04	13:50	252	60	2147
BETA	SU-4 16	5857	7244	5859	2	16	10/5/04	13:53	244	60	2079
BETA	SU-4 17	5857	7244	5859	2	17	10/5/04	13:57	267	60	2275
BETA	SU-4 18	5857	7244	5859	2	18	10/5/04	14:00	244	60	2079
BETA	SU-4 19	5857	7244	5859	2	19	10/5/04	14:04	253	60	2156
BETA	SU-4 20	5857	7244	5859	2	20	10/5/04	14:08	227	60	1934
BETA	SU-5 01	5857	7244	5859	2	21	10/5/04	14:14	209	60	1781
BETA	SU-5 02	5857	7244	5859	2	22	10/5/04	14:17	230	60	1960
BETA	SU-5 03	5857	7244	5859	2	23	10/5/04	14:21	226	60	1926
BETA	SU-5 04	5857	7244	5859	2	24	10/5/04	14:24	211	60	1798
BETA	SU-5 05	5857	7244	5859	2	25	10/5/04	14:27	237	60	2019
BETA	SU-5 06	5857	7244	5859	2	26	10/5/04	14:32	227	60	1934
BETA	SU-5 07	5857	7244	5859	2	27	10/5/04	14:35	204	60	1738
BETA	SU-5 08	5857	7244	5859	2	28	10/5/04	14:39	220	60	1874

45-Building Final Status Survey Unit 4 & 5 (floors)

RSDS# 04-TF-0316 ***RCT:*** JMC ***RCT:*** _____

Alpha	43-58 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-58 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU-5 09	5857	7244	5859	2	29	10/5/04	14:43	216	60	1840
BETA	SU-5 10	5857	7244	5859	2	30	10/5/04	14:46	228	60	1943
BETA	SU-5 11	5857	7244	5859	2	31	10/5/04	14:50	182	60	1551
BETA	SU-5 12	5857	7244	5859	2	32	10/5/04	14:53	200	60	1704
BETA	SU-5 13	5857	7244	5859	2	33	10/5/04	14:57	232	60	1977
BETA	SU-5 14	5857	7244	5859	2	34	10/5/04	15:00	201	60	1713
BETA	SU-5 15	5857	7244	5859	2	35	10/5/04	15:04	234	60	1994
BETA	SU-5 16	5857	7244	5859	2	36	10/5/04	15:08	189	60	1610
BETA	SU-5 17	5857	7244	5859	2	37	10/5/04	15:11	203	60	1730
BETA	SU-5 18	5857	7244	5859	2	38	10/5/04	15:14	216	60	1840
BETA	SU-5 19	5857	7244	5859	2	39	10/5/04	15:18	221	60	1883
BETA	SU-5 20	5857	7244	5859	2	40	10/5/04	15:21	258	60	2198

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR003
Batch Ended: 10/6/04 9:41

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0316 J. COLLINS A/B (40) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.21		2.23	2.56	
A2	2	0.00	2.21		0.54	1.81	
A3	3	3.73	3.06		0.09	1.76	
A4	4	0.00	2.05		1.15	2.16	
B1	5	0.00	1.92		0.00	1.64	
B2	6	0.00	2.09		1.11	2.39	
B3	7	1.51	1.95		0.00	2.17	
B4	8	0.00	1.90		0.43	2.00	
C1	9	0.00	2.36		0.00	2.38	
C2	10	0.94	2.20		0.78	2.72	
C3	11	0.00	2.08		0.00	1.39	
C4	12	0.00	2.10		2.49	2.86	
D1	13	0.85	2.22		1.56	2.90	
D2	14	0.00	2.17		0.00	1.31	
D3	15	0.00	1.95		0.00	2.04	
D4	16	0.00	2.18		4.69	3.35	
A1	17	0.00	2.19		0.96	2.23	
A2	18	1.74	2.23		1.62	2.20	
A3	19	0.00	2.20		1.70	2.15	
A4	20	0.00	2.08		3.60	2.77	
B1	21	0.00	1.97		0.97	2.28	
B2	22	3.48	2.84		0.00	1.26	
B3	23	0.00	1.93		0.00	1.80	
B4	24	1.48	1.92		1.39	2.30	
C1	25	0.00	2.42		4.50	3.58	
C2	26	0.00	2.21		2.31	3.03	
C3	27	0.00	2.08		0.00	1.39	
C4	28	1.51	2.09		1.07	2.57	
D1	29	0.00	2.21		0.30	2.52	
D2	30	0.00	2.20		0.01	1.80	
D3	31	1.27	1.96		2.66	2.86	
D4	32	0.00	2.16		0.63	2.39	
A1	33	0.00	2.19		0.96	2.23	
A2	34	0.00	2.23		1.79	2.20	

JC
JC 10/6/04

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR003
Batch Ended: 10/6/04 9:41

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0316 J COLLINS A/B (40) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A3	35	0.00	2.22		2.92	2.47	
A4	36	0.00	2.08		3.60	2.77	
B1	37	0.00	2.01		3.20	2.77	
B2	38	0.00	2.09		1.11	2.39	
B3	39	0.00	1.92		0.00	1.32	
B4	40	0.00	1.97		6.07	3.23	

JC JC

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JC 10/4/04 ~~Page 2 of 2~~

AL

06 Oct 2004 10:03 ALPHA/BETA - 1.09 ~~Page #1~~ User : 2324
Protocol #: 6 Pw H3 405828

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

	LL	UL	LCR	2SZ	BKG
Region A:	0.5 -	18.6	0	0.0	6.23
Region B:	2.0 -	18.6	0	0.0	5.77
Region C:	40.0 -	2000	0	0.0	9.00

Quench Indicator: tSIE/AEC
~~Ext Std Terminator~~: Count
COLLINS 04-TF-0316 1940 JC
~~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	6.23	5.77	6	B	562.93		0.00	9.00
0	2.00	687.02	640.31	0		613.28	1287.97	120.26	1.00
1	2.00	0.00	0.00	13		589.95	0.00	0.00	3.00
2	2.00	5.49	5.95	0		622.04	10.22	9.52	3.50
3	2.00	27.27	25.40	0		596.19	51.90	16.36	9.00
4	2.00	0.77	0.48	7		589.23	1.47	7.80	0.00
5	2.00	47.79	46.31	1		579.71	92.31	21.49	17.25
6	2.00	4.77	3.28	0		580.17	9.21	9.60	0.00
7	2.00	9.27	6.47	3		589.74	17.74	11.17	5.00
8	2.00	0.00	0.00	9		565.29	0.00	0.00	0.00
9	2.00	0.00	0.00	13		579.58	0.00	0.00	0.00
10	2.00	4.27	4.23	5		581.74	8.23	9.38	0.00
11	2.00	0.77	0.73	7		589.37	1.47	7.80	2.00
12	2.00	2.27	1.94	0		608.66	4.27	8.33	0.00
13	2.00	0.77	1.04	7		554.98	1.52	8.04	1.00
14	2.00	1.77	1.73	6		586.89	3.40	8.27	0.00
15	2.00	0.00	0.00	10		552.77	0.00	0.00	0.00
16	2.00	0.00	0.00	0		580.88	0.00	0.00	3.00
17	2.00	0.77	0.46	0		599.21	1.46	7.73	0.00
18	2.00	0.00	0.00	11		560.32	0.00	0.00	0.50
19	2.00	0.00	0.00	0		608.43	0.00	0.00	0.00
20	2.00	0.27	0.00	8		594.73	0.51	7.52	0.00
21	2.00	1.94	1.38	0		592.55	3.70	8.31	0.00
22	2.00	0.00	0.00	0		625.13	0.00	0.00	0.00
23	2.00	3.77	3.95	0		605.08	7.12	8.99	0.00
24	2.00	0.77	0.73	0		587.54	1.48	7.81	0.00
25	2.00	8.26	7.77	3		603.42	15.62	10.69	2.50
26	2.00	0.06	0.52	0		596.46	0.11	7.41	0.00
27	2.00	0.27	0.00	0		598.15	0.51	7.50	0.00
28	2.00	0.00	0.00	8		607.08	0.00	0.00	2.50
29	2.00	1.77	1.73	0		602.99	3.35	8.16	0.00
30	2.00	2.33	2.80	0		582.96	4.49	8.55	0.00
31	2.00	3.98	3.68	0		591.77	7.60	9.18	1.50
32	2.00	0.00	0.23	0		609.33	0.00	0.00	0.00
33	2.00	3.59	4.05	0		627.63	6.64	8.74	0.00
34	2.00	3.89	2.74	0		627.34	7.21	8.86	3.00

JC

06 Oct 2004 11:45 ALPHA/BETA - 1.09 ~~Page #2~~
Protocol #: 6 Pw H3 405828 User : 2324

S#	TIME	CPMA	CPMB	LUM FLAG	tSIE	DPM1	2Sigma	CPMC
35	2.00	0.00	0.00	0	615.10	0.00	0.00	0.00
36	2.00	0.77	0.95	7	607.41	1.45	7.67	0.00
37	2.00	2.43	2.62	0	598.92	4.61	8.48	1.00
38	2.00	1.95	2.23	0	609.91	3.66	8.18	0.00
39	2.00	3.32	2.69	0	611.99	6.23	8.75	0.00
40	2.00	0.27	0.00	0	628.23	0.50	7.30	0.00

JC

J. Robbins

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 Units 3 & 6	SURVEY NO. 04-TF-0318
PURPOSE: MARSSIM Survey Units 3&6 (floors)	RWP NO. NA
	DATE: 10-6-04
	TIME: 0900

MAP / DRAWING

See Attached

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
△# = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350-1	5855/5864	6-9-05
2360-89	5708/5731	8-17-05

[redacted]	HP# 7809	Date: 10-6-04
Counted by: (Signature) see attached	HP#	Date:
Counted by: (Print Name)		
Revi[redacted]	HP# 7707	Date: 10/14/04
Reviewed/Approved by: (Print Name [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0318

RADIOLOGICAL SURVEY DATA SHEET

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

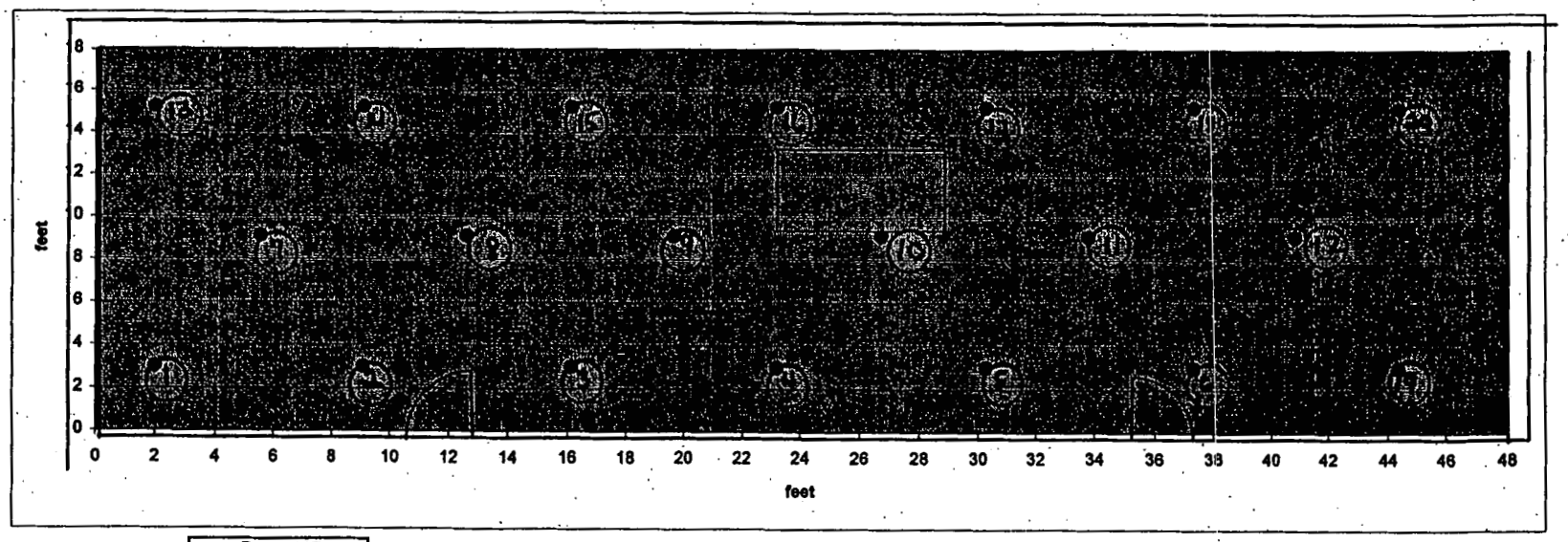
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36	See Attached			Unit 6
37				
38				
39				
40				

NFE

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)



	Room 117			
	SU 3			
	Coordinates			
	X'	Y'		
	48	18	Area =	864sqft
1	2.0	3.0	L =	7
2	9.1	3.0	L' =	6
3	16.1	3.0		
4	23.2	3.0		
5	30.3	3.0		
6	37.3	3.0		
7	5.5	9.1		
8	12.6	9.1		
9	19.7	9.1		
10	26.7	9.1		
11	33.8	9.1		
12	40.8	9.1		
13	2.0	15.2		
14	9.1	15.2		
15	16.1	15.2		
16	23.2	15.2		
17	30.3	15.2		
18	37.3	15.2		
19	44.4	3.0		
20	44.4	15.2		

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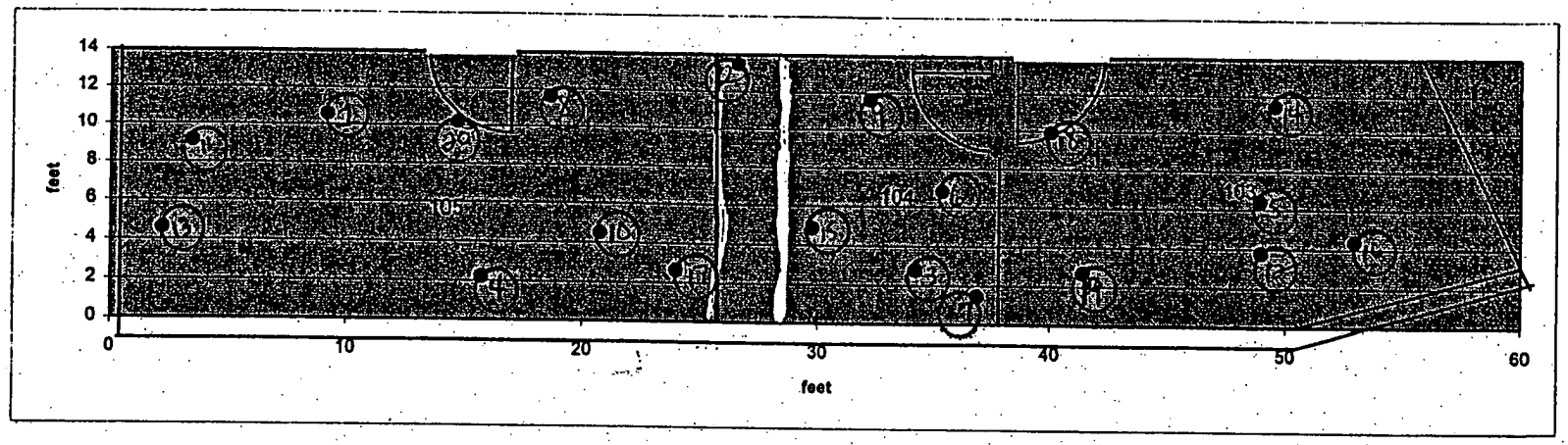
SPF 45-01
Attachment 3

04-TF-0318



	Room 103, 104,105	
	SU 6 Coordinates	
	X	Y
	54	14
1	9	11
2	27	13
3	34	3
4	16	2
5	49	6
6	35	7
7	37	1
8	19	12
9	32	12
10	21	5
11	3	9
12	49	4
13	2	5
14	50	11
15	30	5
16	53	4
17	24	3
18	40	10
19	41	3
20	15	10

Area
756sqft

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45-Building Characterization Survey Units 3 & 6

RSDS# 04-TF-0318 *RCT:* gsh *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.206	PROBE AREA	126	cm	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.154	PROBE AREA	126	cm	Surface Eff	0.5	Detector #	2
Scan	43-47 BKG	0	EFF	0.22	PROBE AREA	584	cm	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	7809	5864	1		10/6/04	8:46	5	300	8
ALPHA	SRCCHECK	5855	7809	5864	1		10/6/04	8:49	1879	60	14478
ALPHA	SRCCHECK	5855	7809	5864	1		10/6/04	8:50	2015	60	15526
ALPHA	SRCCHECK	5855	7809	5864	1		10/6/04	8:51	1973	60	15203
ALPHA	SRCCHECK	5855	7809	5864	1		10/6/04	8:53	1870	60	14409
ALPHA	SU3 01	5855	7809	5864	1	1	10/6/04	9:49	2	120	8
ALPHA	SU3 02	5855	7809	5864	1	2	10/6/04	9:53	5	120	19
ALPHA	SU3 03	5855	7809	5864	1	3	10/6/04	9:57	3	120	12
ALPHA	SU3 04	5855	7809	5864	1	4	10/6/04	10:01	12	120	46
ALPHA	SU3 05	5855	7809	5864	1	5	10/6/04	10:05	6	120	23
ALPHA	SU3 06	5855	7809	5864	1	6	10/6/04	10:09	9	120	35
ALPHA	SU3 07	5855	7809	5864	1	7	10/6/04	10:13	4	120	15
ALPHA	SU3 08	5855	7809	5864	1	8	10/6/04	10:17	6	120	23
ALPHA	SU3 09	5855	7809	5864	1	9	10/6/04	10:20	5	120	19
ALPHA	SU3 10	5855	7809	5864	1	10	10/6/04	10:24	3	120	12
ALPHA	SU3 11	5855	7809	5864	1	11	10/6/04	10:28	6	120	23
ALPHA	SU3 12	5855	7809	5864	1	12	10/6/04	10:32	11	120	42
ALPHA	SU3 13	5855	7809	5864	1	13	10/6/04	10:37	6	120	23
ALPHA	SU3 14	5855	7809	5864	1	14	10/6/04	10:40	11	120	42
ALPHA	SU3 15	5855	7809	5864	1	15	10/6/04	10:44	11	120	42
ALPHA	SU3 16	5855	7809	5864	1	16	10/6/04	10:48	7	120	27
ALPHA	SU3 17	5855	7809	5864	1	17	10/6/04	10:52	6	120	23
ALPHA	SU3 18	5855	7809	5864	1	18	10/6/04	10:56	11	120	42
ALPHA	SU3 19	5855	7809	5864	1	19	10/6/04	11:00	3	120	12
ALPHA	SU3 20	5855	7809	5864	1	20	10/6/04	11:04	3	120	12
ALPHA	SU6 01	5855	7809	5864	1	21	10/6/04	12:58	3	120	12
ALPHA	SU6 02	5855	7809	5864	1	22	10/6/04	13:02	6	120	23
ALPHA	SU6 03	5855	7809	5864	1	23	10/6/04	13:07	9	120	35
ALPHA	SU6 04	5855	7809	5864	1	24	10/6/04	13:14	4	120	15
ALPHA	SU6 05	5855	7809	5864	1	25	10/6/04	13:18	0	120	0
ALPHA	SU6 06	5855	7809	5864	1	26	10/6/04	13:22	1	120	4
ALPHA	SU6 07	5855	7809	5864	1	27	10/6/04	13:28	2	120	8
ALPHA	SU6 08	5855	7809	5864	1	28	10/6/04	13:32	2	120	8
ALPHA	SU6 09	5855	7809	5864	1	29	10/6/04	13:36	10	120	39
ALPHA	SU6 10	5855	7809	5864	1	30	10/6/04	13:40	2	120	8
ALPHA	SU6 11	5855	7809	5864	1	31	10/6/04	13:44	4	120	15
ALPHA	SU6 12	5855	7809	5864	1	32	10/6/04	13:48	2	120	8
ALPHA	SU6 13	5855	7809	5864	1	33	10/6/04	13:52	3	120	12
ALPHA	SU6 14	5855	7809	5864	1	34	10/6/04	13:56	4	120	15

45-Building Characterization Survey Units 3 & 6

RSDS# 04-TF-0318 *RCT:* gsh *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.206	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.154	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.22	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cr
ALPHA	SU6 15	5855	7809	5864	1	35	10/6/04	14:00	6	120	23
ALPHA	SU6 16	5855	7809	5864	1	36	10/6/04	14:04	4	120	15
ALPHA	SU6 17	5855	7809	5864	1	37	10/6/04	14:08	3	120	12
ALPHA	SU6 18	5855	7809	5864	1	38	10/6/04	14:12	5	120	19
ALPHA	SU6 19	5855	7809	5864	1	39	10/6/04	14:15	4	120	15
ALPHA	SU6 20	5855	7809	5864	1	40	10/6/04	14:20	2	120	8
BETA	SRCBKG	5855	7809	5864	2		10/6/04	8:59	862	300	1777
BETA	SRCCHECK	5855	7809	5864	2		10/6/04	9:05	2690	60	27726
BETA	SRCCHECK	5855	7809	5864	2		10/6/04	9:07	2802	60	28881
BETA	SRCCHECK	5855	7809	5864	2		10/6/04	9:08	2701	60	27840
BETA	SRCCHECK	5855	7809	5864	2		10/6/04	9:10	2891	60	29798
BETA	SU3 01	5855	7809	5864	2	1	10/6/04	9:51	237	60	2443
BETA	SU3 02	5855	7809	5864	2	2	10/6/04	9:54	251	60	2587
BETA	SU3 03	5855	7809	5864	2	3	10/6/04	9:58	223	60	2298
BETA	SU3 04	5855	7809	5864	2	4	10/6/04	10:02	197	60	2031
BETA	SU3 05	5855	7809	5864	2	5	10/6/04	10:06	242	60	2494
BETA	SU3 06	5855	7809	5864	2	6	10/6/04	10:10	221	60	2278
BETA	SU3 07	5855	7809	5864	2	7	10/6/04	10:14	245	60	2525
BETA	SU3 08	5855	7809	5864	2	8	10/6/04	10:18	228	60	2350
BETA	SU3 09	5855	7809	5864	2	9	10/6/04	10:21	227	60	2340
BETA	SU3 10	5855	7809	5864	2	10	10/6/04	10:25	220	60	2268
BETA	SU3 11	5855	7809	5864	2	11	10/6/04	10:29	221	60	2278
BETA	SU3 12	5855	7809	5864	2	12	10/6/04	10:33	201	60	2072
BETA	SU3 13	5855	7809	5864	2	13	10/6/04	10:38	214	60	2206
BETA	SU3 14	5855	7809	5864	2	14	10/6/04	10:41	245	60	2525
BETA	SU3 15	5855	7809	5864	2	15	10/6/04	10:45	209	60	2154
BETA	SU3 16	5855	7809	5864	2	16	10/6/04	10:50	228	60	2350
BETA	SU3 17	5855	7809	5864	2	17	10/6/04	10:53	221	60	2278
BETA	SU3 18	5855	7809	5864	2	18	10/6/04	10:57	213	60	2195
BETA	SU3 19	5855	7809	5864	2	19	10/6/04	11:01	219	60	2257
BETA	SU3 20	5855	7809	5864	2	20	10/6/04	11:05	234	60	2412
BETA	SU6 01	5855	7809	5864	2	21	10/6/04	12:59	217	60	2237
BETA	SU6 02	5855	7809	5864	2	22	10/6/04	13:04	234	60	2412
BETA	SU6 03	5855	7809	5864	2	23	10/6/04	13:08	190	60	1958
BETA	SU6 04	5855	7809	5864	2	24	10/6/04	13:15	236	60	2432
BETA	SU6 05	5855	7809	5864	2	25	10/6/04	13:19	203	60	2092
BETA	SU6 06	5855	7809	5864	2	26	10/6/04	13:23	185	60	1907
BETA	SU6 07	5855	7809	5864	2	27	10/6/04	13:29	213	60	2195
BETA	SU6 08	5855	7809	5864	2	28	10/6/04	13:33	201	60	2072

45-Building Characterization Survey Units 3 & 6

RSDS# 04-TF-0318 ***RCT:*** gsh ***RCT:*** _____

Alpha	43-68 BKG:	0	EFF:	0.206	PROBE AREA:	126	cm²	Surface Eff:	0.5	Detector #:	1
Beta	43-58 BKG:	0	EFF:	0.154	PROBE AREA:	126	cm²	Surface Eff:	0.5	Detector #:	2
Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm²	Surface Eff:	0.5	Detector #:	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU6 09	5855	7809	5864	2	29	10/6/04	13:37	176	60	1814
BETA	SU6 10	5855	7809	5864	2	30	10/6/04	13:42	215	60	2216
BETA	SU6 11	5855	7809	5864	2	31	10/6/04	13:45	227	60	2340
BETA	SU6 12	5855	7809	5864	2	32	10/6/04	13:49	244	60	2515
BETA	SU6 13	5855	7809	5864	2	33	10/6/04	13:53	206	60	2123
BETA	SU6 14	5855	7809	5864	2	34	10/6/04	13:57	221	60	2278
BETA	SU6 15	5855	7809	5864	2	35	10/6/04	14:01	187	60	1927
BETA	SU6 16	5855	7809	5864	2	36	10/6/04	14:05	209	60	2154
BETA	SU6 17	5855	7809	5864	2	37	10/6/04	14:09	242	60	2494
BETA	SU6 18	5855	7809	5864	2	38	10/6/04	14:13	188	60	1938
BETA	SU6 19	5855	7809	5864	2	39	10/6/04	14:17	232	60	2391
BETA	SU6 20	5855	7809	5864	2	40	10/6/04	14:21	252	60	2597

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR000
Batch Ended: 10/7/04 9:08

~~Crosstalk correction performed~~

10/7/04 04-TF-0318

Batch ID: ~~04-tf-0381-hodges a/b (40) ag~~

Recalibration Date: 03/18/05
Serial Number: 26966-1

Detector ID	Sample ~~ID~~	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.16		0.00	1.33	
A2	2	0.00	2.23		1.79	2.20	
A3	3	0.00	2.16		0.00	1.27	
A4	4	3.39	2.89		3.27	2.77	
B1	5	0.00	1.92		0.00	1.64	
B2	6	0.00	2.09		1.11	2.39	
B3	7	0.00	1.96		1.32	2.50	
B4	8	0.00	1.92		1.56	2.30	
C1	9	0.00	2.37		0.50	2.73	
C2	10	0.00	2.16		0.00	1.96	
C3	11	0.00	2.08		0.00	1.40	
C4	12	0.00	2.11		3.75	3.13	
D1	13	1.05	2.20		0.00	2.08	
D2	14	0.00	2.23		1.26	2.19	
D3	15	1.54	1.94		0.00	1.48	
D4	16	0.00	2.16		0.00	1.98	
A1	17	0.00	2.16		0.00	1.33	
A2	18	0.00	2.21		0.54	1.81	
A3	19	0.00	2.18		0.48	1.76	
A4	20	1.40	2.07		2.21	2.48	
B1	21	0.00	1.99		2.09	2.54	
B2	22	1.49	2.05		0.00	1.72	
B3	23	0.00	1.98		2.55	2.78	
B4	24	0.00	1.93		2.69	2.56	
C1	25	0.00	2.32		0.00	1.46	
C2	26	0.00	2.15		0.00	1.44	
C3	27	0.00	2.19		8.03	3.95	
C4	28	0.00	2.07		0.00	2.23	
D1	29	2.68	3.11		5.67	3.81	
D2	30	0.00	2.27		2.50	2.52	
D3	31	0.00	1.96		1.37	2.48	
D4	32	0.00	2.15		0.00	1.44	
A1	33	0.00	2.16		0.00	1.34	
A2	34	0.00	2.21		0.54	1.81	

JC JC

~~Page 1 of 2~~

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR000
Batch Ended: 10/7/04 9:08

Crosstalk correction performed.

9/10/04 04-TF-0318

Batch ID: ~~04-tf0381-hodges a/b (40) ag~~

Recalibration Date: 03/18/05
Serial Number: 26966-1

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A3	35	0.00	2.20		1.70	2.15	
A4	36	0.00	2.08		3.60	2.77	
B1	37	0.00	1.97		0.97	2.28	
B2	38	0.00	2.09		1.11	2.39	
B3	39	0.00	1.98		2.55	2.78	
B4	40	0.00	1.89		0.00	1.65	

JC JC

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AR

07 Oct 2004 09:38 ALPHA/BETA - 1.09 JC 10/7/04 ~~Page #1~~
Protocol #: 3 PW 3 403727 User : 23

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	5.68
Region B:	2.0	18.6	0	0.0	5.63
Region C:	40.0	2000	0	0.0	10.91

~~Quench Indicator~~: tSIE/AEC
Ext Std Terminator: Count
HODGES 04-TF-0318 1340 JC
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	5.68	5.63	10.91	572.23	4	B		0.00
0	2.00	712.59	680.30	0.09	627.73	0		1359.08	123.01
1	2.00	23.14	22.15	4.09	591.34	0		45.79	15.68
2	2.00	93.89	89.71	37.17	620.09	0		180.44	30.30
3	2.00	2.32	1.34	0.00	637.94	0		4.39	8.08
4	2.00	5.82	5.56	0.00	619.03	0		11.20	9.71
5	2.00	1.32	0.98	0.00	663.02	0		2.44	7.44
6	2.00	0.00	0.00	0.00	626.36	0		0.00	0.00
7	2.00	0.00	0.00	0.00	641.55	0		0.00	0.00
8	2.00	2.82	2.87	0.00	646.00	0		5.29	8.23
9	2.00	18.92	18.37	7.09	614.83	0		36.56	14.12
10	2.00	5.32	5.06	1.09	616.69	0		10.27	9.53
11	2.00	3.32	3.12	0.09	587.60	0		6.60	8.96
12	2.00	14.82	13.70	9.09	609.34	0		28.80	12.95
13	2.00	8.82	8.05	6.09	673.16	0		16.20	10.33
14	2.00	0.32	0.16	0.00	565.61	0		0.66	7.68
15	2.00	9.82	9.87	0.00	570.96	0		19.86	11.75
16	2.00	0.82	0.55	0.09	624.20	0		1.58	7.48
17	2.00	2.32	1.73	0.00	624.07	0		4.45	8.19
18	2.00	3.82	3.58	0.00	608.38	0		7.44	8.99
19	2.00	2.82	2.50	0.00	551.29	0		5.83	9.07
20	2.00	1.82	1.33	1.16	598.58	0		3.58	8.17
21	2.00	3.32	3.37	0.00	644.69	0		6.23	8.46
22	2.00	2.82	2.52	0.00	642.31	0		5.31	8.26
23	2.00	1.32	0.87	0.00	624.60	0		2.53	7.72
24	2.00	0.00	0.00	0.14	615.71	0		0.00	0.00
25	2.00	0.32	0.37	0.00	623.70	0		0.62	7.23
26	2.00	1.32	1.02	0.09	641.82	0		2.49	7.59
27	2.00	1.82	1.54	0.00	628.08	0		3.48	7.93
28	2.00	1.82	1.53	0.00	636.36	0		3.45	7.86
29	2.00	0.00	0.00	0.00	641.52	0		0.00	0.00
30	2.00	4.68	4.40	0.00	630.11	0		8.91	9.15
31	2.00	0.00	0.00	0.00	636.69	0		0.00	0.00
32	2.00	1.10	1.15	2.09	625.38	0		2.10	7.61
33	2.00	11.32	11.04	13.59	627.66	0		21.60	11.60
34	2.00	2.32	2.09	0.00	603.53	0		4.54	8.36
35	2.00	2.82	2.16	0.00	645.05	0		5.29	8.24
36	2.00	1.32	1.37	0.00	632.83	0		2.51	7.66

JC

04-TF-0318

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07 Oct 2004 11:36 ALPHA/BETA - 1.09 10/7/04 ~~Page #2~~

Protocol #: 3 PW 3 403727 User : 2324

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM FLAG	DPM1	2SIGMA
37	2.00	0.13	0.00	0.59	597.70	0	0.26	7.33
38	2.00	6.32	4.80	0.00	645.40	0	11.85	9.65
39	2.00	3.56	3.36	0.00	586.30	0	7.08	9.08
40	2.00	3.32	1.73	0.00	626.00	0	6.35	8.61

JC

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) 45 Various	SURVEY NO. 04-TF-0322
PURPOSE: MARSSIM Survey Unit - 13J (floors & walls)	RWP NO. N/A
	DATE: 10-11-04
	TIME: 1630

MAP / DRAWING

See Attached

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
△# = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5754/5807	9-23-05
2350-1	5857/5859	9-8-05
	A	15 [illegible] 10-18-04
	N	

[redacted]	HP# 7244	Date: 10-12-04	
Counted by: (Signature) See	HP#	Date:	
Counted by: (Print Name) Attached			
Reviewed [redacted]	HP# 7707	Date: 10/14/04	
Reviewed/Approved by: (Print Nar [redacted]			

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0322

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			floor
2				wall 5ft
3				floor
4				wall 5ft
5				floor
6				wall 6ft
7				floor
8				wall 4ft
9				floor
10				wall 5ft
11				floor
12				
13				
14				
15				
16				
17				wall 6ft
18				4ft
19				3ft
20				4ft
	NFE			

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

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)

04-TF-0322

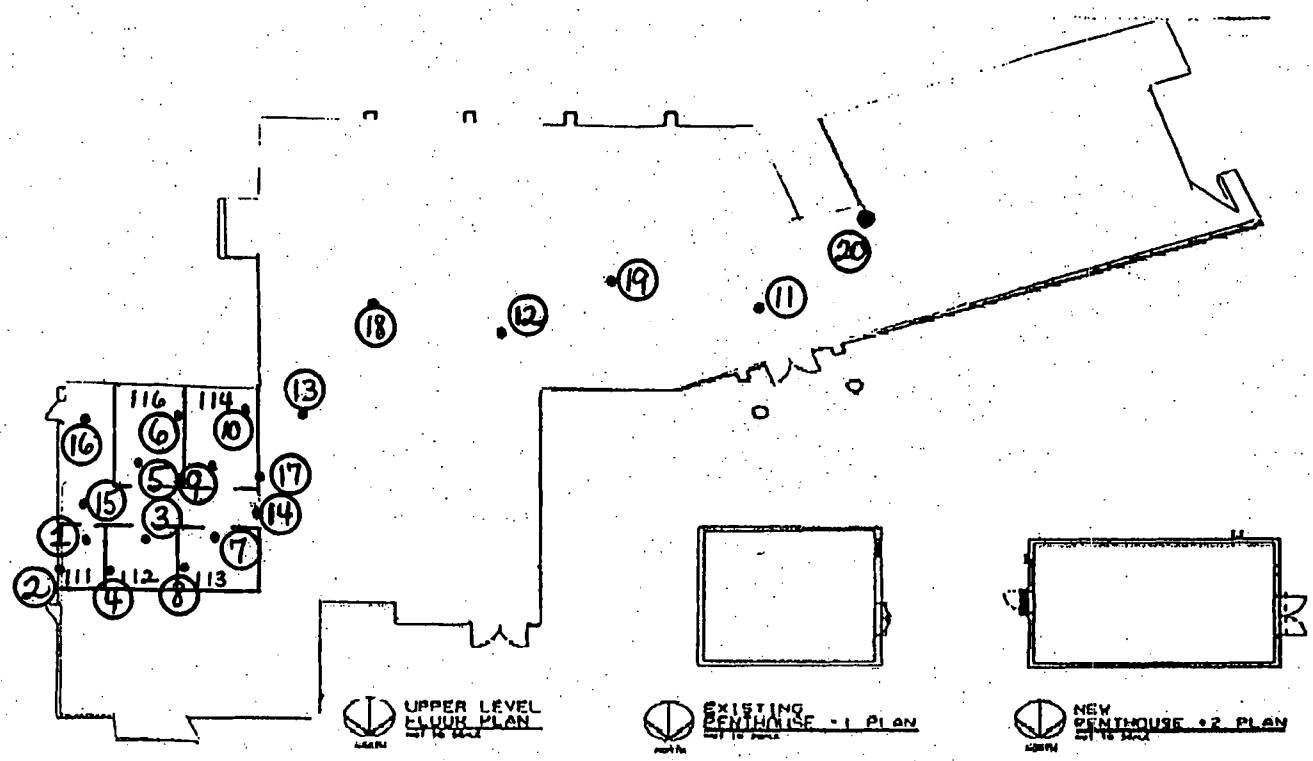

Figure 2-3. Building 45 Upper Level Floor Plan

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G167of309

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR013
Batch Ended: 10/11/04 16:01

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0322 J.QUICK (20) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.92	2.16		0.00	1.34	
A2	2	0.00	2.26		4.30	2.83	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.04		0.00	1.78	
B1	5	1.69	1.93		0.00	1.64	
B2	6	0.00	2.02		0.00	1.27	
B3	7	0.00	1.96		1.32	2.50	
B4	8	0.00	1.87		0.00	1.20	
C1	9	0.00	2.36		0.00	2.38	
C2	10	0.00	2.16		0.00	1.96	
C3	11	0.00	2.08		0.00	1.39	
C4	12	0.00	2.09		1.24	2.57	
D1	13	0.00	2.20		0.00	2.08	
D2	14	0.00	2.17		0.00	1.31	
D3	15	0.00	1.94		0.00	1.48	
D4	16	2.77	3.01		0.00	1.45	
A1	17	0.00	2.19		0.96	2.23	
A2	18	0.00	2.23		1.79	2.20	
A3	19	0.00	2.16		0.00	1.27	
A4	20	1.40	2.08		3.44	2.77	

JC JC

11 Oct 2004 16:20 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 1 Pw H3 #403728 User : 2138

Time: 2.00
Data Mode: DPM Nuclide: SMGLO2 Quench Set: SMGLO2
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	6.83
Region B:	2.0 -	18.6	0	0.0	6.15
Region C:	40.0 -	2000	0	0.0	11.00

Quench Indicator: tSIE/AEC
~~Ext Std Terminator~~: Count
04-TF-0322 J.QUICK (20) 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\SDATA1.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.83	13	B	568.36		0.00	11.00
0	2.00	680.03	1		622.37	1237.77	100.68	0.00
1	2.00	4.67	4		604.96	8.63	9.44	0.00
2	2.00	1.67	0		653.60	2.97	7.95	0.00
3	2.00	0.67	0		564.44	1.29	8.12	0.00
4	2.00	2.67	5		653.43	4.74	8.34	0.00
5	2.00	1.67	0		596.29	3.11	8.33	8.00
6	2.00	4.17	5		659.34	7.37	8.85	0.00
7	2.00	0.00	0		605.96	0.00	0.00	0.00
8	2.00	4.52	0		659.18	7.99	8.98	0.00
9	2.00	0.00	8		592.96	0.00	0.00	1.00
10	2.00	0.00	0		656.73	0.00	0.00	0.00
11	2.00	1.67	0		606.05	3.09	8.26	0.00
12	2.00	0.00	14		615.83	0.00	0.00	0.00
13	2.00	3.33	0		588.52	6.23	9.06	0.00
14	2.00	0.00	0		604.30	0.00	0.00	0.00
15	2.00	0.00	0		604.00	0.00	0.00	0.00
16	2.00	0.49	0		598.41	0.92	7.81	0.00
17	2.00	0.17	0		665.34	0.30	7.26	0.00
18	2.00	1.67	0		657.10	2.96	7.93	0.00
19	2.00	3.17	0		667.02	5.57	8.44	0.00
20	2.00	2.17	0		662.26	3.83	8.09	0.25

JC

45-Building Final Status Survey Unit 13-J

RSDS# 04-TF-0322 *RCT:* JMC *RCT:* RD

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7244	5859	1		10/11/04	9:28	7	300	10
ALPHA	SRC CHECK	5857	7244	5859	1		10/11/04	9:30	2110	60	14581
ALPHA	SRC CHECK	5857	7244	5859	1		10/11/04	9:33	2115	60	14615
ALPHA	SRC CHECK	5857	7244	5859	1		10/11/04	9:34	1932	60	13351
ALPHA	SRC CHECK	5857	7244	5859	1		10/11/04	9:36	2065	60	14270
ALPHA	U-13J 01	5857	7244	5859	1	1	10/11/04	10:17	2	120	7
ALPHA	U-13J 02	5857	7244	5859	1	2	10/11/04	10:23	3	120	10
ALPHA	U-13J 03	5857	7244	5859	1	3	10/11/04	10:27	6	120	21
ALPHA	U-13J 04	5857	7244	5859	1	4	10/11/04	10:32	1	120	3
ALPHA	U-13J 05	5857	7244	5859	1	5	10/11/04	10:36	2	120	7
ALPHA	U-13J 06	5857	7244	5859	1	6	10/11/04	10:40	4	120	14
ALPHA	U-13J 07	5857	7244	5859	1	7	10/11/04	12:49	5	120	17
ALPHA	U-13J 08	5857	7244	5859	1	8	10/11/04	12:53	2	120	7
ALPHA	U-13J 09	5857	7244	5859	1	9	10/11/04	12:58	2	120	7
ALPHA	U-13J 10	5857	7244	5859	1	10	10/11/04	13:02	5	120	17
ALPHA	U-13J 11	5857	7244	5859	1	11	10/11/04	13:07	4	120	14
ALPHA	U-13J 12	5857	7244	5859	1	12	10/11/04	13:14	4	120	14
ALPHA	U-13J 13	5857	7244	5859	1	13	10/11/04	13:19	4	120	14
ALPHA	U-13J 14	5857	7244	5859	1	14	10/11/04	13:25	1	120	3
ALPHA	U-13J 15	5857	7244	5859	1	15	10/11/04	13:29	2	120	7
ALPHA	U-13J 16	5857	7244	5859	1	16	10/11/04	13:33	4	120	14
ALPHA	U-13J 17	5857	7244	5859	1	17	10/11/04	13:37	0	120	0
ALPHA	U-13J 18	5857	7244	5859	1	18	10/11/04	13:42	3	120	10
ALPHA	U-13J 19	5857	7244	5859	1	19	10/11/04	13:48	7	120	24
ALPHA	U-13J 20	5857	7244	5859	1	20	10/11/04	13:53	5	120	17
BETA	SRC BKG	5857	7244	5859	2		10/11/04	9:42	907	300	1546
BETA	SRC CHECK	5857	7244	5859	2		10/11/04	9:45	3014	60	25680
BETA	SRC CHECK	5857	7244	5859	2		10/11/04	9:46	2719	60	23166
BETA	SRC CHECK	5857	7244	5859	2		10/11/04	9:48	2795	60	23814
BETA	SRC CHECK	5857	7244	5859	2		10/11/04	9:49	2728	60	23243
BETA	U-13J 01	5857	7244	5859	2	1	10/11/04	10:19	220	60	1874
BETA	U-13J 02	5857	7244	5859	2	2	10/11/04	10:24	419	60	3570
BETA	U-13J 03	5857	7244	5859	2	3	10/11/04	10:28	369	60	3144
BETA	U-13J 04	5857	7244	5859	2	4	10/11/04	10:33	230	60	1960
BETA	U-13J 05	5857	7244	5859	2	5	10/11/04	10:37	244	60	2079
BETA	U-13J 06	5857	7244	5859	2	6	10/11/04	10:41	161	60	1372
BETA	U-13J 07	5857	7244	5859	2	7	10/11/04	12:50	355	60	3025
BETA	U-13J 08	5857	7244	5859	2	8	10/11/04	12:55	215	60	1832

45-Building Final Status Survey Unit 13-J

RSDS# 04-TF-0322 RCT: J.M.C. RCT: K.D.

Alpha	43.68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43.68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43.37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-13J 09	5857	7244	5859	2	9	10/11/04	12:59	239	60	2036
BETA	U-13J 10	5857	7244	5859	2	10	10/11/04	13:03	208	60	1772
BETA	U-13J 11	5857	7244	5859	2	11	10/11/04	13:08	221	60	1883
BETA	U-13J 12	5857	7244	5859	2	12	10/11/04	13:15	194	60	1653
BETA	U-13J 13	5857	7244	5859	2	13	10/11/04	13:20	226	60	1926
BETA	U-13J 14	5857	7244	5859	2	14	10/11/04	13:26	214	60	1823
BETA	U-13J 15	5857	7244	5859	2	15	10/11/04	13:30	199	60	1696
BETA	U-13J 16	5857	7244	5859	2	16	10/11/04	13:34	216	60	1840
BETA	U-13J 17	5857	7244	5859	2	17	10/11/04	13:38	179	60	1525
BETA	U-13J 18	5857	7244	5859	2	18	10/11/04	13:44	184	60	1568
BETA	U-13J 19	5857	7244	5859	2	19	10/11/04	13:49	172	60	1465
BETA	U-13J 20	5857	7244	5859	2	20	10/11/04	13:54	139	60	1184

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) 45 - lower level	SURVEY NO. 04-TF-0325
PURPOSE: MARSSIM Survey Unit-7J (walls)	RWP NO. N/A
	DATE: 10-12-04
	TIME: 1630

MAP / DRAWING

See Attached

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

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5708/5731	8-17-05
2350-1	5857/5859	9-9-05
	A	TS 10-21-04
	N	

[redacted]	HP# 5572	Date: 10-13-04
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewe[redacted]	HP# [redacted]	Date: 10/14/04
Reviewed/Approved by: (Pr[redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0325

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			Unit 7 (walls)
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
		NFE		

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

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

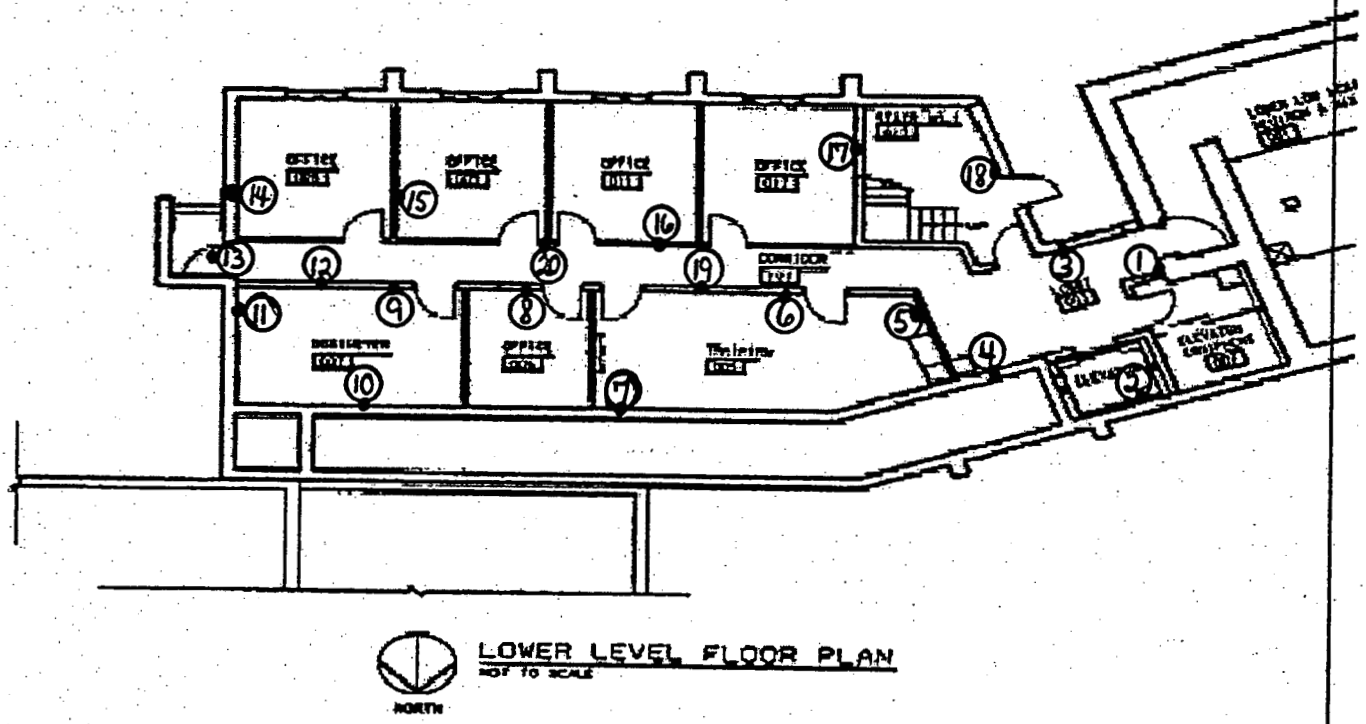
NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample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

ML-9620A (4-98)

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - lower level	SURVEY NO. 04-TF-0325
PURPOSE: MARSSIM Survey Unit 7-J (walls)	RWP NO. N/A
	DATE: 10-12-04
	TIME: 1630

MAP / DRAWING



LEGEND:

- # = mrem/hr (γ) whole body
- #E = mrem/hr (β+η+γ) extremity on contact
- K = factor of 1000
- —·—·—·— = radiological boundary
- △# - mrem/hr neutron
- (#) - swipe number
- [#] - air sample number
- (#/α) or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date

Completed by: (Signature)	HP#	Date:
Completed by: (Printed Name)		
Counted by: (Signature)	HP#	Date:
Counted by: (Printed Name)		
Reviewed/Approved by: (Signature)	HP#	Date:
Reviewed/Approved by: (Print Name)		

A N

ML-9620 (2-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR006
Batch Ended: 10/12/04 16:03

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: COLLINS 04-T-0325 20 JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
B1	1	0.00	2.01		3.20	2.77	
B2	2	0.00	2.07		0.00	2.08	
B3	3	0.00	1.92		0.00	1.32	
B4	4	0.00	1.87		0.00	1.20	
C1	5	1.83	2.37		0.32	2.73	
C2	6	0.00	2.18		0.00	2.37	
C3	7	1.75	2.12		1.35	2.65	
C4	8	0.00	2.10		2.49	2.86	
D1	9	0.74	2.23		2.99	3.23	
D2	10	0.00	2.50		11.19	4.16	
D3	11	0.00	1.95		0.00	2.04	
D4	12	0.00	2.16		0.63	2.39	
B1	13	0.00	1.94		0.00	1.98	
B2	14	0.00	2.02		0.00	1.26	
B3	15	0.00	1.99		3.77	3.04	
B4	16	0.00	1.97		6.07	3.23	
C1	17	0.00	2.41		3.17	3.32	
C2	18	0.00	2.15		0.00	1.44	
C3	19	0.00	2.10		0.00	1.90	
C4	20	3.53	2.93		4.69	3.37	

JC JC

JC 10/13/04 ~~Page 1 of 1~~ Page 4 of 7

J. Collins

G 176 of 309

12 Oct 2004 16:49 ALPHA/BETA - 1.09 JC 10/13/04 ~~Page #1~~
Protocol #: 2 PW H3 User : 2138

Time: 2.00
Data Mode: DPM Nuclide: SMGL02 Quench Set: SMGL02
Background Subtract: 1st Vial

	LL	UL	LCR	2SZ	BKG
Region A:	0.5	18.6	0	0.0	8.85
Region B:	2.0	18.6	0	0.0	8.30
Region C:	40.0	2000	0	0.0	11.00

Quench Indicator: tSIE/AEC JC ~~10-13-04~~
Ext Std Terminator: Count
04-TF-~~0425~~ COLLINS (20) AG 04-TF-0325
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	8.85	17	B	586.16		0.00	11.00
0	2.00	676.04	2		615.37	1231.60	114.07	0.00
1	2.00	0.05	6		632.48	0.09	8.42	0.00
2	2.00	0.00	0		644.59	0.00	0.00	0.00
3	2.00	1.65	0		635.83	2.96	8.99	0.00
4	2.00	1.15	0		648.23	2.04	8.72	0.00
5	2.00	0.65	0		645.80	1.16	8.55	0.00
6	2.00	0.00	6		648.32	0.00	0.00	2.00
7	2.00	0.00	0		640.57	0.00	0.00	0.00
8	2.00	0.00	0		647.03	0.00	0.00	0.00
9	2.00	0.00	0		644.36	0.00	0.00	0.00
10	2.00	0.00	0		643.37	0.00	0.00	0.00
11	2.00	0.00	0		648.73	0.00	0.00	0.00
12	2.00	0.15	0		635.89	0.27	8.43	0.00
13	2.00	1.52	0		630.67	2.74	8.98	0.00
14	2.00	0.00	0		641.03	0.00	0.00	1.00
15	2.00	0.00	0		632.88	0.00	0.00	0.00
16	2.00	0.00	0		644.91	0.00	0.00	0.00
17	2.00	0.00	6		627.09	0.00	0.00	0.00
18	2.00	0.08	0		634.24	0.15	8.42	4.55
19	2.00	0.00	0		645.09	0.00	0.00	0.00
20	2.00	0.00	0		649.71	0.00	0.00	0.00

JC

J. Collins

45-Building Final Status Survey Unit 7J

RSDS# 04-TF-0325 RCT: KD 10/13/04 RCT: JMC JMC

Alpha	43-58 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-58 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	49-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7244	5859	1		10/12/04	9:08	5	300	7
ALPHA	SRC CHECK	5857	7244	5859	1		10/12/04	9:11	2042	60	14111
ALPHA	SRC CHECK	5857	7244	5859	1		10/12/04	9:13	1957	60	13524
ALPHA	SRC CHECK	5857	7244	5859	1		10/12/04	9:14	1982	60	13696
ALPHA	SRC CHECK	5857	7244	5859	1		10/12/04	9:16	2002	60	13834
ALPHA	SU-7J 01	5857	7244	5859	1	1	10/12/04	13:03	3	120	10
ALPHA	SU-7J 02	5857	7244	5859	1	2	10/12/04	13:08	3	120	10
ALPHA	SU-7J 03	5857	7244	5859	1	3	10/12/04	13:13	4	120	14
ALPHA	SU-7J 04	5857	7244	5859	1	4	10/12/04	13:18	3	120	10
ALPHA	SU-7J 05	5857	7244	5859	1	5	10/12/04	13:25	4	120	14
ALPHA	SU-7J 06	5857	7244	5859	1	6	10/12/04	13:30	4	120	14
ALPHA	SU-7J 07	5857	7244	5859	1	7	10/12/04	13:34	3	120	10
ALPHA	SU-7J 08	5857	7244	5859	1	8	10/12/04	13:39	1	120	3
ALPHA	SU-7J 09	5857	7244	5859	1	9	10/12/04	13:42	5	120	17
ALPHA	SU-7J 10	5857	7244	5859	1	10	10/12/04	13:46	4	120	14
ALPHA	SU-7J 11	5857	7244	5859	1	11	10/12/04	13:51	1	120	3
ALPHA	SU-7J 12	5857	7244	5859	1	12	10/12/04	13:55	4	120	14
ALPHA	SU-7J 13	5857	7244	5859	1	13	10/12/04	13:59	3	120	10
ALPHA	SU-7J 14	5857	7244	5859	1	14	10/12/04	14:04	0	120	0
ALPHA	SU-7J 15	5857	7244	5859	1	15	10/12/04	14:08	6	120	21
ALPHA	SU-7J 16	5857	7244	5859	1	16	10/12/04	14:12	4	120	14
ALPHA	SU-7J 17	5857	7244	5859	1	17	10/12/04	14:17	8	120	28
ALPHA	SU-7J 18	5857	7244	5859	1	18	10/12/04	14:26	1	120	3
ALPHA	SU-7J 19	5857	7244	5859	1	19	10/12/04	14:30	3	120	10
ALPHA	SU-7J 20	5857	7244	5859	1	20	10/12/04	14:33	3	120	10
BETA	SRC BKG	5857	7244	5859	2		10/12/04	9:23	826	300	1408
BETA	SRC CHECK	5857	7244	5859	2		10/12/04	9:28	2752	60	23447
BETA	SRC CHECK	5857	7244	5859	2		10/12/04	9:29	2775	60	23643
BETA	SRC CHECK	5857	7244	5859	2		10/12/04	9:30	2562	60	21829
BETA	SRC CHECK	5857	7244	5859	2		10/12/04	9:32	2597	60	22127
BETA	SU-7J 01	5857	7244	5859	2	1	10/12/04	13:04	175	60	1491
BETA	SU-7J 02	5857	7244	5859	2	2	10/12/04	13:09	141	60	1201
BETA	SU-7J 03	5857	7244	5859	2	3	10/12/04	13:14	171	60	1457
BETA	SU-7J 04	5857	7244	5859	2	4	10/12/04	13:19	155	60	1321
BETA	SU-7J 05	5857	7244	5859	2	5	10/12/04	13:26	140	60	1193
BETA	SU-7J 06	5857	7244	5859	2	6	10/12/04	13:31	166	60	1414
BETA	SU-7J 07	5857	7244	5859	2	7	10/12/04	13:36	176	60	1500
BETA	SU-7J 08	5857	7244	5859	2	8	10/12/04	13:40	181	60	1542

45-Building Final Status Survey Unit 7J

RSDS# 04-TF-0325 RCT: KD RCT: KD JMC

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU-7J 09	5857	7244	5859	2	9	10/12/04	13:43	171	60	1457
BETA	SU-7J 10	5857	7244	5859	2	10	10/12/04	13:47	143	60	1218
BETA	SU-7J 11	5857	7244	5859	2	11	10/12/04	13:52	168	60	1431
BETA	SU-7J 12	5857	7244	5859	2	12	10/12/04	13:57	161	60	1372
BETA	SU-7J 13	5857	7244	5859	2	13	10/12/04	14:00	154	60	1312
BETA	SU-7J 14	5857	7244	5859	2	14	10/12/04	14:05	183	60	1559
BETA	SU-7J 15	5857	7244	5859	2	15	10/12/04	14:09	143	60	1218
BETA	SU-7J 16	5857	7244	5859	2	16	10/12/04	14:13	171	60	1457
BETA	SU-7J 17	5857	7244	5859	2	17	10/12/04	14:18	199	60	1696
BETA	SU-7J 18	5857	7244	5859	2	18	10/12/04	14:27	263	60	2241
BETA	SU-7J 19	5857	7244	5859	2	19	10/12/04	14:31	147	60	1252
BETA	SU-7J 20	5857	7244	5859	2	20	10/12/04	14:34	166	60	1414

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg. 45 Unit Unit 14 (ceilings)	SURVEY NO. 04-TF-0330
PURPOSE: Final Status Marssim Survey.	RWP NO. N/A
	DATE: 10-14-04
	TIME: 1500

MAP / DRAWING

* Please see map and attachments

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
△# = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud 2350-1	5854/5861	7-20-05
		A
	N	

Completed by: (Signat[redacted]	HP# 7836	Date: 10-19-04
Completed by: (Print N[redacted]		
Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Print Name)		
Reviewed/Ap[redacted]	HP# 7707	Date: 10/21/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

Survey No.
04-TF-0330

RADIOLOGICAL SURVEY DATA SHEET

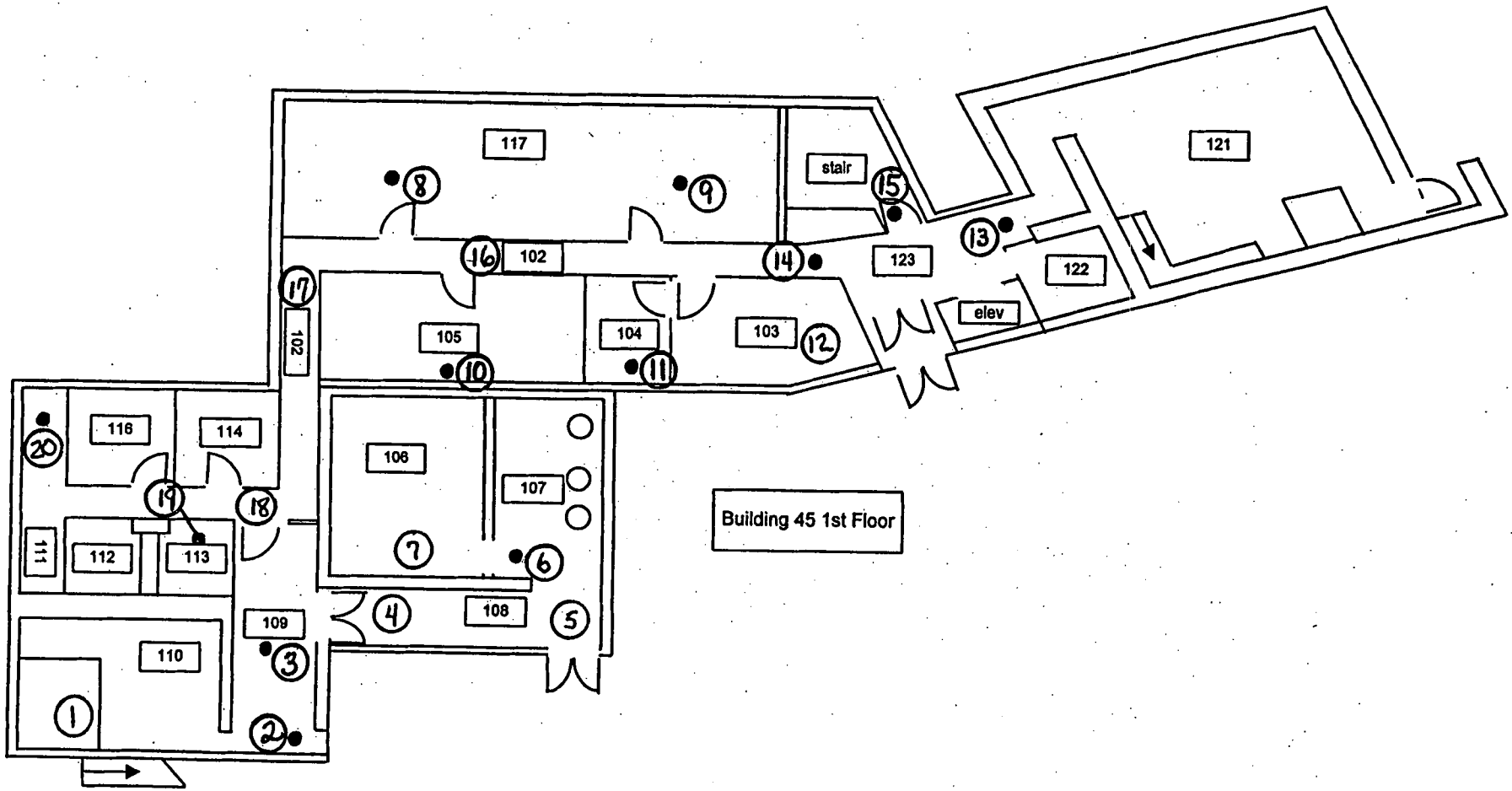
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See	Attached		see map
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
		N		A

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 needed, mark N/A.

ML-9620A (4-98)


117
stair
121
102
123
122
elev
105
104
103
102
116
114
106
107
111
112
113
109
108
110
Building 45 1st Floor

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR010
Batch Ended: 10/13/04 14:46

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: DAVIS 04-TF-0330 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.22		3.49	2.86	
A2	2	0.00	2.20		0.00	1.30	
A3	3	0.00	2.18		0.48	1.76	
A4	4	0.00	2.03		0.00	1.29	
B1	5	0.00	1.99		2.09	2.54	
B2	6	0.00	2.05		0.00	1.72	
B3	7	0.00	1.92		0.00	1.32	
B4	8	0.00	1.90		0.43	2.00	
C1	9	0.00	2.36		0.00	2.38	
C2	10	0.00	2.15		0.00	1.44	
C3	11	0.00	2.10		0.00	1.90	
C4	12	1.51	2.07		0.00	2.24	
D1	13	2.89	3.10		2.83	3.23	
D2	14	0.00	2.17		0.00	1.30	
D3	15	0.00	1.96		1.37	2.48	
D4	16	0.00	2.16		0.63	2.39	
A1	17	0.00	2.19		0.96	2.23	
A2	18	0.00	2.24		3.04	2.54	
A3	19	1.60	2.17		0.00	1.27	
A4	20	0.00	2.08		3.60	2.77	

NO NO

G184 of 309

NO ~~Page 1 of 1~~ 10/18/04

4 of 7

L3 Oct 2004 15:29 ALPHA/BETA - 1.09 ~~Page #1~~ 10/18/04
Protocol #: 5 PW H3 405827 User : 2138

ime: 2.00
ata Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
ackground Subtract: 1st Vial

	LL	UL	LCR	2SZ	BKG
egion A:	0.5 -	18.6	0	0.0	9.29
egion B:	2.0 -	18.6	0	0.0	8.10
egion C:	40.0 -	2000	0	0.0	12.25

uench Indicator: tSIE/AEC
Ext Std Terminator: Count
4-TF-0330 DAVIS (20) AG
uminescence Correction On
oincidence Time(ns): 18
elay Before Burst(ns): Normal
rotocol Data Filename: C:\DATA\PRDT5.dat
ount Data Filename: C:\DATA\SDATA5.DAT
pectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	9.29	8.10	27	B	631.41		0.000	12.25
0	2.00	769.74	697.98	2		637.37	1379.28	101.698	0.00
1	2.00	0.00	0.00	0		653.32	0.00	0.000	0.00
2	2.00	0.00	0.00	0		662.23	0.00	0.000	0.00
3	2.00	0.71	1.53	5		655.07	1.25	8.836	0.00
4	2.00	0.00	0.00	0		651.69	0.00	0.000	0.25
5	2.00	0.00	0.00	0		649.25	0.00	0.000	0.00
6	2.00	0.00	0.00	0		625.56	0.00	0.000	0.00
7	2.00	0.00	0.00	0		582.20	0.00	0.000	0.00
8	2.00	0.00	0.00	0		652.65	0.00	0.000	0.00
9	2.00	0.00	0.00	0		566.33	0.00	0.000	0.00
10	2.00	0.00	0.00	0		650.00	0.00	0.000	0.00
11	2.00	0.00	0.00	0		639.72	0.00	0.000	0.00
12	2.00	0.00	0.36	0		574.03	0.00	0.000	0.00
13	2.00	0.71	0.52	5		660.17	1.24	8.803	0.00
14	2.00	0.71	1.15	0		654.99	1.25	8.837	0.00
15	2.00	0.00	0.00	0		652.25	0.00	0.000	0.00
16	2.00	0.00	0.00	0		645.89	0.00	0.000	0.00
17	2.00	2.21	2.20	0		642.40	3.94	9.443	0.00
18	2.00	0.00	0.00	0		647.51	0.00	0.000	0.00
19	2.00	0.00	0.00	0		623.23	0.00	0.000	0.00
20	2.00	0.00	0.00	7		657.27	0.00	0.000	0.00

45-Building Final Status Survey Unit 14 (Ceilings)

RSDS# 04-TF-0330 *RCT:* LAO *RCT:* _____

Alpha	43-68 BKG:	0	EFF:	0.24	PROBE AREA:	126	cm²	Surface Eff:	0.5	Detector #:
Beta	43-68 BKG:	0	EFF:	0.167	PROBE AREA:	126	cm²	Surface Eff:	0.5	Detector #:
Scan	43-37 BKG:	0	EFF:	0.226	PROBE AREA:	584	cm²	Surface Eff:	0.5	Detector #:

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	SRC BKG	5854	7836	5861	1		10/14/04	10:36	6	300	9
ALPHA	SRC CHECK	5854	7836	5861	1		10/14/04	10:42	2038	60	15404
ALPHA	SRC CHECK	5854	7836	5861	1		10/14/04	10:43	2049	60	15488
ALPHA	SRC CHECK	5854	7836	5861	1		10/14/04	10:45	2047	60	15472
ALPHA	SRC CHECK	5854	7836	5861	1		10/14/04	10:46	2119	60	16017
ALPHA	SU-14 01	5854	7836	5861	1	1	10/14/04	13:37	9	120	34
ALPHA	SU-14 02	5854	7836	5861	1	2	10/14/04	13:41	12	120	45
ALPHA	SU-14 03	5854	7836	5861	1	3	10/14/04	13:44	4	120	15
ALPHA	SU-14 04	5854	7836	5861	1	4	10/14/04	13:48	4	120	15
ALPHA	SU-14 05	5854	7836	5861	1	5	10/14/04	13:52	8	120	30
ALPHA	SU-14 06	5854	7836	5861	1	6	10/14/04	13:56	6	120	23
ALPHA	SU-14 07	5854	7836	5861	1	7	10/14/04	14:00	12	120	45
ALPHA	SU-14 08	5854	7836	5861	1	8	10/14/04	14:04	6	120	23
ALPHA	SU-14 09	5854	7836	5861	1	9	10/14/04	14:07	6	120	23
ALPHA	SU-14 10	5854	7836	5861	1	10	10/14/04	14:12	2	120	8
ALPHA	SU-14 11	5854	7836	5861	1	11	10/14/04	14:16	5	120	19
ALPHA	SU-14 12	5854	7836	5861	1	12	10/14/04	14:19	5	120	19
ALPHA	SU-14 13	5854	7836	5861	1	13	10/14/04	14:23	8	120	30
ALPHA	SU-14 14	5854	7836	5861	1	14	10/14/04	14:27	3	120	11
ALPHA	SU-14 15	5854	7836	5861	1	15	10/14/04	14:31	4	120	15
ALPHA	SU-14 16	5854	7836	5861	1	16	10/14/04	14:34	10	120	38
ALPHA	SU-14 17	5854	7836	5861	1	17	10/14/04	14:38	5	120	19
ALPHA	SU-14 18	5854	7836	5861	1	18	10/14/04	14:42	3	120	11
ALPHA	SU-14 19	5854	7836	5861	1	19	10/14/04	14:46	5	120	19
ALPHA	SU-14 20	5854	7836	5861	1	20	10/14/04	14:50	6	120	23
BETA	SRCBKG	5854	7836	5861	2		10/14/04	10:54	754	300	1433
BETA	SRCCHECK	5854	7836	5861	2		10/14/04	10:57	2426	60	23059
BETA	SRCCHECK	5854	7836	5861	2		10/14/04	10:59	2444	60	23230
BETA	SRCCHECK	5854	7836	5861	2		10/14/04	11:00	2730	60	25948
BETA	SRCCHECK	5854	7836	5861	2		10/14/04	11:01	2640	60	25093
BETA	SU-14 01	5854	7836	5861	2	1	10/14/04	13:38	301	60	2861
BETA	SU-14 02	5854	7836	5861	2	2	10/14/04	13:42	308	60	2927
BETA	SU-14 03	5854	7836	5861	2	3	10/14/04	13:45	316	60	3004
BETA	SU-14 04	5854	7836	5861	2	4	10/14/04	13:49	180	60	1711
BETA	SU-14 05	5854	7836	5861	2	5	10/14/04	13:53	176	60	1673
BETA	SU-14 06	5854	7836	5861	2	6	10/14/04	13:57	171	60	1625
BETA	SU-14 07	5854	7836	5861	2	7	10/14/04	14:01	160	60	1521
BETA	SU-14 08	5854	7836	5861	2	8	10/14/04	14:05	245	60	2329

45-Building Final Status Survey Unit 14 (Ceilings)

RSDS# 04-TF-0330 *RCT:* LAO *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm	Surface Eff		0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.167	PROBE AREA	126	cm	Surface Eff		0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.226	PROBE AREA	584	cm	Surface Eff		0.5	Detector #	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	SU-14 09	5854	7836	5861	2	9	10/14/04	14:09	172	60	1635	
BETA	SU-14 10	5854	7836	5861	2	10	10/14/04	14:13	266	60	2528	
BETA	SU-14 11	5854	7836	5861	2	11	10/14/04	14:17	145	60	1378	
BETA	SU-14 12	5854	7836	5861	2	12	10/14/04	14:21	177	60	1682	
BETA	SU-14 13	5854	7836	5861	2	13	10/14/04	14:24	282	60	2680	
BETA	SU-14 14	5854	7836	5861	2	14	10/14/04	14:28	293	60	2785	
BETA	SU-14 15	5854	7836	5861	2	15	10/14/04	14:32	204	60	1939	
BETA	SU-14 16	5854	7836	5861	2	16	10/14/04	14:36	272	60	2585	
BETA	SU-14 17	5854	7836	5861	2	17	10/14/04	14:39	153	60	1454	
BETA	SU-14 18	5854	7836	5861	2	18	10/14/04	14:43	162	60	1540	
BETA	SU-14 19	5854	7836	5861	2	19	10/14/04	14:47	193	60	1834	
BETA	SU-14 20	5854	7836	5861	2	20	10/14/04	14:51	320	60	3042	

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - lower level - various rooms	SURVEY NO. 04-TF-0331
PURPOSE: MARSSIM Survey Unit-15 (ceilings)	RWP NO. N/A
	DATE: 10-14-04
	TIME: 1630

MAP / DRAWING

See Attached

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

= mrem/hr neutron

= air sample number

= swipe number

#/α or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5708/5731	8-17-05
2350-1	5857/5859	~~9-9-04~~
	A	9-15-05 emc 10-21-04
	N	

[redacted] HP# [redacted] Date: 10-19-04

Counted by: (Signature) See

HP# Date:

Counted by: (Print Name) Attached

Review [redacted] HP# [redacted] Date: 10/21/04

Reviewed/Approved by: (Print [redacted]

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0331

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			corridor
2				Rm. 007
3				009
4				corridor
5				Rm. 006
6				011
7				corridor
8				Rm. 012
9				Rm. 005
10				
11				corridor
12				
13				
14				Rm. 012
15				011
16				009
17				007
18				008
19				
20				corridor
		NFE		

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

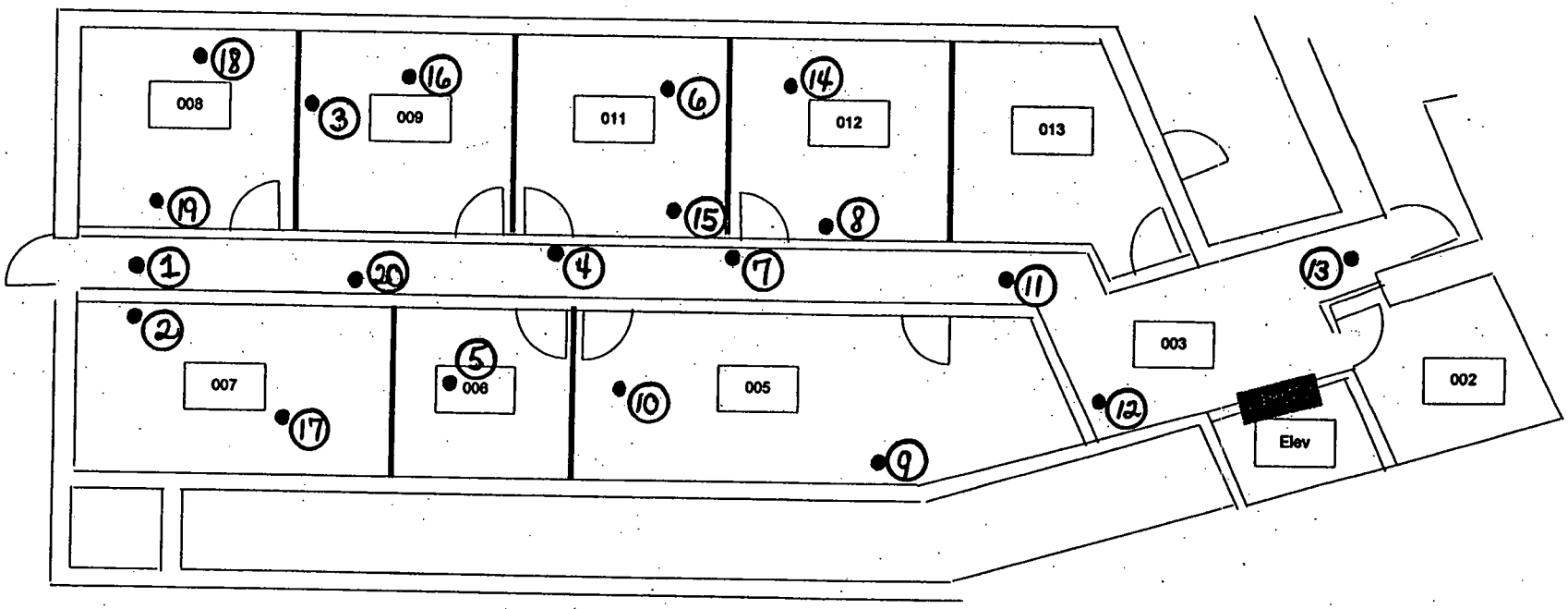
COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)

Building 45 Lower Level

Unit -15 (ceilings)



45-Final Status Survey Unit 15 (Ceilings)

RSDS# 04-TF-0331 *RCT:* JC *RCT:* [illegible]

Alpha	45-58 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	45-58 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	45-47 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm²
ALPHA	SRCBKG	5857	7244	5859	1		10/14/04	10:05	6	300	8
ALPHA	SRCCHECK	5857	7244	5859	1		10/14/04	10:08	2115	60	14615
ALPHA	SRCCHECK	5857	7244	5859	1		10/14/04	10:12	2087	60	14422
ALPHA	SRCCHECK	5857	7244	5859	1		10/14/04	10:13	1966	60	13586
ALPHA	SRCCHECK	5857	7244	5859	1		10/14/04	10:15	1938	60	13392
ALPHA	SU-15 01	5857	7244	5859	1	1	10/14/04	13:16	3	120	10
ALPHA	SU-15 02	5857	7244	5859	1	2	10/14/04	13:20	3	120	10
ALPHA	SU-15 03	5857	7244	5859	1	3	10/14/04	13:24	8	120	28
ALPHA	SU-15 04	5857	7244	5859	1	4	10/14/04	13:29	6	120	21
ALPHA	SU-15 05	5857	7244	5859	1	5	10/14/04	13:33	1	120	3
ALPHA	SU-15 06	5857	7244	5859	1	6	10/14/04	13:37	3	120	10
ALPHA	SU-15 07	5857	7244	5859	1	7	10/14/04	13:41	3	120	10
ALPHA	SU-15 08	5857	7244	5859	1	8	10/14/04	13:45	6	120	21
ALPHA	SU-15 09	5857	7244	5859	1	9	10/14/04	13:48	5	120	17
ALPHA	SU-15 10	5857	7244	5859	1	10	10/14/04	13:52	2	120	7
ALPHA	SU-15 11	5857	7244	5859	1	11	10/14/04	13:56	10	120	35
ALPHA	SU-15 12	5857	7244	5859	1	12	10/14/04	14:08	8	120	28
ALPHA	SU-15 13	5857	7244	5859	1	13	10/14/04	14:11	6	120	21
ALPHA	SU-15 14	5857	7244	5859	1	14	10/14/04	14:15	3	120	10
ALPHA	SU-15 15	5857	7244	5859	1	15	10/14/04	14:19	5	120	17
ALPHA	SU-15 16	5857	7244	5859	1	16	10/14/04	14:23	6	120	21
ALPHA	SU-15 17	5857	7244	5859	1	17	10/14/04	14:27	3	120	10
ALPHA	SU-15 18	5857	7244	5859	1	18	10/14/04	14:32	3	120	10
ALPHA	SU-15 19	5857	7244	5859	1	19	10/14/04	14:35	6	120	21
ALPHA	SU-15 20	5857	7244	5859	1	20	10/14/04	14:39	4	120	14
BETA	SRCBKG	5857	7244	5859	2		10/14/04	10:24	958	300	1632
BETA	SRCCHECK	5857	7244	5859	2		10/14/04	10:29	2874	60	24487
BETA	SRCCHECK	5857	7244	5859	2		10/14/04	10:30	2900	60	24708
BETA	SRCCHECK	5857	7244	5859	2		10/14/04	10:31	2864	60	24402
BETA	SRCCHECK	5857	7244	5859	2		10/14/04	10:33	2674	60	22783
BETA	SU-15 01	5857	7244	5859	2	1	10/14/04	13:17	220	60	1874
BETA	SU-15 02	5857	7244	5859	2	2	10/14/04	13:22	366	60	3118
BETA	SU-15 03	5857	7244	5859	2	3	10/14/04	13:25	351	60	2991
BETA	SU-15 04	5857	7244	5859	2	4	10/14/04	13:30	325	60	2769
BETA	SU-15 05	5857	7244	5859	2	5	10/14/04	13:34	181	60	1542
BETA	SU-15 06	5857	7244	5859	2	6	10/14/04	13:38	192	60	1636
BETA	SU-15 07	5857	7244	5859	2	7	10/14/04	13:42	351	60	2991
BETA	SU-15 08	5857	7244	5859	2	8	10/14/04	13:46	334	60	2846

45-Final Status Survey Unit 15 (Ceilings)

RSDS# 04-TF-0331 *RCT:* JC *RCT:* [illegible]

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SU-15 09	5857	7244	5859	2	9	10/14/04	13:49	321	60	2735
BETA	SU-15 10	5857	7244	5859	2	10	10/14/04	13:53	176	60	1500
BETA	SU-15 11	5857	7244	5859	2	11	10/14/04	13:57	361	60	3076
BETA	SU-15 12	5857	7244	5859	2	12	10/14/04	14:09	305	60	2599
BETA	SU-15 13	5857	7244	5859	2	13	10/14/04	14:12	184	60	1568
BETA	SU-15 14	5857	7244	5859	2	14	10/14/04	14:16	200	60	1704
BETA	SU-15 15	5857	7244	5859	2	15	10/14/04	14:20	318	60	2709
BETA	SU-15 16	5857	7244	5859	2	16	10/14/04	14:24	212	60	1806
BETA	SU-15 17	5857	7244	5859	2	17	10/14/04	14:29	185	60	1576
BETA	SU-15 18	5857	7244	5859	2	18	10/14/04	14:33	212	60	1806
BETA	SU-15 19	5857	7244	5859	2	19	10/14/04	14:37	366	60	3118
BETA	SU-15 20	5857	7244	5859	2	20	10/14/04	14:40	333	60	2837

13 Oct 2004 15:26 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 2 PW H3 # 410462 User : 2138

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	7.86
Region B:	2.0 -	18.6	0	0.0	7.50
Region C:	40.0 -	2000	0	0.0	11.28

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
04-TF-0331 DAVIS (20) AG
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	7.86	7.50	1	B	594.68		0.00	11.28
0	2.00	707.09	650.88	0		639.87	1278.48	97.22	0.00
1	2.00	0.00	0.00	0		611.07	0.00	0.00	0.00
2	2.00	0.00	0.00	0		650.29	0.00	0.00	0.00
3	2.00	6.31	4.45	0		648.41	11.34	10.09	0.00
4	2.00	1.64	1.10	0		667.89	2.90	8.32	0.00
5	2.00	3.14	2.82	0		636.79	5.70	9.09	1.90
6	2.00	3.13	0.83	0		607.97	5.80	9.30	0.22
7	2.00	1.14	0.73	0		661.91	2.03	8.17	0.00
8	2.00	5.64	0.00	0		649.04	10.13	9.87	0.00
9	2.00	2.64	0.14	0		650.38	4.74	8.81	0.00
10	2.00	0.00	0.00	0		549.69	0.00	0.00	0.00
11	2.00	2.64	2.13	0		655.80	4.72	8.78	0.00
12	2.00	2.13	1.20	0		667.40	3.77	8.51	1.22
13	2.00	4.64	3.94	0		605.08	8.64	9.88	0.00
14	2.00	3.64	3.50	0		561.67	7.03	9.87	0.00
15	2.00	6.88	3.76	0		652.31	12.31	10.24	0.22
16	2.00	0.00	0.00	0		599.34	0.00	0.00	0.00
17	2.00	1.64	0.83	0		634.87	2.99	8.54	0.00
18	2.00	0.00	0.00	0		598.30	0.00	0.00	0.00
19	2.00	0.00	0.00	0		634.27	0.00	0.00	0.00
20	2.00	0.00	0.00	0		658.35	0.00	0.00	0.00

JG

AP

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR011
Batch Ended: 10/13/04 14:58

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: DAVIS 04-TF-0331 [20] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.19		0.96	2.23	
A2	2	0.00	2.24		3.04	2.54	
A3	3	0.00	2.20		1.70	2.15	
A4	4	0.00	2.08		3.60	2.77	
B1	5	0.00	2.03		4.32	2.99	
B2	6	0.00	2.11		2.28	2.66	
B3	7	0.00	1.92		0.00	1.32	
B4	8	0.00	1.89		0.00	1.65	
C1	9	0.00	2.36		0.00	2.38	
C2	10	0.00	2.23		3.64	3.31	
C3	11	1.75	2.08		0.00	1.39	
C4	12	0.00	2.07		0.00	2.23	
D1	13	1.15	2.19		0.00	1.53	
D2	14	0.00	2.17		0.00	1.30	
D3	15	0.00	1.94		0.00	1.48	
D4	16	0.00	2.15		0.00	1.44	
B1	17	0.00	1.99		2.09	2.54	
B2	18	0.00	2.07		0.00	2.08	
B3	19	0.00	1.99		3.77	3.04	
B4	20	1.47	1.96		4.78	3.02	

JC JC

G195 of 309

~~Page 1 of 1~~ dd 10.18.04
page 7 of 7

J. Collins

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 - Various	SURVEY NO. 04-TF-0334
PURPOSE: MARSSIM Final Status Q.C.	RWP NO. N/A
	DATE: 10/18/04
	TIME: 1630

MAP / DRAWING

See Attached

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
△# = mrem/hr neutron
= air sample number
(#) = swipe number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
~~2360~~ 2350-1	5857/5859	~~9-9-04~~ 9-15-05 Date 10-21-04
	N A	

[redacted]

	HP# 7843 7344	Date: 10/19/04
Counted by: (Signature) A	HP#	Date:
Counted by: (Print Name) N		
Reviewed/A[redacted]	HP# 7707	Date: 11/15/04
Reviewed/Approved by: (Print Na[redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0334

RADIOLOGICAL SURVEY DATA SHEET

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

N A

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

COMMENTS: A N

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)

45-Building Final Status Q.C. Survey

RSDS# 04-TF-0334 RCT: JMC RCT: KD

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #: 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #: 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector #: 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRCBKG	5857	7244	5859	1		10/18/04	13:02	7	300	10
ALPHA	SRCCHECK	5857	7244	5859	1		10/18/04	13:19	2026	60	14000
ALPHA	SRCCHECK	5857	7244	5859	1		10/18/04	13:21	2035	60	14063
ALPHA	SRCCHECK	5857	7244	5859	1		10/18/04	13:23	2063	60	14256
ALPHA	SRCCHECK	5857	7244	5859	1		10/18/04	13:25	2033	60	14049
ALPHA	SU-1 08	5857	7244	5859	1	1	10/18/04	13:56	6	120	21
ALPHA	SU-2 09	5857	7244	5859	1	2	10/18/04	14:04	10	120	35
ALPHA	SU-3 04	5857	7244	5859	1	3	10/18/04	14:09	8	120	28
ALPHA	SU-4 04	5857	7244	5859	1	4	10/18/04	14:15	5	120	17
ALPHA	SU-5 02	5857	7244	5859	1	5	10/18/04	14:21	6	120	21
ALPHA	SU-6 09	5857	7244	5859	1	6	10/18/04	14:27	8	120	28
ALPHA	SU-7 02	5857	7244	5859	1	7	10/18/04	14:33	18	120	62
ALPHA	SU-7J 17	5857	7244	5859	1	8	10/18/04	14:38	1	120	3
ALPHA	SU-8 06	5857	7244	5859	1	9	10/18/04	14:47	2	120	7
ALPHA	SU-9 14	5857	7244	5859	1	10	10/18/04	14:53	6	120	21
ALPHA	SU-10 18	5857	7244	5859	1	11	10/18/04	14:58	5	120	17
ALPHA	SU-11 02	5857	7244	5859	1	12	10/18/04	15:03	4	120	14
ALPHA	SU-12 11	5857	7244	5859	1	13	10/18/04	15:08	3	120	10
ALPHA	SU-13 19	5857	7244	5859	1	14	10/18/04	15:14	10	120	35
ALPHA	SU-14 02	5857	7244	5859	1	15	10/18/04	15:20	10	120	35
ALPHA	SU-15 11	5857	7244	5859	1	16	10/18/04	15:26	9	120	31
BETA	SRCBKG	5857	7244	5859	2		10/18/04	13:11	969	300	1651
BETA	SRCCHECK	5857	7244	5859	2		10/18/04	13:35	2912	60	24811
BETA	SRCCHECK	5857	7244	5859	2		10/18/04	13:36	2901	60	24717
BETA	SRCCHECK	5857	7244	5859	2		10/18/04	13:37	2800	60	23856
BETA	SRCCHECK	5857	7244	5859	2		10/18/04	13:39	2700	60	23004
BETA	SU-1 08	5857	7244	5859	2	1	10/18/04	13:57	256	60	2181
BETA	SU-2 09	5857	7244	5859	2	2	10/18/04	14:05	165	60	1406
BETA	SU-3 04	5857	7244	5859	2	3	10/18/04	14:11	202	60	1721
BETA	SU-4 04	5857	7244	5859	2	4	10/18/04	14:16	203	60	1730
BETA	SU-5 02	5857	7244	5859	2	5	10/18/04	14:22	253	60	2156
BETA	SU-6 09	5857	7244	5859	2	6	10/18/04	14:28	204	60	1738
BETA	SU-7 02	5857	7244	5859	2	7	10/18/04	14:34	191	60	1627
BETA	SU-7J 17	5857	7244	5859	2	8	10/18/04	14:39	197	60	1678
BETA	SU-8 06	5857	7244	5859	2	9	10/18/04	14:48	217	60	1849
BETA	SU-9 14	5857	7244	5859	2	10	10/18/04	14:55	243	60	2070
BETA	SU-10 18	5857	7244	5859	2	11	10/18/04	15:00	223	60	1900
BETA	SU-11 02	5857	7244	5859	2	12	10/18/04	15:04	275	60	2343

45-Building Final Status Q.C. Survey

RSDS# 04-TF-0334 *RCT:* JMC *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.1948	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm²
BETA	SU-12 11	5857	7244	5859	2	13	10/18/04	15:10	338	60	2880
BETA	SU-13 19	5857	7244	5859	2	14	10/18/04	15:15	190	60	1619
BETA	SU-14 02	5857	7244	5859	2	15	10/18/04	15:21	392	60	3340
BETA	SU-15 11	5857	7244	5859	2	16	10/18/04	15:27	337	60	2871

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45-Penthouses & Various rooms	SURVEY NO. 04-TF-0335
PURPOSE: Sediment samples from sinks and floor drains per MARSSIM survey plan of Bldg. 45	RWP NO. N/A
	DATE: 10-19-04
	TIME: 1500

MAP / DRAWING

See Attached

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

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5857/5859	9-15-05
2360-89	5754/5807	9-23-05
	A	
	N	

[redacted]	HP# [redacted]	Date: 10-27-04
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewed [redacted]	HP#	Date: 11/11/04
Reviewed/Approved by: ([redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0335

RADIOLOGICAL SURVEY DATA SHEET

	Removable Contamination				
	Swipes (dpm/100cm²)				
	Sample #	β/γ	Alpha	Tritium	Comments
	1	See Attached			Rm. 002 floor drain
	2				↓ sink drain
*	3				Rm. 111 sink drain
	4				Rm. 112 floor drain
	5				↓ sink trap
	6				corridor 102
	7				Rm. 113 floor drain
*	8				↓ sink trap
	9				Penthouse #1 (floor)
	10				#2
	11				↓ ↓ ↓
*	12				Penthouse #1-A
*	13				↓ -B
	14				Rm. 001 pit
	15				
	16				
	17				
	18				
	19				
	20				↓
	21				catch basin in pit
	22				container #1
	23				#2
	24				#3
	25				#4
	26				#5
	27				#6
			NFE		

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

COMMENTS: *Smears #3 through #8 and #12 & #13 ≈ no sediment sample taken due to inaccessible drains/
NFE = No Further Entries / All smears field checked with 2360 prior to submitting to count lab.
Penthouse #1 "A & B" see map

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)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR005
Batch Ended: 10/20/04 14:54

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0335 J.COLLINS A/B (27) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.16		0.00	1.33	
A2	2	0.00	2.21		0.54	1.81	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.04		0.00	1.78	
B1	5	0.00	1.97		0.97	2.28	
B2	6	0.00	2.05		0.00	1.72	
B3	7	0.00	1.92		0.00	1.32	
B4	8	0.00	1.92		1.56	2.30	
C1	9	0.00	2.39		1.84	3.04	
C2	10	0.94	2.20		0.78	2.72	
C3	11	0.00	2.10		0.00	1.90	
C4	12	1.51	2.11		3.59	3.13	
D1	13	2.78	3.10		4.25	3.53	
D2	14	0.00	2.17		0.00	1.31	
D3	15	0.00	1.96		1.37	2.48	
D4	16	0.29	2.17		1.87	2.75	
A1	17	1.92	2.18		0.00	1.83	
A2	18	0.00	2.21		0.54	1.81	
A3	19	1.60	2.17		0.00	1.27	
A4	20	0.00	2.08		3.60	2.77	
B1	21	0.00	1.99		2.09	2.54	
B2	22	0.00	2.05		0.00	1.72	
B3	23	1.51	1.98		2.37	2.78	
B4	24	0.00	1.89		0.00	1.65	
C1	25	0.00	2.37		0.50	2.73	
C2	26	0.00	2.23		3.64	3.31	
C3	27	1.75	2.12		1.35	2.65	

JC JC

5 of 309

JC 10/21/04 ~~Page 1 of 1~~ page 3 of 11

AP

page 4 of

20 Oct 2004 15:13 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 5 Pw H3 #403728 User : 232

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	7.36
Region B:	2.0 -	18.6	0	0.0	7.06
Region C:	40.0 -	2000	0	0.0	12.00

Quench Indicator: tSIE/AEC
Ext ~~Std Terminator~~: Count
COLLINS 04-TF-0335 -27 JC
~~Luminescence Correction~~ On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA5.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	7.36	10	B	572.75		0.00	12.00
0	2.00	754.67	0		631.48	1363.46	108.12	0.00
1	2.00	0.64	59		364.36	1.62	18.01	0.00
2	2.00	1.27	0		587.07	2.39	8.48	0.00
3	2.00	0.00	0		587.09	0.00	0.00	0.00
4	2.00	0.00	11		498.85	0.00	0.00	0.00
5	2.00	0.00	0		563.90	0.00	0.00	0.00
6	2.00	0.00	8		524.84	0.00	0.00	0.00
7	2.00	0.00	0		651.24	0.00	0.00	0.00
8	2.00	0.00	8		450.48	0.00	0.00	0.00
9	2.00	0.00	0		329.75	0.00	0.00	0.00
10	2.00	0.00	8		394.27	0.00	0.00	0.50
11	2.00	0.00	0		315.01	0.00	0.00	0.00
12	2.00	1.76	0		466.86	3.72	9.81	0.00
13	2.00	0.00	0		480.70	0.00	0.00	0.00
14	2.00	3.64	0		605.31	6.73	9.27	0.00
15	2.00	0.00	0		588.38	0.00	0.00	0.00
16	2.00	0.00	0		609.54	0.00	0.00	0.17
17	2.00	1.64	0		590.98	3.07	8.60	0.00
18	2.00	0.01	0		541.13	0.01	8.25	0.00
19	2.00	0.00	0		530.50	0.00	0.00	0.00
20	2.00	3.14	0		570.21	5.98	9.36	0.00
21	2.00	0.00	0		555.74	0.00	0.00	2.00
22	2.00	0.00	0		604.56	0.00	0.00	0.00
23	2.00	0.14	0		640.07	0.26	7.65	0.00
24	2.00	0.00	0		641.14	0.00	0.00	0.00
25	2.00	0.00	0		636.87	0.00	0.00	0.00
26	2.00	0.00	0		647.62	0.00	0.00	0.00
27	2.00	2.64	0		636.94	4.75	8.67	0.00

J.C.

J. Collins

45-Building Characterization Survey (Drains)

RSDS# 04-TF-0335 *RCT:* JMC *RCT:* LAO

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.165	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.208	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7244	5859	1		10/19/04	10:46	11	300	17
ALPHA	SRC CHECK	5857	7244	5859	1		10/19/04	10:47	2068	60	15631
ALPHA	SRC CHECK	5857	7244	5859	1		10/19/04	10:49	2091	60	15805
ALPHA	SRC CHECK	5857	7244	5859	1		10/19/04	10:50	1959	60	14807
ALPHA	SRC CHECK	5857	7244	5859	1		10/19/04	10:51	1983	60	14989
ALPHA	DR 01	5857	7244	5859	1	1	10/19/04	13:14	1	120	4
ALPHA	DR 02	5857	7244	5859	1	2	10/19/04	13:25	4	120	15
ALPHA	DR 03	5857	7244	5859	1	3	10/19/04	13:37	7	120	26
ALPHA	DR 04	5857	7244	5859	1	4	10/19/04	13:42	2	120	8
ALPHA	DR 05	5857	7244	5859	1	5	10/19/04	13:46	5	120	19
ALPHA	DR 06	5857	7244	5859	1	6	10/19/04	13:49	3	120	11
ALPHA	DR 07	5857	7244	5859	1	7	10/19/04	13:53	3	120	11
ALPHA	DR 08	5857	7244	5859	1	8	10/19/04	13:57	3	120	11
BETA	SRC BKG	5857	7244	5859	2		10/19/04	10:57	891	300	1714
BETA	SRC CHECK	5857	7244	5859	2		10/19/04	10:59	2792	60	26859
BETA	SRC CHECK	5857	7244	5859	2		10/19/04	11:00	2762	60	26570
BETA	SRC CHECK	5857	7244	5859	2		10/19/04	11:02	2812	60	27051
BETA	SRC CHECK	5857	7244	5859	2		10/19/04	11:03	2781	60	26753
BETA	DR 01	5857	7244	5859	2	1	10/19/04	13:15	133	60	1279
BETA	DR 02	5857	7244	5859	2	2	10/19/04	13:26	134	60	1289
BETA	DR 03	5857	7244	5859	2	3	10/19/04	13:38	205	60	1972
BETA	DR 04	5857	7244	5859	2	4	10/19/04	13:43	195	60	1876
BETA	DR 05	5857	7244	5859	2	5	10/19/04	13:47	312	60	3001
BETA	DR 06	5857	7244	5859	2	6	10/19/04	13:51	187	60	1799
BETA	DR 07	5857	7244	5859	2	7	10/19/04	13:54	220	60	2116
BETA	DR 08	5857	7244	5859	2	8	10/19/04	13:58	329	60	3165

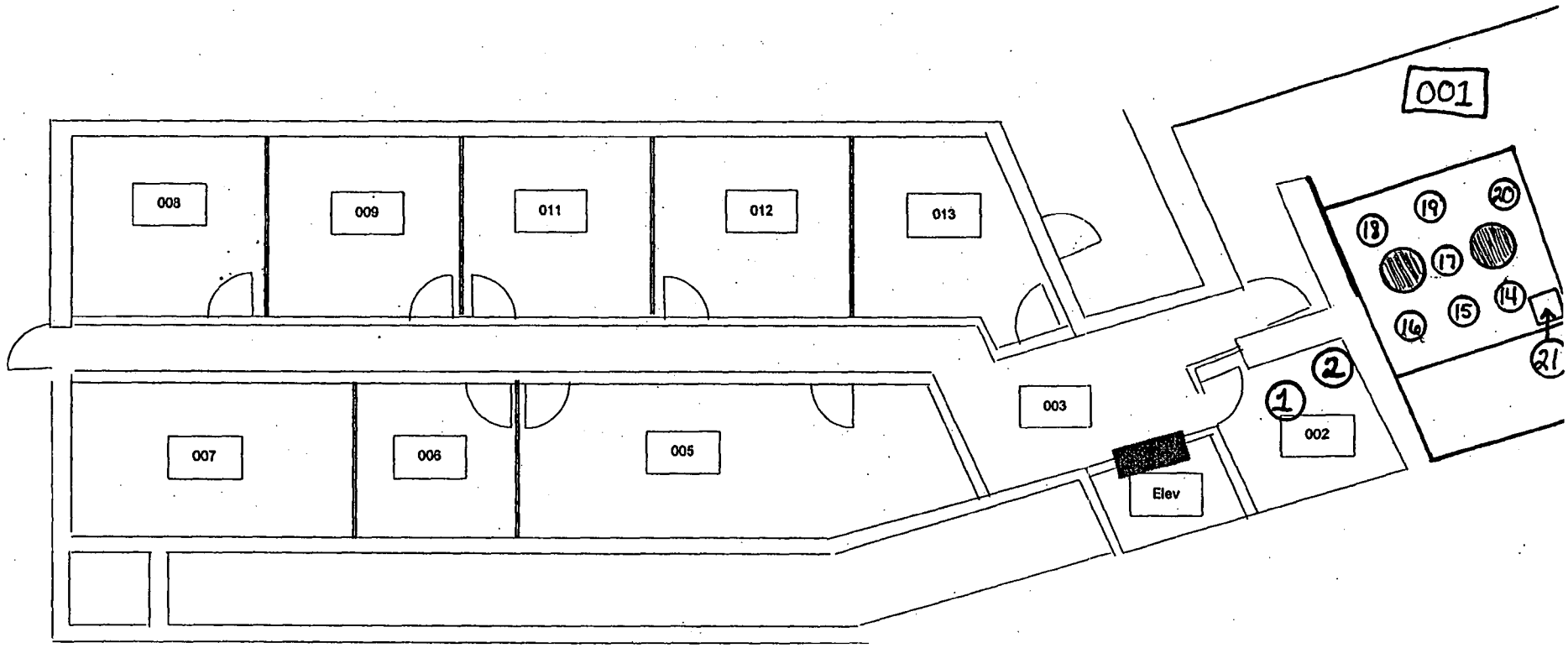
BLDG 45 CHARACTERIZATION SURVEY (DRAINS)

RSDS#: 04-TF-0335 RCT: JMC RCT: LAO

43-89 ALPHA BKG:	0	Factor	8	PROBE AREA:	100	cm2	Surface Eff:	1	ALPHA	1
43-89 BETA BKG:	0	Factor	4	PROBE AREA:	100	cm2	Surface Eff:	1	BETA	2

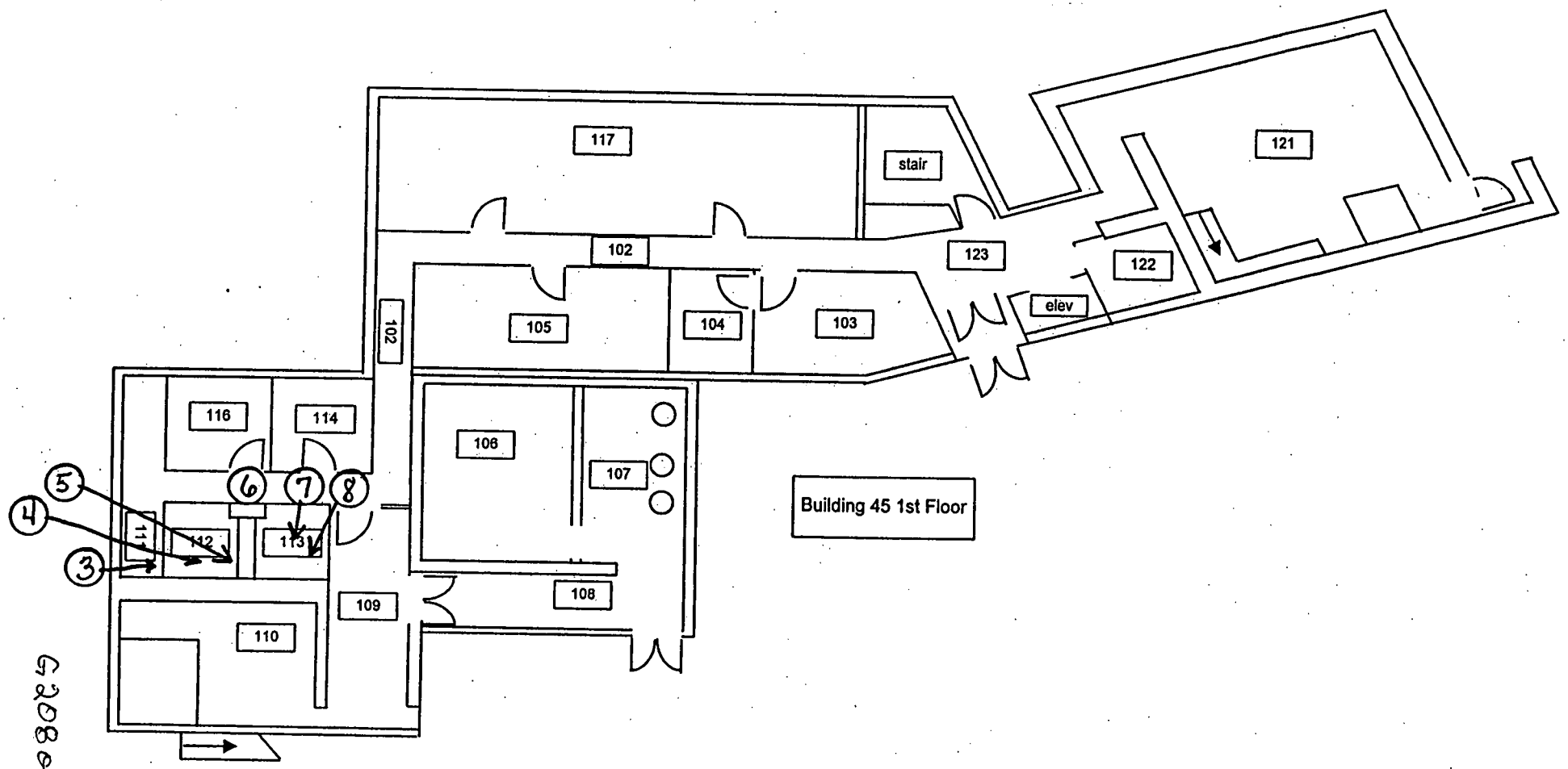
LOCATION	2360#	RCT ID	PROBE	TYPE: 1 or 2	ITEM #	DATE	TIME	CNTS	CT TIME (sec)	dpm/100cm2
DR-09	5754	7244	5807	1	1	10/19/04	10:00	12	120	48
DR-10	5754	7244	5807	1	2	10/19/04	10:05	9	120	36
DR-11	5754	7244	5807	1	3	10/19/04	10:10	11	120	44
DR-12	5754	7244	5807	1	4	10/19/04	10:15	11	120	44
DR-13	5754	7244	5807	1	5	10/19/04	10:20	11	120	44
001-14	5754	7244	5807	1	6	10/19/04	10:25	4	120	16
001-15	5754	7244	5807	1	7	10/19/04	10:30	1	120	4
001-16	5754	7244	5807	1	8	10/19/04	10:35	1	120	4
001-17	5754	7244	5807	1	9	10/19/04	10:40	5	120	20
001-18	5754	7244	5807	1	10	10/19/04	10:45	2	120	8
001-19	5754	7244	5807	1	11	10/19/04	10:50	1	120	4
001-20	5754	7244	5807	1	12	10/19/04	10:55	4	120	16
001-21	5754	7244	5807	1	13	10/19/04	11:00	2	120	8
DR-09	5754	7244	5807	2	1	10/19/04	10:00	445	120	890
DR-10	5754	7244	5807	2	2	10/19/04	10:05	337	120	674
DR-11	5754	7244	5807	2	3	10/19/04	10:10	339	120	678
DR-12	5754	7244	5807	2	4	10/19/04	10:15	371	120	742
DR-13	5754	7244	5807	2	5	10/19/04	10:20	384	120	768
001-14	5754	7244	5807	2	6	10/19/04	10:25	228	120	456
001-15	5754	7244	5807	2	7	10/19/04	10:30	231	120	462
001-16	5754	7244	5807	2	8	10/19/04	10:35	209	120	418
001-17	5754	7244	5807	2	9	10/19/04	10:40	177	120	354
001-18	5754	7244	5807	2	10	10/19/04	10:45	188	120	376
001-19	5754	7244	5807	2	11	10/19/04	10:50	204	120	408
001-20	5754	7244	5807	2	12	10/19/04	10:55	187	120	374
001-21	5754	7244	5807	2	13	10/19/04	11:00	188	120	376

Building 45 Lower Level



G207 of 309

04-TF-0335


117
stair
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Building 45 1st Floor
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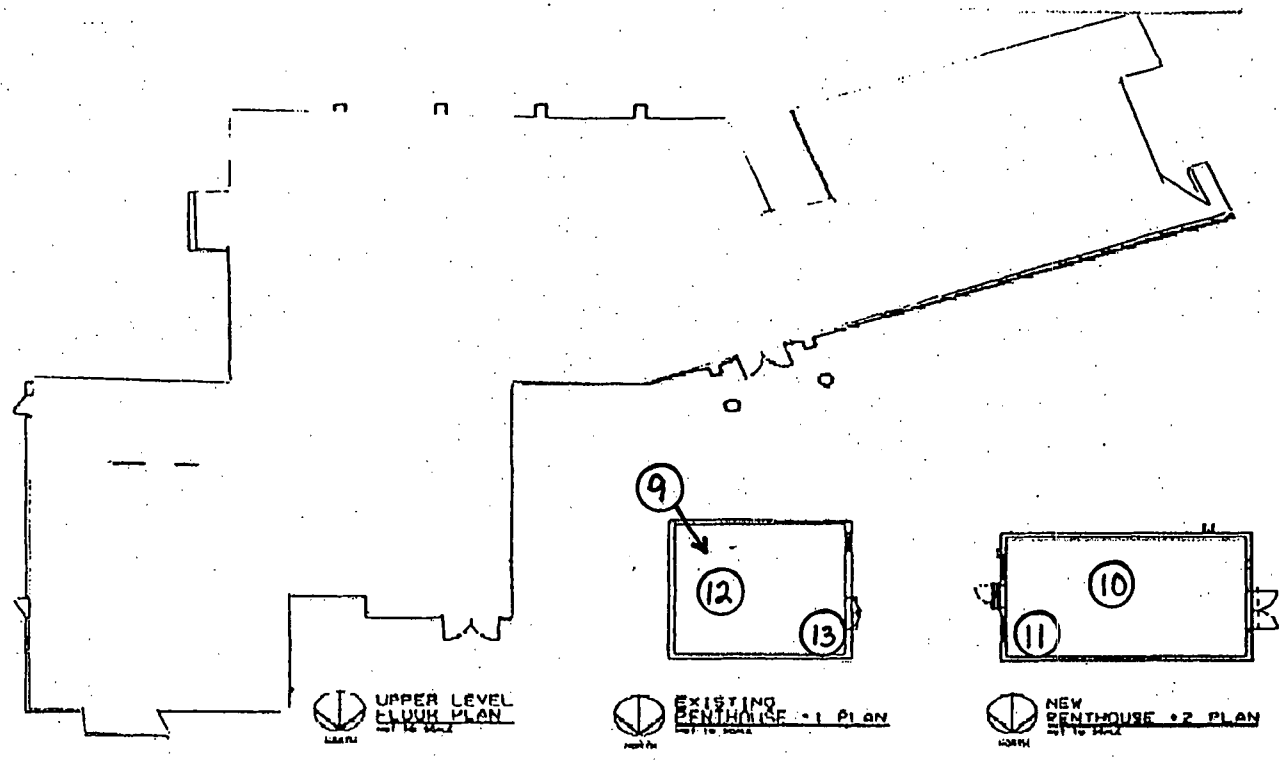

Figure 2-3. Building 45 Upper Level Floor Plan

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED: 10.20.04	SAMPLE TYPE: (5) H_2O (1) Sediment	COLLECTED BY: J.Collins / L. Oeffner	NUMBER OF SAMPLES: 6
PROJECT/FUNCTION: BUSS	PRIMARY CONTACT/PHONE NO.: B. Coblentz 608-8206		MAIL STOP:
CHARGE NUMBER: BUSS	DATE(S) COLLECTED: 10-19 : 10-20-04	RSDS# (if applicable): 04-TF-0335	ATTACHMENTS (list):

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS ^3H nci/l	RESULTS Gross Alpha DPM/L
0405886	B-45 Drains	1 1	0.91	<0.78
0405887		2 2	0.97	<0.60
0405888		3 9	<60	<0.60
0405889		4 10	2.58	<0.60
0405890		5 11	<.60	<0.60
0405891		6 21	1.20 nci/gram	See Attachment
		BWC 9:30		

COMMENTS:

ANALYZED BY: R.C. Hepler

DATE: 10-26-04

ML-5222 (1-01)

Laboratory ID#: 0405991
Project/function: BOSS
Submitted: Oct 20, 2004
Submitted by: J. Collins
Point of Contact: ~~B. Coblentz~~
RSDS#: 04-TF-0335
Date: Oct 26, 2004

Lab ID	0405891
Sample Location	Bldg 45 Drains #6

Isotope	pCi/g	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.15
Pu-239/240	<LDL	<LDL	0.06
Th-227	0.09	0.04	0.05
Th-228	0.26	0.07	0.05
Th-230	0.31	0.08	0.05
Th-232	<LDL	<LDL	0.05
U-233/234	<LDL	<LDL	0.07
U-235	<LDL	<LDL	0.20
U-238	<LDL	<LDL	0.07

[redacted]

1585 — HP #
10-26-04 — Date

1585 — HP #
10-26-04 — Date

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QC ~~Page 1 of 1~~
10/27/04

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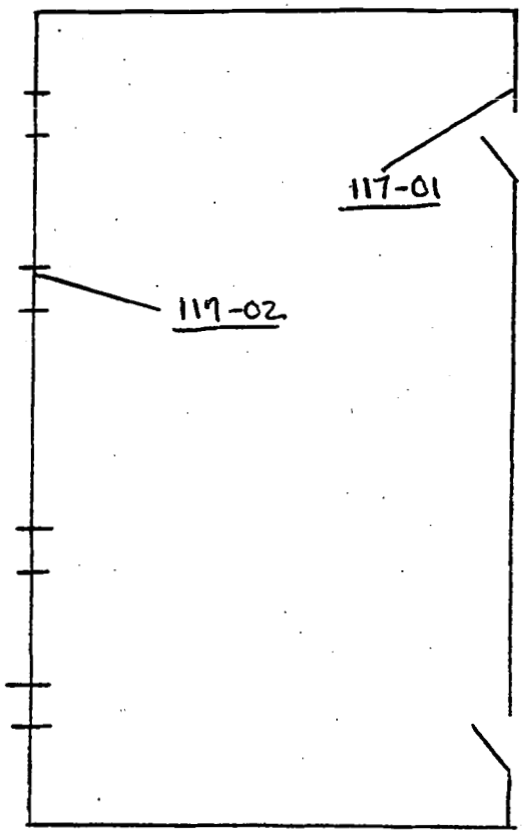
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 - Room 117	SURVEY NO. 04-TF-0340
PURPOSE: MARSSIM Final Status Survey: Surface Scan Hand probe	RWP NO. N/A
	DATE: 10-20-04
	TIME: 1430

MAP / DRAWING



Room 117

Note: 10% of surface scan performed on walls. Only 2 intergrated counts performed. See locations above, and attached results. No other audible response was detected.

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
Lud 2350	5857 / 5859	~~9-9-04~~ 9-15-05
		10/2/04
		A
	N	

Completed by: (Signa[redacted]		HP# [redacted]	Date: 10-21-04
Completed by: (Print [redacted]			
Counted by: (Signature) N/A		HP#	Date:
Counted by: (Print Name)			
Review[redacted]		HP# 7707	Date: 10/21/04
Reviewed/Approved by: (Prin[redacted]			

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0340

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
N/A				

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
N/A				

COMMENTS: No smears required

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)

45-Building Final Status Survey Unit 10 (10% wall scan)

RSDS# 04-TF-0340 *RCT:* LAO *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.2297	PROBE AREA	126	cm²	Surface Eff		0.5	Detector # 1
Beta	43-68 BKG	0	EFF	0.1863	PROBE AREA	126	cm²	Surface Eff		0.5	Detector # 2
Scan	43-37 BKG	0	EFF	0.1941	PROBE AREA	584	cm²	Surface Eff		0.5	Detector # 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7244	5859	1		10/20/04	13:00	2	300	3
ALPHA	SRC CHECK	5857	7244	5859	1		10/20/04	13:05	2011	60	13897
ALPHA	SRC CHECK	5857	7244	5859	1		10/20/04	13:07	2095	60	14477
ALPHA	SRC CHECK	5857	7244	5859	1		10/20/04	13:08	1982	60	13696
ALPHA	SRC CHECK	5857	7244	5859	1		10/20/04	13:09	2088	60	14429
ALPHA	SSH 11701	5857	7244	5859	1	1	10/20/04	14:10	5	120	17
ALPHA	SSH ~~1172~~ 11702	5857	7244	5859	1	2	10/20/04	14:24	3	120	10
	RDC 3/3/05										
BETA	SRCBKG	5857	7244	5859	2		10/20/04	13:21	994	300	1694
BETA	SRCCHECK	5857	7244	5859	2		10/20/04	13:28	2918	60	24862
BETA	SRCCHECK	5857	7244	5859	2		10/20/04	13:29	2967	60	25279
BETA	SRCCHECK	5857	7244	5859	2		10/20/04	13:31	2766	60	23567
BETA	SRCCHECK	5857	7244	5859	2		10/20/04	13:32	2863	60	24393

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45- Room 109-110A, 121	SURVEY NO. 04-TF-0343
PURPOSE: MARSSIM Final Status Survey: 10% Surface Scan of walls w/ alpha probe (SU-9,12)	RWP NO. N/A
	DATE: 10/21/04
	TIME:

MAP / DRAWING

* See attached map for scanning locations and results.
* No intergrated counts performed, unless indicated on map.

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
Lud 2350	5857/5859	9-15-05
	A	
	N	

Completed by: (Sign [redacted]	HP# [redacted]	Date: 10/25/04
Completed by: (Print [redacted]		
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Print Name)		
Reviewed/A [redacted]	HP# 7707	Date: 10/28/04
Reviewed/Approved by: (Print [redacted]		

Survey No. 04-TF-0343

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

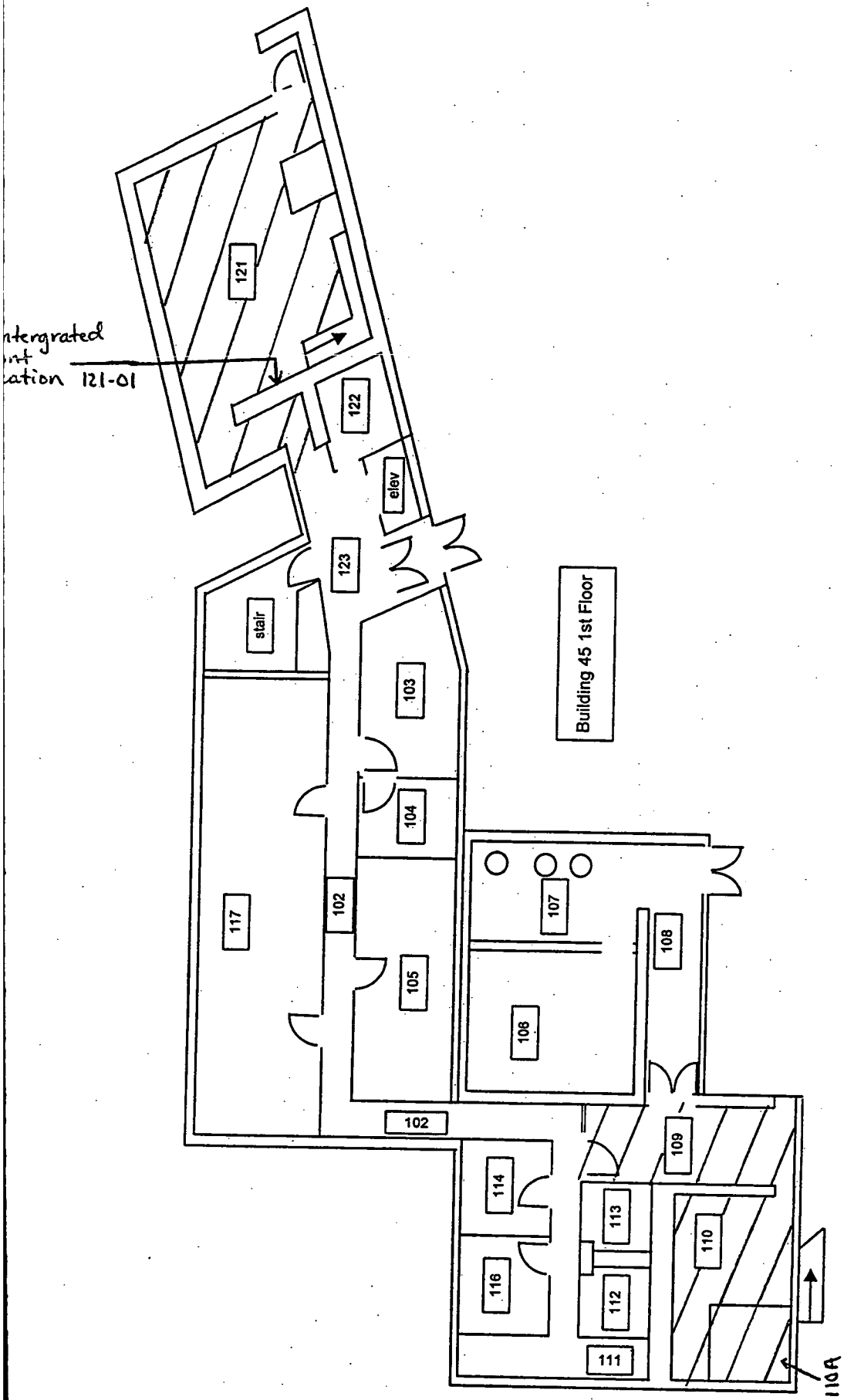
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments

N/A

COMMENTS:
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 needed, mark N/A.

ML-9620A (4-98)



Legend:

Area Scanned

45-Building Final Status Survey(10% surface scan of walls SU-9,12)

RSDS# 04-TF-0343 ***RCT:*** LAO ***RCT:*** RW

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff:		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.165	PROBE AREA	126	cm²	Surface Eff:		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.208	PROBE AREA	584	cm²	Surface Eff:		0.5	Detector #
TYPE	**LOCATION**	**2350#**	**RCT ID**	**PROBE**	**DET #**	**ITEM #**	**DATE**	**TIME**	**CNTS**	**CT TIME**	**dpm/100cm2**
ALPHA	SRCBKG	5857	7836	5859	1		10/21/04	9:42	2	300	3
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:44	2068	60	15631
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:45	2130	60	16100
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:47	1933	60	14611
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:49	2048	60	15480
ALPHA	SSH SU- 9-01	5857	7836	5859	1	1	10/21/04	13:50	8	120	30
BETA	SRCBKG	5857	7836	5859	2		10/21/04	9:56	929	300	1787
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	9:59	2871	60	27619
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	10:02	2800	60	26936
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	10:04	2772	60	26667
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	10:05	2758	60	26532

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLDG # 45 RM'S 106, 107 & 108	SURVEY NO. 04-TF-0344
PURPOSE: MARSSIM FINAL STATUS SURVEY 100% SURFACE SCAN OF WALLS W/ ALPHA PROBE UNIT # 11	RWP NO. N/A
	DATE: 10-21-04
	TIME: 1500

MAP/DRAWING

See ATTACHED MAP FOR SCANNING

* LOCATIONS AND RESULTS

Integrated count taken IF audible detected. NO audible detected.
ALL direct readings <100dpm/100cm2 Alpha and <5000dpm/100cm2 Beta

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
LUD-2350	5854	7-20-05

Co[redacted]	HP# 7843	Date: 10-25-04
Co[redacted]		
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Print)		
Reviewed/[redacted]	HP# 7707	Date: 11/1/04
Reviewed/Approved by: ([redacted]		

ML-9620

RSDS# 04-TF-0344

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
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	Comments
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
99				
70				

See attached results

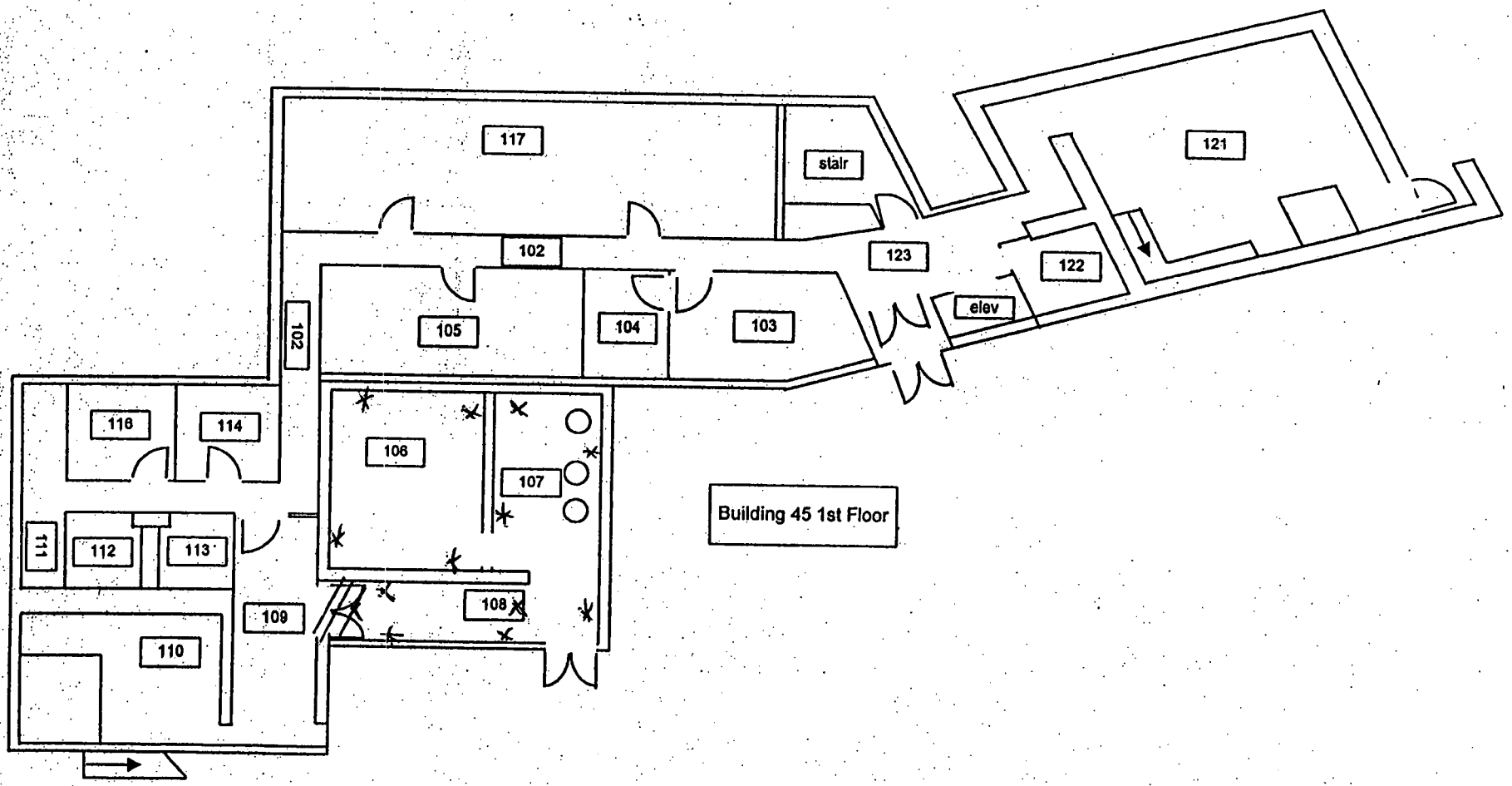
See attached results

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



RSDS # 04-TF-0344

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45-Building final status survey 10% hand probes walls unit 11

RSDS# 04-tf-0344 *RCT:* [redacted]/7843 *RCT:* n/a

Alpha	43.68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43.68 BKG	0	EFF	0.167	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43.37 BKG	0	EFF	0.226	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5854	7244	5861	1		10/21/04	10:30	5	300	8
ALPHA	SRC CHECK	5854	7244	5861	1		10/21/04	10:32	2045	60	15457
ALPHA	SRC CHECK	5854	7244	5861	1		10/21/04	10:33	2065	60	15608
ALPHA	SRC CHECK	5854	7244	5861	1		10/21/04	10:34	1972	60	14906
ALPHA	SRC CHECK	5854	7244	5861	1		10/21/04	10:35	1944	60	14694
ALPHA	SSH 11 108 01	5854	7244	5861	1	1	10/21/04	13:12	2	120	8
ALPHA	SSH 11 108 02	5854	7244	5861	1	2	10/21/04	13:24	5	120	19
ALPHA	SSH 11 108 03	5854	7244	5861	1	3	10/21/04	13:27	4	120	15
ALPHA	SSH 11 108 04	5854	7244	5861	1	4	10/21/04	13:33	1	120	4
ALPHA	SSH 11 108 05	5854	7244	5861	1	5	10/21/04	13:37	7	120	26
ALPHA	SSH 11 107 01	5854	7244	5861	1	6	10/21/04	13:42	6	120	23
ALPHA	SSH 11 107 02	5854	7244	5861	1	7	10/21/04	13:47	3	120	11
ALPHA	SSH 11 107 03	5854	7244	5861	1	8	10/21/04	13:50	4	120	15
ALPHA	SSH 11 107 04	5854	7244	5861	1	9	10/21/04	13:52	3	120	11
ALPHA	SSH 11 107 05	5854	7244	5861	1	10	10/21/04	13:55	4	120	15
ALPHA	SSH 11 106 01	5854	7244	5861	1	11	10/21/04	13:58	4	120	15
ALPHA	SSH 11 106 02	5854	7244	5861	1	12	10/21/04	14:00	3	120	11
ALPHA	SSH 11 106 03	5854	7244	5861	1	13	10/21/04	14:03	3	120	11
ALPHA	SSH 11 106 04	5854	7244	5861	1	14	10/21/04	14:05	3	120	11
BETA	SRCBKG	5854	7244	5861	2		10/21/04	10:41	680	300	1293
BETA	SRCCHECK	5854	7244	5861	2		10/21/04	10:43	2266	60	21538
BETA	SRCCHECK	5854	7244	5861	2		10/21/04	10:46	2242	60	21310
BETA	SRCCHECK	5854	7244	5861	2		10/21/04	10:51	2378	60	22602
BETA	SRCCHECK	5854	7244	5861	2		10/21/04	10:52	2487	60	23638

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 - Room 121	SURVEY NO. 04-TF-0345
PURPOSE: MARSSIM Final Status Survey: Resurvey of SU-#2 #09	RWP NO. N/A
	DATE: 10/21/04
	TIME: 1430

MAP / DRAWING

Resurvey of SU-2 #09

See map for location.

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
Lud2350	5857 / 5859	9/15/05
	A	
	N	

Completed by: (Signatu[redacted]	HP# 7836	Date: 10/25/04
Completed by: (Print Name) [redacted]		
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Print Name)		
Reviewe[redacted]	HP# 7707	Date: 11/11/04
Reviewed/Approved by: (Print Nam[redacted]		

Survey No. 04-TF-0345

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

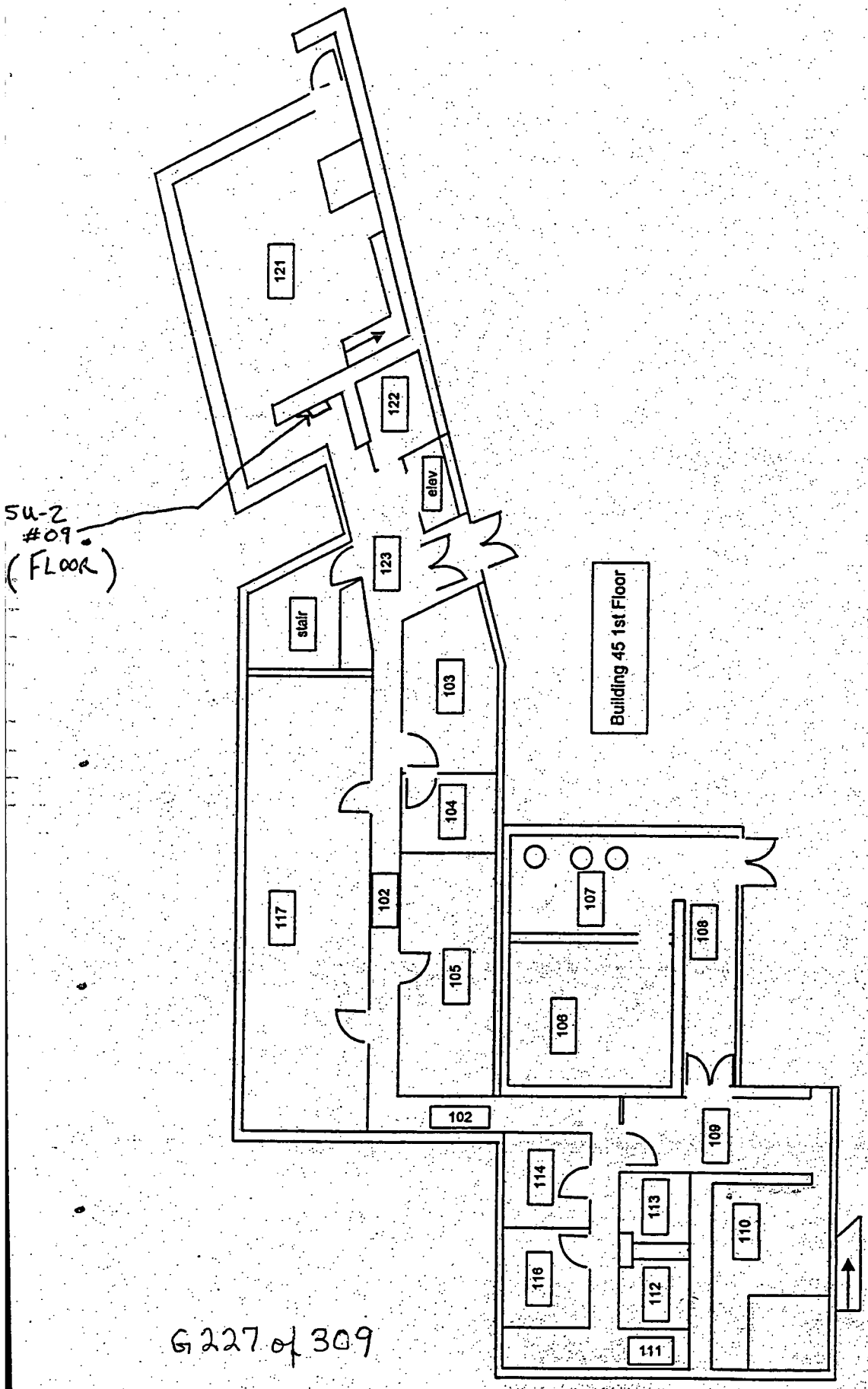
N A

COMMENTS: 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 needed, mark N/A.

ML-9620A (4-98)

RSDS #04-TF-0345



SU-2
#09
(FLOOR)

45-Final Status Survey Resurvey of SU-2 #09

RSDS# 04-TF-0345 *RCT:* LAO *RCT:* RW

Alpha	43-68 BKG:	0	EFF:	0.21	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # 1
Beta	43-68 BKG:	0	EFF:	0.165	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # 2
Scan	43-37 BKG	0.06	EFF:	0.0208	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector # 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRCBKG	5857	7836	5859	1		10/21/04	9:42	2	300	3
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:44	2068	60	15631
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:45	2130	60	16100
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:47	1933	60	14611
ALPHA	SRCCHECK	5857	7836	5859	1		10/21/04	9:49	2048	60	15480
ALPHA	SU-2 # 09	5857	7836	5859	1	1	10/21/04	14:23	5	120	19
BETA	SRCBKG	5857	7836	5859	2		10/21/04	9:56	929	300	1787
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	9:59	2871	60	27619
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	10:02	2800	60	26936
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	10:04	2772	60	26667
BETA	SRCCHECK	5857	7836	5859	2		10/21/04	10:05	2758	60	26532
BETA	SU-2 # 09	5857	7836	5859	2	2	10/21/04	14:24	184	60	1770

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) B45- Unit 13: 7 Walls	SURVEY NO. 04-TF-0350
PURPOSE: Final Status Survey 100% Scan of Walls	RWP NO. N/A
	DATE: 10.25.04
	TIME: 1600

MAP / DRAWING

* See attached map for scanning locations & results.
* No integrated counts performed unless indicated on map.

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

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350/43-68	5854/5861	7-20-05

[redacted]	HP# 7572/7844	Date: 10.25.04
Counted by: (Signature) A	HP#	Date:
Counted by: (Print Name) N		
Reviewed/Appr[redacted]	HP# 7707	Date: 10/28/04
Reviewed/Approved by: (Print Name [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0350

RADIOLOGICAL SURVEY DATA SHEET

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

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

N A

COMMENTS:

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 needed, mark N/A.

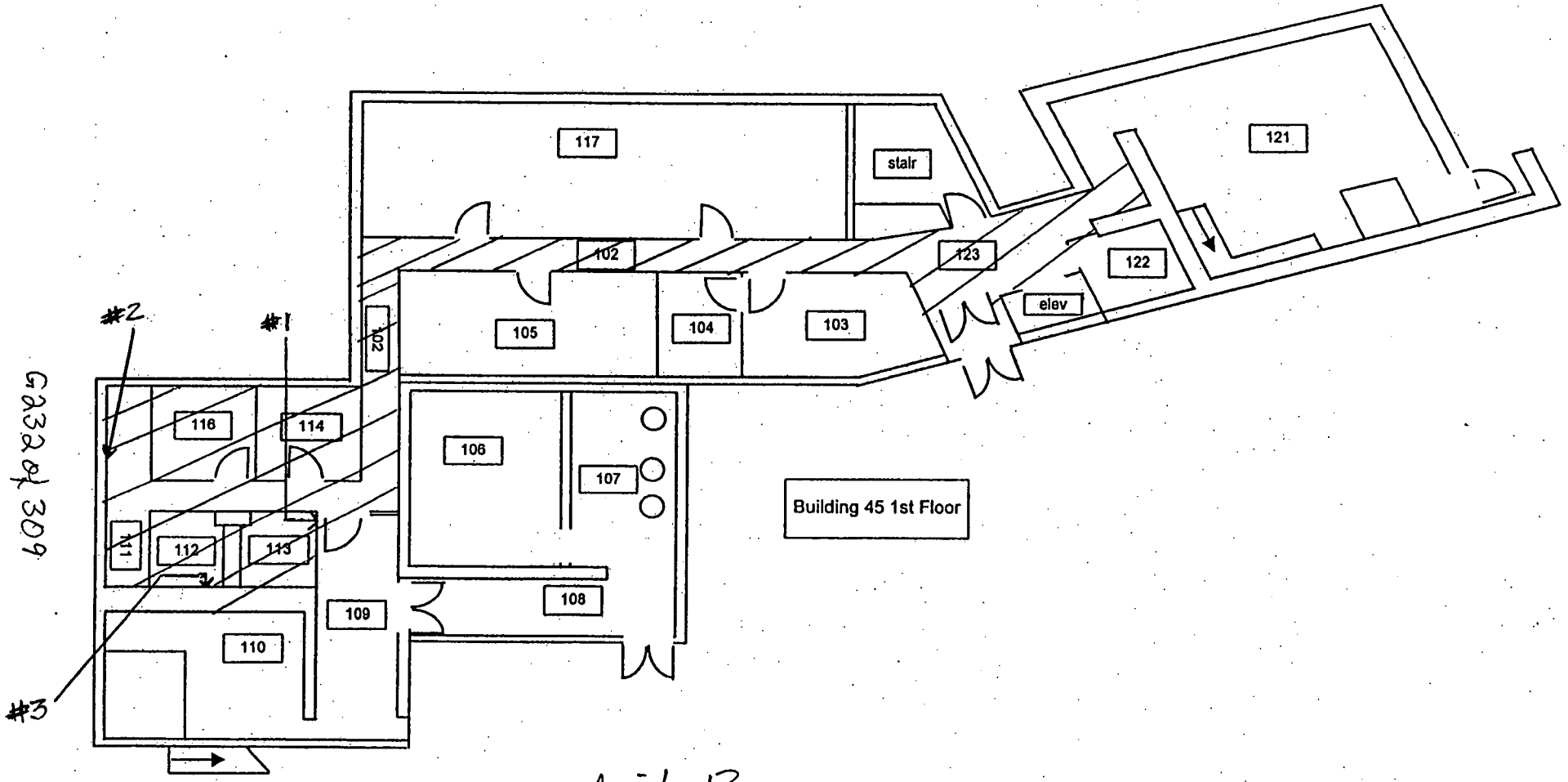
ML-9620A (4-98)

45-Building Final Status Survey - Unit 13 10% Surface Scan (walls)

RSDS# 04-TF-0350 *RCT:* [redacted]7572 *RCT:* [redacted]7843

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.167	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.226	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5854	7843	5861	1		10/25/04	10:17	16	300	24
ALPHA	SRC CHECK	5854	7843	5861	1		10/25/04	10:20	2014	60	15223
ALPHA	SRC CHECK	5854	7843	5861	1		10/25/04	10:23	1837	60	13885
ALPHA	SRC CHECK	5854	7843	5861	1		10/25/04	10:25	2024	60	15299
ALPHA	SRC CHECK	5854	7843	5861	1		10/25/04	10:26	1973	60	14913
ALPHA	SSH-13 113-01	5854	7843	5861	1	1	10/25/04	13:21	13	120	49
ALPHA	SSH-13 111-01	5854	7843	5861	1	2	10/25/04	13:25	6	120	23
ALPHA	SSH-13 112-01	5854	7843	5861	1	3	10/25/04	13:29	14	120	53



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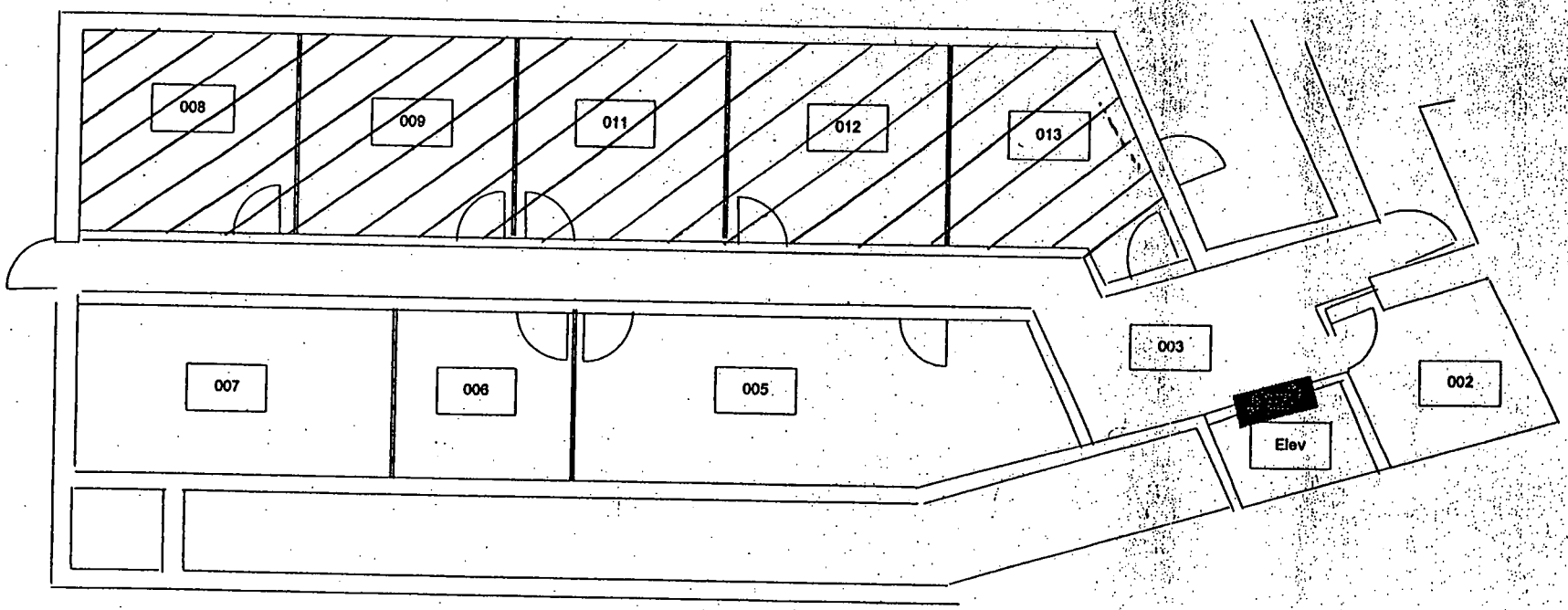
Unit 13
10% Surface Scan-Walls
Integrated count locations

Legend:

Area Scan

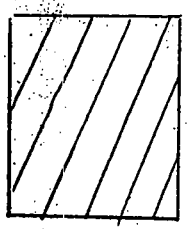
10-25-04
10-25-04

Building 45 Lower Level



Unit 7 Rooms 008-013 only
100% Surface Scan - Walls
* No Integrated counts taken.

Legend:



- Area Scanned

page 585

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 Rm 001,002,003,005,006,007	SURVEY NO. 04-TF-0353
PURPOSE: MARSSIM Final Status Survey: 10% walls surface scan (SU-7,8)	RWP NO. N/A
	DATE: 10-25-04
	TIME: 1430

MAP / DRAWING

*See attached map for scanning locations and results.
*No integrated counts performed unless indicated on map.

*Note: See 04-TF-0350 for survey of remaining rooms in SU-7.

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud2350	5857/5859	9/15/05
	A	
	N	

Completed by: [redacted]	HP# 7836	Date: 10-26-04
Completed by: (Printed Name) [redacted]		
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Printed Name) ↓		
Reviewed/Approved by: (Signature) [redacted]	HP# 7767	Date: 10/28/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98)

Building 45 Lower Level

45-Building Final Status Survey: 10% surface scan of walls(SU-7,8)

RSDS# 04-TF-0353 *RCT:* LAO *RCT:* N/A

Alpha	43-68 BKG:	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff:		0.5	Detector # 1
Beta	43-68 BKG:	0	EFF	0.165	PROBE AREA	126	cm²	Surface Eff:		0.5	Detector # 2
Scan	43-37 BKG:	0	EFF	0.208	PROBE AREA	584	cm²	Surface Eff:		0.5	Detector # 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRCBKG	5857	7836	5859	1		10/25/04	10:00	5	300	8
ALPHA	SRCCHECK	5857	7836	5859	1		10/25/04	10:07	2037	60	15397
ALPHA	SRCCHECK	5857	7836	5859	1		10/25/04	10:09	2046	60	15465
ALPHA	SRCCHECK	5857	7836	5859	1		10/25/04	10:10	1965	60	14853
ALPHA	SRCCHECK	5857	7836	5859	1		10/25/04	10:12	2019	60	15261
ALPHA	SSH SU-8 001-01	5857	7836	5859	1	1	10/25/04	13:16	1	120	4
ALPHA	SSH SU-8 001-02	5857	7836	5859	1	2	10/25/04	13:44	1	120	4

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 Ceilings	SURVEY NO. 04-TF-0355
PURPOSE: MARSSIM Final Status Survey: 10% Surface Scan of Ceilings (SU-14,15)	RWP NO. N/A
	DATE: 10-26-04
	TIME: 1430

MAP / DRAWING

*See attached map for scanning locations and results.
*No integrated counts performed unless indicated on map.

* See RSDS # 04-TF-0367 for Survey results of high ceilings (Rm 106, 107, 108, 121, 001)

LEGEND:

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

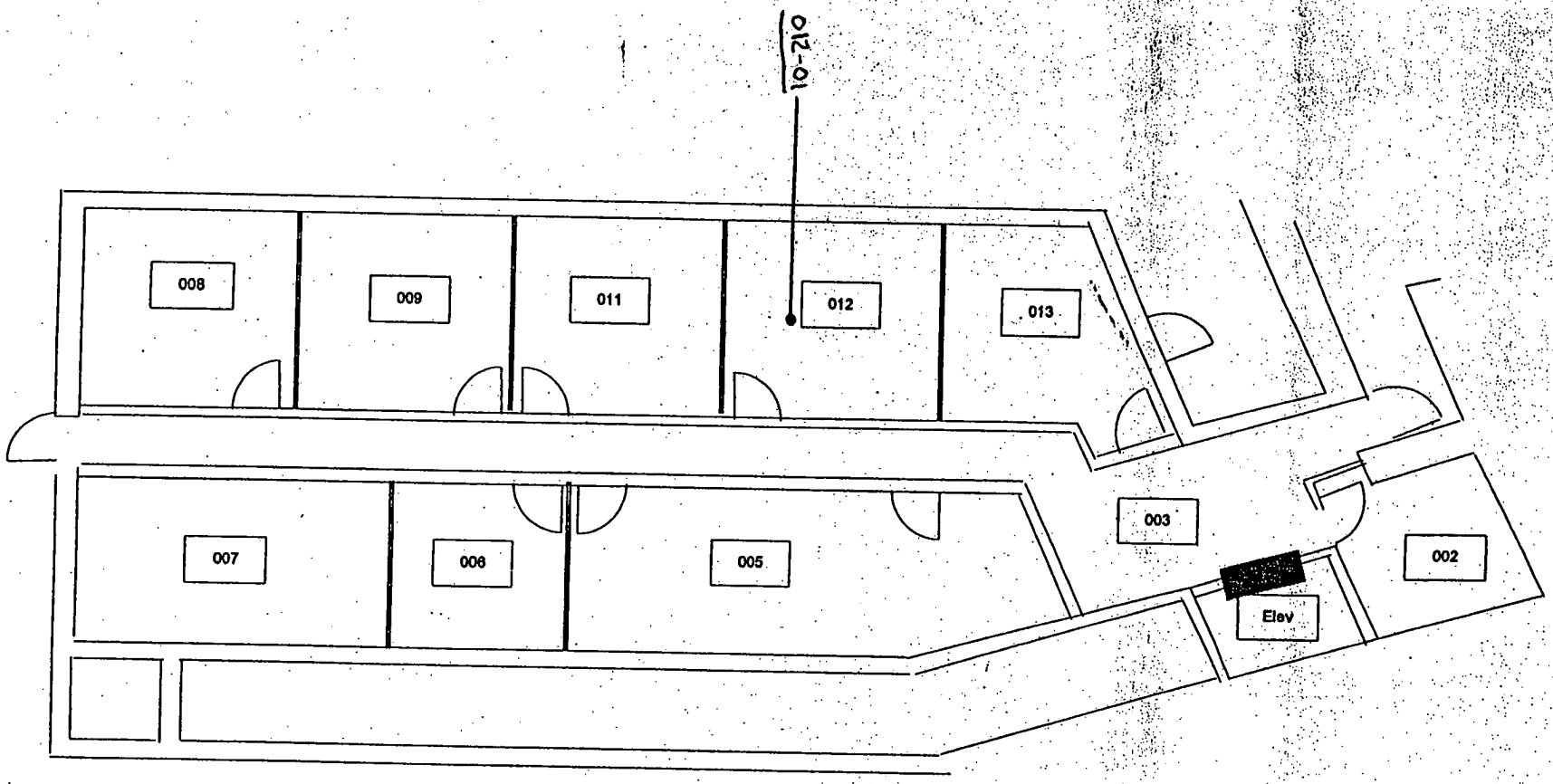
- mrem/hr neutron
- air sample number
- swipe number
#/α or /β - direct contamination measurement in dpm/100cm²

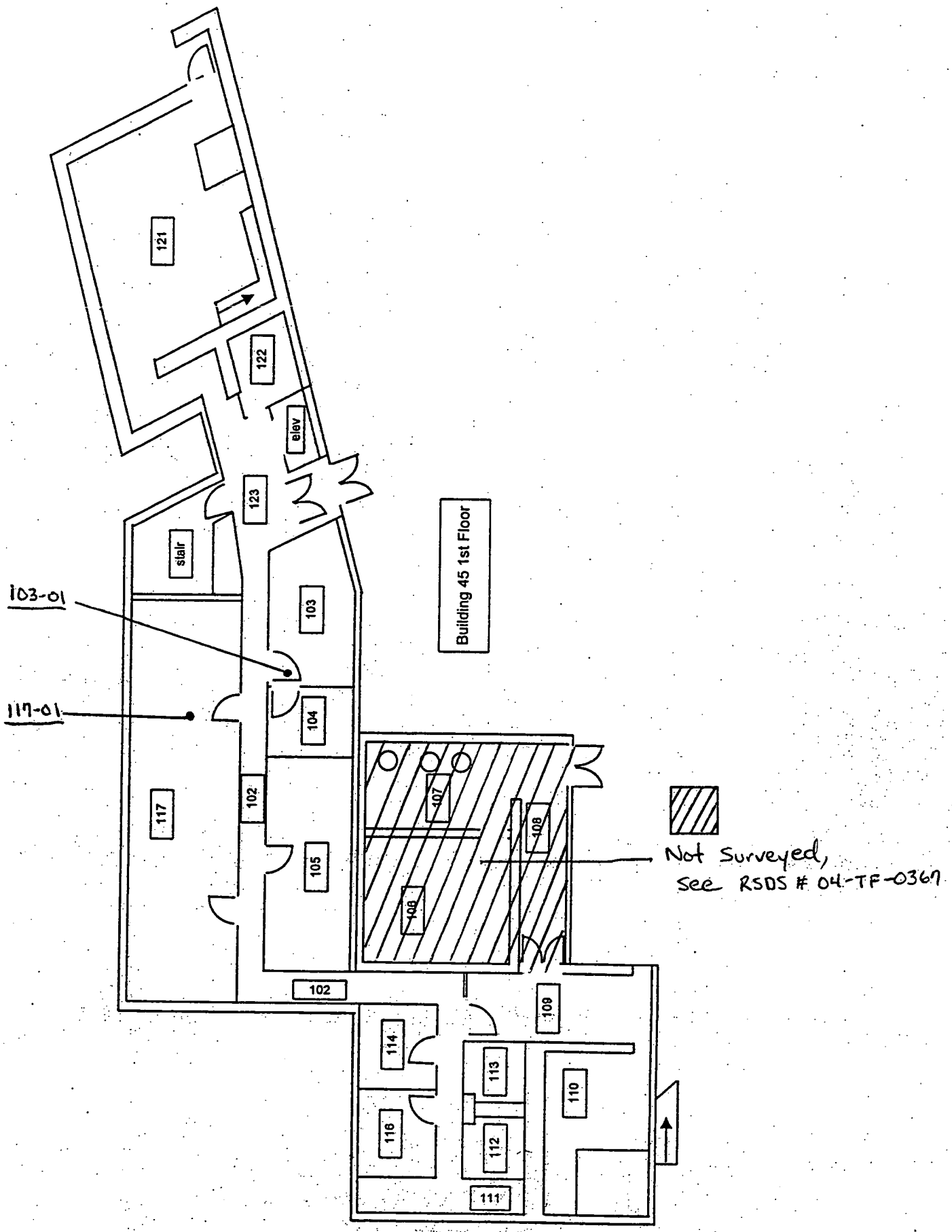
INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud ~~236~~ 2350	5857/5859	9-15-05
MO 10/26/04	A	
	N	

[redacted]	HP# 7836 7843	Date: 10-27-04
[redacted]		
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Printed Name) ↓		
Reviewed [redacted]	HP# 7707	Date: 11/11/04
Reviewed/Approved by: (Print Nam [redacted]		

Building 45 Lower Level




Building 45 1st Floor
121
122
elev
123
stair
103
104
105
102
117
107
108
106
102
109
114
113
110
116
112
111
103-01
117-01
Not Surveyed,
see RSDS # 04-TF-0367

45-Building Final Status Survey Unit 14 & 15 Ceilings 10% Surface Scan

RSDS# 04-TF-0355 *RCT:* LAO *RCT:* KD

Alpha	43-68 BKG:	0	EFF:	0.21	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:
Beta	43-68 BKG:	0	EFF:	0.165	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:
Scan	43-37 BKG:	0	EFF:	0.208	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector #:
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm²
ALPHA	SRC BKG	5857	7843	5859	1		10/26/04	10:17	7	300	11
ALPHA	SRC CHECK	5857	7843	5859	1		10/26/04	10:18	2084	60	15752
ALPHA	SRC CHECK	5857	7843	5859	1		10/26/04	10:20	2079	60	15714
ALPHA	SRC CHECK	5857	7843	5859	1		10/26/04	10:21	1968	60	14875
ALPHA	SRC CHECK	5857	7843	5859	1		10/26/04	10:22	1951	60	14747
ALPHA	CEIL 012-01	5857	7843	5859	1	1	10/26/04	13:02	7	120	26
ALPHA	CEIL 103-01	5857	7843	5859	1	2	10/26/04	13:44	7	120	26
ALPHA	CEIL 117-01	5857	7843	5859	1	3	10/26/04	13:56	10	120	38

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45, Various Rooms	SURVEY NO. 04-TF-0357
PURPOSE: MARSSIM Final Status Survey (10%, ~~50%~~ 10% of Floors) Survey Unit 7	RWP NO. N/A
	DATE: 10-27-04
	TIME: 1500

MAP / DRAWING

*See attached map for scanning locations and results.
*No integrated counts performed unless indicated on map.

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/100cm²

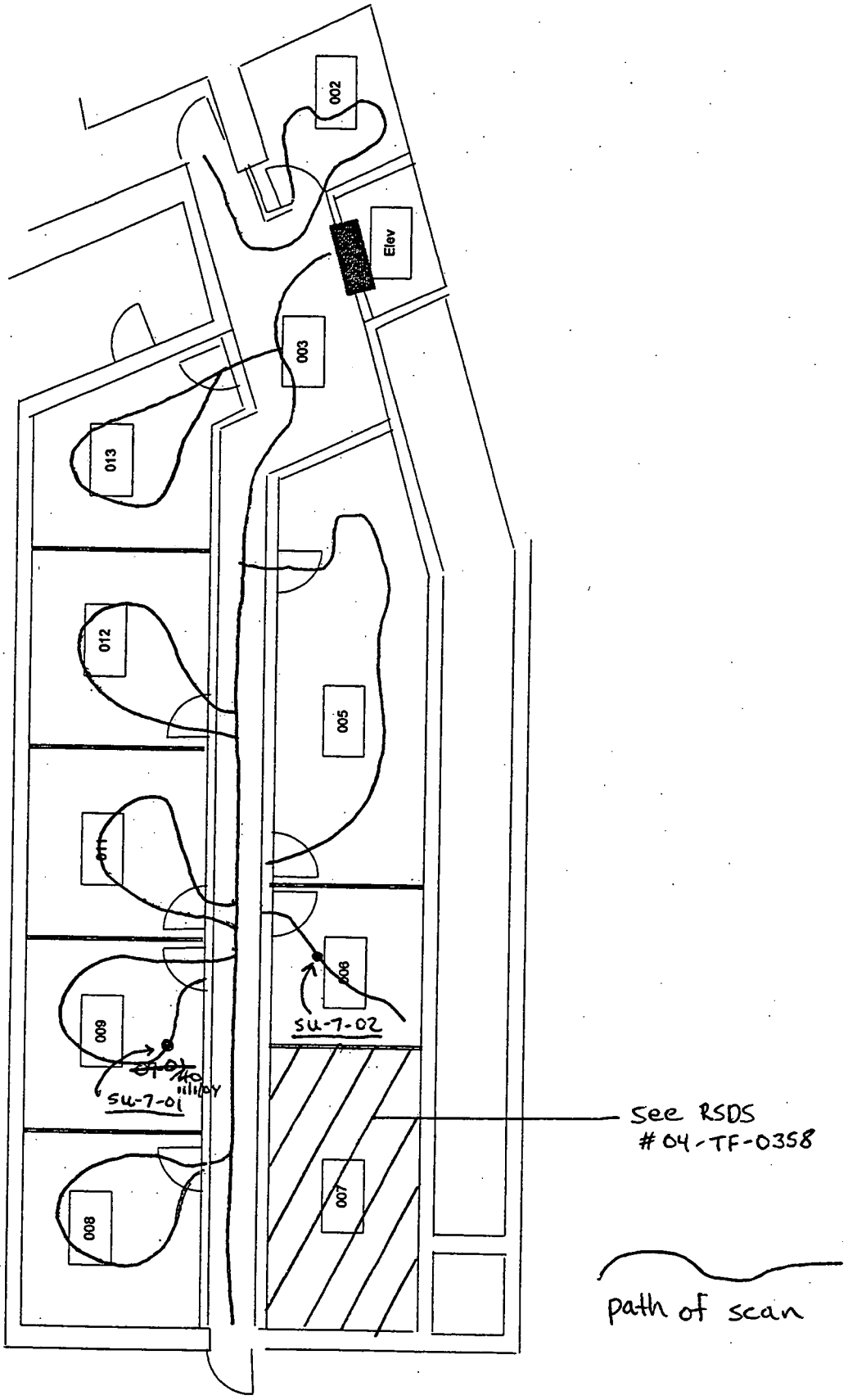
INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud 2350	5857	9/15/05
	A	
	N	

[redacted]	HP# 7836 7577	Date: 10/28/04
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Printed Name)		
Reviewed/ [redacted]	HP# 7707	Date: 11/1/04
Reviewed/Approved by: (Print Nam [redacted]		

ML-9620 (2-98)

Building 45 Lower Level



45-MARSSIM Final Status Survey (10% Scan of floors) Unit 7

RSDS# 04-TF-0357 *RCT:* MO *RCT:* XQ

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.165	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.208	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SCAN	SRC BKG	5857	7843	5675	3		10/27/04	11:00	44	300	14	
SCAN	SRC BKG	5857	7843	5675	3		10/27/04	12:51	26	300	9	
SCAN	SRC CHECK	5857	7843	5675	3		10/27/04	12:53	1982	60	3263	
SCAN	SRC CHECK	5857	7843	5675	3		10/27/04	12:55	2088	60	3438	
SCAN	SRC CHECK	5857	7843	5675	3		10/27/04	12:56	2071	60	3410	
SCAN	SRC CHECK	5857	7843	5675	3		10/27/04	12:58	2055	60	3383	
SCAN	SRC CHECK	5857	7843	5675	3		10/27/04	13:00	2089	60	3439	
SCAN	SRC CHECK	5857	7843	5675	3		10/27/04	13:02	2038	60	3356	
SCAN	SU-7 01	5857	7843	5675	3	1	10/27/04	14:12	9	30	30	
SCAN	SU-7 02	5857	7843	5675	3	2	10/27/04	14:29	11	30	36	

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 / Rooms 001 & 007	SURVEY NO. 04-TF-0358
PURPOSE: MARSSIM Survey Units 1 & 7 (rm. 007) ↑50% floor scan	RWP NO. N/A
	DATE: 10-27-04
	TIME: 1630

MAP / DRAWING

See Attached

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
RO5 2350-1	5854/5852	7-20-05
	N A	

[redacted]	HP# 7244	Date: 11-2-04
	HP#	Date:
Counted by: (Print Name) See Attached		
Reviewed/A[redacted]	HP# 7707	Date: 11/11/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

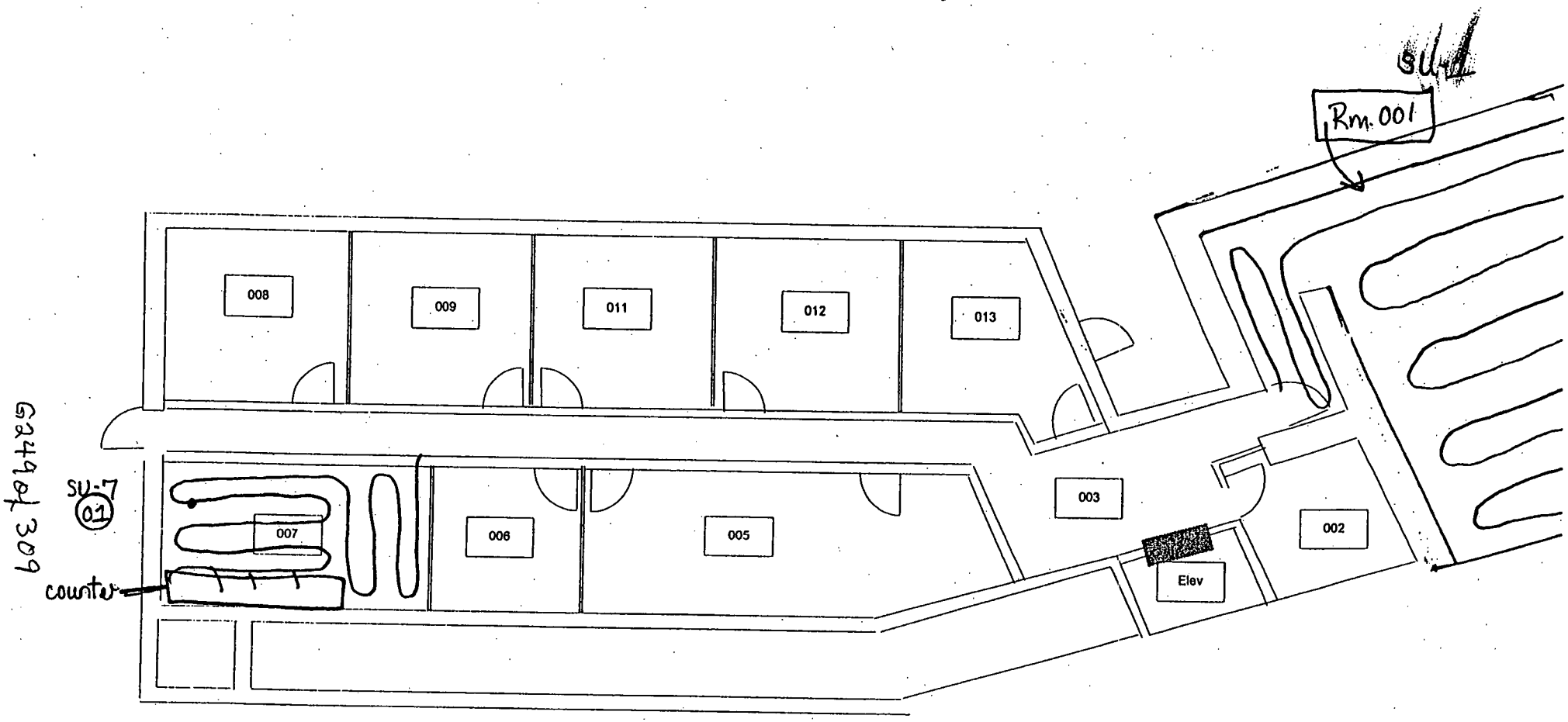
45-Building Final Status Survey Units 1 & 7 (rm. 007)

RSDS# 04-TF-0358 *RCT:* JMC *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm^2	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.167	PROBE AREA	126	cm^2	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.226	PROBE AREA	584	cm^2	Surface Eff		0.5	Detector #
TYPE	**LOCATION**	**2350#**	**RCT ID**	**PROBE**	**DET #**	**ITEM #**	**DATE**	**TIME**	**CNTS**	**CT TIME**	**dpm/100cm**
SCAN	SRC BKG	5854	7244	5852	3		10/27/04	8:52	40	300	12
SCAN	SRC CHECK	5854	7244	5852	3		10/27/04	8:56	2148	60	3255
SCAN	SRC CHECK	5854	7244	5852	3		10/27/04	8:58	2320	60	3516
SCAN	SRC CHECK	5854	7244	5852	3		10/27/04	9:00	2232	60	3382
SCAN	SRC CHECK	5854	7244	5852	3		10/27/04	9:02	2185	60	3311
SCAN	SRC CHECK	5854	7244	5852	3		10/27/04	9:04	2203	60	3338
SCAN	SRC CHECK	5854	7244	5852	3		10/27/04	9:05	2291	60	3472
SCAN	SU-1 01	5854	7244	5852	3	1	10/27/04	14:00	7	30	21
SCAN	SU-1 02	5854	7244	5852	3	2	10/27/04	14:28	13	30	39
SCAN	SU-1 03	5854	7244	5852	3	3	10/27/04	14:33	11	30	33
SCAN	SU-7 01	5854	7244	5852	3	4	10/27/04	15:11	10	30	30

Building 45 Lower Level

04-TF-0358



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) Bldg 45 Room 106, 107, 108	SURVEY NO. 04-TF-0360
PURPOSE: MARSSIM Final Status Survey (50% Scan of floors, SU-4)	RWP NO. N/A
	DATE: 10-28-04
	TIME: 1500

MAP / DRAWING

*See attached map for scanning locations and results.
*No integrated counts performed unless indicated on map.

LEGEND:

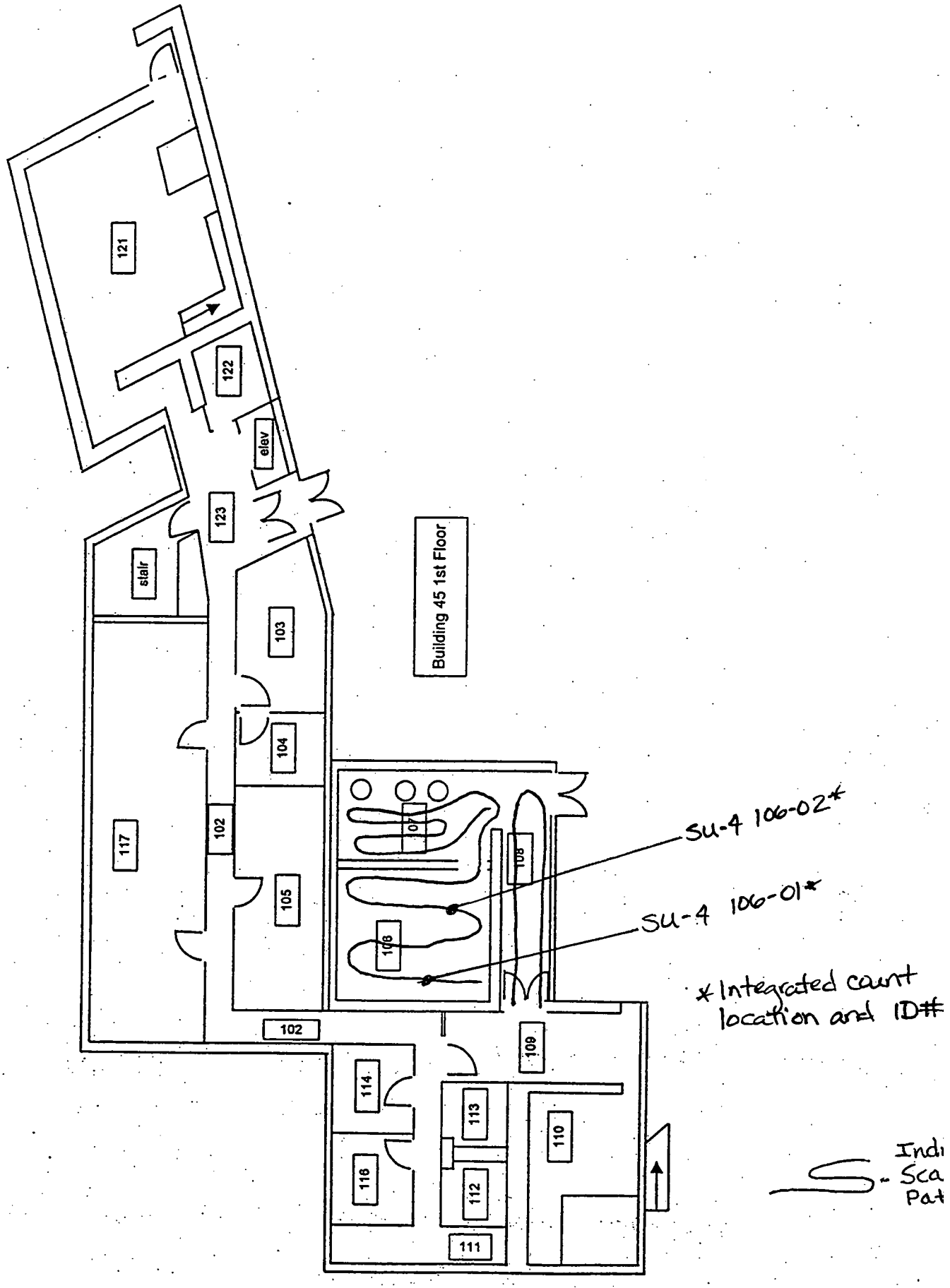
- # = mrem/hr (γ) whole body
- #E = mrem/hr (β+η+γ) extremity on contact
- K = factor of 1000
- —·—·—·· = radiological boundary
- # - mrem/hr neutron
- # - air sample number
- # - swipe number
- #/α - or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud 2350	5673	7/29/05
	N/A	

[redacted]	HP# 7836	Date: 11-01-04
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Printed Name)		
Review[redacted]	HP# 7707	Date: 11/1/04
Reviewed/Approved by: (Print Name)		

ML-9620 (2-98)


Building 45 1st Floor
121
122
elev
123
stair
103
104
117
102
105
107
108
106
102
109
114
113
110
116
112
111
SU-4 106-02*
SU-4 106-01*
* Integrated count location and ID#
Indi
Sca
Pat

45-Building Final Status Survey - Unit 4 - 50% Scan of Floors

RSDS# 04-TF-0360 *RCT:* LAO *RCT:* JQ

Alpha	43.68 BKG:	0	EFF:	0.21	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #: 1
Beta	43.68 BKG:	0	EFF:	0.164	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #: 2
Scan	43.37 BKG:	0	EFF:	0.219	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector #: 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCAN	SRC BKG	5673	7836	5676	3		10/28/04	8:28	24	300	8
SCAN	SRC CHECK	5673	7836	5676	3		10/28/04	8:33	2024	60	3165
SCAN	SRC CHECK	5673	7836	5676	3		10/28/04	8:35	2090	60	3268
SCAN	SRC CHECK	5673	7836	5676	3		10/28/04	8:46	2141	60	3348
SCAN	SRC CHECK	5673	7836	5676	3		10/28/04	8:47	2167	60	3389
SCAN	SRC CHECK	5673	7836	5676	3		10/28/04	8:49	2089	60	3267
SCAN	SRC CHECK	5673	7836	5676	3		10/28/04	8:51	2071	60	3239
SCAN	SU-4 106-01	5673	7836	5676	3	1	10/28/04	14:25	5	30	16
SCAN	SU-4 106-02	5673	7836	5676	3	2	10/28/04	14:39	7	30	22

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) Bldg. 45 Rooms 109, 110, & 110-A	SURVEY NO. 04-TF-0361
PURPOSE: MARSSIM Survey Unit - 5 (floor scan) (100% in 110-A)	RWP NO. N/A
	DATE: 10-28-04
	TIME: 1630

MAP / DRAWING

See Attached

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

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5857/5657	9-15-05
	N A	

[redacted] HP# [redacted] Date: 11/10/04

Counted by: (Signature) See HP# Date:

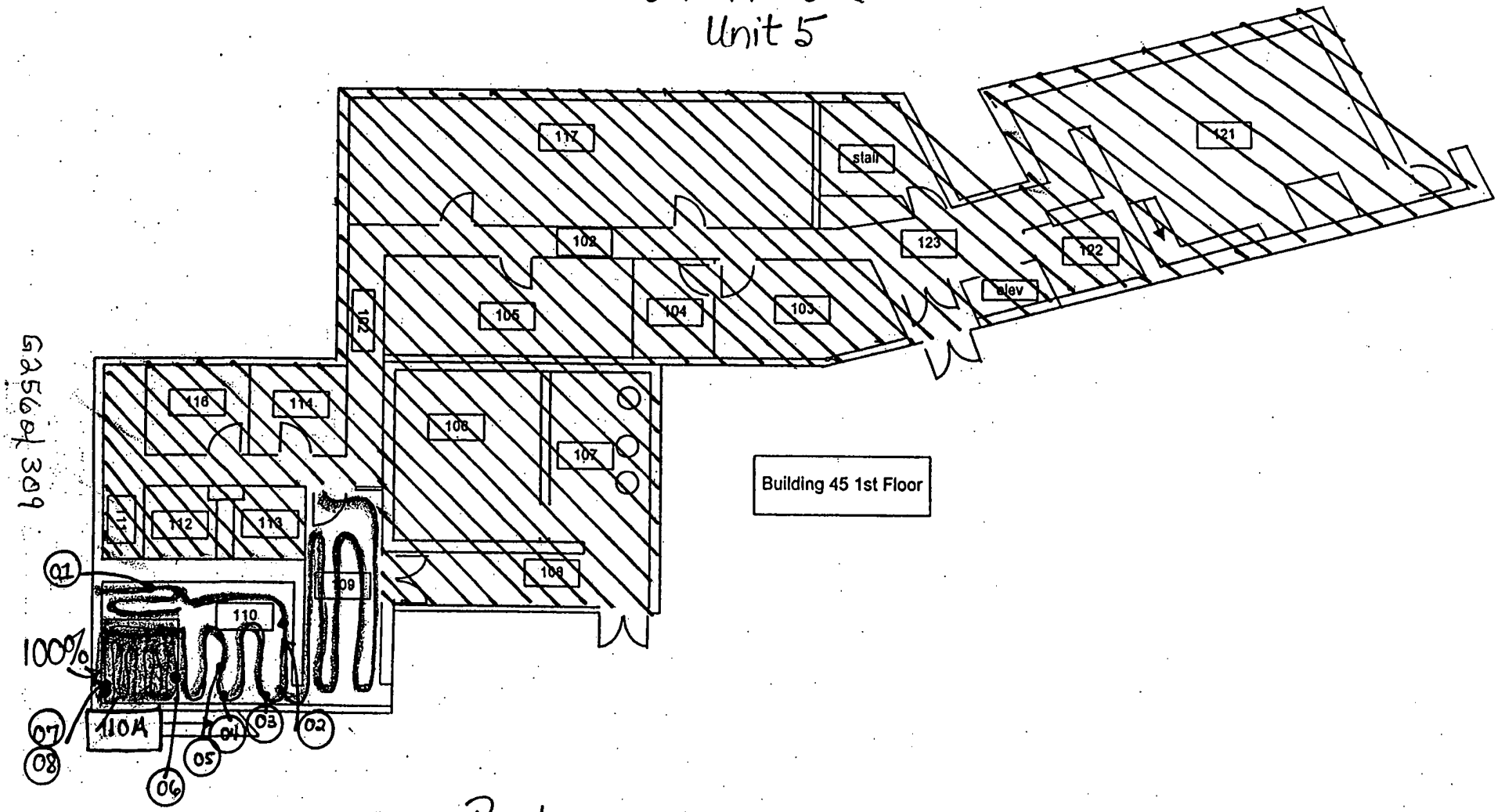
Counted by: (Print Name) Attached

Reviewe[redacted] HP# 7707 Date: 11/11/04

Reviewed/Approved by: (Print N[redacted]

ML-9620 (2-98) Computer Generated

04-TF-0361
Unit 5



= Route scanned

45-Building Fianl Status Survey Unit-5

RSDS# 04-TF-0361 *RCT:* JMC *RCT:* _____

Alpha	43-68 BKG:	0	EFF:	0.21	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:	1
Beta	43-68 BKG:	0	EFF:	0.165	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:	2
Scan	43-37 BKG:	0	EFF:	0.208	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector #:	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SCAN	SRC BKG	5857	7244	5657	3		10/28/04	10:05	33	300	11	
SCAN	SRC CHECK	5857	7244	5657	3		10/28/04	10:12	2079	60	3423	
SCAN	SRC CHECK	5857	7244	5657	3		10/28/04	10:13	2131	60	3509	
SCAN	SRC CHECK	5857	7244	5657	3		10/28/04	10:16	2023	60	3331	
SCAN	SRC CHECK	5857	7244	5657	3		10/28/04	10:18	2083	60	3430	
SCAN	SRC CHECK	5857	7244	5657	3		10/28/04	10:20	1995	60	3285	
SCAN	SRC CHECK	5857	7244	5657	3		10/28/04	10:22	2012	60	3313	
SCAN	SU-5 01	5857	7244	5657	3	1	10/28/04	13:05	9	30	30	
SCAN	SU-5 02	5857	7244	5657	3	2	10/28/04	13:16	19	30	63	
SCAN	SU-5 03	5857	7244	5657	3	3	10/28/04	13:25	10	30	33	
SCAN	SU-5 04	5857	7244	5657	3	4	10/28/04	13:36	11	30	36	
SCAN	SU-5 05	5857	7244	5657	3	5	10/28/04	13:42	15	30	49	
SCAN	SU-5 06	5857	7244	5657	3	6	10/28/04	14:38	12	30	40	
SCAN	SU-5 07	5857	7244	5657	3	7	10/28/04	14:49	29	30	95	
SCAN	SU-5 08	5857	7244	5657	3	8	10/28/04	14:51	38	30	125	*

*refer to 04-TF ~~-03~~ 0366
(for 100% rescan of Rm. 110A floor)
-04-TF-0363 for smear results and acid etch results

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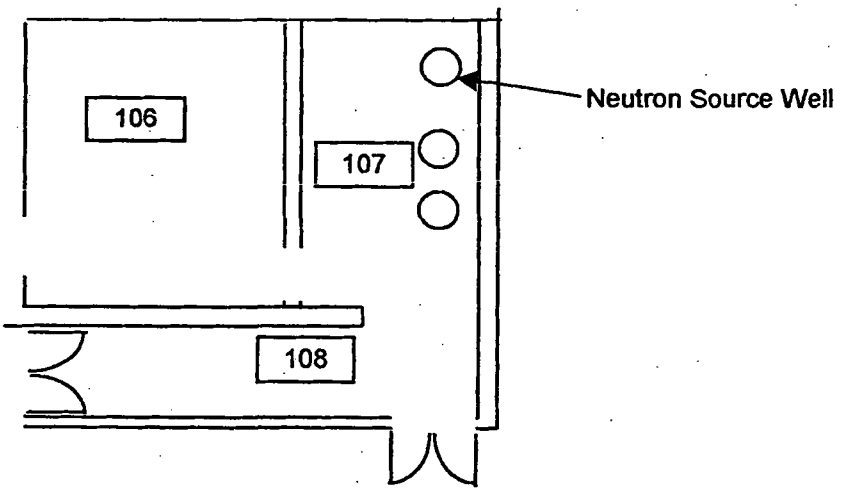
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Building 45 Room 107	SURVEY NO. 04-TF-0362
PURPOSE: Evaluate neutron activation of neutron-source-well structural materials	RWP NO. N/A
	DATE: 11/1/2004
	TIME: 13:30

MAP / DRAWING



Instrument used was a beta/gamma pancake-style GM detector, with 30 ft. cable. Background was 50 to 100 cpm. The probe was lowered into the well via the 30 ft. cable. No increase above background was detected, and counts were essentially uniform over the length of the well.

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

- # - mrem/hr neutron
- # - swipe number
- # - air sample number
- #/α or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
PUG-1/P-11	5081/5087	10/28/2005
	NA	

Complete[redacted]	HP# 7707	Date: 11-1-04
Completed by: (Printed Name) [redacted]		
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Printed Name)		
Revie[redacted]	HP# 5781	Date: 11/1/04
Reviewed/Approved by: (Print Name) [redacted]		

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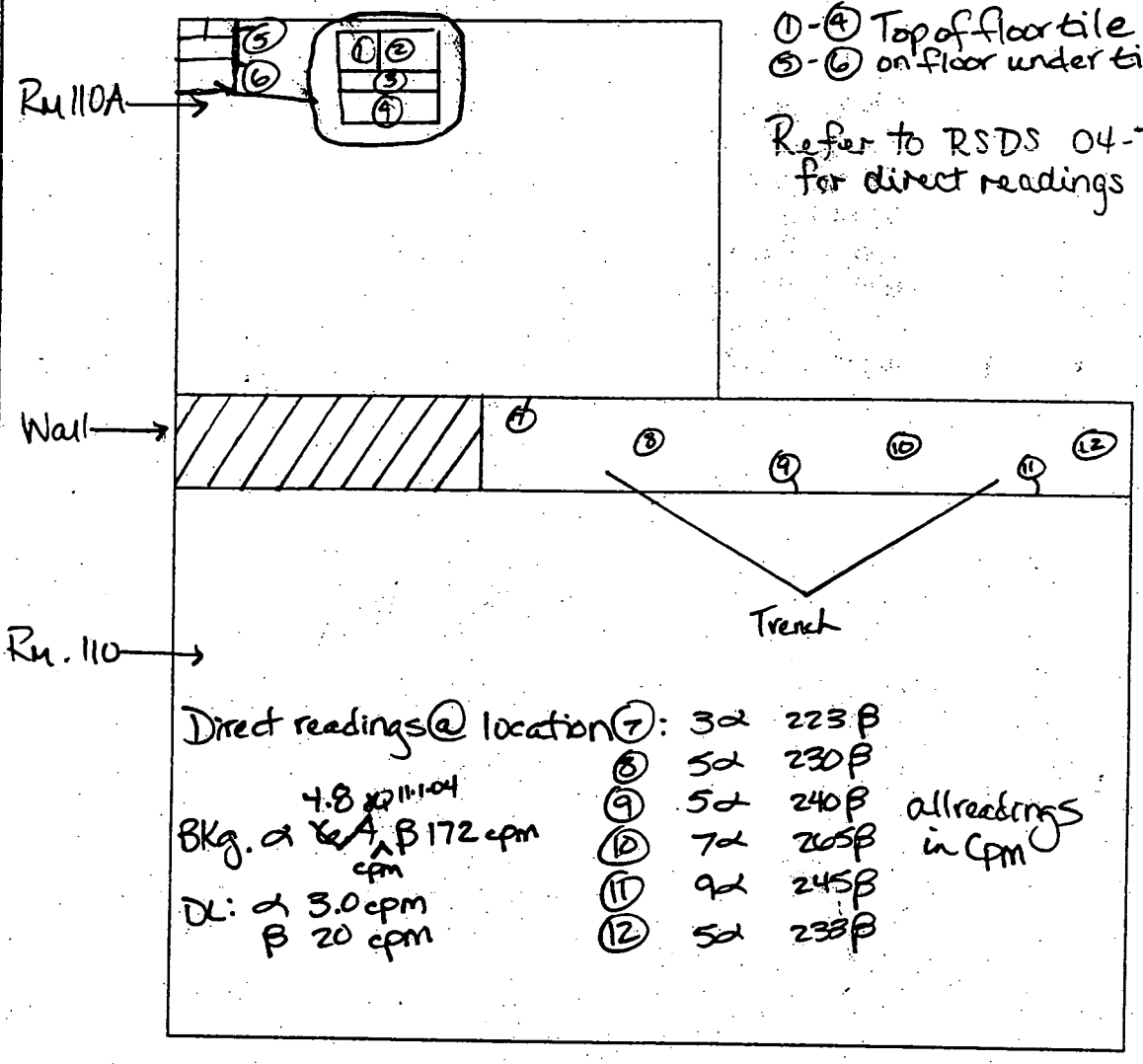
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) B-45 Rms. 110 & 110A	SURVEY NO. 04-TF-0363
PURPOSE: characterization of floor trench in Rm. 110 & floor tile in Rm. 110A	RWP NO. N/A
	DATE: 11.1.04
	TIME: 1530

MAP / DRAWING



① - ④ Top of floor tile
⑤ - ⑥ on floor under tile

Refer to RSDS 04-TF-0366 for direct readings

Direct readings @ location ⑦: 3α 223β
⑧ 5α 230β
⑨ 5α 240β
⑩ 7α 265β
⑪ 9α 245β
⑫ 5α 238β

all readings in cpm

Bkg. α 4.8 cpm 11.1.04 β 172 cpm

DL: α 3.0 cpm
β 20 cpm

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

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5748/5736	2.4.05
	N/A	

[redacted] HP# [redacted] Date: 11.10.04

Counted by: (Signature) [redacted] HP# Date:

Counted by: (Print Name) [redacted]

Reviewed [redacted] HP# [redacted] Date: 11/15/04

Reviewed/Approved by: (Print Name [redacted]

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0363

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			top of tile
2				
3				
4				
5				floor below tile
6				
7				side of trench
8				bottom of trench
9				side of trench
10				bottom of trench
11				side of trench
12				bottom of trench
		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 needed, mark N/A.

ML-9620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR015
Batch Ended: 11/1/04 16:26

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0363 J.QUICK (12) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	4.06	3.09		3.13	2.86	
A2	2	1.74	2.23		1.62	2.20	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.05		1.15	2.16	
B1	5	0.00	1.94		0.00	1.98	
B2	6	0.00	2.02		0.00	1.26	
B3	7	0.00	1.96		1.32	2.50	
B4	8	0.00	1.92		1.56	2.30	
C1	9	0.00	2.37		0.50	2.73	
C2	10	0.94	2.18		0.00	2.37	
C3	11	0.00	2.11		0.22	2.31	
C4	12	0.00	2.14		6.27	3.60	

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626304309

11.10.04

Protocol #: 1 PW H3 405828 User : 2138

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

	LL	UL	LCR	2SZ	BKG
Region A:	0.5	18.6	0	0.0	12.32
Region B:	2.0	18.6	0	0.0	10.57
Region C:	40.0	2000	0	0.0	11.34

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
04-TF-0363 J.QUICK (12) 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\SDATA1.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	12.32	10.57	5	B	552.80		0.00	11.34
0	2.00	605.65	561.38	0		590.00	1172.35	112.20	0.66
1	2.00	0.00	0.00	7		557.16	0.00	0.00	10.16
2	2.00	0.00	0.00	0		549.81	0.00	0.00	0.16
3	2.00	0.00	0.00	0		526.75	0.00	0.00	0.00
4	2.00	0.00	0.00	0		568.88	0.00	0.00	0.00
5	2.00	0.00	0.00	24		413.79	0.00	0.00	0.00
6	2.00	0.00	0.00	56		292.39	0.00	0.00	0.00
7	2.00	0.00	0.00	0		587.00	0.00	0.00	0.00
8	2.00	0.00	0.00	0		593.75	0.00	0.00	0.00
9	2.00	0.00	0.00	0		599.31	0.00	0.00	0.00
10	2.00	0.00	0.00	0		572.31	0.00	0.00	2.66
11	2.00	0.00	0.00	0		610.17	0.00	0.00	0.00
12	2.00	0.00	0.00	7		612.90	0.00	0.00	0.00

J. Cobden

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
11-1-04	Floor tile	J. Quick	1

PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:	MAIL STOP:
BOSS	Bob Coblenz 608-8206	Trailer 19B

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
EE00TF	11-1-04	04-TF-0363	

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:

Gross field count (α) = 640 dpm

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0406214	B.45 Rm.110A	1	

COMMENTS:

ANALYZED BY: L. C. Hopkins

DATE: 11-7-04

5222 (1-01)

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Laboratory ID#:	**0406214**	
Project/function:	**BOSS**	
Submitted:	**Nov 1, 2004**	
Submitted by:	**J. Quick**	
Point of Contact:	**B. Coblentz**	**608-8206**
RSDS#:	**N/A**	
Date:	**Nov 7, 2004**	

04-TF-0363

Lab ID	0406214
Sample Location	bldg 45 tile #1

Isotope	pCi/sample	Uncertainty +/-	LDL
Pu-238	109.46	7.66	0.22
Pu-239/240	0.29	0.09	0.19
Th-227	<LDL	<LDL	0.07
Th-228	0.08	0.05	0.07
Th-230	0.16	0.07	0.07
Th-232	<LDL	<LDL	0.07
U-233/234	<LDL	<LDL	0.06
U-235	<LDL	<LDL	0.06
U-238	<LDL ✓	<LDL	0.06

total 109.99 pCi/sample

[redacted]

1585 — HP # — 11-7-04 — Date

Data Verification

1585 — HP # — 11-7-04 — Date

page 6 of 6 G2660 of 309

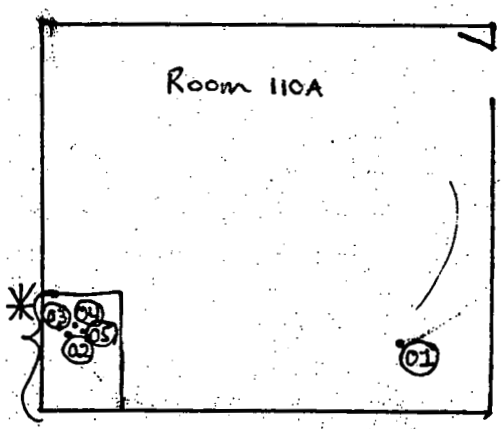
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 45 / 110-A (resurvey)	SURVEY NO. 04-TF-0366
PURPOSE: MARSSIM Survey Unit-5 re-scan (100% rm. 110-A)	RWP NO. N/A
	DATE: 11-2-04
	TIME: 1630

MAP / DRAWING

See Attached

Also, refer to RSDS 04-TF-0361 and 04-TF-0363 for acid etch results



01 & 02 = integrated counts taken with 2350 Detector #3

03-04-05 = integrated count taken with 2350 Detectors 1 & 2 prior to removal of tile

* Tile removed and sent for acid etch analysis
- After removal, 100% scan performed on floor
- No audible indications of elevated activity observed
- Therefore, no additional integrated counts performed

Bkgd 1.5 cpm α
278 cpm β

D.L 1.8 cpm α
20 cpm β

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
(#) = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5857/5859	9-15-05
2360-89	5708/5731	8-17-05
	A	
	N	

[redacted]	HP# 7244	Date: 11-30-04
Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Print Name)		
Reviewe[redacted]	HP# 7717	Date: 12-1-04
Reviewed/Approved by: (Print Na[redacted]		

Survey No. 04-TF-0366

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			tile #1 top
2				bottom
3				tile #2 top
4				bottom
5				tile #4 top
6				bottom

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

COMMENTS: NFE = No Further Entries
All smears field checked with 2360 prior to submitting to count lab.

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)

45-Building Final Status Survey Unit-5 (100% re-scan of floor)

RSDS# 04-TF-0366 *RCT:* JMC *RCT:* _____

Alpha	43-68 BKG:	0	EFF:	0.21	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.165	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.208	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7244	5859	1		11/2/04	10:03	7	300	11
ALPHA	SRC CHECK	5857	7244	5859	1		11/2/04	10:11	2041	60	15427
ALPHA	SRC CHECK	5857	7244	5859	1		11/2/04	10:13	2022	60	15283
ALPHA	SRC CHECK	5857	7244	5859	1		11/2/04	10:14	1973	60	14913
ALPHA	SRC CHECK	5857	7244	5859	1		11/2/04	10:16	2073	60	15669
ALPHA	SU-5 03	5857	7244	5859	1	3	11/2/04	10:47	11	120	42
ALPHA	SU-5 04	5857	7244	5859	1	4	11/2/04	13:59	147	120	556 *
ALPHA	SU-5 05	5857	7244	5859	1	5	11/2/04	14:10	15	120	57
BETA	SRC BKG	5857	7244	5859	2		11/2/04	10:22	1035	300	1991
BETA	SRC CHECK	5857	7244	5859	2		11/2/04	10:25	2953	60	28408
BETA	SRC CHECK	5857	7244	5859	2		11/2/04	10:27	2887	60	27773
BETA	SRC CHECK	5857	7244	5859	2		11/2/04	10:28	2869	60	27600
BETA	SRC CHECK	5857	7244	5859	2		11/2/04	10:29	2900	60	27898
BETA	SU-5 03	5857	7244	5859	2	3	11/2/04	10:48	290	60	2790
BETA	SU-5 04	5857	7244	5859	2	4	11/2/04	14:00	293	60	2819
BETA	SU-5 05	5857	7244	5859	2	5	11/2/04	14:11	311	60	2992
SCAN	SRC BKG	5857	7244	5657	3		11/2/04	8:21	15	300	5
SCAN	SRC CHECK	5857	7244	5657	3		11/2/04	8:23	1942	60	3197
SCAN	SRC CHECK	5857	7244	5657	3		11/2/04	8:24	1952	60	3214
SCAN	SRC CHECK	5857	7244	5657	3		11/2/04	8:26	1982	60	3263
SCAN	SRC CHECK	5857	7244	5657	3		11/2/04	8:28	2090	60	3441
SCAN	SRC CHECK	5857	7244	5657	3		11/2/04	8:30	2009	60	3308
SCAN	SRC CHECK	5857	7244	5657	3		11/2/04	8:31	1988	60	3273
SCAN	SU-5 01	5857	7244	5657	3	1	11/2/04	9:05	10	30	33
SCAN	SU-5 02	5857	7244	5657	3	2	11/2/04	9:13	26	30	86

BLDG 45 Final Status Survey unit-5 (rm.110-A)

RSDS#: 04-TF-0366 RCT: JMC RCT:

43-89 ALPHA BKG:	0	Factor	8	PROBE AREA:	100	cm2	Surface Eff:	1	ALPHA	1
43-89 BETA BKG:	0	Factor	4	PROBE AREA:	100	cm2	Surface Eff:	1	BETA	2

LOCATION	2360#	RCT ID	PROBE	TYPE: 1 or 2	ITEM #	DATE	TIME	CNTS	CT TIME (sec)	dpm/100cm2
tile 1 top	5708	7244	5731	1	1	11/11/04	12:30	2	120	8
tile 1 bottom	5708	7244	5731	1	2	11/11/04	12:32	0	120	0
tile 2 top	5708	7244	5731	1	3	11/11/04	12:34	1	120	4
tile 2 bottom	5708	7244	5731	1	4	11/11/04	12:36	2	120	8
tile 4 top	5708	7244	5731	1	5	11/11/04	12:38	19	120	76
tile 4 bottom	5708	7244	5731	1	6	11/11/04	12:40	0	120	0
tile 1 top	5708	7244	5731	2	1	11/11/04	12:30	455	120	910
tile 1 bottom	5708	7244	5731	2	2	11/11/04	12:32	442	120	884
tile 2 top	5708	7244	5731	2	3	11/11/04	12:34	417	120	834
tile 2 bottom	5708	7244	5731	2	4	11/11/04	12:36	451	120	902
tile 4 top	5708	7244	5731	2	5	11/11/04	12:38	482	120	964
tile 4 bottom	5708	7244	5731	2	6	11/11/04	12:40	412	120	824

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR009
Batch Ended: 11/11/04 13:10

Crosstalk correction performed.

Batch ID: COLLINS 04-TF-0366 [6] JC

Recalibration Date: 03/18/05
Serial Number: 26966-1

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.17		0.00	1.83	
A2	2	0.00	2.20		0.00	1.30	
A3	3	0.00	2.16		0.00	1.27	
A4	4	1.40	2.03		0.00	1.29	
B1	5	1.69	1.95		0.00	1.98	
B2	6	0.00	2.05		0.00	1.72	

JC JC

J. Collins

11 Nov 2004 14:15 ALPHA/BETA - 1.09
Protocol #: 2 Pw H3 405828 User : 232

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	6.63
Region B:	2.0 -	18.6	0	0.0	6.35
Region C:	40.0 -	2000	0	0.0	11.10

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
COLLINS 04-TF-0366 1-6 JC
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	6.63	6.35	4	B	552.16		0.00	11.10
0	2.00	689.69	638.39	0		618.34	1303.72	121.67	4.40
1	2.00	3.37	3.43	0		567.69	6.65	9.42	0.00
2	2.00	0.00	0.00	29		469.89	0.00	0.00	0.00
3	2.00	1.66	1.94	0		596.51	3.20	8.46	0.05
4	2.00	5.60	3.01	36		506.47	11.67	14.33	0.00
5	2.00	3.37	3.34	0		617.40	6.38	9.03	0.00
6	2.00	0.17	0.17	13		498.47	0.35	8.48	1.08

JC

AM

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) Bldg 45, Various rooms	SURVEY NO. 04-TF-0367
PURPOSE: MARSSIM Final Status Survey: SU-14,15-(High Ceilings)	RWP NO. N/A
	DATE: 11-2-04
	TIME: 1600

MAP / DRAWING

*See attached map for scanning locations and results.
*No integrated counts performed unless indicated on map.
1 ~~sm~~ 11/2/04 square meter of area was scanned at each intergrated location. No additional intergrated counts required.

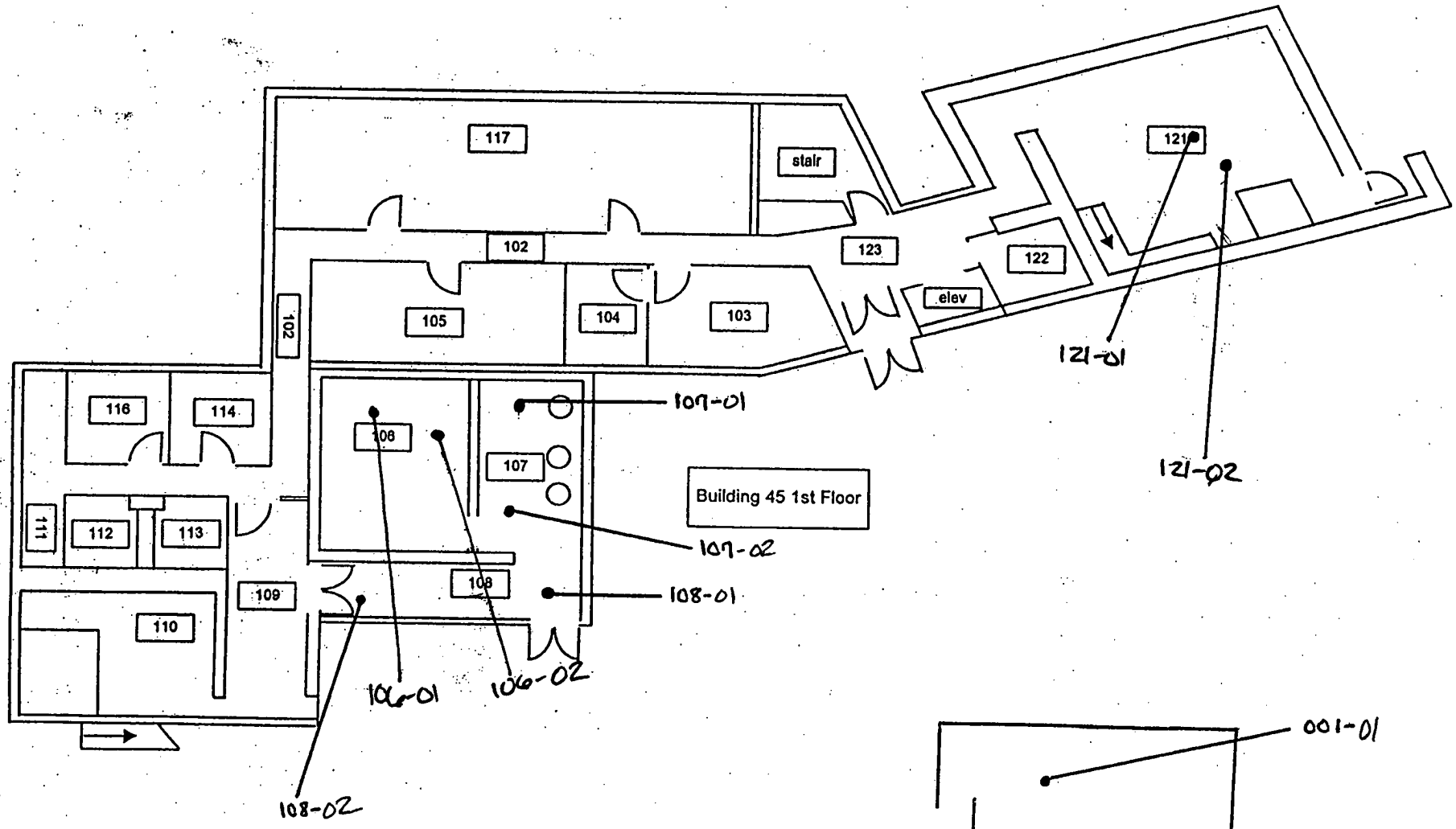
LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
— · — · — · · = radiological boundary
△# - mrem/hr neutron
- air sample number
- swipe number
#/α - or /β - direct contamination measurement in dpm/100cm²

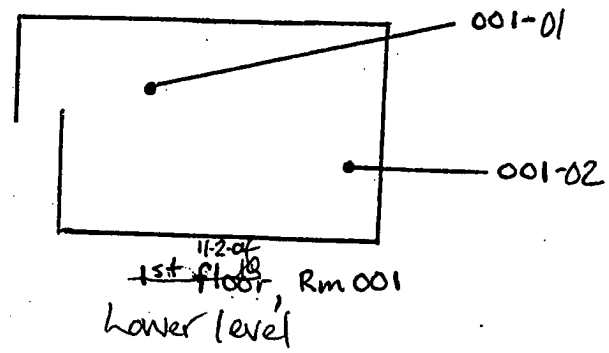
INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud2350	5673/5862	7/29/05
	N/A	

[redacted]	HP# 7836 7572	Date: 11-3-04
[redacted]		
Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Printed Name)		
Review [redacted]	HP# 7707	Date: 11/16/04
Reviewed/Approved by: (Print Name [redacted]		

ML-9620 (2-98)





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45-Building Final Status Survey - Units 14 & 15 (High Ceilings)

RSDS# 04-TF-0367 *RCT:* LAO *RCT:* JQ

Alpha	43-68 BKG	0	EFF:	0.21	PROBE AREA	126	cm	Surface Eff:	0.5	Detector #	1
Beta	43-68 BKG	0	EFF:	0.164	PROBE AREA	126	cm^2	Surface Eff:	0.5	Detector #	2
Scan	43-17 BKG	0	EFF:	0.219	PROBE AREA	584	cm^2	Surface Eff:	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5673	7836	5862	1		11/2/04	8:32	8	300	12
ALPHA	SRC CHECK	5673	7836	5862	1		11/2/04	8:37	2026	60	15314
ALPHA	SRC CHECK	5673	7836	5862	1		11/2/04	8:39	2088	60	15782
ALPHA	SRC CHECK	5673	7836	5862	1		11/2/04	8:40	2115	60	15986
ALPHA	SRC CHECK	5673	7836	5862	1		11/2/04	8:41	2022	60	15283
ALPHA	CEILING 121-01	5673	7836	5862	1	1	11/2/04	9:12	13	120	49
ALPHA	CEILING 121-02	5673	7836	5862	1	2	11/2/04	9:22	14	120	53
ALPHA	CEILING 106-01	5673	7836	5862	1	3	11/2/04	9:42	10	120	38
ALPHA	CEILING 106-02	5673	7836	5862	1	4	11/2/04	9:57	20	120	76
ALPHA	CEILING 107-01	5673	7836	5862	1	5	11/2/04	12:45	15	120	57
ALPHA	CEILING 107-02	5673	7836	5862	1	6	11/2/04	12:50	11	120	42
ALPHA	CEILING 108-01	5673	7836	5862	1	7	11/2/04	13:01	4	120	15
ALPHA	CEILING 108-02	5673	7836	5862	1	8	11/2/04	13:10	4	120	15
ALPHA	CEILING 001-01	5673	7836	5862	1	9	11/2/04	13:26	9	120	34
ALPHA	CEILING 001-02	5673	7836	5862	1	10	11/2/04	13:35	6	120	23
BETA	SRC BKG	5673	7836	5862	2		11/2/04	8:47	938	300	1816
BETA	SRC CHECK	5673	7836	5862	2		11/2/04	8:49	2950	60	28552
BETA	SRC CHECK	5673	7836	5862	2		11/2/04	8:50	2653	60	25678
BETA	SRC CHECK	5673	7836	5862	2		11/2/04	8:52	2923	60	28291
BETA	SRC CHECK	5673	7836	5862	2		11/2/04	8:53	2841	60	27497
BETA	CEILING 121-01	5673	7836	5862	2	1	11/2/04	9:13	190	60	1839
BETA	CEILING 121-02	5673	7836	5862	2	2	11/2/04	9:23	194	60	1878
BETA	CEILING 106-01	5673	7836	5862	2	3	11/2/04	9:43	225	60	2178
BETA	CEILING 106-02	5673	7836	5862	2	4	11/2/04	9:58	210	60	2033
BETA	CEILING 107-01	5673	7836	5862	2	5	11/2/04	12:46	222	60	2149
BETA	CEILING 107-02	5673	7836	5862	2	6	11/2/04	12:51	218	60	2110
BETA	CEILING 108-01	5673	7836	5862	2	7	11/2/04	13:03	192	60	1858
BETA	CEILING 108-02	5673	7836	5862	2	8	11/2/04	13:11	222	60	2149
BETA	CEILING 001-01	5673	7836	5862	2	9	11/2/04	13:27	221	60	2139
BETA	CEILING 001-02	5673	7836	5862	2	10	11/2/04	13:36	179	60	1732

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR007
Batch Ended: 11/2/04 13:25

Crosstalk correction performed.

0367 11.2.04

Batch ID: 04-TF-0366 J.QUICK (10) AG

Recalibration Date: 03/18/05
Serial Number: 26966-1

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.22		3.49	2.86	
A2	2	1.73	2.26		4.13	2.83	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.05		1.15	2.16	
B1	5	0.00	1.99		2.09	2.54	
B2	6	0.00	2.11		2.28	2.66	
B3	7	0.00	1.92		0.00	1.32	
B4	8	0.00	1.94		3.82	2.80	
C1	9	0.00	2.34		0.00	1.97	
C2	10	0.00	2.18		0.00	2.37	

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11.2.04

Nov 2004 14:57 ALPHA/BETA - 1.09 ~~Page #1~~ 11-2-04
otocol #: 7 PW H3 405827 User : 2138

ne: 2.00
ta Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
:kground Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
gion A:	0.5	- 18.6	0	0.0	8.03
gion B:	2.0	- 18.6	0	0.0	7.33
gion C:	40.0	- 2000	0	0.0	12.24

~~ench Indicator: tSIE/AEC~~
Ext Std Terminator: Count
-TF-0366 J.QUICK (10) AG
~~rinescence Correction On~~
.ncidence Time(ns): 18
ay Before Burst(ns): Normal
ıtocol Data Filename: C:\DATA\PROT7.dat
.nt Data Filename: C:\DATA\SDATA7.DAT
ctrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	8.03	7.33	12	B	583.61		0.000	12.24
0	2.00	709.66	658.92	1		634.32	1274.54	95.690	0.00
1	2.00	0.00	0.00	0		670.28	0.00	0.000	0.00
2	2.00	0.00	0.00	0		658.18	0.00	0.000	0.00
3	2.00	0.00	0.00	0		661.69	0.00	0.000	0.00
4	2.00	0.47	0.31	0		646.04	0.84	8.074	0.00
5	2.00	3.47	3.43	0		650.72	6.16	9.150	0.00
6	2.00	2.15	2.34	0		648.86	3.81	8.691	0.00
7	2.00	3.97	4.26	0		670.65	6.94	9.185	0.00
8	2.00	0.00	0.00	0		641.34	0.00	0.000	2.26
9	2.00	2.47	2.59	0		609.08	4.52	9.079	0.00
10	2.00	0.00	0.00	0		629.85	0.00	0.000	0.00

NO

page 5 of 5 G277 of 309

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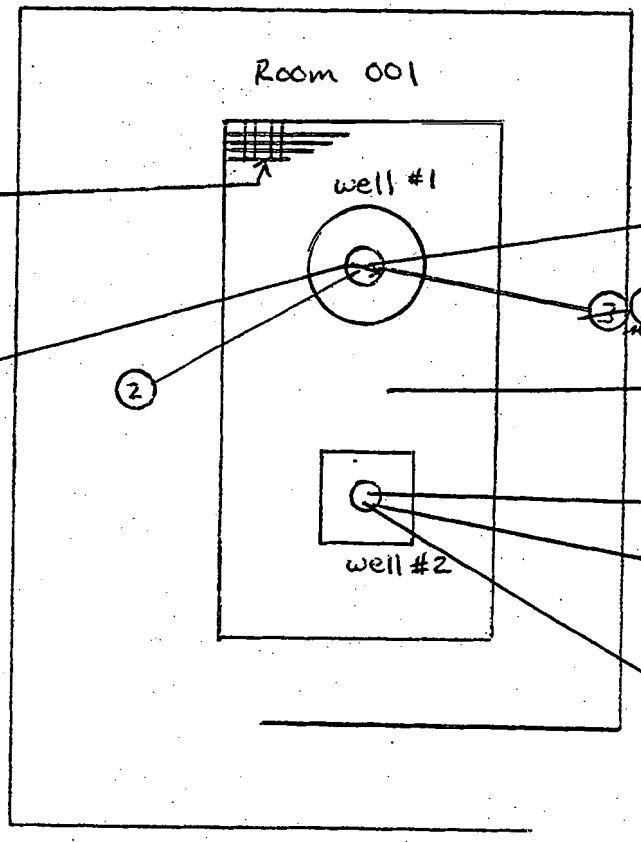
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 Rm 001	SURVEY NO. 04-TF-0374
PURPOSE: Characterize wells	RWP NO. N/A
	DATE: 11-8-04
	TIME: 1530

MAP / DRAWING



grating covers wells

direct readings with Pug, on walls: 1500-2000 cpm background 50-100 cpm,

direct intergrate reading with 2360:

<100 α, 29,844 dpm β⁻

background: 4 cpm α
155 cpm β⁻

Pit in floor

No direct readings above background with pug, and 2360

<100 α <5K β⁻

* Pug-1 instrument used for information only

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
Lud 2360	5748 / 5736	2/4/05
Pug 1	5081	10/28/05
	A	
	N	

Completed by: (Signa[redacted]	HP# 7836	Date: 11-9-04
Completed by: (Print [redacted]		
Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Print Name)		
Reviewed [redacted]	HP# 7707	Date: 11/16/04
Reviewed/Approved by: (Print Name [redacted]		

-9620 (2-98) Computer Generated

Survey No. 04-TF-0374

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See	Attached		bottom of well #1
2				side of wall #1
3				bottom of well #2
4				side of wall #2
5				bottom side of wall #1
		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 needed, mark N/A.

ML-9620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR065
Batch Ended: 11/8/04 16:18

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: OFFREN 04-TF-0374 [5] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.92	2.22		3.31	2.86	
A2	2	0.00	2.24		3.04	2.54	
A3	3	0.00	2.20		1.70	2.15	
A4	4	0.00	2.03		0.00	1.29	
B1	5	0.00	1.97		0.97	2.28	

~~Page 1 of 1~~ 11/9/04

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09 Nov 2004 07:44 ALPHA/BETA - 1.09
Protocol #: 2 PW H3 405827 User : 2324

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	10.61
Region B:	2.0	- 18.6	0	0.0	8.78
Region C:	40.0	- 2000	0	0.0	12.00

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
OFFREN 04-TF-0374 1-5 JC
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	10.61	8.78	54	B	564.35		0.000	12.00
0	2.00	732.37	685.09	2		632.18	1317.49	98.731	2.50
1	2.00	0.00	0.00	29		610.72	0.00	0.000	0.00
2	2.00	0.00	0.00	62		602.31	0.00	0.000	0.00
3	2.00	0.00	0.00	26		560.75	0.00	0.000	0.00
4	2.00	0.00	0.00	24		636.78	0.00	0.000	0.00
5	2.00	0.00	0.00	16		473.77	0.00	0.000	0.00

MO

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 Room 117, 110A	SURVEY NO. 04-TF-0379
PURPOSE: MARSSIM Final Status Survey of Room 117 (floor scan) and added inter-grated counts in 110A	RWP NO. N/A
	DATE: 11-10-04
	TIME: 1500

MAP/DRAWING

* See Attached map for scanning locations and results. No intergrated counts performed, unless indicated on map.

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
Lud 2350	5854 / 5861 5852	7/20/05
Lud 2360	5753 / 5806	10/26/05
	A	
	N	

[redacted]	HP# 7836 7244	Date: 11/11/04
Counted by: (Signature)	HP#	Date:
Counted by: (Print) See Attached		
Review [redacted]	HP# 7707	Date: 11/22/04
Reviewed/Approved by: (Print) [redacted]		

ML-9620

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
1	See attached results			vent fan
2				dropped ceiling
3				top of 110A
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20		N/A		
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			N/A	
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
99				
70				

See attached results

COMMENTS: 2360 used to field check meters prior to submitting to count lab

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

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR007
Batch Ended: 11/11/04 10:45

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: OFFNER 04-TF-0379 [6] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.17		0.00	1.83	
A2	2	1.74	2.20		0.00	1.31	
A3	3	0.00	2.22		2.92	2.47	
A4	4	0.00	2.04		0.00	1.78	
B1	5	0.00	1.90		0.00	1.20	
B2	6	0.00	2.05		0.00	1.72	

MO MO

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~~Page 1 of 1~~ MO
11/11/04

J. Collins

Time: 2.00
Data Mode: DPM Nuclide: SMGL02 Quench Set: SMGL02
Background Subtract: 1st Vial

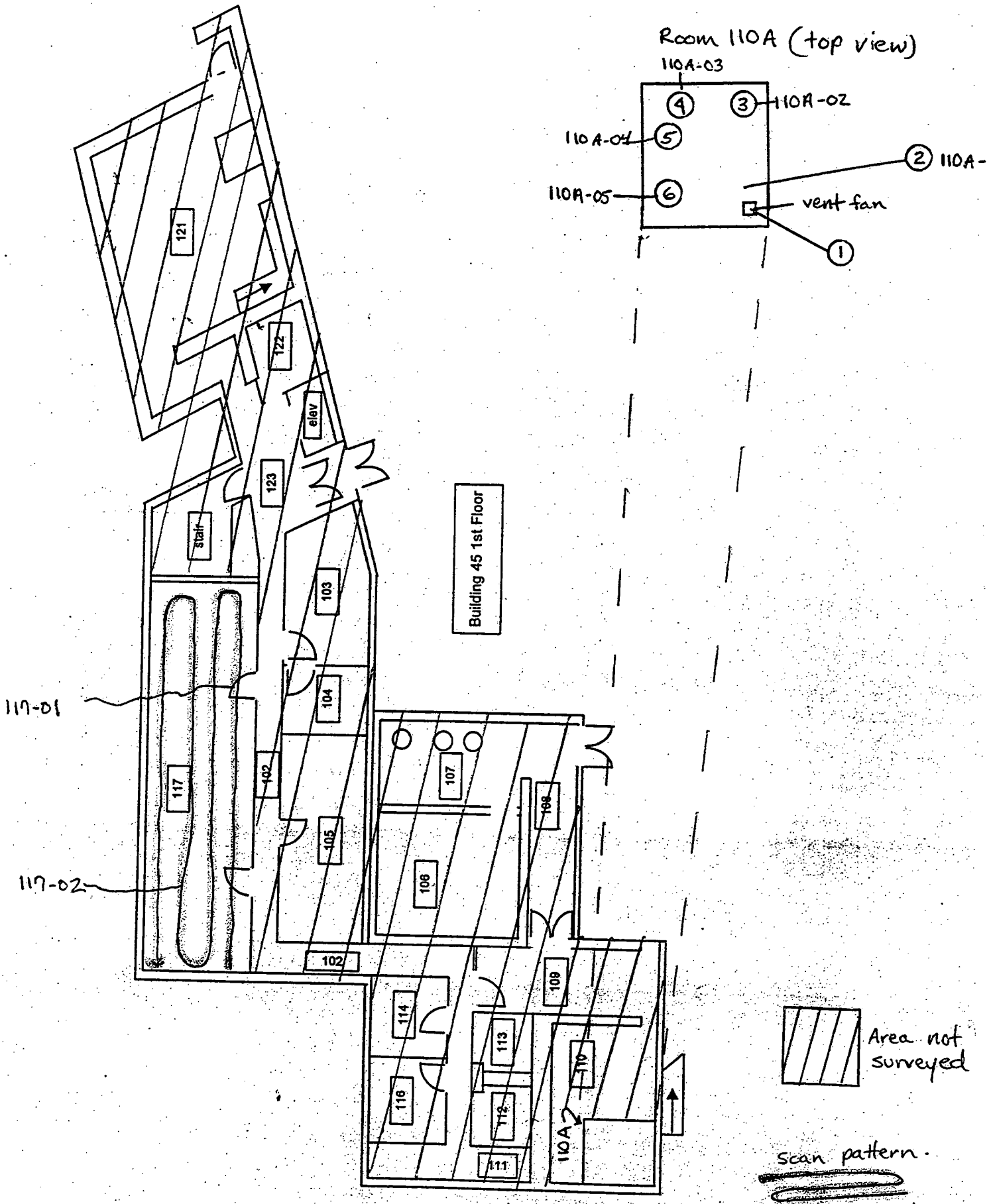
	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	7.00
Region B:	2.0 -	18.6	0	0.0	6.58
Region C:	40.0 -	2000	0	0.0	11.50

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
OEFFNER 04-TF-0379 1-6 JC
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	7.00	10	B	559.29		0.00	11.50
0	2.00	659.45	0		617.32	1205.27	98.59	0.00
1	2.00	0.00	0		622.75	0.00	0.00	6.00
2	2.00	0.00	0		621.53	0.00	0.00	0.00
3	2.00	8.00	0		599.67	14.84	10.70	0.00
4	2.00	0.11	0		555.89	0.21	8.00	0.00
5	2.00	5.00	0		590.25	9.35	9.74	0.50
6	2.00	3.50	0		592.14	6.53	9.16	0.00

MO

J. Collins


Room 110A (top view)
110A-03
110A-02
110A-04
110A-05
vent fan
Building 45 1st Floor
121
122
elev
123
stair
103
104
102
117
105
107
108
106
109
114
113
110
116
112
111
110A
117-01
117-02
Area not surveyed
scan pattern.

ing Final Status Survey Unit 3:Room 117 (floor scan) and Room 110A added

RSDS# 04-TF-0379 RCT: MO RCT: JMC

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Beta	43-68 BKG	0	EFF	0.167	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #
Scan	43-37 BKG	0	EFF	0.226	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100c
ALPHA	SRC BKG	5854	7836	5861	1		11/10/04	11:27	7	300	11
ALPHA	SRC CHECK	5854	7836	5861	1		11/10/04	11:40	2023	60	15291
ALPHA	SRC CHECK	5854	7836	5861	1		11/10/04	11:42	2103	60	15896
ALPHA	SRC CHECK	5854	7836	5861	1		11/10/04	11:43	2052	60	15510
ALPHA	SRC CHECK	5854	7836	5861	1		11/10/04	11:45	2013	60	15215
ALPHA	110-A 01	5854	7836	5861	1	1	11/10/04	14:05	7	120	26
ALPHA	110-A 02	5854	7836	5861	1	2	11/10/04	14:09	8	120	30
ALPHA	110-A 03	5854	7836	5861	1	3	11/10/04	14:15	11	120	42
ALPHA	110-A 04	5854	7836	5861	1	4	11/10/04	14:19	8	120	30
ALPHA	110-A 05	5854	7836	5861	1	5	11/10/04	14:24	6	120	23
BETA	SRC BKG	5854	7836	5861	2		11/10/04	11:54	711	300	1352
BETA	SRC CHECK	5854	7836	5861	2		11/10/04	11:56	2443	60	23220
BETA	SRC CHECK	5854	7836	5861	2		11/10/04	11:58	2515	60	23905
BETA	SRC CHECK	5854	7836	5861	2		11/10/04	11:59	2601	60	24722
BETA	SRC CHECK	5854	7836	5861	2		11/10/04	12:01	2629	60	24988
BETA	110-A 01	5854	7836	5861	2	1	11/10/04	14:06	285	60	2709
BETA	110-A 02	5854	7836	5861	2	2	11/10/04	14:11	185	60	1758
BETA	110-A 03	5854	7836	5861	2	3	11/10/04	14:16	173	60	1644
BETA	110-A 04	5854	7836	5861	2	4	11/10/04	14:20	178	60	1692
BETA	110-A 05	5854	7836	5861	2	5	11/10/04	14:25	167	60	1587
SCAN	SRC BKG	5854	7836	5852	3		11/10/04	9:55	42	300	13
SCAN	SRC CHECK	5854	7836	5852	3		11/10/04	10:10	2021	60	3062
SCAN	SRC CHECK	5854	7836	5852	3		11/10/04	10:12	2212	60	3352
SCAN	SRC CHECK	5854	7836	5852	3		11/10/04	10:13	2080	60	3152
SCAN	SRC CHECK	5854	7836	5852	3		11/10/04	10:15	2122	60	3216
SCAN	SRC CHECK	5854	7836	5852	3		11/10/04	10:17	2062	60	3125
SCAN	SRC CHECK	5854	7836	5852	3		11/10/04	10:18	2032	60	3079
SCAN	SU-3 117-01	5854	7836	5852	3	6	11/10/04	15:00	3	30	9
SCAN	SU-3 117-02	5854	7836	5852	3	7	11/10/04	15:20	5	30	15

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) Bldg 45 Various Rooms	SURVEY NO. 04-TF-0382
PURPOSE: MARSSIM Final Status Survey: SU-13 10% Floor Scans	RWP NO. N/A
	DATE: 11-15-04
	TIME: 1430

MAP / DRAWING

*See attached map for scanning locations and results.
*No integrated counts performed unless indicated on map.

LEGEND:

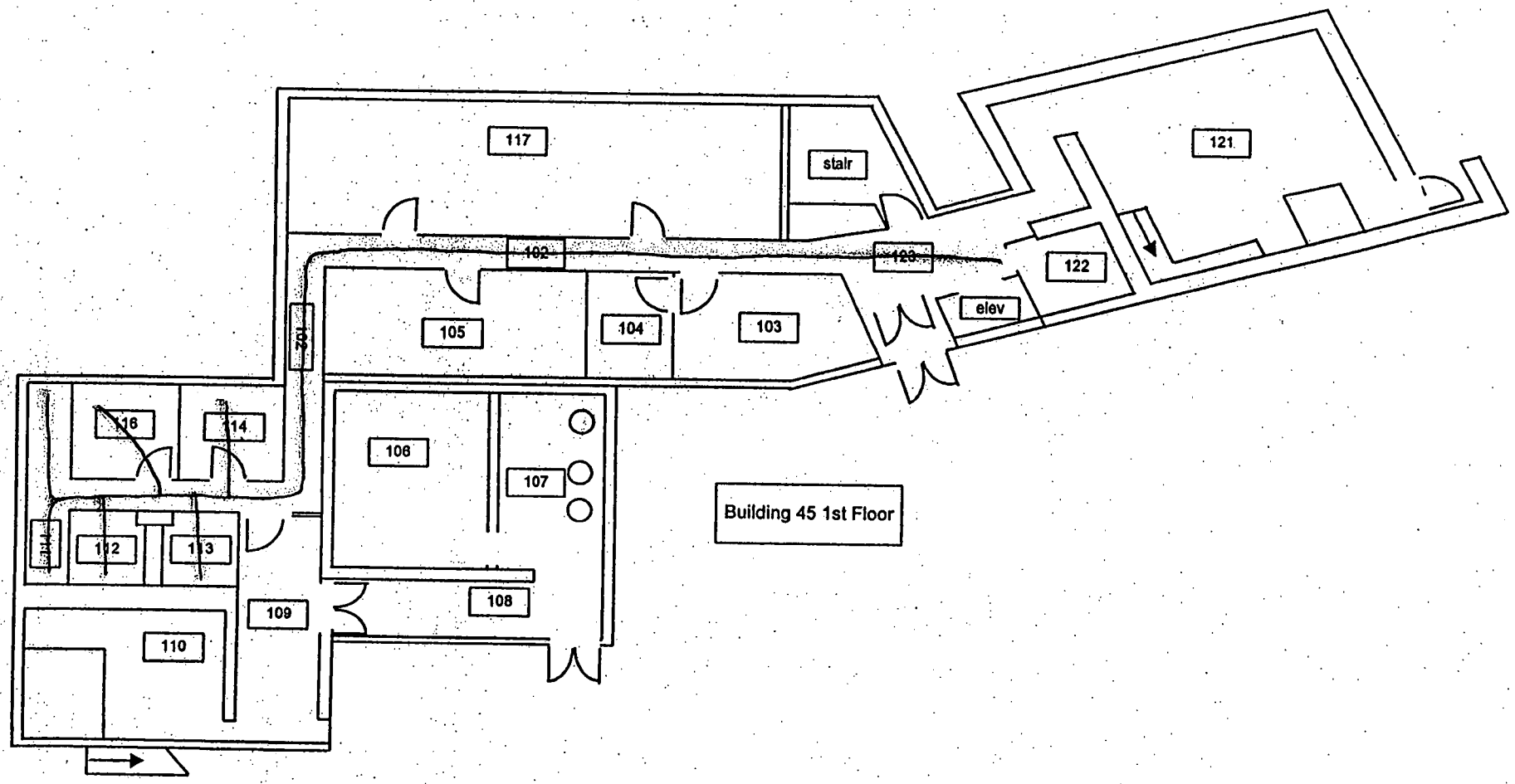
- # = mrem/hr (γ) whole body
- #E = mrem/hr (β+η+γ) extremity on contact
- K = factor of 1000
- = radiological boundary
- # - mrem/hr neutron
- # - air sample number
- # - swipe number
- #/α - or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud 2350	5854/5852	7/20/05
	A	
	N	

[redacted]		HP# 7836	Date: 11-16-04
Counted by: (Signature) N		HP#	Date:
Counted by: (Printed Name) A			
Review [redacted]		HP# 7707	Date: 11/17/04
Reviewed/Approved by: (Print Name) [redacted]			

ML-9620 (2-98)


117
stair
121
102
123
122
elev
105
104
103
102
116
114
106
107
Building 45 1st Floor
111
112
113
109
108
110

scan path

45-Building MARSSIM Final Status Survey SU-13:10% Floor scans

RSDS# 04-TF-0382 *RCT:* NO *RCT:* _____

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.167	PROBE AREA	126	cm²	Surface Eff	0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.226	PROBE AREA	584	cm²	Surface Eff	0.5	Detector #	3

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCAN	SRCBKG	5854	7836	5852	3		11/15/04	7:49	38	300	12
SCAN	SRCCHECK	5854	7836	5852	3		11/15/04	7:54	2127	60	3223
SCAN	SRCCHECK	5854	7836	5852	3		11/15/04	7:56	2108	60	3194
SCAN	SRCCHECK	5854	7836	5852	3		11/15/04	7:57	2124	60	3219
SCAN	SRCCHECK	5854	7836	5852	3		11/15/04	7:59	2079	60	3150
SCAN	SRCCHECK	5854	7836	5852	3		11/15/04	8:00	2047	60	3102
SCAN	SRCCHECK	5854	7836	5852	3		11/15/04	8:01	2177	60	3299

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45, Room 103, 104, 105, 121	SURVEY NO. 04-TF-0383
PURPOSE: MARSSIM Final Status Survey: Unit: 2,6 10%, 50% Floor Scans	RWP NO. N/A
	DATE: 11-16-04
	TIME: 1400

MAP / DRAWING

*See attached map for scanning locations and results.
*No integrated counts performed unless indicated on map, no alarms, or backgrounds that were doubled while scanning.

LEGEND:

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

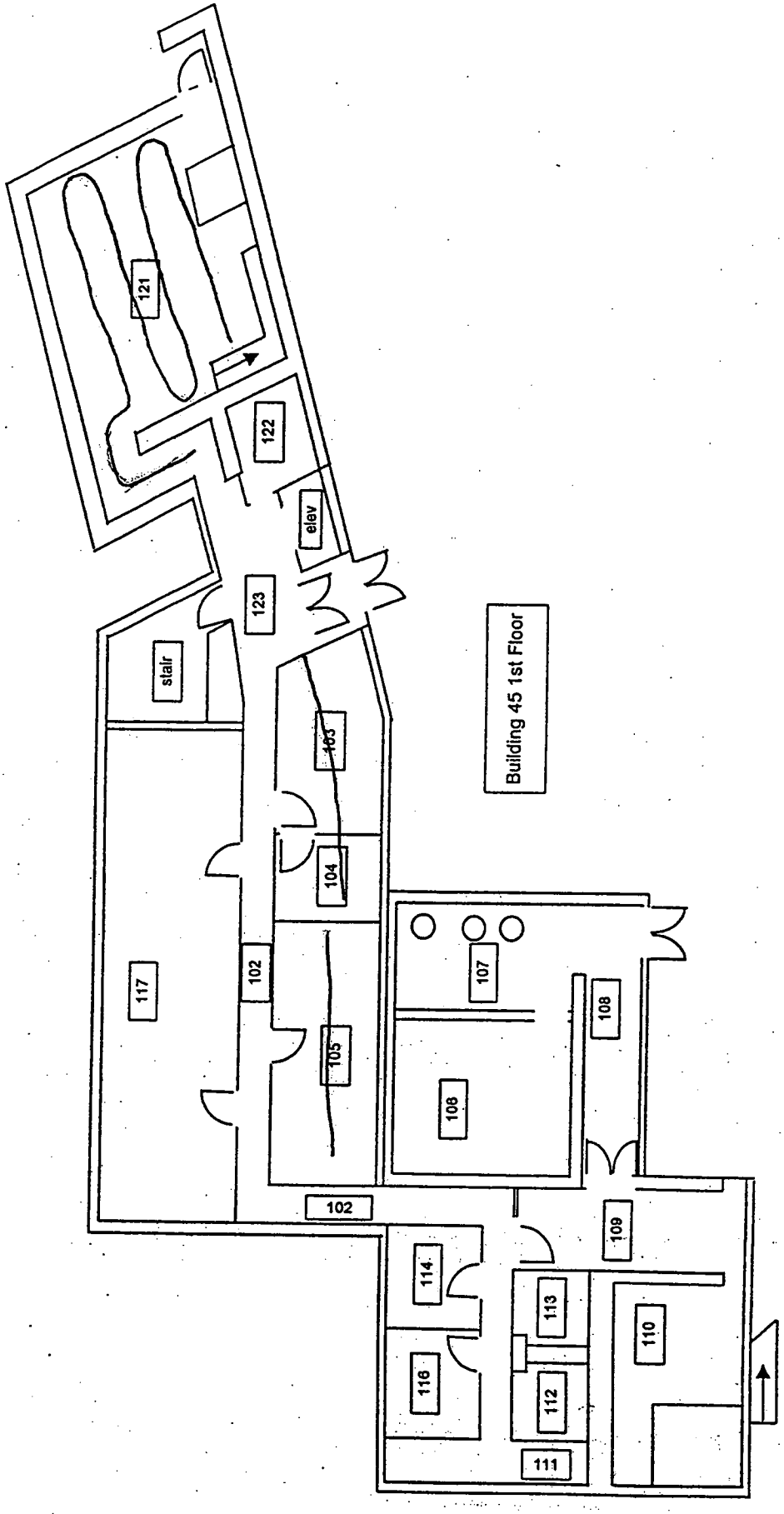
- mrem/hr neutron
- air sample number
- swipe number
#/α - or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud 2350	5854 / 5852	7/20/05
	A	
	N	

[redacted]	HP# 5836	Date: 11-16-04
Counted by: (Signature) N/A	HP#	Date:
Counted by: (Printed Name)		
Reviewe[redacted]	HP# 3707	Date: 11/18/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98)


Building 45 1st Floor
121
122
elev
123
stair
117
102
103
104
105
107
108
106
102
109
114
113
110
116
112
111

scan pa

45-Building Final Status Survey Unit 2,6 10%,50% Floor Scans

RSDS# 04-TF-0383 *RCT:* JQ *RCT:* LAO

Alpha	43-68 BKG	0	EFF	0.21	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #	1
Beta	43-68 BKG	0	EFF	0.167	PROBE AREA	126	cm²	Surface Eff		0.5	Detector #	2
Scan	43-37 BKG	0	EFF	0.226	PROBE AREA	584	cm²	Surface Eff		0.5	Detector #	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SCAN	SRC BKG	5854	7836	5852	3		11/16/04	7:27	31	300	9	
SCAN	SRC CHECK	5854	7836	5852	3		11/16/04	7:59	2061	60	3123	
SCAN	SRC CHECK	5854	7836	5852	3		11/16/04	8:01	2108	60	3194	
SCAN	SRC CHECK	5854	7836	5852	3		11/16/04	8:03	2329	60	3529	
SCAN	SRC CHECK	5854	7836	5852	3		11/16/04	8:04	2200	60	3334	
SCAN	SRC CHECK	5854	7836	5852	3		11/16/04	8:06	2174	60	3294	
SCAN	SRC CHECK	5854	7836	5852	3		11/16/04	8:07	2187	60	3314	

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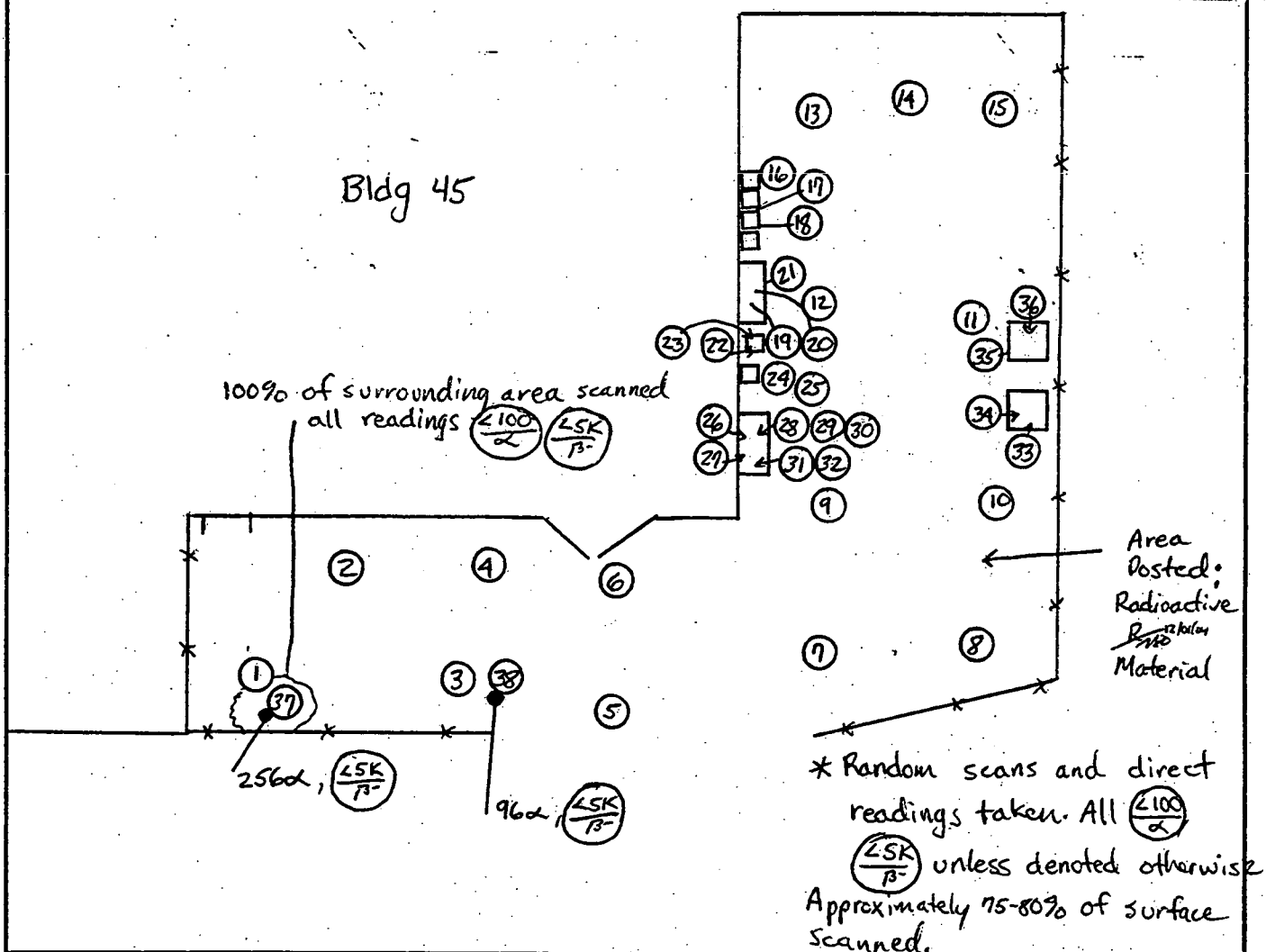
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Outside Bldg 45	SURVEY NO. 04-TF-0401
PURPOSE: Downpost Survey of RMA	RWP NO. N/A
	DATE: 12-01-04
	TIME: 1500

MAP/DRAWING



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
Lud 2360	5758 / 5734	4-14-05
Lud 2360	5755 / 5723	1-08-05
	A	
	N	

[redacted]	# 7836 7244	Date: 12/20/04
[redacted]		
Counted by: (Signature) See Attached	HP#	Date:
Counted by: (Print)		
Reviewed/App[redacted]	HP# 7707	Date: 12/21/04
Reviewed/Approved by: (Print) [redacted]		

ML-9620

RSDS# 04-TF-0401

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

See attached results

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

See attached results

COMMENTS: All smears field counted prior to submitting to count room, all < 1Kdpm/100cm² α, β-

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

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID; Aqua
Data file name: SMEAR017
Batch Ended: 12/1/04 15:36

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0401 J.COLLINS (38) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.24		4.75	3.13	
A2	2	0.00	2.26		4.30	2.83	
A3	3	0.00	2.18		0.48	1.76	
A4	4	0.00	2.08		3.60	2.77	
B1	5	1.69	1.93		0.00	1.64	
B2	6	0.00	2.02		0.00	1.26	
B3	7	0.00	1.93		0.00	1.80	
B4	8	0.00	1.89		0.00	1.65	
C1	9	0.00	2.39		1.84	3.04	
C2	10	0.00	2.20		0.97	2.72	
C3	11	1.75	2.08		0.00	1.40	
C4	12	0.00	2.05		0.00	1.35	
D1	13	0.00	2.24		4.57	3.53	
D2	14	0.00	2.20		0.01	1.80	
D3	15	0.00	1.95		0.00	2.04	
D4	16	0.48	2.16		0.00	1.98	
A1	17	0.00	2.21		2.23	2.56	
A2	18	0.00	2.21		0.54	1.81	
A3	19	0.00	2.20		1.70	2.15	
A4	20	0.00	2.05		1.15	2.16	
B1	21	0.00	1.99		2.09	2.54	
B2	22	0.00	2.02		0.00	1.26	
B3	23	0.00	1.95		0.10	2.17	
B4	24	0.00	1.94		3.82	2.80	
C1	25	0.00	2.36		0.00	2.38	
C2	26	0.94	2.21		2.11	3.03	
C3	27	0.00	2.11		0.22	2.31	
C4	28	0.00	2.09		1.24	2.57	
D1	29	0.00	2.20		0.00	2.08	
D2	30	0.00	2.34		4.98	3.07	
D3	31	0.00	1.96		1.37	2.48	
D4	32	0.00	2.16		0.00	1.98	
A1	33	1.92	2.21		2.05	2.56	
A2	34	0.00	2.20		0.00	1.31	

JC JC

~~Page 1 of 2~~

JC 12/2/04

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR017
Batch Ended: 12/1/04 15:36

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0401 J.COLLINS (38) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A3	35	3.73	3.07		1.31	2.15	
A4	36	1.40	2.03		0.00	1.29	
B1	37	0.00	2.03		4.32	2.99	
B2	38	1.49	2.05		0.00	1.72	

JG JG

G300 of 309

JG 12/04 ~~Page 2 of 2~~

4 of 6

02 Dec 2004 09:24 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 4 PW H3 #403727 User : 2138

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5	- 18.6	0	0.0	9.30
Region B:	2.0	- 18.6	0	0.0	9.22
Region C:	40.0	- 2000	0	0.0	8.25

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
04-TF-0401 J.COLLINS (38) AG
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT4.dat
Count Data Filename: C:\DATA\SDATA4.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	9.30	9.22	8.25	662.29	0	B		0.00
0	2.00	718.55	689.77	1.75	616.10	0		1491.50	134.94
1	2.00	0.00	0.00	0.75	637.71	0		0.00	0.00
2	2.00	0.00	0.00	2.75	629.66	0		0.00	0.00
3	2.00	1.70	1.78	1.28	640.93	0		3.45	10.31
4	2.00	0.00	0.00	5.25	627.82	0		0.00	0.00
5	2.00	0.00	0.00	3.25	617.85	0		0.00	0.00
6	2.00	0.70	0.43	1.25	641.47	0		1.42	9.89
7	2.00	0.00	0.00	3.25	612.91	0		0.00	0.00
8	2.00	0.00	0.00	3.75	626.96	0		0.00	0.00
9	2.00	0.00	0.00	0.00	615.92	0		0.00	0.00
10	2.00	0.47	0.22	1.25	631.79	0		0.97	9.88
11	2.00	0.00	0.00	2.25	641.43	0		0.00	0.00
12	2.00	0.62	0.70	1.75	633.90	0		1.27	9.92
13	2.00	0.00	0.00	0.25	563.91	0		0.00	0.00
14	2.00	0.00	0.00	2.25	610.10	0		0.00	0.00
15	2.00	0.00	0.00	3.75	615.24	0		0.00	0.00
16	2.00	0.01	0.00	0.00	598.00	0		0.03	9.97
17	2.00	0.00	0.00	3.25	597.08	0		0.00	0.00
18	2.00	1.37	1.44	0.00	618.81	0		2.83	10.37
19	2.00	0.00	0.00	0.00	551.51	0		0.00	0.00
20	2.00	0.00	0.00	5.25	566.07	0		0.00	0.00
21	2.00	0.00	0.00	0.00	547.46	0		0.00	0.00
22	2.00	0.00	0.00	1.75	573.83	0		0.00	0.00
23	2.00	0.00	0.00	0.34	459.74	0		0.00	0.00
24	2.00	0.00	0.00	0.00	593.70	0		0.00	0.00
25	2.00	0.00	0.00	3.78	627.08	0		0.00	0.00
26	2.00	0.00	0.00	2.75	589.00	0		0.00	0.00
27	2.00	0.00	0.00	1.89	598.62	0		0.00	0.00
28	2.00	0.00	0.00	2.75	510.82	0		0.00	0.00
29	2.00	0.00	0.00	3.75	570.69	0		0.00	0.00
30	2.00	0.00	0.00	0.25	584.02	0		0.00	0.00
31	2.00	0.00	0.00	3.75	565.59	0		0.00	0.00
32	2.00	0.00	0.00	1.75	574.65	0		0.00	0.00
33	2.00	0.00	0.00	8.75	607.13	0		0.00	0.00
34	2.00	0.00	0.00	3.19	588.39	0		0.00	0.00
35	2.00	0.00	0.00	0.25	589.28	0		0.00	0.00

JC

04-TF-0401

Page 6

02 Dec 2004 11:19 ALPHA/BETA - 1.09 ~~Page #2~~

Protocol #: 4 PW H3 #403727 User : 2

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM FLAG	DPM1	2SIGMA
36	2.00	0.00	0.00	0.00	599.65	0	0.00	0.00
37	2.00	0.00	0.00	1.84	556.38	0	0.00	0.00
38	2.00	0.00	0.00	5.25	608.86	0	0.00	0.00

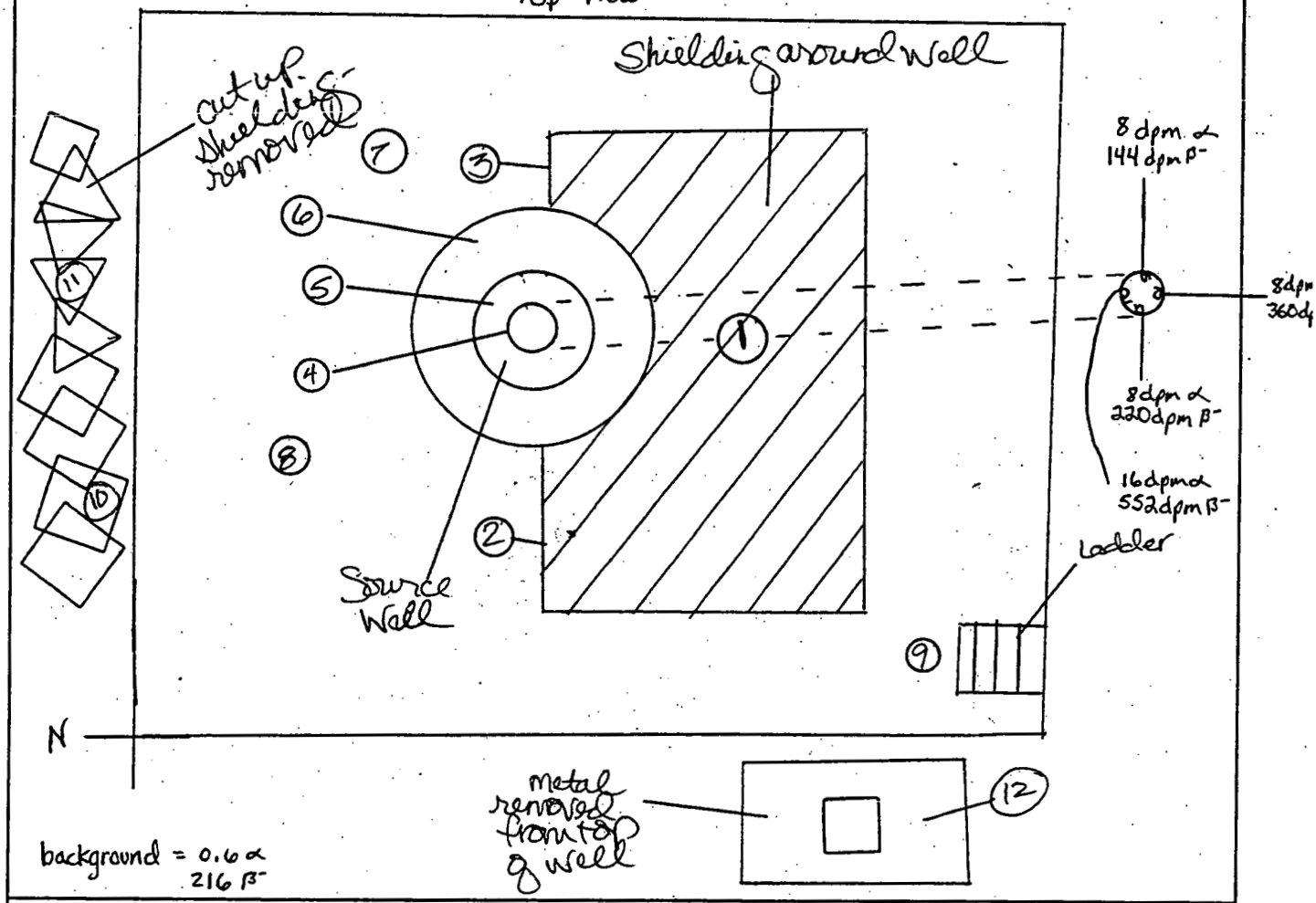
JC

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) B45 Room 001 Pit	SURVEY NO. 05-TF-0014
PURPOSE: Survey of source well	RWP NO. N/A
	DATE: 1-13-05
	TIME: 1100

MAP / DRAWING

Top View



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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/4589	5699/5735	10/27/05
Lud 3030	5826	10/25/05
	A	
	N	

[redacted]

HP#	Date:
7836 7572	1-13-05
HP# 7836	Date:
HP# 7707	Date: 1-20-05

Reviewed/Approved [redacted]

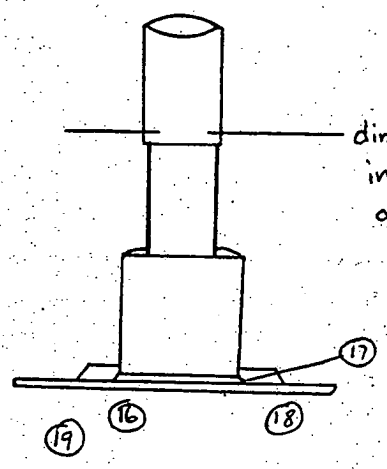
ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET
MAP/DRAWING Continuation Page

Survey No. 05-TF-0014

MAP/DRAWING

Side View of well tube



direct readings taken at this level inside of well tube, see results on page #1, top view.

smears
14, 15, 20, 21
taken on tools

Dose rates taken around entire well at various heights. all direct dose rates between 5-10 microrem
Background = 5 microrem

Micro Rem #3984
cal due 5-21-05

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

ML-9620B (2-98)

Survey No. 05-TF-0014

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	12	0	N/A	shielding
2	15	0		↓
3	6	2		↓
4	2	0		inside well tube
5	2	0		outside well
6	0	0		↓
7	24	0		floor
8	0	0		↓
9	0	0		↓
10	0	0		debris
11	39	0		↓
12	14	0		cover
13	9	0		chainsaw
14	17	0		misc tools
15	9	0		↓
16	9	0		floor
17	0	0		bottom of tube
18	0	0		floor
19	0	0		↓
20	0	0		misc. tools
21	11	0	↓	↓
		N	A	

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

COMMENTS: Smears # 16-21 taken on 1-17-05, after tube has been cut from stand.

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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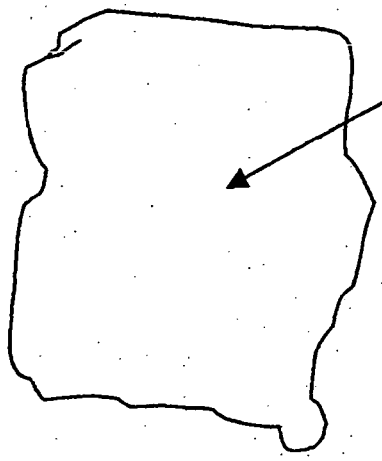
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Building 45	SURVEY NO. 05-TF-0023
PURPOSE: Survey of asphalt sample prior to and after acid etch (Sample taken from outside building 45 cage storage area - See RSDS 04-TF-0401) (SEE RSDS Location #37)	RWP NO. n/a
	DATE: 1/25/2005
	TIME: 9:30

MAP / DRAWING

Prior readings taken on 1/17/05



Piece size: 100cm2

Prior to acid etch

120 dpm/100cm2 - alpha
568 dpm/100cm2 - beta

After acid etch

16 dpm/100cm2 - alpha
292 dpm/100cm2 - beta

	alpha bkg	alpha DL	beta bkg	beta DL
2360 #5755	1 cpm	1.4	217 cpm	30
2360 #5762	0 cpm	1.4	111 cpm	30

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

- mrem/hr neutron
- swipe number
- air sample number
#/α or /β - direct contamination measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2360/43-89	5755/5723	5/7/2005
L2360/43-89	5762/5783	1/13/2006
	NA	

Con [redacted]	HP# 7707	Date: 1-26-05
Con [redacted]		
Counted by: (Signature) See attached	HP#	Date:
Counted by: (Printed Name)		
Reviewed [redacted]	HP# 5781	Date: 1-26-05
Reviewed/App [redacted]		

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
1-18-05	Asphalt	Coblentz	1

PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:	MAIL STOP:
Boss	Bob Coblentz 608-8206	—

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
Boss	1-13-05	05-TF-0023	

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:

Surface reading of 120 dpm/100cm2 & <20 Smearable

Identify isotopes

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0500381	Bldg 45 Asphalt	1	

COMMENTS:

ANALYZED BY: [signature] DATE: 1-25-05

ML-5222 (1-01)

RSDS 05-TF-0023

Laboratory ID#:	0500381
Project/function:	Boss
Submitted:	Jan 18, 2005
Submitted by:	B. Coblentz
Point of Contact:	B. Coblentz 608-8206
RSDS#:	N/A
Date:	Jan 25, 2005

Lab ID	0500381		
Sample Location	Bldg 45 Asphalt		
Isotope	dpm/Sample	Uncertainty +/-	LDL
Pu-238	2.32	0.43	0.18
Pu-239/240	0.27	0.13	0.18
Th-227	2.15	0.46	0.22
Th-228	4.38	0.70	0.22
Th-230	11.08	1.34	0.61
Th-232	4.55	0.72	0.22
U-233/234	4.28	1.20	0.76
U-235	<LDL	<LDL	0.76
U-238	2.54	0.90	0.76

[redacted]

1585 — HP #

1-25-05 — Date

7783 — HP #

1/25/5 — Date

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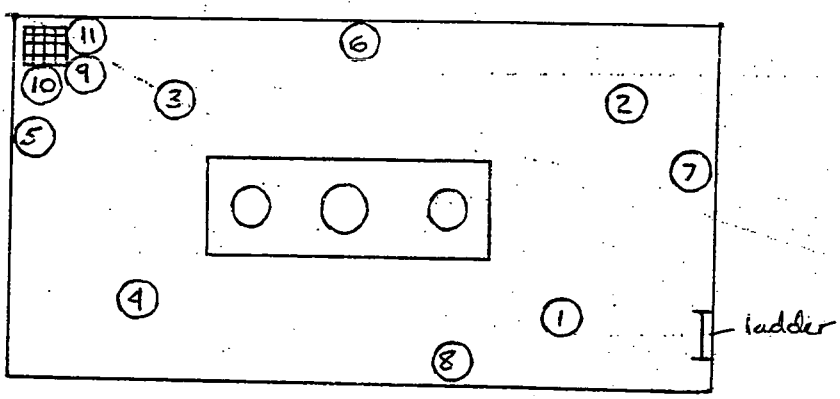
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM)	Bldg 45 Under Elevator	SURVEY NO.	05-TF-0080
PURPOSE:	Characterize Elevator Pit	RWP NO.	N/A
		DATE:	3-1-05
		TIME:	1230

MAP/DRAWING

Elevator Pit - Top View



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
Ludl2360/4389	5712/5805	4-1-05
	A	
	N	

ML-9620

Completed by: (Sig[redacted]	HP# 7836	Date: 3/2/05
Completed by: (Pri[redacted]		
Counted by: (Signature)	HP#	Date:
Counted by: (Print)	See Attached	
Reviewed[redacted]	HP# 7707	Date: 3/3/05
Reviewed/Approved by: (Print) [redacted]		

GA 1 of 11

RSDS# 05-TF-0080

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

See attached results

NA

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

NA

COMMENTS: All smears field counted; all <1Kdpm/100cm²α, β-

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

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 3/2/05 7:40
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: 05-TF-0080 OEFFNER(11) 03/02/05 TAS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.22		0.99	2.27	
A2	2	0.00	2.00		0.00	1.18	
A3	3	0.00	2.28		0.72	1.78	
A4	4	1.71	2.15		2.57	2.42	
B1	5	0.00	1.88		0.00	1.20	
B2	6	0.00	1.85		0.00	1.13	
B3	7	0.00	2.18		0.00	1.34	
B4	8	0.00	1.99		0.37	1.70	
C1	9	1.69	2.05		0.00	1.23	
C2	10	0.00	1.92		0.47	1.59	
C3	11	0.00	2.06		0.00	1.22	

MO MO

GA 3 & 11

3 of 5

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	7.17
Region B:	2.0 -	18.6	0	0.0	7.24
Region C:	40.0 -	2000	0	0.0	13.06

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
05-TF-0080 OFFNER [11] GWD
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.17	7.24	13.06	630.73	9	B		0.00
0	2.00	532.67	517.02	0.00	621.44	1		1100.58	105.66
1	2.00	0.00	0.00	0.00	645.06	8		0.00	0.00
2	2.00	0.00	0.00	0.94	625.91	8		0.00	0.00
3	2.00	0.00	0.00	0.00	610.28	8		0.00	0.00
4	2.00	0.00	0.00	0.00	622.69	0		0.00	0.00
5	2.00	0.00	0.00	0.00	699.69	11		0.00	0.00
6	2.00	0.00	0.00	0.00	624.88	0		0.00	0.00
7	2.00	0.00	0.00	0.00	659.69	9		0.00	0.00
8	2.00	0.00	0.00	0.00	663.78	0		0.00	0.00
9	2.00	1.14	0.00	0.00	656.98	6		2.28	8.91
10	2.00	0.33	0.00	0.00	550.37	0		0.72	9.36
11	2.00	0.00	0.00	0.00	585.53	9		0.00	0.00

ND

GW

Survey No.
05 - TF - 0080

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Ludlum 2360 Integrated Measurement Results							
		Alpha			Beta		
		BKGD	5	cpm	BKGD	168	cpm
		DL	3	Net cpm	DL	20	Net cpm
No.	Item/Location Description	Gross (cpm)	CF	Results (dpm/100cm2 or Sample)	Gross (cpm)	CF	Results (dpm/100cm2 or Sample)
1	Floor	2	8	0	194	4	104
2		7		16	199		124
3		8		24	216		192
4		9		32	186		72
5	wall	5		0	200		128
6		5		0	206		152
7		8		24	219		204
8		6		8	198		120
9	grate	6		8	180		48
10	pit wall	10		40	204		144
11	pit bottom	8		24	202		136

N A

ML-9620C

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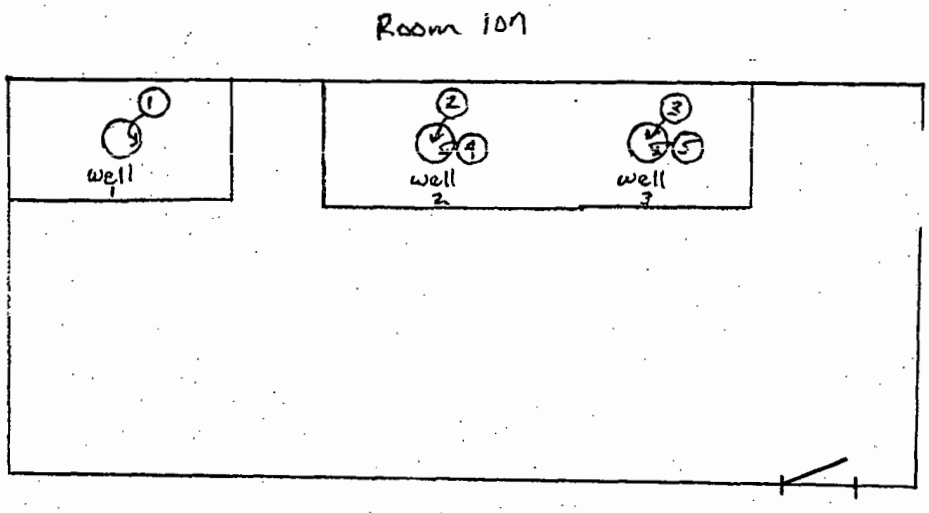
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 45 - Room 107	SURVEY NO. 05-TF-0081
PURPOSE: Characterize wells	RWP NO. N/A
	DATE: 3-1-05
	TIME: 1330

MAP/DRAWING



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
Lud 2360/4789	5712/5805	4-1-05
	A.	
	N	

Completed by: (S[redacted]	HP# 7836	Date: 3/2/05
Completed by: (P[redacted]		
Counted by: (Signature) see Attached	HP#	Date:
Counted by: (Print) ↓		
Reviewed[redacted]	HP# 7707	Date: 3/3/05
Reviewed/Approved by: (Print) [redacted]		

ML-9620

RSDS# 05-TF-0081

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm2)				
Sample#	β/γ	Alpha	Tritium	Comments
1				side inner wall
2				well platform
3				↓
4				side inner wall
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				

See attached results

NA

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

NA

COMMENTS: All smears field counted prior to count room submittal; all <1K dpm/100 cm² α, β⁻.

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

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR011
Batch Ended: 3/2/05 7:36
Cal. Due Date: 11/17/05
Serial Number: 26966-3

Batch ID: 05-TF-0081 OEFFNER (5) 03/02/05 TAS

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	1.74	2.20		0.00	1.86	
A2	2	0.00	2.02		0.42	1.65	
A3	3	0.00	2.30		1.98	2.18	
A4	4	0.00	2.10		0.00	1.22	
B1	5	0.00	1.92		1.73	2.07	

NAO NAO

NO 3/2/05

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	8.15
Region B:	2.0 -	18.6	0	0.0	8.22
Region C:	40.0 -	2000	0	0.0	12.18

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
05-TF-0081 OFFNER [5] GWD
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	8.15	8.22	12.18	631.08	9	B		0.00
0	2.00	692.14	669.73	0.31	614.62	0		1438.51	131.10
1	2.00	0.20	0.13	0.00	451.15	12		0.49	11.13
2	2.00	0.00	0.00	0.00	513.24	6		0.00	0.00
3	2.00	0.00	0.00	0.00	510.66	10		0.00	0.00
4	2.00	0.00	0.00	0.00	464.66	11		0.00	0.00
5	2.00	0.00	0.00	0.00	542.02	11		0.00	0.00

NO

GWD

Survey No. 05-TF-0081

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Ludlum 2360 Integrated Measurement Results							
		Alpha			Beta		
		BKGD	4	cpm	BKGD	176	cpm
		DL	2.6	Net cpm	DL	20	Net cpm
No.	Item/Location Description	Gross (cpm)	CF	Results (dpm/100cm2 or Sample)	Gross (cpm)	CF	Results (dpm/100cm2 or Sample)
1	side, inner wall	4	8	0	101	4	0
2	well platform	7	↓	24	100	↓	0
3	↓	3	↓	0	116	↓	0
4	side, inner wall	8	↓	32	85	↓	0
5	↓	6	↓	16	83	↓	0

NA

GA 11 of 11

ML-9620C

Appendix H

Radon Information

In the May 2004 Radon Survey Report (applicable pages attached), the results for Building 45 ranged from 0.3 pCi/L to 0.4 pCi/L.

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

Results are within acceptable limits.

Radon Survey Report

For the Property at

CH2MHILL

for

Gayle Hart

Radon Technology
2091 Miamisburg-Centerville Rd
Centerville, OH 45458
937/ 291-9000

H 1 of 6

Radon Technology Inc.

2091 Miamisburg-Centerville Rd.• Dayton, Ohio 45459
937-291-9000 • FAX 937-291-1279 • www.radontech.com

Agent Ordering Test: Bob Ransbottom

Serial #: 62 Calibration: 0.330
Cal date: Jun-03 Background: 0.200

Job Location: **Building 45**

Start: 5/3/04
Stop: 5/5/04

Testing Location: Room 005 cart
Notations:

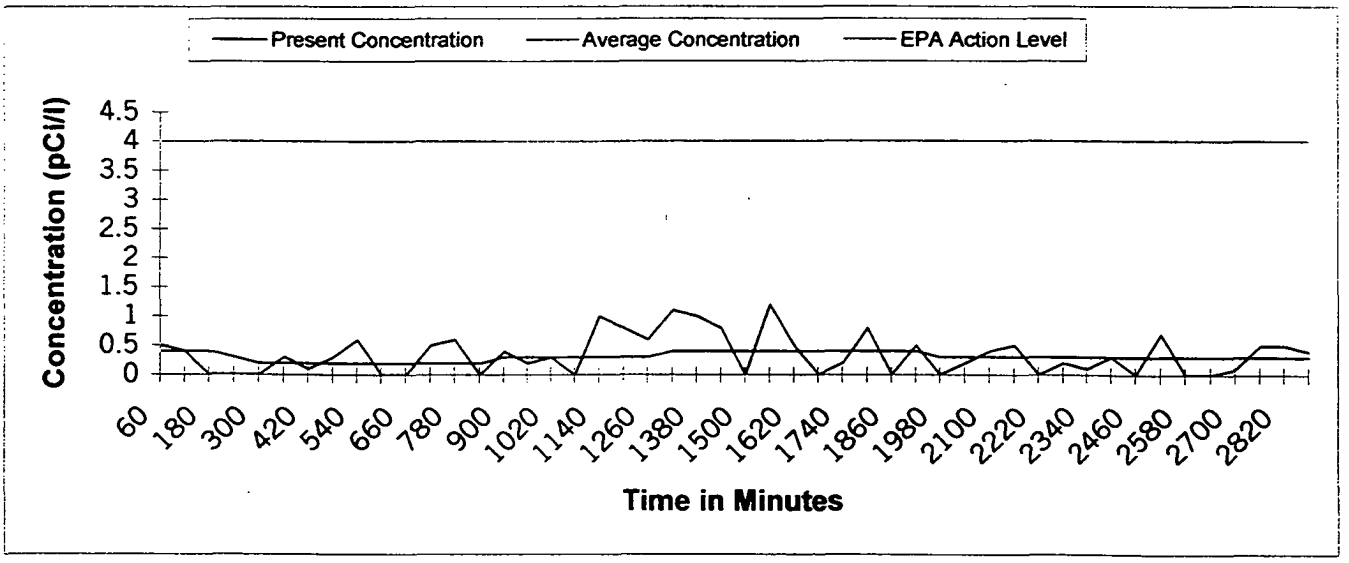
Time exposed: 2854.00 minutes
Monitor count 846

Billing Address: CH2MHILL
P.O. Box 3030
Miamisburg OH 45342-3030

Average Concentration
0.3

Closed House Conditions Observed at Drop?: Yes
Closed House Conditions Observed at Pick Up?: Yes
DOC on file?: No

File #: 7996
Technician: Jim Dunn
State ID#: S000016



Radon levels tend to vary. We accept no liability for any or all loss due to the results of this or these tests. There is uncertainty with any measurement result due to: statistical variations, daily and seasonal radon variations due to changes in the weather and operation of the dwelling as well as possible interference with the necessary test conditions that may or may not influence the results.

Radon Technology Inc.

2091 Miamisburg-Centerville Rd.• Dayton, Ohio 45459
937-291-9000 • FAX 937-291-1279 • www.radontech.com

Agent Ordering Test: Bob Ransbottom

Serial #: 8 Calibration: 0.417
Cal date: May-03 Background: 0.200

Job Location: **Building 45**

Start: 5/3/04
Stop: 5/5/04

Testing Location: Room 012 Desk
Notations:

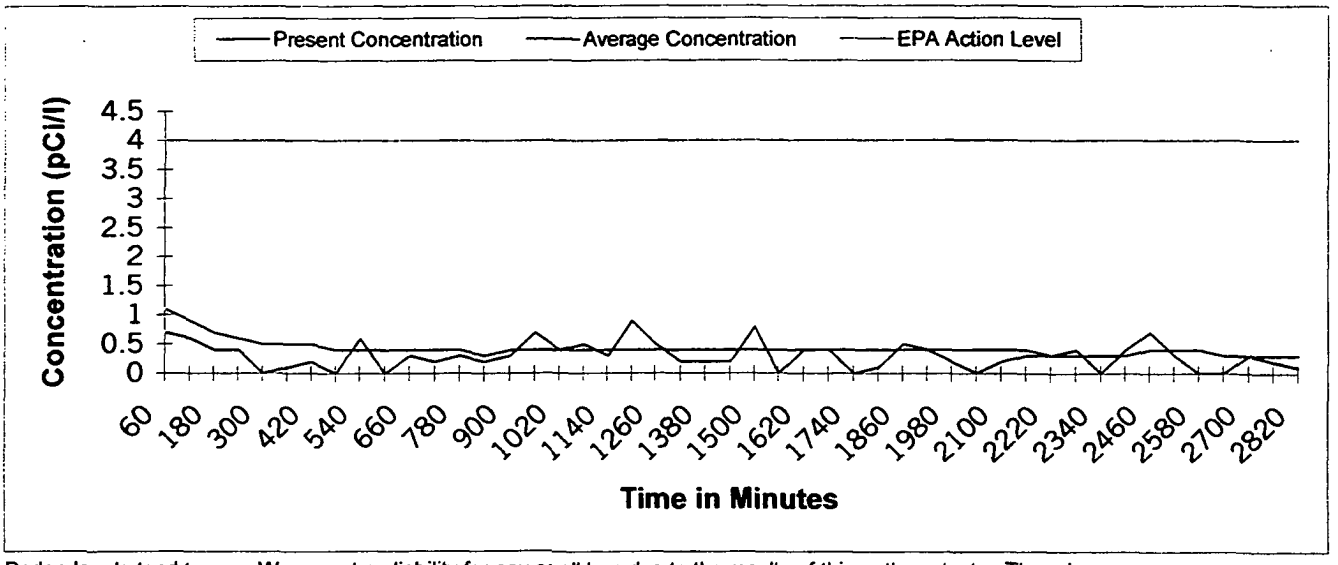
Time exposed: 2820.00 minutes
Monitor count 936

Billing Address: CH2MHILL
P.O. Box 3030
Miamisburg OH 45342-3030

Average Concentration
0.3

Closed House Conditions Observed at Drop?: Yes
Closed House Conditions Observed at Pick Up?: Yes
DOC on file?: No

File #: 7996
Technician: Jim Dunn
State ID#: S000016



Radon levels tend to vary. We accept no liability for any or all loss due to the results of this or these tests. There is uncertainty with any measurement result due to: statistical variations, daily and seasonal radon variations due to changes in the weather and operation of the dwelling as well as possible interference with the necessary test conditions that may or may not influence the results.

Radon Technology Inc.

2091 Miamisburg-Centerville Rd.• Dayton, Ohio 45459
937-291-9000 • FAX 937-291-1279 • www.radontech.com

Agent Ordering Test: Bob Ransbottom

Serial #: 71 Calibration: 0.459
Cal date: Jun-03 Background: 0.260

Job Location: **Building 45**

Start: 5/3/04
Stop: 5/5/04

Testing Location: Room 105 desk
Notations:

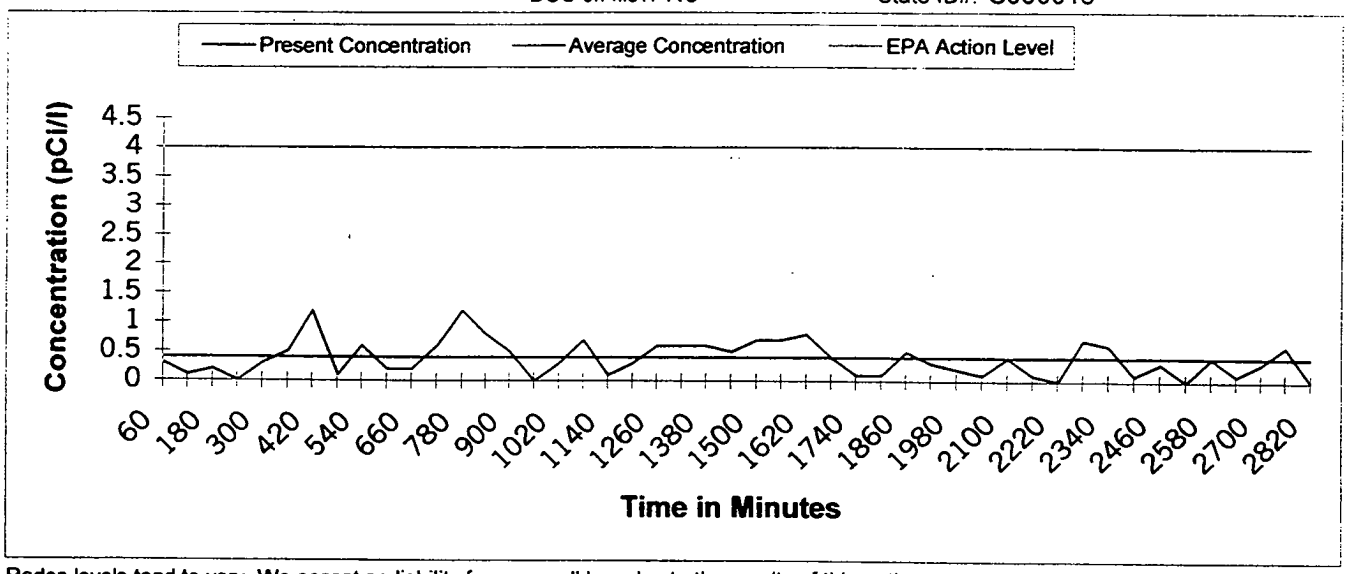
Time exposed: 2864.40 minutes
Monitor count 1271

Billing Address: CH2MHILL
P.O. Box 3030
Miamisburg OH 45342-3030

Average Concentration
0.4

Closed House Conditions Observed at Drop?: Yes
Closed House Conditions Observed at Pick Up?: Yes
DOC on file?: No

File #: 7996
Technician: Jim Dunn
State ID#: S000016



Radon levels tend to vary. We accept no liability for any or all loss due to the results of this or these tests. There is uncertainty with any measurement result due to: statistical variations, daily and seasonal radon variations due to changes in the weather and operation of the dwelling as well as possible interference with the necessary test conditions that may or may not influence the results.

Radon Technology Inc.

2091 Miamisburg-Centerville Rd.• Dayton, Ohio 45459
937-291-9000 • FAX 937-291-1279 • www.radontech.com

Agent Ordering Test: Bob Ransbottom

Serial #: 168 Calibration: 0.387
Cal date: Aug-03 Background: 0.140

Job Location: **Building 45**

Start: 5/3/04
Stop: 5/5/04

Testing Location: Room 110 desk
Notations:

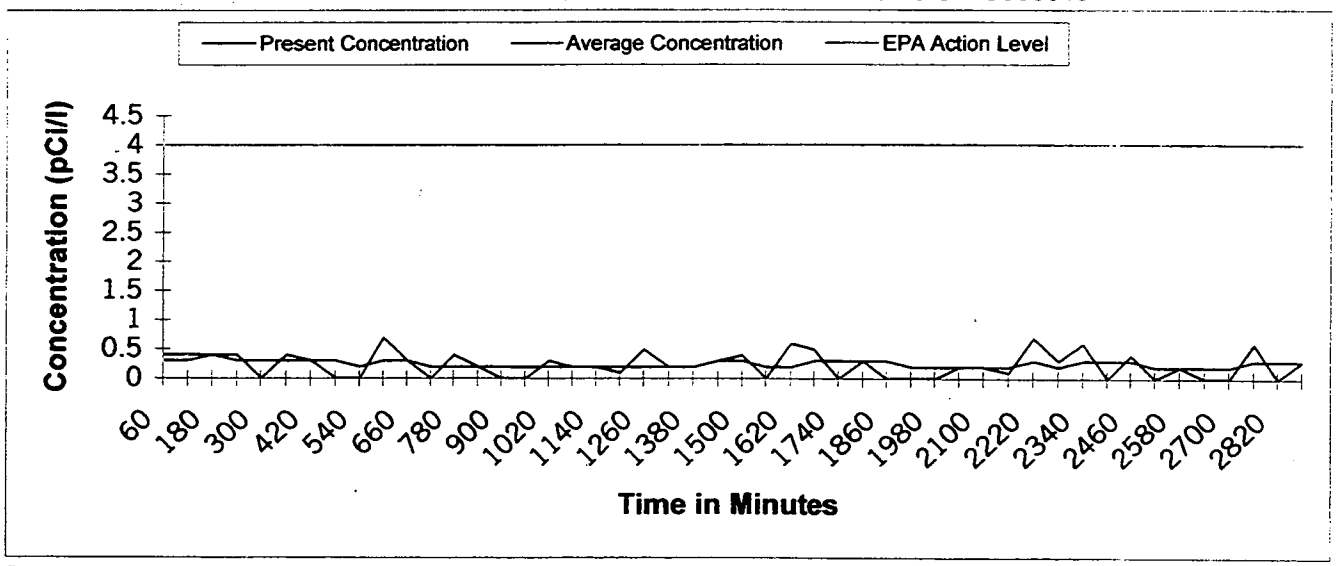
Time exposed: 2862.90 minutes
Monitor count 605

Billing Address: CH2MHILL
P.O. Box 3030
Miamisburg OH 45342-3030

Average Concentration
0.3

Closed House Conditions Observed at Drop?: Yes
Closed House Conditions Observed at Pick Up?: Yes
DOC on file?: No

File #: 7996
Technician: Jim Dunn
State ID#: S000016



Radon levels tend to vary. We accept no liability for any or all loss due to the results of this or these tests. There is uncertainty with any measurement result due to: statistical variations, daily and seasonal radon variations due to changes in the weather and operation of the dwelling as well as possible interference with the necessary test conditions that may or may not influence the results.

Radon Technology Inc.

2091 Miamisburg-Centerville Rd.• Dayton, Ohio 45459
937-291-9000 • FAX 937-291-1279 • www.radontech.com

Agent Ordering Test: Bob Ransbottom

Serial #: 8 Calibration: 0.417
Cal date: May-03 Background: 0.200

Job Location: **Building 45**

Start: 5/5/04
Stop: 5/7/04

Testing Location: Room 008
Notations:

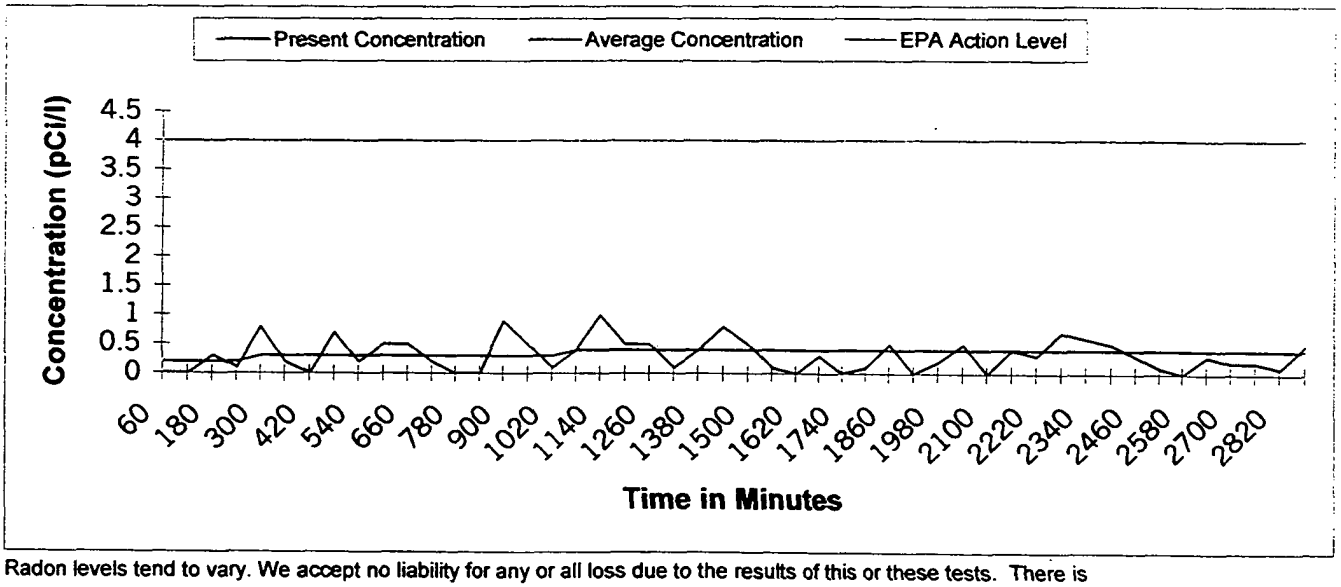
Time exposed: 2919.00 minutes
Monitor count 998

Billing Address: CH2MHILL
P.O. Box 3030
Miamisburg OH 45342-3030

Average Concentration
0.4

Closed House Conditions Observed at Drop?: Yes
Closed House Conditions Observed at Pick Up?: Yes
DOC on file?: No

File #: 7996
Technician: Jim Dunn
State ID#: S000016



Radon levels tend to vary. We accept no liability for any or all loss due to the results of this or these tests. There is uncertainty with any measurement result due to: statistical variations, daily and seasonal radon variations due to changes in the weather and operation of the dwelling as well as possible interference with the necessary test conditions that may or may not influence the results.

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 10/4/04 4:06PM
Subject: Bldg 45, rev

Don -

For Building 45 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos survey reports for Building 45 were located and reviewed; these reports were summaries of surveys conducted by PEI Associates in 1989 and Barge-Wagoner-Sumner-Cannon in 1993. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the building during June of 2004 in order to identify any existing or potential asbestos hazards. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. All materials previously identified as asbestos-containing (pipe insulation in the penthouse) were found to be in good condition. The asphalt roofing and resilient floor coverings (floor tiles and/or sheet vinyl flooring) located within and on the building are assumed to contain asbestos and are Nonfriable Category I materials in accordance with the EPA's NESHAP.

If MMCIC is planning renovation or demolition activities in Building 45, it would be recommended that an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist be consulted to assess the materials to be affected by any renovation operation. Any known or suspect materials which may be disturbed by any future renovations or modifications to the buildings should be removed prior to such activities by a Licensed Asbestos Abatement Contractor. Existing asbestos materials should be managed in-place.

The asphalt roofing and resilient floor coverings (floor tiles and/or sheet vinyl flooring) are assumed to contain asbestos. However, as a Nonfriable Category I materials in accordance with NESHAP.

Lead

No previous lead surveys or sampling data were found for Building 45. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the referenced building in June of 2004 in order to identify any existing or potential lead paint hazards. The paint coatings present were observed to be intact and no potential hazards observed. Untested paint should be assumed to contain lead until such time that testing proves otherwise.

Any untested paint coatings which may be disturbed by any future renovations or modifications to the buildings should be verified to be lead-free prior to such activities.

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

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Excerpts from previous asbestos surveys

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4.55 Building 45

The following asbestos-containing materials were identified in Building 45:

- Preformed-block pipe insulation
- Floor tile

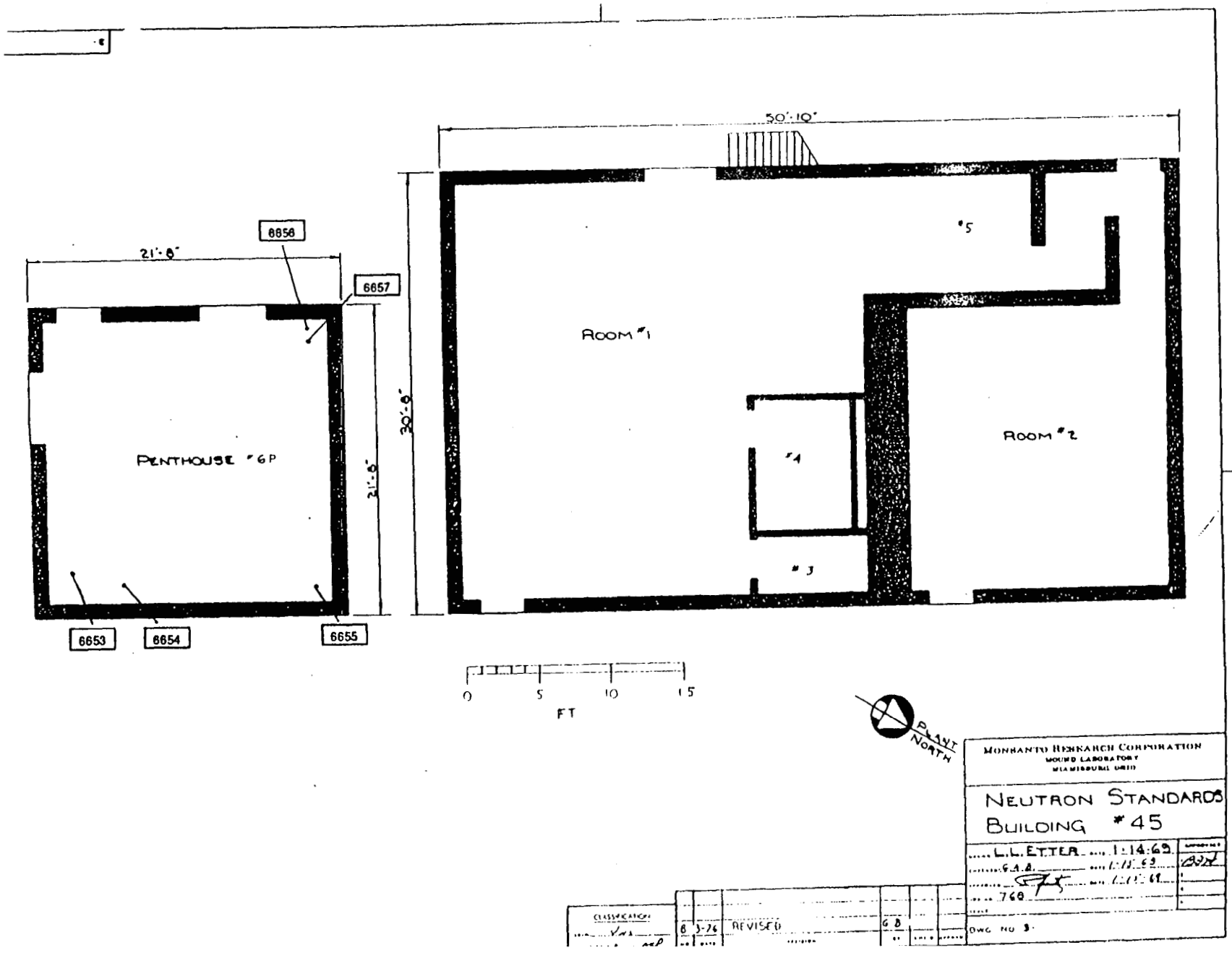
Three samples were taken of the preformed-block pipe insulation. Analysis of these samples indicated that the material contains 15 to 20 percent amosite asbestos. The material is in generally good condition and currently does not pose a health hazard to building occupants. Ongoing management via an O&M program and periodic surveillance is recommended.

TABLE 1. HOMOGENEOUS AREAS OF SUSPECT ASBESTOS-CONTAINING MATERIALS IN BUILDING 45, EG&G MOUND APPLIED TECHNOLOGIES, INC.
(Inspected October 31, 1988)

Homogeneous area No.	Type of material	Description of homogeneous area	Does homogeneous material contain asbestos? (assumed/sampled)
1	Preformed-block pipe insulation	Preformed-block pipe insulation on LPC lines and high-pressure steam lines in penthouse	Yes/sampled
2	Cementitious	Cementitious fittings on fiberglass pipe insulation on DHW and DCW lines in penthouse and Room 1	No/sampled
3	Other	9-in. by 9-in. vinyl floor tile throughout the ground floor of building	Yes/assumed

TABLE 2. DATA SUMMARY FOR BULK SAMPLES OF SUSPECT ASBESTOS-CONTAINING MATERIALS IN BUILDING 45, EG&G MOUND APPLIED TECHNOLOGIES, INC.

Homo-geneous area No.	Field sample No.	Sample date (1988)	PEI Laboratory requisition No.	Floor/room No.	Sample location	Asbestos fiber content
1	MRC-6653	10/31	T8-10-242-01A	Penthouse	LPC line in northeast corner of room	15% amosite
1	MRC-6654	10/31	T8-10-242-02A	Penthouse	Above pump unit, north wall	20% amosite
1	MRC-6655	10/31	T8-10-242-03A	Penthouse	High-pressure steam line in northwest corner of room	20% amosite
2	MRC-6656	10/31	T8-10-242-04A	Penthouse	DCW line on DHWT	None detected
2	MRC-6657	10/31	T8-10-242-05A	Penthouse	DHW line on DHWT	None detected


50'-10"
30'-8"
21'-8"
21'-8"
6656
6657
6653
6654
6655
PENTHOUSE #6P
ROOM #1
ROOM #2
#3
#4
#5
0
5
10
15
FT
PLANT NORTH
MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO
NEUTRON STANDARDS BUILDING #45
L.L. ETTER 1-14-69
G.A.B.
760
CLASSIFICATION
8-3-76
REVISED
G.B.
DWG NO 3

Barge Waggoner Sumner Cannon, 1993
Management Plan

Building 45

Inspection Date 11/11/91

Inspector..... Randy Hayes

Sample Numbers..... 0.733 - 0.746

Data Review

The visual inspection and sampling/analysis identified only 2 materials as positively asbestos-containing, and only 1 assumed to contain asbestos. These three materials form 2 response areas for purposed of assessment:

A) Pipe Insulation
B) Flooring

Total Abatement Cost..... $300.00

Total O&M Cost/Year..... $300.00

Building 45

RESPONSE AREA DESIGNATION.....A

Rooms Included:

PENTHOUSE

Materials Included:

Pipe Insulation - Hard
Pipe Joint Insulation - Hard

Response Area Description

Pipe Insulation - Penthouse

Recommended Response Repair/O&M

Priority Level.....ASAP

Hazard Rank.....4

Response Justification

These materials are currently damaged, but because of the low occupancy of the penthouse, the potential for additional damage is slight. Existing damage appears to be the result of improper maintenance practices which are not likely to recur because of improved training at Mound. The current damage and low potential for future damage warrants a Hazard Rank #4.

The recommended response action is to repair the existing damage and place the area on the O&M list for regular re-inspection. Materials that cannot be repaired should be removed and replace with non-asbestos substitutes. These materials do not pose a significant risk of exposure, but their condition could lead to circumstances that may constitute a violation of the NESHAPS provision prohibiting visible emissions. Therefore the repair work should take place as soon as possible.

Annual O&M Cost.....$180.00

Abatement Cost.....$300.00

Building 45

RESPONSE AREA DESIGNATION..... B

Rooms Included:

101; 102; 103; 105; 107; 108; 109

Materials Included:

Floor Tile
Mastic

Response Area Description

Flooring

Recommended Response O&M

Priority Level..... Planned

Hazard Rank..... 1

Response Justification

This material has not been positively identified as asbestos-containing and is currently in good condition with little potential for damage. Therefore, a Hazard Rank #1 is assigned and the material should be included in the O&M program.

An alternative is to sample and analyze the material possibly enabling it to be removed from surveillance with a resultant long-term cost savings.

Sampling and analysis is recommended prior to any activity that might disturb the material or cause it to become friable.

Annual O&M Cost..... $120.00

Abatement Cost..... $Not Considered

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Barge Waggoner Sumner Cannon, 1993
Inspection Report

MOUND ASBESTOS SURVEY
BUILDING SUMMARY

BUILDING 45

FLOORS:	One	PIPE CHASES:	Yes
DATE BUILT:	1970	PENTHOUSE:	Yes
CRAWLSPACE:	Yes	GROSS AREA, SQ. FT.:	9,500
SUSPENDED CEILING:	Yes	ADDITIONS:	1988

Asbestos was found to be present in Thermal System Insulation and/or other material in Building 45. The homogeneous areas for the suspect Asbestos Containing Materials are shown below. Refer to the Mound Asbestos Survey Sample Data Report for specific information on sample constituents, estimated amounts of the material, assessments, and percentages of each constituent in the sample.

HOMOGENEOUS AREAS
Sample Numbers: 0.733-0.746

No.	Description	Result
1	Pipe Insulation, Type II, Hard	Positive
2	Pipe Joint Insulation, Type II, Hard	Positive
3	Pipe Joint Insulation, Type I, Hard Joints w/Fiberglass Runs	Negative
4	Heat Exchanger Insulation	Negative
5	Ceiling Tile, CT3-F, (2'x4'), Pits w/Pinholes	Negative

Assumed ACM:	Amount	Location
* Floor Tile	N/A	N/A

Drawing Reference: P28, P29

* Floor tile quantities not included in scope.

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: R. Hayes Date: 11/25/91 Code: 3045 Building: 45

Homogeneous Area Description:

Pipe Insulation, Type II, Hard

Assessment Category: Damaged/Significantly Damaged TSI

ACM Amount: 80 lf Access: 0-2 Feet
Condition: Damaged Vibrations: High
Comments:
Assessment applies to penthouse only.

Sample No.:	0.733	0.734	0.735
Room:	6P	6P	6P
Floor:	Penthouse	Penthouse	Penthouse
Column/Row:	-/-	-/-	-/-
Lab ID No.:	918052	918053	918054
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	40	40	45
Anthophyllite:	0	0	0
Chrysoltile:	0	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	40	40	45
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	50	50	45
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	2	2	2
Cork:	0	0	0
Cotton:	3	3	3
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	0	0	0
Opaques:	5	5	5
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: R. Hayes Date: 11/26/91 Code: 3045 Building: 45

Homogeneous Area Description:

Pipe Joint Insulation, Type II, Hard

Assessment Category: ACBM with Potential for Significant Damage

ACM Amount: 20 ea
Condition: Damaged
Comments:

Access: 0-2 Feet
Vibrations: High

Sample No.:	0.736	0.737	0.738
Room:	6P	6P	6P
Floor:	Penthouse	Penthouse	Penthouse
Column/Row:	-/-	-/-	-/-
Lab ID No.:	918055	918056	918057
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	0	0	40
Anthophyllite:	0	0	0
Chrysoltile:	0	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	0	0	40
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	45	50	50
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	0	0	2
Cork:	0	0	0
Cotton:	5	5	3
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	45	40	0
Opaques:	5	5	5
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: R. Hayes Date: 11/26/91 Code: 3045 Building: 45

Homogeneous Area Description:

Pipe Joint Insulation, Type I, Hard Joints w/Fiberglass Runs

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 0-2 Feet
Vibrations: High

Sample No.:	0.739	0.740	0.741
Room:	1	6P	6P
Floor:	1	Penthouse	Penthouse
Column/Row:	-/-	-/-	-/-
Lab ID No.:	918058	918059	918060
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	0	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	0	0	0
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	50	50	50
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	2	2	2
Cork:	0	0	0
Cotton:	3	3	3
Fibrous Glass:	0	0	0
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	40	40	40
Opaques:	5	5	5
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	0	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	0	0	0
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: R. Hayes Date: 11/26/91 Code: 3045 Building: 45

Homogeneous Area Description:

Heat Exchanger Insulation

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 0-2 Feet
Vibrations: High

Sample No.:	0.742	0.743	0.744
Room:	6P	6P	6P
Floor:	Penthouse	Penthouse	Penthouse
Column/Row:	-/-	-/-	-/-
Lab ID No.:	918061	918062	918063
Friable:	Yes	Yes	Yes
Layered:	Yes	Yes	Yes
Fibrous:	Yes	Yes	Yes
Amosite:	0	0	0
Anthophyllite:	0	0	0
Chrysoltile:	0	0	0
Crocidolite:	0	0	0
TOTAL ASBESTOS:	0	0	0
Adhesive:	0	0	0
Aggregates:	0	0	0
Binder:	60	70	65
Calcite:	0	0	0
Carbonates:	0	0	0
Cellulose:	10	10	10
Cork:	0	0	0
Cotton:	0	0	0
Fibrous Glass:	8	5	5
Foam:	0	0	0
Foil:	0	0	0
Gypsum:	0	0	0
Horsehair:	0	0	0
Lizardite:	0	0	0
Matrix:	0	0	0
Mica:	0	0	0
Mineral Wool:	0	0	0
Opaques:	5	5	5
Paint:	0	0	0
Perlite:	0	0	0
Plaster:	0	0	0
Plastic Film:	0	0	0
Quartz:	2	0	0
Resinous:	0	0	0
Rubber Like:	0	0	0
Rust:	0	0	0
Silicates:	0	0	0
Synthetics:	15	10	15
Tar:	0	0	0
Vermiculite:	0	0	0
Vinyl:	0	0	0

MOUND ASBESTOS SURVEY
SAMPLE DATA REPORT

Inspector: R. Hayes Date: 11/26/91 Code: 3045 Building: 45

Homogeneous Area Description:

Ceiling Tile, CT3-F, (2'x4'), Pits w/Pinholes

Assessment Category: N/A

ACM Amount: N/A
Condition: Good
Comments:
None

Access: 2-10 Feet
Vibrations: Low

Sample No.:	0.745	0.746
Room:	2	2
Floor:	1	1
Column/Row:	-/-	-/-
Lab ID No.:	918064	918065
Friable:	Yes	Yes
Layered:	Yes	Yes
Fibrous:	Yes	Yes
Amosite:	0	0
Anthophyllite:	0	0
Chrysoltile:	0	0
Crocidolite:	0	0
TOTAL ASBESTOS:	0	0
Adhesive:	0	0
Aggregates:	0	0
Binder:	7	7
Calcite:	0	0
Carbonates:	0	0
Cellulose:	40	40
Cork:	0	0
Cotton:	0	0
Fibrous Glass:	0	0
Foam:	0	0
Foil:	0	0
Gypsum:	0	0
Horsehair:	0	0
Lizardite:	0	0
Matrix:	0	0
Mica:	0	0
Mineral Wool:	35	35
Opaques:	3	3
Paint:	0	0
Perlite:	15	15
Plaster:	0	0
Plastic Film:	0	0
Quartz:	0	0
Resinous:	0	0
Rubber Like:	0	0
Rust:	0	0
Silicates:	0	0
Synthetics:	0	0
Tar:	0	0
Vermiculite:	0	0
Vinyl:	0	0

Appendix J

Lead Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 10/4/04 4:06PM
Subject: Bldg 45, rev

Don -

For Building 45 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos survey reports for Building 45 were located and reviewed; these reports were summaries of surveys conducted by PEI Associates in 1989 and Barge-Wagoner-Sumner-Cannon in 1993. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the building during June of 2004 in order to identify any existing or potential asbestos hazards. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. All materials previously identified as asbestos-containing (pipe insulation in the penthouse) were found to be in good condition. The asphalt roofing and resilient floor coverings (floor tiles and/or sheet vinyl flooring) located within and on the building are assumed to contain asbestos and are Nonfriable Category I materials in accordance with the EPA's NESHAP.

If MMCIC is planning renovation or demolition activities in Building 45, it would be recommended that an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist be consulted to assess the materials to be affected by any renovation operation. Any known or suspect materials which may be disturbed by any future renovations or modifications to the buildings should be removed prior to such activities by a Licensed Asbestos Abatement Contractor. Existing asbestos materials should be managed in-place.

The asphalt roofing and resilient floor coverings (floor tiles and/or sheet vinyl flooring) are assumed to contain asbestos. However, as a Nonfriable Category I materials in accordance with NESHAP.

Lead

No previous lead surveys or sampling data were found for Building 45. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the referenced building in June of 2004 in order to identify any existing or potential lead paint hazards. The paint coatings present were observed to be intact and no potential hazards observed. Untested paint should be assumed to contain lead until such time that testing proves otherwise.

Any untested paint coatings which may be disturbed by any future renovations or modifications to the buildings should be verified to be lead-free prior to such activities.

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

J 1 of 1

Appendix K

Chemical Information

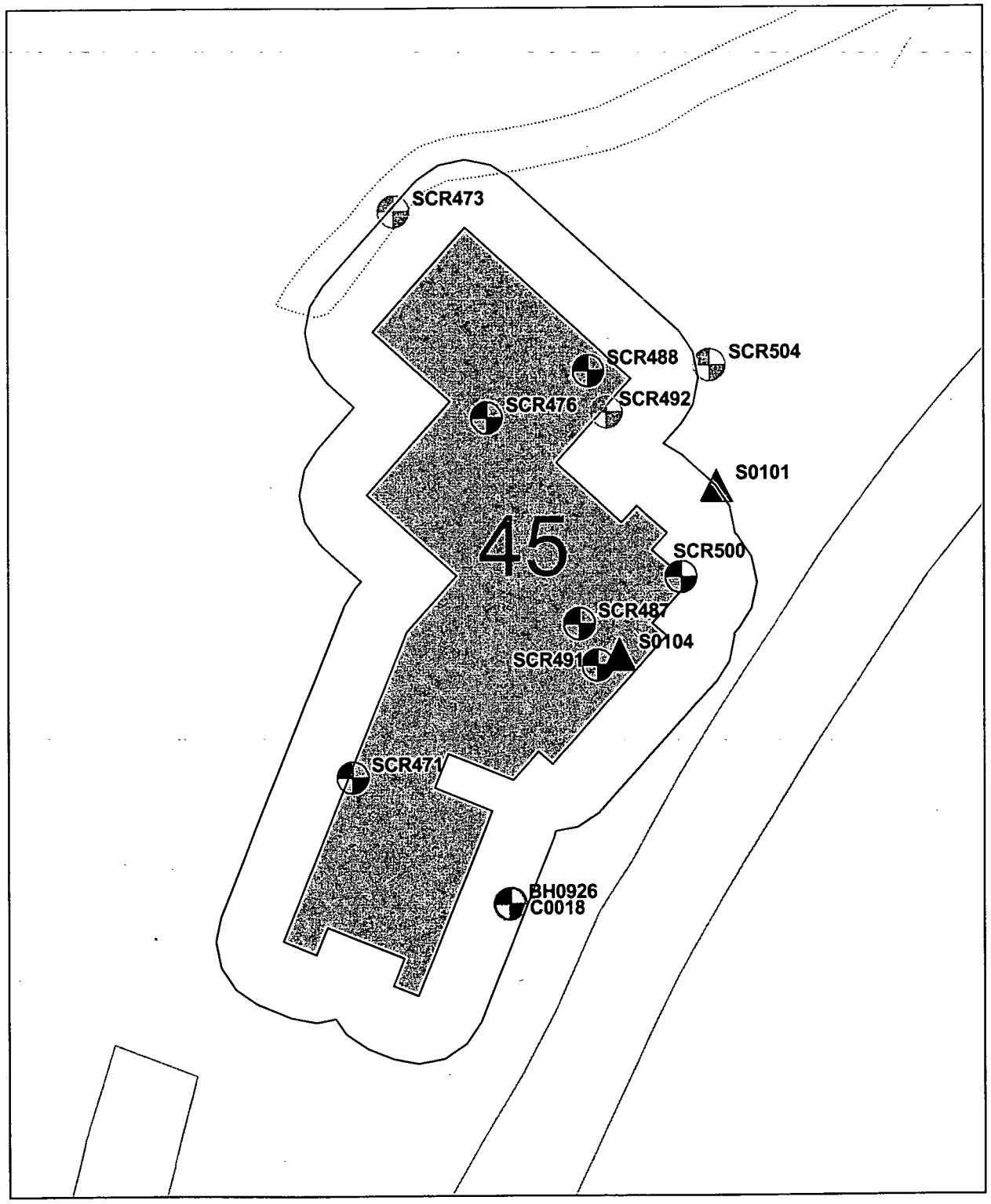
Chemicals and Products Previously Used or Stored in Building 45

2 Ton Epoxy
2-PROPANOL
3 in One Oil
3M SPRAY ADHEISIVE
Above Floor Finish
ADHESIVE 3M SPRAY
Aero Duster
APOXY
BLITZ RESIDUAL
Break Free
butane soldering iron
BUTCHERS SPOT OUT
Carpet Science Spot & Stain Remover
chlorodifluoromethane
CLING BRITE
Conquest Cleaner
correction fluid
DEGREASING AGENT
De-Ox-Id cnt cleaner
dessicant
deuterium oxide
dichlorodifluoromethane
diffusion pump oil
DMQ Damp Mop
ethyl alchohol
FLOOR FINISH
Flux-Off
FOG PROOF
FREEZE IT 2000
furniture polish
high vacuum grease
INK & MARKER POLISH
INK & MARKER REMOVAL
INK REMOVER
isopropanol
isopropyl alchohol
LABEL ADHESIVE REMOVER
Lacquer Black
LENS SOLUTION
Liquid Solder Flux 11
LPS-2 lub
LYSOL
METAL POLISH
methanol
METHYL ALCOHOL
mineral oil
NABC
NABC Bath Room Cleaner
NABC DISINFECTANT
Nickel Plate Ultra High Speed Floor Finish
NON-ACID CLEANER
oil vacuum pump
Ozium Air Sanitizer
POLISH METAL
POW R WASH
PROPAINE
propanol
QUICK SOLV
RAID
RTV sealant
Scotch Spray-Mount
SHREDDER LUBRICATE
Silicone Lub #888
SMOKE TUBES
Solder ["44"]
solvent
Solvent & Flux Remover
SPARTAN DMQ
Spartan NABC
SPOTS OFF
Spray Adhesive
SPRAY GLUE
SPRAY MOUNT
Statnul Anti Static
STATX
SUPER 77 ADHEISIVE
SUPER GLUE
Super Glue-5
Super Wash
TPD THINNER
ULTIMA FLO
vacuum grease
WD 40
WHISTLE
Windex Plastic Cleaner & Polish
window cleaner
WINDOW SHINE
X-TRACTOR
ZNAG

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 Feet of Building 45



20 0 20 40 60 80 100 Feet

N W E S

Sample Detect
Sample Nondetect

△ Surface
⊕ Borehole

08/26/04

Building 45 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
SCR476	93083023	19930830	Plutonium-238	41.000000	PCI/G		RAD	1.00	1.00			SCRDATA	Soil	12
SCR487	9402873	19940404	Plutonium-238	36.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR476	9402672	19940318	Plutonium-238	35.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR491	9312163-L	19931213	Plutonium-238	35.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR487	9402874	19940404	Plutonium-238	33.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR476	93090316	19930903	Plutonium-238	31.000000	PCI/G		RAD	4.00	4.00			SCRDATA	Soil	12
SCR500	93121347-L	19931210	Plutonium-238	30.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR500	93121762	19931221	Plutonium-238	30.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR476	93090317	19930903	Plutonium-238	29.000000	PCI/G		RAD	4.00	4.00			SCRDATA	Soil	12
SCR471	9309038	19930903	Plutonium-238	29.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR471	9309071	19930907	Plutonium-238	29.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR500	93121344-L	19931210	Plutonium-238	29.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR500	93121764	19931221	Plutonium-238	29.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR488	93121041	19931208	Plutonium-238	28.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR487	9402793	19940328	Plutonium-238	27.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
SCR471	93082642	19930826	Plutonium-238	26.000000	PCI/G		RAD	0.50	0.50			SCRDATA	Soil	12
SCR500	93121349-L	19931210	Plutonium-238	26.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12
S0104	4082	19831001	Plutonium-238	0.180000	PCI/G	0.010000	RAD	0.00	0.00			RSS	Soil	2
S0101	7105	19840901	Plutonium-238	0.150000	PCI/G	0.010000	RAD	0.00	0.00			RSS	Soil	2
C0018	8357	19841101	Plutonium-238	0.020000	PCI/G	0.010000	RAD	6.00	6.00			RSS	Soil	0
C0018	8356	19841101	Thorium-232	4.520000	PCI/G	2.000000	RAD	3.00	3.00			RSS	Soil	12223447
C0018	8357	19841101	Thorium-232	2.530000	PCI/G	2.000000	RAD	6.00	6.00			RSS	Soil	1222344
SCR476	9402672	19940318	Thorium-232	2.300000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	1222344
SCR487	9402873	19940404	Thorium-232	2.300000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	1222344
SCR488	93121014	19931208	Thorium-232	2.200000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	1222344
SCR487	9402874	19940404	Thorium-232	2.200000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	1222344
SCR500	93121335-L	19931210	Thorium-232	2.100000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	122234
SCR487	9402872	19940404	Thorium-232	2.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12223
SCR500	93121344-L	19931210	Thorium-232	2.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12223
SCR500	93121764	19931221	Thorium-232	2.000000	PCI/G		RAD	0.00	0.00			SCRDATA	Soil	12223

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(Blank)	No criteria checked
0	Value is less than criteria checked in file "Final RBGVs Constr Worker-Site Employee_Rev7.xls"
1	Value is greater than 10-6 Risk-Based Guideline Value
2	Value is greater than the OU9 Soil Background Value
3	Value is greater than the Screening Value (10-6 RBGV + background or as agreed)
4	Value is greater than the Cleanup Objective (10-5 RBGV + background or as agreed)
5	Value is greater than the MCL
6	Value is greater than the Guide Value based on the Hazard Index = 1
7	Value is greater than the Hot Spot Criteria (3x10-5 + background or as agreed)
8	Value is greater than the Guide Value based on the Hazard Index = 1 + background
9	Value is greater than the Guide Value based on the Hazard Index = .1 + background

Duplicate entries in the Comment column indicate values for RAD daughters and long lived decay.

Comparison values for results with comments are provided on the "Comparison for Soil Analytical Results" table at the end of this appendix.

Building 45 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
SCR487	9402791	19940328	Plutonium-238	24.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121358-L	19931210	Plutonium-238	24.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121362-L	19931210	Plutonium-238	24.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402731	19940322	Plutonium-238	23.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	9309072	19930907	Plutonium-238	23.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402128	19940214	Plutonium-238	23.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402872	19940404	Plutonium-238	23.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121345-L	19931210	Plutonium-238	23.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121338-L	19931210	Plutonium-238	23.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121039	19931208	Plutonium-238	22.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402792	19940328	Plutonium-238	22.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312162-L	19931213	Plutonium-238	22.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121355-L	19931210	Plutonium-238	22.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121353-L	19931210	Plutonium-238	22.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402166	19940217	Plutonium-238	21.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	93083024	19930830	Plutonium-238	20.000000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR471	9309037	19930903	Plutonium-238	20.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312177-L	19931213	Plutonium-238	20.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312198-L	19931213	Plutonium-238	20.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312186-L	19931213	Plutonium-238	20.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121021	19931208	Plutonium-238	20.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312149-L	19931213	Plutonium-238	20.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121340-L	19931210	Plutonium-238	19.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121334-L	19931210	Plutonium-238	19.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR473	8810192	19881019	Plutonium-238	17.000000	PCI/G		RAD	3.00	3.00	U		SCRDATA	Soil
SCR471	9309039	19930903	Plutonium-238	17.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312176-L	19931213	Plutonium-238	17.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121339-L	19931210	Plutonium-238	17.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121350-L	19931210	Plutonium-238	17.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312168-L	19931213	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312174-L	19931213	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
BH0926	9312175-L	19931213	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312197-L	19931213	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121015	19931208	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312148-L	19931213	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121364-L	19931210	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312160-L	19931213	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121351-L	19931210	Plutonium-238	16.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312195-L	19931213	Plutonium-238	15.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312188-L	19931213	Plutonium-238	15.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121037	19931208	Plutonium-238	15.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121361-L	19931210	Plutonium-238	15.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121346-L	19931210	Plutonium-238	15.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402721	19940322	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402732	19940322	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312190-L	19931213	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR492	9312159-L	19931213	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121019	19931208	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402127	19940214	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121356-L	19931210	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121342-L	19931210	Plutonium-238	14.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312180-L	19931213	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312185-L	19931213	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121030	19931208	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402129	19940214	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR504	93072912	19930729	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121366-L	19931210	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121360-L	19931210	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121341-L	19931210	Plutonium-238	13.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312191-L	19931213	Plutonium-238	12.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121013	19931208	Plutonium-238	12.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121017	19931208	Plutonium-238	12.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121020	19931208	Plutonium-238	12.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402163	19940217	Plutonium-238	12.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR500	93121357-L	19931210	Plutonium-238	12.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121343-L	19931210	Plutonium-238	12.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	93082643	19930826	Plutonium-238	11.000000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
BH0926	9312171-L	19931213	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312181-L	19931213	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312182-L	19931213	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121032	19931208	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121027	19931208	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121022	19931208	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402165	19940217	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402147	19940215	Plutonium-238	11.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312165-L	19931213	Plutonium-238	10.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121040	19931208	Plutonium-238	10.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121038	19931208	Plutonium-238	10.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402149	19940215	Plutonium-238	10.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121363-L	19931210	Plutonium-238	10.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312161-L	19931213	Plutonium-238	10.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121337-L	19931210	Plutonium-238	10.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402722	19940322	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312170-L	19931213	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312178-L	19931213	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312187-L	19931213	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312166-L	19931213	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312164-L	19931213	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121042	19931208	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121023	19931208	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402157	19940216	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402150	19940215	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121365-L	19931210	Plutonium-238	9.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR473	8810191	19881019	Plutonium-238	8.000000	PCI/G		RAD	2.00	2.00	U		SCRDATA	Soil
BH0926	9312173-L	19931213	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312167-L	19931213	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121014	19931208	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR488	93121033	19931208	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121026	19931208	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402177	19940221	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121359-L	19931210	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121336-L	19931210	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121352-L	19931210	Plutonium-238	8.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121036	19931208	Plutonium-238	7.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402179	19940221	Plutonium-238	7.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121016	19931208	Plutonium-238	6.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121034	19931208	Plutonium-238	6.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402178	19940221	Plutonium-238	6.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402156	19940216	Plutonium-238	6.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121348-L	19931210	Plutonium-238	6.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402728	19940322	Plutonium-238	5.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312169-L	19931213	Plutonium-238	5.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312184-L	19931213	Plutonium-238	5.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121031	19931208	Plutonium-238	5.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121029	19931208	Plutonium-238	5.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312179-L	19931213	Plutonium-238	4.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312193-L	19931213	Plutonium-238	4.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312196-L	19931213	Plutonium-238	4.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121035	19931208	Plutonium-238	4.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121025	19931208	Plutonium-238	4.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402164	19940217	Plutonium-238	4.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121335-L	19931210	Plutonium-238	4.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR473	8810193	19881019	Plutonium-238	3.000000	PCI/G		RAD	3.00	3.00	U		SCRDATA	Soil
BH0926	9312192-L	19931213	Plutonium-238	3.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121018	19931208	Plutonium-238	3.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121028	19931208	Plutonium-238	3.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402148	19940215	Plutonium-238	3.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121354-L	19931210	Plutonium-238	3.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402130	19940214	Plutonium-238	2.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312183-L	19931213	Plutonium-238	1.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
C0018	8356	19841101	Plutonium-238	0.010000	PCI/G	0.010000	RAD	3.00	3.00	U		RSS	Soil
BH0926	9312194-L	19931213	Plutonium-238	0.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312189-L	19931213	Plutonium-238	0.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121024	19931208	Plutonium-238	0.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312147-L	19931213	Plutonium-238	0.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
S0101	7105	19840901	Thorium-232	2.000000	PCI/G	2.000000	RAD	0.00	0.00	U		RSS	Soil
S0104	4082	19831001	Thorium-232	2.000000	PCI/G	2.000000	RAD	0.00	0.00	U		RSS	Soil
SCR488	93121038	19931208	Thorium-232	1.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402156	19940216	Thorium-232	1.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121346-L	19931210	Thorium-232	1.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121347-L	19931210	Thorium-232	1.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121336-L	19931210	Thorium-232	1.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121762	19931221	Thorium-232	1.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402731	19940322	Thorium-232	1.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312193-L	19931213	Thorium-232	1.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312195-L	19931213	Thorium-232	1.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402178	19940221	Thorium-232	1.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312147-L	19931213	Thorium-232	1.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121342-L	19931210	Thorium-232	1.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121338-L	19931210	Thorium-232	1.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121018	19931208	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121034	19931208	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121020	19931208	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121021	19931208	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121026	19931208	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402791	19940328	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121358-L	19931210	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121340-L	19931210	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121343-L	19931210	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121348-L	19931210	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121339-L	19931210	Thorium-232	1.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121042	19931208	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121041	19931208	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR488	93121039	19931208	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121017	19931208	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121030	19931208	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121033	19931208	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121019	19931208	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402165	19940217	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121359-L	19931210	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121334-L	19931210	Thorium-232	1.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312165-L	19931213	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121013	19931208	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121032	19931208	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121035	19931208	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121028	19931208	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121362-L	19931210	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121363-L	19931210	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121364-L	19931210	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121341-L	19931210	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121350-L	19931210	Thorium-232	1.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402721	19940322	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	9309072	19930907	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312169-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312175-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312180-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312185-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312186-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312163-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312164-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121040	19931208	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121029	19931208	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121037	19931208	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402150	19940215	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402792	19940328	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312148-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR500	9312149-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312162-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312160-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	9312161-L	19931213	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121354-L	19931210	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121351-L	19931210	Thorium-232	1.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	93090316	19930903	Thorium-232	1.300000	PCI/G		RAD	4.00	4.00	U		SCRDATA	Soil
SCR476	93083024	19930830	Thorium-232	1.300000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR476	9402732	19940322	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	9309039	19930903	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	9309071	19930907	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR492	9312159-L	19931213	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312167-L	19931213	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121016	19931208	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121027	19931208	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402157	19940216	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121366-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121357-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121361-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121365-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121356-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121345-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121337-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121353-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121352-L	19931210	Thorium-232	1.300000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	9402722	19940322	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312168-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312171-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312177-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312178-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312179-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312191-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312192-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
BH0926	9312190-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312184-L	19931213	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121023	19931208	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402166	19940217	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402148	19940215	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402130	19940214	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402129	19940214	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121360-L	19931210	Thorium-232	1.200000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR476	93083023	19930830	Thorium-232	1.100000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR476	93090317	19930903	Thorium-232	1.100000	PCI/G		RAD	4.00	4.00	U		SCRDATA	Soil
SCR476	9402728	19940322	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR473	8810191	19881019	Thorium-232	1.100000	PCI/G		RAD	2.00	2.00	U		SCRDATA	Soil
SCR473	8810193	19881019	Thorium-232	1.100000	PCI/G		RAD	3.00	3.00	U		SCRDATA	Soil
SCR473	8810192	19881019	Thorium-232	1.100000	PCI/G		RAD	3.00	3.00	U		SCRDATA	Soil
SCR471	93082642	19930826	Thorium-232	1.100000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
BH0926	9312173-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312174-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312176-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312194-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312198-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312188-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312183-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312187-L	19931213	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121015	19931208	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121031	19931208	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121024	19931208	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121025	19931208	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402163	19940217	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402127	19940214	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402128	19940214	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121355-L	19931210	Thorium-232	1.100000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	93082643	19930826	Thorium-232	1.000000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
BH0926	9312197-L	19931213	Thorium-232	1.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

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Location _name	Sample_id	Collection_ date	Value_name	Measured_value	Value_ units	Detection_limit	Chem_ class	Start_ depth	End_ depth	Lab	Data	Project_code	Media
BH0926	9312181-L	19931213	Thorium-232	1.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121022	19931208	Thorium-232	1.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402147	19940215	Thorium-232	1.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402793	19940328	Thorium-232	1.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR500	93121349-L	19931210	Thorium-232	1.000000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	9309037	19930903	Thorium-232	0.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312196-L	19931213	Thorium-232	0.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312189-L	19931213	Thorium-232	0.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312182-L	19931213	Thorium-232	0.900000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
BH0926	9312170-L	19931213	Thorium-232	0.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR491	9312166-L	19931213	Thorium-232	0.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR488	93121036	19931208	Thorium-232	0.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR504	93072912	19930729	Thorium-232	0.800000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR471	9309038	19930903	Thorium-232	0.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402149	19940215	Thorium-232	0.700000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402179	19940221	Thorium-232	0.600000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402177	19940221	Thorium-232	0.500000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil
SCR487	9402164	19940217	Thorium-232	0.400000	PCI/G		RAD	0.00	0.00	U		SCRDATA	Soil

Lab and data qualifiers are defined on pages 15 and 16 of this appendix.

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LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

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.

Comparison for Soil Analytical Results

		Screening Level (RBGV 10-6 + background, or as agreed)	
7440-38-2	Arsenic	1.06E+01	MG/KG
7440-41-7	Beryllium	2.25E+03	MG/KG
7440-43-9	Cadmium	3.00E+03	MG/KG
18540-29-9	Chromium VI	4.50E+02	MG/KG
7440-02-0	Nickel	1.13E+04	MG/KG
55684-94-1	1,2,3,6,7,8-HxCDF	1.99E-04	MG/KG
19408-74-3	1,2,3,7,8,9-HxCDD	4.81E-04	MG/KG
57117-41-6	1,2,3,7,8-PeCDF	3.97E-05	MG/KG
57117-31-4	2,3,4,7,8-PeCDF	3.97E-04	MG/KG
1746-01-6	2,3,7,8-TCDD	1.99E-05	MG/KG
51207-31-9	2,3,7,8-TCDF	1.99E-04	MG/KG
37871-00-4	HpCDD	1.99E-03	MG/KG
38998-75-3	HpCDF	1.99E-03	MG/KG
34465-46-8	HxCDD	1.99E-04	MG/KG
3268-87-9	OCDD	1.99E-02	MG/KG
39001-02-0	OCDF	1.99E-02	MG/KG
36088-22-9	PeCDD	3.97E-05	MG/KG
118-96-7	2,4,6-Trinitrotoluene	9.94E+01	MG/KG
121-82-4	RDX	2.71E+01	MG/KG
72-54-8	4,4'-DDD	1.66E+01	MG/KG
72-55-9	4,4'-DDE	1.31E+01	MG/KG
50-29-3	4,4'-DDT	2.18E+01	MG/KG
309-00-2	Aldrin	1.75E-01	MG/KG
319-84-6	Alpha-BHC	4.73E-01	MG/KG
12674-11-2	Aroclor-1016	1.49E+00	MG/KG
11104-28-2	Aroclor-1221	1.49E+00	MG/KG
11141-16-5	Aroclor-1232	1.49E+00	MG/KG
53469-21-9	Aroclor-1242	1.49E+00	MG/KG
12672-29-6	Aroclor-1248	1.49E+00	MG/KG
11097-69-1	Aroclor-1254	5.95E+01	MG/KG
11096-82-5	Aroclor-1260	1.49E+00	MG/KG
319-85-7	Beta-BHC	1.66E+00	MG/KG
60-57-1	Dieldrin	1.86E-01	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.29E+00	MG/KG
76-44-8	Heptachlor	6.62E-01	MG/KG
1024-57-3	Heptachlor Epoxide	3.28E-01	MG/KG
1336-36-3	Polychlorinated Biphenyls (PCBs)	1.49E+00	MG/KG
8001-35-2	Toxaphene	2.71E+00	MG/KG
122-66-7	1,2-Diphenylhydrazine	3.73E+00	MG/KG
106-46-7	1,4-Dichlorobenzene	1.24E+02	MG/KG
108-60-1	2,2'-oxybis(1-chloropropane)	4.26E+01	MG/KG
88-06-2	2,4,6-Trichlorophenol	2.71E+02	MG/KG
121-14-2	2,4-Dinitrotoluene	4.38E+00	MG/KG
606-20-2	2,6-Dinitrotoluene	4.38E+00	MG/KG

91-94-1	3,3'-Dichlorobenzidine	6.62E+00	MG/KG
99-09-2	3-Nitroaniline	7.84E+01	MG/KG
100-01-6	4-Nitroaniline	7.84E+01	MG/KG
92-87-5	Benzidine	1.30E-02	MG/KG
56-55-3	Benzo(a)anthracene	4.08E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.08E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.08E+00	MG/KG
207-08-9	Benzo(k)fluoranthene	4.08E+01	MG/KG
111-44-4	Bis(2-chloroethyl)ether	2.71E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.13E+02	MG/KG
86-74-8	Carbazole	1.49E+02	MG/KG
218-01-9	Chrysene	4.08E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.08E-01	MG/KG
118-74-1	Hexachlorobenzene	1.86E+00	MG/KG
87-68-3	Hexachlorobutadiene	3.82E+01	MG/KG
67-72-1	Hexachloroethane	2.13E+02	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.08E+00	MG/KG
78-59-1	Isophorone	3.14E+03	MG/KG
621-64-7	N-Nitroso-di-n-propylamine	4.26E-01	MG/KG
62-75-9	N-Nitrosodimethylamine	5.84E-02	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.08E+02	MG/KG
87-86-5	Pentachlorophenol	2.48E+01	MG/KG
630-20-6	1,1,1,2-Tetrachloroethane	6.95E+00	MG/KG
79-34-5	1,1,2,2-Tetrachloroethane	8.88E-01	MG/KG
79-00-5	1,1,2-Trichloroethane	1.90E+00	MG/KG
96-18-4	1,2,3-Trichloropropane	4.26E-01	MG/KG
96-12-8	1,2-Dibromo-3-Chloropropane	2.12E+00	MG/KG
107-06-2	1,2-Dichloroethane	7.61E-01	MG/KG
78-87-5	1,2-Dichloropropane	4.38E+01	MG/KG
107-13-1	Acrylonitrile	5.15E-01	MG/KG
71-43-2	Benzene	5.42E+01	MG/KG
100-44-7	Benzyl Chloride	1.75E+01	MG/KG
75-27-4	Bromodichloromethane	4.81E+01	MG/KG
75-25-2	Bromoform	3.77E+02	MG/KG
56-23-5	Carbon Tetrachloride	5.38E-01	MG/KG
67-66-3	Chloroform (Trichloromethane)	5.15E-01	MG/KG
74-87-3	Chloromethane	2.71E+00	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane (Methylene Chloride)	2.03E+01	MG/KG
106-93-4	Ethylene Dibromide (1,2-Dibromoethane)	3.37E-02	MG/KG
127-18-4	Tetrachloroethene	1.87E+01	MG/KG
79-01-6	Trichloroethene	5.25E+00	MG/KG
75-01-4	Vinyl Chloride	4.14E-01	MG/KG
14952-40-0	Actinium-227	4.48E+00	PCI/G
14952-40-0	Actinium-227+D	5.63E-01	PCI/G
14952-40-0	Actinium-227 long lived decay	5.63E-01	PCI/G
14331-83-0	Actinium-228	1.93E-01	PCI/G
14596-10-2	Americium-241	6.31E+00	PCI/G
14683-10-4	Antimony-124	9.84E-02	PCI/G

14234-35-6	Antimony-125	4.83E-01	PCI/G
14234-35-6	Antimony-125+D	4.83E-01	PCI/G
13981-41-4	Barium-133	6.07E-01	PCI/G
13981-41-4	Barium-133m	4.41E+00	PCI/G
14798-08-4	Barium-140	1.13E+00	PCI/G
13966-02-4	Beryllium-7	4.11E+00	PCI/G
13982-38-2	Bismuth-207	1.75E-01	PCI/G
14331-79-4	Bismuth-210	5.51E+01	PCI/G
14331-79-4	Bismuth-210m	1.00E+00	PCI/G
15229-37-5	Bismuth-211	4.66E+00	PCI/G
14913-49-6	Bismuth-212	9.87E-01	PCI/G
14733-03-0	Bismuth-214	1.17E-01	PCI/G
13967-74-3	Cerium-141	3.80E+00	PCI/G
14762-78-8	Cerium-144	8.87E+00	PCI/G
14762-78-8	Cerium-144+D	3.21E+00	PCI/G
13967-70-9	Cesium-134	1.23E-01	PCI/G
13967-70-9	Cesium-134m	1.74E+01	PCI/G
10045-97-3	Cesium-137	3.81E+01	PCI/G
10045-97-3	Cesium-137 +D	7.62E-01	PCI/G
10045-97-3	Cesium-137 long lived decay	7.62E-01	PCI/G
14392-02-0	Chromium-51	6.89E+00	PCI/G
13981-50-5	Cobalt-57	2.46E+00	PCI/G
13981-38-9	Cobalt-58	1.95E-01	PCI/G
13981-38-9	Cobalt-58m	4.78E+03	PCI/G
10198-40-0	Cobalt-60	7.06E-02	PCI/G
10198-40-0	Cobalt-60m	4.71E+01	PCI/G
13981-15-2	Curium-244	9.20E+00	PCI/G
14683-23-9	Europium-152	1.65E-01	PCI/G
14683-23-9	Europium-152m	6.57E-01	PCI/G
15585-10-1	Europium-154	1.50E-01	PCI/G
14391-16-3	Europium-155	6.98E+00	PCI/G
14596-12-4	Iron-59	1.50E-01	PCI/G
13981-28-7	Lanthanum-140	7.61E-02	PCI/G
14255-04-0	Lead-210	2.10E+00	PCI/G
14255-04-0	Lead-210+D	1.80E+00	PCI/G
14255-04-0	Lead-210 long lived decay	1.82E+00	PCI/G
15092-94-1	Lead-212	1.66E+00	PCI/G
15067-28-4	Lead-214	8.92E-01	PCI/G
13966-31-9	Manganese-54	2.25E-01	PCI/G
13982-78-0	Mercury-203	9.47E-01	PCI/G
13994-20-2	Neptunium-237	7.01E+00	PCI/G
13994-20-2	Neptunium-237+D	1.04E+00	PCI/G
13967-76-5	Niobium-95	2.48E-01	PCI/G
13967-76-5	Niobium-95m	3.73E+00	PCI/G
13981-16-3	Plutonium-238	5.50E+01	PCI/G
PU-238/239	Plutonium-238/239	6.21E+00	PCI/G
15117-48-3	Plutonium-239	6.21E+00	PCI/G
PU-239/240	Plutonium-239/240	6.21E+00	PCI/G
14119-32-5	Plutonium-241	5.06E+02	PCI/G

13982-10-0	Plutonium-242	6.33E+00	PCI/G
13981-52-7	Polonium-210	2.09E+00	PCI/G
13966-00-2	Potassium-40	3.81E+01	PCI/G
14331-85-2	Protactinium-231	2.83E+00	PCI/G
14331-85-2	Protactinium-231+D	4.00E+00	PCI/G
14331-85-2	Protactinium-231 long lived decay	1.28E+00	PCI/G
13981-14-1	Protactinium-233	1.01E-01	PCI/G
15100-28-4	Protactinium-234	1.27E+01	PCI/G
15100-28-4	Protactinium-234m	1.20E+00	PCI/G
15623-45-7	Radium-223	3.24E+00	PCI/G
13233-32-4	Radium-224	5.91E+00	PCI/G
13981-53-8	Radium-225	2.17E+00	PCI/G
13982-63-3	Radium-226	2.10E+00	PCI/G
13982-63-3	Radium-226+D	2.09E+00	PCI/G
13982-63-3	Radium-226 long lived decay	2.73E+00	PCI/G
15262-20-1	Radium-228	1.47E+00	PCI/G
15262-20-1	Radium-228+D	1.47E+00	PCI/G
15262-20-1	Radium-228 long lived decay	1.83E+00	PCI/G
13968-53-1	Ruthenium-103	1.40E+01	PCI/G
13967-48-1	Ruthenium-106	8.77E-01	PCI/G
13967-48-1	Ruthenium-106+D	9.09E-02	PCI/G
13967-63-0	Scandium-46	1.22E-01	PCI/G
14391-65-2	Silver-108m	1.14E+02	PCI/G
14378-38-2	Silver-109m	8.50E-02	PCI/G
13966-32-0	Sodium-22	3.98E-01	PCI/G
13967-73-2	Strontium-85	1.07E+00	PCI/G
13967-73-2	Strontium-85m	3.55E+01	PCI/G
14158-27-1	Strontium-89	1.80E+01	PCI/G
10098-97-2	Strontium-90	1.01E+01	PCI/G
10098-97-2	Strontium-90+D	7.70E-01	PCI/G
14133-76-7	Technetium-99	2.14E+02	PCI/G
14913-50-9	Thallium-208	4.98E-02	PCI/G
15623-47-9	Thorium-227	2.09E+00	PCI/G
14274-82-9	Thorium-228	7.08E+00	PCI/G
14274-82-9	Thorium-228+D	1.61E+00	PCI/G
14274-82-9	Thorium-228 long lived decay	1.61E+00	PCI/G
15594-54-4	Thorium-229	1.89E+00	PCI/G
15594-54-4	Thorium-229+D	5.06E-01	PCI/G
15594-54-4	Thorium-229 long lived decay	5.06E-01	PCI/G
14269-63-7	Thorium-230	1.01E+01	PCI/G
14269-63-7	Thorium-230+D	2.00E+00	PCI/G
14269-63-7	Thorium-230 long lived decay	1.99E+00	PCI/G
7440-29-1	Thorium-232	8.60E+00	PCI/G
7440-29-1	Thorium-232+D	1.47E+00	PCI/G
15065-10-8	Thorium-234	1.76E+01	PCI/G
13966-06-8	Tin-113	3.56E+01	PCI/G
15832-50-5	Tin-126	6.91E+00	PCI/G
10028-17-8	Tritium	7.58E+03	PCI/G
14158-29-3	Uranium-232	2.90E+00	PCI/G

13968-55-3	Uranium-233	1.03E+01	PCI/G
13968-55-3	Uranium-233+D	4.80E-01	PCI/G
13968-55-3	Uranium-233 long lived decay	4.82E-01	PCI/G
U-233/234	Uranium-233/234	4.82E-01	PCI/G
13966-29-5	Uranium-234	1.16E+01	PCI/G
13966-29-5	Uranium-234+D	1.20E+00	PCI/G
15117-96-1	Uranium-235	1.67E+00	PCI/G
15117-96-1	Uranium-235+D	1.60E+00	PCI/G
15117-96-1	Uranium-235 long lived decay	4.20E-01	PCI/G
U-235/236	Uranium-235/236	3.10E-01	PCI/G
7440-61-1	Uranium-238	1.28E+01	PCI/G
7440-61-1	Uranium-238+D	5.31E+00	PCI/G
7440-61-1	Uranium-238 long lived decay	1.29E+00	PCI/G
13982-39-3	Zinc-65	3.11E-01	PCI/G
13967-71-0	Zirconium-95	2.57E-01	PCI/G

Appendix M

Occurrence Reports

A search of the occurrence reporting system revealed three reports, all of which were minor and without environmental impact:

- *Building 45 Inoperable Water Flow Alarm (June 1995),*

- *Loss of Control of Sealed Radioactive Sources – Building 45 (July 1998)*: Seventy-one radioactive sources were reported missing as a result of a routine semi-annual leak test/physical inventory that was conducted during April and May of 1998. There is a high likelihood that the missing sources entered the radioactive waste system. The missing sources do not pose a threat to personnel or the environment as they are low in activity and are sealed against dispersion. Forty-three of the missing 71 sources are response check sources, which previously were exempt under DOE regulation, leaving 28 missing calibration sources. Of these 28 sources, 7 are exempt quantity and therefore do not require accountability controls, 9 have nanocurie levels of activity, 4 have microcurie levels of activity, and 8 have unknown activity levels (assay paperwork is missing and no activity is present in the database, but believed to be low activity sources). Many of the 28 sources are believed to have been disposed of as radioactive waste, however, paperwork was not found to substantiate this action (copy provided herein), and

- *Leaking Source Found in Building 45 (December 1998):* A leak test was performed on radiological sources that were to be transferred off site. One source was found to have radiological activity (5,000 disintegrations per minute [dpm] alpha removable) that exceeded the reporting criteria (20 dpm alpha removable). The source was bagged (internal contamination stickers were added to the bag) and placed in a waste container for shipment to the Nevada Test Site. The file cabinet where the sources were kept and the area where the leak tests were conducted were surveyed and no contamination above 20 dpm alpha removable was found. There were no personnel injuries, no environmental or human health concerns, and no impacts to safety systems or production (copy provided herein).

OH-MB-BWO-BWO04-1998-0007 FINAL

Occurrence Report
Before 2003 Redesign

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: Robert A. Ward
Title: Facility Manager, Site and Grounds **Telephone No.:** (937) 865-3821

(Facility Manager/Designee)

Name: WARD, ROBERT A
Title: BUILDING MANAGER-LOWER PLANT AREA **Telephone No.:** (513) 865-3821

(Originator/Transmitter)

Name: Robert A. Ward **Date:** 09/10/1998

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO04-1998-0007

Loss of control of Sealed Radioactive Sources - Building 45

2. Report Type and Date: FINAL

	Date	Time
Notification:	08/05/1998	08:51 (MTZ)
Initial Update:	09/17/1998	10:25 (MTZ)
Latest Update:	09/17/1998	10:25 (MTZ)
Final:	02/25/1999	13:13 (MTZ)

3. Occurrence Category: Off-Normal

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

5. Division or Project: Babcock and Wilcox of Ohio

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Sealed Radioactive Source Accountability Building 45

8. UCNI?: No

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9. Plant Area: Test Fire Valley

10. Date and Time Discovered: 07/29/1998 09:30 (ETZ)

11. Date and Time Categorized: 07/29/1998 10:00 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
07/29/1998	11:00 (ETZ)	Fred Holbrook	DOE/MEMP

13. Other Notifications:

Date	Time	Person Notified	Organization
07/29/1998	11:10 (ETZ)	Ray Powell	DOE/MEMP

14. Subject or Title of Occurrence:

Loss of control of Sealed Radioactive Sources - Building 45

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15. Nature of Occurrence:

10) Cross-Category Items
C. Potential Concerns/Issues

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16. Description of Occurrence:

At 0930 on July 29, 1998 the Building 45 Source Custodian initiated notifications to DOE/MEMP and the Facility Manager that a loss of radioactive source accountability had occurred. At the time of notification, 77 sources were unaccounted for. As of 1300 on August 3, two additional sources had been found, bringing the total quantity of unaccounted for radioactive sources to 75.

The sources were initially discovered missing during the routine semi-annual leaktest/physical inventory that was conducted during April and May of 1998. An extensive search was conducted during June and July of 1998 reducing the total number of sources believed missing from 160 to the 75 reported today. It is not believed that further search efforts will yield significant results. The missing sources do not pose a threat to personnel or environmental safety as they are low in activity and are sealed against dispersion.

This report was reviewed by an authorized derivative classifier (Robert A. Ward, Facility Manager) on September 9, 1998 at 0600 hours (ETZ) and does not contain UCNI or classified information.

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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 (other than Activities specifically listed in this Category)

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19. Immediate Actions Taken and Results:

A corrective action plan was submitted to RADCON Management and approved.

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20. Direct Cause:

6) Management Problem
A. Inadequate Administrative Control

21. Contributing Cause(s):

2) Procedure Problem
A. Defective or Inadequate Procedure

22. Root Cause:

6) Management Problem
A. Inadequate Administrative Control

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23. Description of Cause:

In Building 45, there are two general types of radioactive sources namely: check sources and calibration sources. Of the 75 lost sources, 45 are response check sources and 30 are calibration sources.

In 1989, 503 Th-230 response check sources were purchased. Each contained a nominal 5 to 10 nanocuries of activity. Under DOE regulation this amount of radioactivity was considered to be an "exempt quantity". Because of the exempt quantity status, no accountability controls were required. Some of the sources were attached to instrumentation and some were passed out to various personnel having a need for such sources. After the sources had been distributed to personnel, the DOE regulations changed resulting in a reduction of the threshold that separates exempt and accountable quantity sources. For Th-230, this value was reduced to 3 nanocuries. With this change in effect, the sources then became accountable and hence subject to the strict control requirements. In December of 1995, most of these sources were entered into the source tracking database. Out of the original 503 Th-230 sources that were purchased, 47 were not entered and were believed missing (456 were entered). Since December 1995 data entry, 11 of the 456 entered sources were lost. In June of 1998, 13 of the 47 sources that were not entered in December of 1995 were found in Building 38 and entered into the database for the first time. Subsequently, 34 of the 503 sources were never found nor entered into the database and an additional 11 of the Th-230 sources that were entered into the database were lost since December of 1995. Therefore a total of 45 Th-230 response check sources are missing.

As indicated above, 45 of the 75 missing sources are response check sources, leaving 30 missing calibration sources. Of these 30 sources, 7 are exempt quantity and therefore do not

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require accountability controls, 10 have nanocuries levels of activity, 4 have microcurie levels of activity, and 9 have unknown activity levels (assay paperwork is missing and no activity value is present in the database). It is believed that many of the 30 sources have been disposed of, however no paperwork can be found to substantiate this. This shows a defective system with inadequate procedures in place.

Besides the lack of a positive control system, several other factors have contributed historically to the accountability (administrative control) problem. Firstly, as mentioned earlier, sources were attached to instrumentation and left unattended within buildings. A number of sources were inadvertently knocked loose of the instrument and could not be found. A retaining ring was added to the source backing for added support and this helped prevent further loss of sources. In December of 1997 the decision was made to remove these attached sources as part of the normal calibration recall cycle. Secondly, many sources were "homemade" at Mound. All of the Pu-238 sources that were attached to FIDLERs were electroplated and sealed in plastic. There was not strict accountability on these sources. In the early years of the source database there was not significant clarity on exactly what constituted a "source". As such, drums of LSA waste were given source ID numbers and entered into the database as well. The net effect of this was a flood of the database which reduced the effectiveness of the source control program. Lastly, until recently there was not a master inventory list. Previous inventory lists were fragmented and not comprehensive. The management problems listed above show a lack of administrative controls.

This was further exacerbated by the fact that as a result of the 3161 program and the decision to shutdown the Mound, many of the designated source custodians left plantsite and did not perform a turnover of their sources to a new custodian.

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24. Evaluation (by Facility Manager/Designee):

The Building 45 source custodian reported a loss of accountability for approximately 77 radioactive sources to the Facility Manager. A problem with sources being missing was found during the semi-annual leak test/physical inventory in April and May, 1998.

Since the initial report, six of the sources have been either located or verified to be properly disposed of. A remaining 71 sources are still unaccounted for. Investigators determined that 43 of the 71 missing sources are response check sources, that previously were exempt under DOE regulation, leaving 28 missing calibration sources. Of these 28 sources, 7 are exempt quantity and therefore do not require accountability controls, 9 have nanocurie levels of activity, 4 have microcurie levels of activity, and 8 have unknown activity levels (assay paperwork is missing and no activity is present in the database, but believed to be low activity sources). Many of the 28 sources are believed to have been disposed of as radioactive waste however, paperwork was not found to substantiate this.

Besides the lack of a positive control system, several other factors contributed historically to the accountability problem. First, sources were attached on the instrumentation and left unattended within buildings with some having the possibility of being knocked loose. Second, many sources were "homemade" at Mound (in earlier years there was insuffient

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clarity on what constituted a "source"). Third until now there was no master inventory list (previous lists were fragmented and not comprehensive). Fourth, when source custodians left plantsite, when Mound was designated to be closed, there was inadequate turnover of sources to the new custodians.

There is a high likehood that many missing sources entered the radioactive waste system. Previously, when sources were discovered or were unwanted, they were dispositioned as part of the orphan source program, yet their proper disposal was never annotated in the source database. However, even if the sources were not dispositioned under the orphan source program, investigators have determined that, because of the sealed nature of these sources, the internal deposition hazard for all missing sources is negligible and that the external dose hazard is negligible for all missing sources.

This report list fifteen corrective actions with at least ten other corrective actions that were put in place before the initial occurrence report was issued.

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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. A Radioactive Material Area (RMA) shall be established in Building 45 room 007 for storage of the all sealed sources.

Target Completion Date: 07/29/1998	**Completion Date:** 07/29/1998

2. Stored sealed sources shall be divided into calibration kits each consisting of an assembled collection of sources to be used by one instrumentation calibration technician. Calibration kit shall be assembled and constructed to allow rapid visual detection of a missing sealed source.

Target Completion Date: 08/05/1998	**Completion Date:** 08/05/1998

3. Document the search for sealed sources including a full accounting of those sources that were not located. Include continuing actions that will be taken. Include an assessment of reasonable risk associated with mishandling of highest hazard missing source.

Target Completion Date: 08/17/1998	**Completion Date:** 08/17/1998

4. Complete a formal search for the remaining non-inventoried sealed sources following company procedure, MD-80036, Operation 40007.

Target Completion Date: 08/05/1998	**Completion Date:** 08/05/1998

5. Source custodians shall ensure that an accountability log, or equivalent, is maintained for each of the RMAs used for storage of radioactive sources, and are annotated each time a source is removed from the locking storage container for use and when the source is returned.

Target Completion Date: 08/05/1998	**Completion Date:** 08/05/1998

6. Source Custodians shall ensure that all source users logging sources out of the locking storage container, return the sealed sources to the locking container after use, at the end of each shift, or at the end of a single long term use where the source has been under continuous line of sight control or secured in an instrument or apparatus to prevent unauthorized

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removal.

Target Completion Date: 08/05/1998	Completion Date: 08/05/1998

7. Source custodians shall review their source inventory and:
a. Identify those sources absolutely necessary for their operation.
b. Identify or estimate how frequently those sources will be used.
c. Prepare the remaining sources for disposal.

Target Completion Date: 07/30/1998	Completion Date: 07/30/1998

8. The source control radiological engineer shall ensure that all sealed sources currently being identified as excess and disposal candidates are ready to be transferred to Waste Management for disposal in waste stream 25.

Target Completion Date: 08/05/1998	Completion Date: 08/05/1998

9. The Sealed Source Radiological Engineer shall develop a computer generated source label and complete the relabeling of all sealed radioactive sources on site not already in a waste stream or controlled as accountable nuclear material.

Target Completion Date: 08/05/1998	Completion Date: 08/05/1998

10. The Sealed Source Control Radiological Engineer shall implement a monthly source control update to all employees.

Target Completion Date: 08/10/1998	Completion Date: 08/10/1998

11. The Sealed Source Control Radiological Engineer shall perform and document a monthly assessment of the source control program in Building 45, to include a physical inventory of all sources not in secured storage and a review of the accountability logs.

Target Completion Date: 08/10/1998	Completion Date: 08/10/1998

12. The Sealed Source Radiological Engineer shall revise the section of MD-10274 covering sealed sources and transfer it to MD-80043

Target Completion Date: 08/31/1998	Completion Date: 09/14/1998

13. The Sealed Source Radiological Engineer shall revise MD-80036, Operation 90010, "Leak Testing of Radioactive Sources"; MD-80036, Operation 4007, "Loss of Radiological Material" in inclusion as appendixes in the new MD-80043 sealed source procedure.

Target Completion Date: 08/31/1998	Completion Date: 09/14/1998

14. The Sealed Source Radiological Engineer shall develop specific procedures for sealed source disposal and for control of NRC Generally Licensed radioactive material.

Target Completion Date: 08/31/1998	Completion Date: 09/14/1998

15. Complete an independent assessment of the source control program per the Mound local procedure.

Target Completion Date: 10/31/1998	Completion Date: 10/14/1998

27. Impact on Environment, Safety and Health:

The missing sources were sealed against dispersion and low in activity in this occurrence. Lost of control of sources can lead to improperly discarded sources, and to the spread of

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contamination and personnel exposure.

28. Programmatic Impact:

The sealed source program was out of control. The corrective actions in place should provide for a better assessment in the future for this program.

29. Impact on Codes and Standards:

The Mound standard MD-80043 will be revised to incorporate operations from other standards dealing with sealed sources.

30. Lessons Learned:

A process of check and balances needs to be in place to control the accountability requirements of a program such as the sealed source program. Standards and procedures should give the necessary controls to handle this process.

31. Similar Occurrence Report Numbers:

none

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

09C--Safeguards/Security - Material Accountability

35. HQ Summary:

36. DOE Facility Representative Input:

37. DOE Program Manager Input:

38. Approvals:

Approved by: Robert A. Ward, Facility Manager/Designee
Date: 09/17/1998
Telephone No.: (937) 865-3821

Approved by: HOLBROOK, FRED B, Facility Representative/Designee
Date: 09/21/1998
Telephone No.: (513) 865-4677

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Approved by: TRACY, TERRANCE, Program Manager/Designee
Date: 02/25/1999
Telephone No.: (301) 903-2173

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OH-MB-BWO-BWO04-1998-0012 FINAL

Occurrence Report
Before 2003 Redesign

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: Robert A. Ward
Title: Facility Manager, Site and Grounds **Telephone No.:** (937) 865-3821

(Facility Manager/Designee)

Name: WARD, ROBERT A
Title: BUILDING MANAGER-LOWER PLANT AREA **Telephone No.:** (513) 865-3821

(Originator/Transmitter)

Name: Robert A. Ward **Date:** 01/19/1999

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO04-1998-0012

Leaking Source Found in Building 45

2. Report Type and Date: FINAL

	Date	Time
Notification:	12/16/1998	15:24 (MTZ)
Initial Update:	01/21/1999	04:02 (MTZ)
Latest Update:	01/21/1999	04:02 (MTZ)
Final:	04/26/1999	10:44 (MTZ)

N/A see body (#27) NO spills/Release to Environ. DJW

3. Occurrence Category: Off-Normal

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

5. Division or Project: Babcock and Wilcox of Ohio

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Sealed Radioactive Source Accountability Building 45

8. UCNI?: No

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9. Plant Area: Balance of Plant

10. Date and Time Discovered: 12/10/1998 16:52 (ETZ)

11. Date and Time Categorized: 12/16/1998 14:30 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
12/14/1998	06:55 (ETZ)	Fred HolBrook	DOE/MEMP

13. Other Notifications:

Date	Time	Person Notified	Organization
12/14/1998	09:00 (ETZ)	Ron Berry	DOE/MEMP

14. Subject or Title of Occurrence:

Leaking Source Found in Building 45 Room 007 per Ron Daily, Radiological Instrumentatio
D. C. Kramer 10-12-04

15. Nature of Occurrence:

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

16. Description of Occurrence:

Building 45 has 200 plus Sources that on Tuesday December 12, 1998 were to be transferred to the University of Cincinnati. The Test Fire RCTs were asked to conduct a leak test of all the affected sources. The sources are kept in a file cabinet in a Radiological Material Area (RMA). The leak test were conducted in the RMA.

One source found in a coin envelope had a reading of 5000 dpm, alpha. The coin envelope containing the source was put in a bag and internal contamination stickers added to the bag. The area where the tests were done, the drawer and other sources in the area were resurveyed. No contamination above 20 dpm alpha was found. The bagged source was put in a drawer where other sources that are bagged are kept.

On Monday, December 14, 1998 the wipes were send to Alpha and Gamma Spec. The source type and activity were unknown at this time.

On Wednesday, December 16, 1998 the sample results from Gamma Spec. were as follows:

K 40 - 43dpm
Am 241 - 7.5dpm
Pu 238 - 5442dpm

This exceeds the reporting criteria of Table 2-2 of the RADCON manual.

17. Operating Conditions of Facility at Time of Occurrence:

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Normal Operations

18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

19. Immediate Actions Taken and Results:

The source #5270, Pu 238, 6 nanoCi when new. It is a puck source. When bagged it was wiped - field count showed 7000 dpm alpha removable.

The labeled bag with source was secured in a drawer in the RMA room where tested.

20. Direct Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

21. Contributing Cause(s):

22. Root Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

23. Description of Cause:

The source #5270, Pu-238, 6 nanoCi when new. It is a puck source that become defective for unknown reasons.

24. Evaluation (by Facility Manager/Designee):

The leaking source was found during a leak test of sources being transferred off site to a University.

25. Is Further Evaluation Required?: No

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

1.

The source will be bagged and place into a waste container for shipment to the Nevada Test Site.	
Target Completion Date: 03/11/1999	**Completion Date:** 03/18/1999

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

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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:

none

31. Similar Occurrence Report Numbers:

none

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

06B--Radiological Issues - Facility/Equipment/Site Contamination

35. DOE Facility Representative Input:

36. DOE Program Manager Input:

37. Approvals:

Approved by: Robert A. Ward, Facility Manager/Designee
Date: 01/21/1999
Telephone No.: (937) 865-3821

Approved by: HOLBROOK, FRED B, Facility Representative/Designee
Date: 04/26/1999
Telephone No.: (513) 865-4677

Approved by: Approval delegated to FR, Program Manager/Designee
Date: 04/26/1999
Telephone No.:

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Appendix N

PRS Information

MOUND PLANT RECOMMENDATION

PRS 66

Background:

Potential Release Site (PRS) 66 encompasses a historical ravine that was leveled with fill and paved over with asphalt. From the mid-1950s to mid-1960s, an estimated 10,000 to 15,000 emptied thorium drums from repackaging operations were crushed and buried along the western part of the original ravine. In either 1959 or 1960, three truckloads of soil and debris contaminated with radium-226, actinium-227, and thorium-228 was excavated from the SW Building and disposed of in an old septic tank on the northeastern edge of PRS 66. The area near the septic tank (PRS 86) was excavated during a CERCLA removal action and subsequently designated No Further Action (NFA) by the Core Team in 1998. Records show the practice of disposing waste items into the ravine continued through the mid-1960s. During construction excavation in 1986, plutonium contaminated soil was discovered in the far southwest corner of the historic ravine, known as PRS 40.

Recommendation:

Potential Release Site 40, 66, 79, 80, 86, 235, 309, and 338 are found within PRS 66. This area has been periodically filled in with materials contaminated with thorium-232, polonium-210 and some actinium-227. On August 20, 1996, the Core Team recommended Further Assessment (FA) for PRS 66. Subsequently, the cost of further investigation versus removing the potentially contaminated soils were evaluated. On July 10, 1997, this evaluation resulted in the decision to continue with the original FA recommendation. As a result of this further assessment, elevated plutonium-238, cesium-137 and americium-241 contamination was found.

By December 1999, the Mound Gamma Spectrometry Lab had analyzed approximately 162 investigative soil samples taken during the 1999 PRS 66 Core Sampling Characterization. The maximum plutonium-238 concentration measured was 5,868 pCi/g, as compared to the 10^{-5} Risk Based Guideline Value of 55 pCi/g. The maximum thorium-232 concentration measured was 397 pCi/g compared to a 10^{-5} Risk Based Guideline Value of 1.1 pCi/g. The Core Team, therefore, now recommends that a <u>REMOVAL ACTION</u> be accomplished for PRS 66.

Concurrence:

DOE/MEMP: Art Kleinrath — Feb 17 2000
Art Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer — 2/22/2000
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: [illegible] — Feb 17 2000
Brian Nickel, Project Manager (date)

MOUND PLANT
PRS 79
FORMER WASTE STORAGE SITE - WAREHOUSE 15

RECOMMENDATION:

Potential Release Site (PRS) 79 was the historical warehouse 15. It was identified as a PRS because of thorium redrumming operations performed in the warehouse. It was dismantled in the mid-1960s and the Central Fire House (Building 98) was constructed on the location.

According to *construction inspection daily reports* for Building 98, while leveling the area prior to construction contaminated soil was found in and around a concrete pit. The contaminated soil was removed and boxed. The pit was declared clean by Health Physics and the pit was filled in with concrete. No other contamination was detected during construction. Per the *1993: Radiological Site Survey, 1993: Soil Gas Survey and Geophysical Investigations Main Hill and SM/PP Areas,* and the *OU5: Operational Area Phase I Investigation, Area 7 Report* all Volatile Organic Compound (VOC) soil gas concentrations were below acceptable guideline criteria. All plutonium sampling results were below the guideline criteria of 25 pCi/g, and all thorium levels were below the 5/15 pCi/g regulatory standard.

Therefore, since no evidence of contamination exists at PRS 79, NO FURTHER ASSESSMENT is recommended.

CONCURRENCE:

DOE/MB: Arthur W Kleinrath 11/26/96
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 1/9/97 to 2/13/97

☒ No comments were received during the comment period.

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

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MOUND PLANT
PRS 80
Warehouse 15A

RECOMMENDATION:

Potential Release Site (PRS) 80 was identified due to process history pertaining to operations in Warehouse 15A—primarily the loading of radioactive waste for offsite shipment. Radioactive trash, plutonium sludge from SM Building, polonium sludge from WD Building, and waste from other plant operations were stored until loaded into vans for shipment offsite. The structure was sold for salvage, but the floor of the warehouse was bulldozed into the adjacent ravine known as Area 7 (PRS 66). During subsequent construction of buildings in the vicinity of PRS 80, the Health Physics program invoked "Stop Work" actions due to contamination, although no data could be found.

On August 19, 1996, the Core Team recommended Further Assessment (FA) for PRS 80. Soil Sampling and Analysis was completed in December 1999.

Thorium-232 was found within PRS 80 at values (3.30 pCi/g) exceeding Guideline Criteria. PRS 66 was declared a Removal Action in February 2000.

Therefore the Core Team recommends a <u>RESPONSE ACTION</u> for PRS 80.

CONCURRENCE:

DOE/MEMP: Robert S. Rothman, Remedial Project Manager — 6/12/02 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 6/13/02 (date)

OEPA: Brian K. Nickel, Project Manager — 6/14/02 (date)

MOUND PLANT
PRS 85
BUILDING 29 SOLVENT STORAGE SHED AREA

RECOMMENDATION:

Potential Release Site (PRS) 85 was identified due to its use as a solvent storage shed. Construction and operation of the shed began in 1972 and the shed became inactive in 1990. Acetone was the only solvent stored in the shed.

Subsequent to the removal of the shed, the 1992 Soil Gas and Geophysical Investigation and the OU5 Operational Area Phase I Investigation indicated that organic contaminants are below their applicable guideline or calculated guideline criteria. Additionally, there is no history of spills or radiological processes in the area.

Therefore, since no evidence of contamination exists, PRS 85 is recommended for NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 11/21/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 11/19/96 (date)

OEPA: Brian K. Nickel, Project Manager — 11/21/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 11/29/96 to 01/01/97

☒ No comments were received during the comment period.

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