3001 0406160019

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

CH2MHILL

SM-018/03
March 24, 2003

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

MIAMISBURG
LOG G-0018
CODE 6444.6

ATTENTION: Robert S. Rothman

SUBJECT: Contract No. DE-AC24-03OH20152
BUILDING 61 BUILDING DATA PACKAGE, FINAL

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Mr. Provencher:

Rob Rothman from your office has approved the release of the following final document to the regulators and the public:

- Building 61 Building Data Package, Final

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

Sincerely,

R.C. Ransbottom for
K.L. Kehler

K. L. Kehler
SMPP/TFV Project Manager

KLK/DCK

Enclosures

Approved: _____ 3/24/03
Robert S. Rothman Date
CERCLA Program Manager

cc: Dave Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Rob Rothman, DOE/MCP, (1) w/attachments
Frank Schmaltz, DOE/MCP, (1) w/attachments
Randy Tormey, DOE/OH, (1) w/attachments
Terry Tracy, DOE/HQ, (1) w/attachments
Dann Bird, MMCIC, (3) w/attachments
J. D. Bonfiglio, MESH, (1) w/attachments
John Fulton, CH2M Hill, w/o attachments
Bob Ransbottom, CH2M Hill, (1) w/attachments
Val Darnell, CH2M Hill, (1) w/attachments
Kurt Kehler, CH2M Hill, (1) w/attachments
Public Reading Room, (4) w/attachments
Administrative (2) w/attachments
DCC

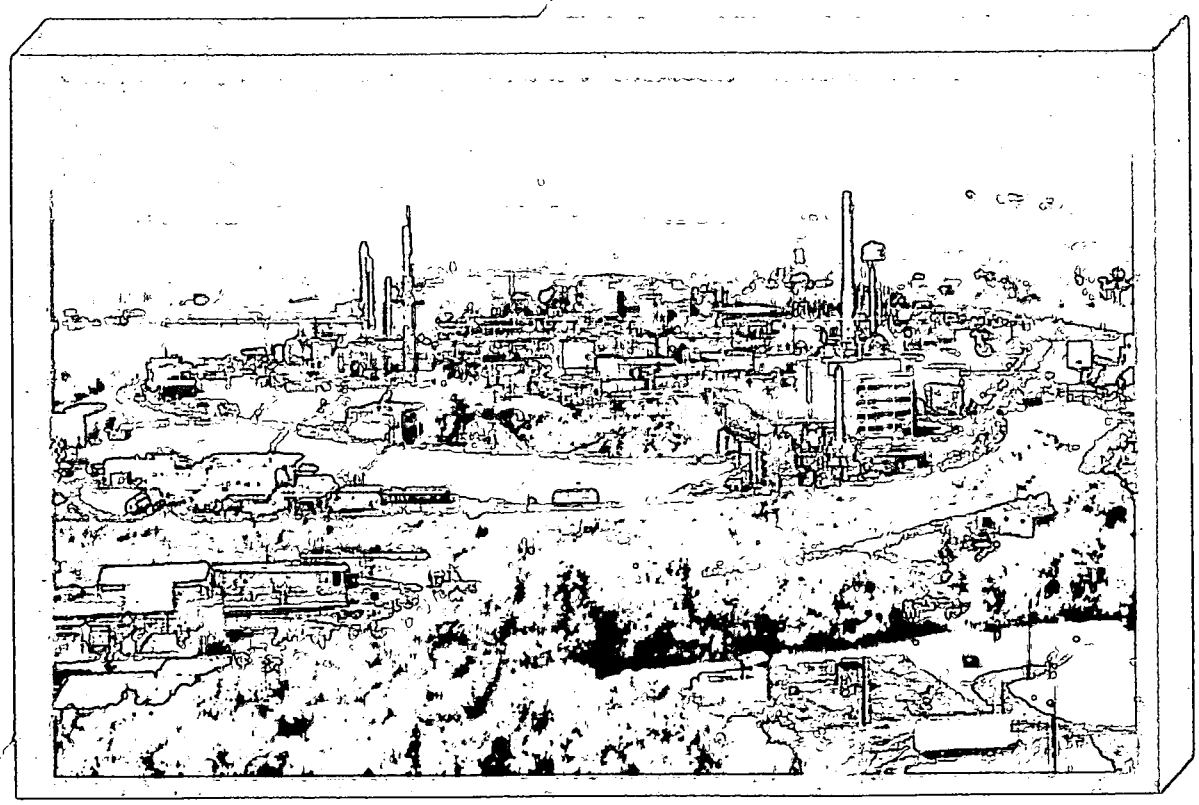
MOUND

Environmental Restoration Program

OhioEPA

MIAMISBURG CLOSURE PROJECT
Building Data Package
Building 61

Final
March 2003



MOUND

Environmental Restoration Program

MIAMISBURG CLOSURE PROJECT BUILDING DATA PACKAGE

Notice of Public Review Period

The following Building Data Package (BDP) is available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio. Public comment on this document will be accepted December 4, 2002 through January 3, 2003.

BDP Building 61: Logistical Support Warehouse

Questions can be referred to Paul Lucas at (937) 865-4578.

BDP Building 61

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**September 2002**
DRAFT (to Core Team)		**September 2002**
DRAFT PROPOSED FINAL (incorporates Core Team comments)	Added text to Section 2.4 regarding roof sediment and moss, and trough sediment. Added text to Section 4.2.2 and attachments to Appendix F regarding a minor mercury spill that occurred in 1995. Added additional Soil Analysis Report to Appendix G (pages 123 and 124). Corrected typo on page 2, last paragraph. Changed references from MEMP to MCP. (*DPF reviewed via email*)	**November 2002**
PUBLIC REVIEW DRAFT	Contains signed recommendation page for NFA. The public review period was from December 4, 2002 through January 3, 2003.	**December 2002**
FINAL	No regulator comments received. Response to public comments included in this document.	**March 2003**

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

January 2003

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

Dear Mr. Bird:

The Core Team, consisting of the U.S. Department of Energy Miamisburg Closure Project (DOE-MCP), U.S. Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA), appreciates your comments on the Building 61 Building Data Package. Attached is our response.

Should the responses to comments require additional detail, please contact Rob Rothman at (937) 865-3823 and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MCP: 1-30-03
Robert S. Rothman, Remedial Project Manager — date

USEPA: 1/22/03
Timothy J. Fischer, Remedial Project Manager — date

OEPA: 1/30/03
Brian K. Nickel, Project Manager — date

Response to MMCIC Comments on the Building 61 Building Data Package Public Review Draft December 2002

Comment 1. From our review of the Building Data Package for Building 61, we concur that the building is suitable for transfer. Although the building was periodically used to store radiological sources, all sampling showed all levels below threshold values. In addition, the building was subject to a mercury spill, which was appropriately remediated. MMCIC concurs that all environmental conditions associated with this building have been resolved. MMCIC is also appreciative that the moss and sediment which has accumulated in low areas of roofs and roof gutters has been addressed as a separate issue apart from CERCLA.

Response 1. We appreciate your input and review of the document.

RECOMMENDATION

Building 61

Background:

Building 61 was built to serve as a Logistics Support Warehouse. Building operations have included offices and administrative areas, offices for waste shipping related functions, site shipping and receiving, and material storage. Materials stored have included chemical product, office supplies, newly purchased waste storage containers, as well as excess furniture, equipment, and computers. The building has a vault that had been used to store radiological sources. The building also contained radiological control areas that had been used for the storage of secured nuclear materials while the materials were awaiting shipment. Building 61 most recently served as an office building and warehouse geared toward management of excess materials. The building was vacated in September 2002, at which time it was prepared for transfer to MMCIC.

All radiological surface data, soil sampling (radiological and chemical) data, and radon data are below applicable screening levels. No lead-based paint or asbestos hazards currently exist in the building.

Recommendation:

After thorough review of the environmental data and the Building Data Package, the Core Team agrees that all existing environmental issues associated with Building 61 have been resolved. Future use of Building 61 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:	Robert S. Rothman, Remedial Project Manager	11-25-02 Date
USEPA:	Timothy J. Fischer, Remedial Project Manager	11/25/02 Date
OEPA:	Brian K. Nickel, Project Manager	11/25/02 Date

BUILDING DATA PACKAGE (BDP)

Building 61

(Transition)

DOE MIAMISBURG CLOSURE PROJECT

MIAMISBURG, OHIO 45343

TABLE OF CONTENTS

Section Page

1.0 General Overview 1
- 1.1 Introduction 1
- 1.2 Scope 1

2.0 Building Specific Overview 2
- 2.1 Current Uses of Building 61 3
- 2.2 Past Uses of Building 61 3
- 2.3 Summary of Environmental Concerns and Findings - Building 61 3
- 2.4 Radiological Characterization Summary for Building 61 5

3.0 Site Description 7
- 3.1 Site/Vicinity Location and Characteristics 7
- 3.2 Description of Structures, Roads, Other Improvements in Proximity to Building 61 7
- 3.3 Current and Past Uses of Buildings in Proximity to Building 61 7

4.0 Records Review 8
- 4.1 General/Historical CERCLA Information 8
- 4.2 Specific Record Sources for Building 61 8
  - 4.2.1 Occurrence Reports 8
  - 4.2.2 Spills and Releases 9
  - 4.2.3 Associated PRS Overview 9
  - 4.2.4 Sampling Data 9
- 4.3 Review of Building Prints 11
- 4.4 Aerial Photographs 11
- 4.5 Interviews 11

Tables

Table 1: Summary of Environmental Concerns and Findings 3

Table 2: Radiological Summary 5

Table 3: PRSs in Proximity to Building 61 9

Appendices

Appendix A General Listing of Acronyms
Appendix B Map of Montgomery County
Appendix C Figures
Appendix D Floor Plans
Appendix E Aerial Photographs
Appendix F Environmental Appraisal Report of the Mound Plant (Excerpt)
Appendix G Radiological Information
Appendix H Radon Information
Appendix I Asbestos Information
Appendix J Lead Information
Appendix K Chemical Information
Appendix L Soil Sampling, Vicinity
Appendix M Occurrence Reports
Appendix N PRS Information
Appendix O Work Plan

1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the transfer of Building 61 (Logistical Support Warehouse) 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 structure.

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 61 located at the Department of Energy (DOE) Miamisburg Closure Project (MCP) in Miamisburg, Ohio. The investigation performed to support this BDP models procedures found in *ASTM Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process* (Designation E 1527-97).

The scope of the investigation included Building 61, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation of Building 61 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 MCP Plant 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 BWXT of Ohio, Inc. (BWXTO) personnel, documents were reviewed. Information used to compile BDPs includes the following:

- Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes, August 1990
- 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-222153, Mound Site Radionuclides By Location, July 1995 Contaminant Surveys
- MLM-3791, Mound Facility Physical Characterization, December 1993

2.0 BUILDING SPECIFIC OVERVIEW

Building 61 was constructed in 1980 in the plant valley, near the plant entrance gate (Post 8), in the northeastern part of the site (Figure 1). Originally, it was a single-story structure of 8,588 square feet. In 1980, a minor addition of a mezzanine was added, and in 1984, a major addition of the "Production Support Facilities" was completed bringing the building size to approximately 45,490 square feet and adding a second story. The production support facilities addition was constructed in a cut in the hill and covers the southern and eastern sides of the original building.

Floor plans and a list of the room numbers and their functions are provided as Appendix D.

The building is serviced with natural gas and central steam for heating; the building has a boiler that was installed in 2001. The building is cooled via a direct expansion cooling system; the condensing unit is behind the building and evaporative coils in the central air handling unit. The building has potable and non-potable water and sanitary services provided by the MCP Plant facility. Electric service is 460 volts.

2.1 Current Uses of Building 61

Building 61 is currently serving as an office building and warehouse geared toward management of excess materials. The building is intended to be vacated in September 2002, at which time it will be prepared for transfer to MMCIC.

2.2 Past Uses of Building 61

Building 61 was built to serve as a Logistics Support Warehouse. Building operations have included offices and administrative areas, offices for waste shipping related functions, site shipping and receiving, and material storage. Materials stored have included chemical product, office supplies, newly purchased waste storage containers, as well as excess furniture, equipment, and computers. The building has a vault that had been used to store radiological sources. The building also contains radiological control areas that have been used for the storage of secured nuclear materials while the materials were awaiting shipment.

2.3 Summary of Environmental Concerns and Findings - Building 61

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	Most of the paint coatings were observed to be intact. Representative samples of damaged paint were analyzed in the field and determined to not contain any amount of lead within the instrument's detection limit or were found to have levels considerably below the established level of concern. See Appendix J.	If lead-based paint were present in the building, it would not present a concern unless it was damaged. No further action required.
Chemicals	A list of chemicals recently in the building is provided in Appendix K.	All chemicals will be removed from the building prior to transition.
Fluorescent Lamps and Polychlorinated Biphenyls (PCBs)	PCB-containing transformers were removed from the building in 1993.	No further action required.
Air Emissions	There are exhaust fans in Rooms 113 and 114 that vent to the atmosphere. The chemicals previously stored in those rooms did not require an air emission permit. Accordingly, no permit is in place nor has any ever been applied for.	No further action required.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Asbestos	Due to its year of construction (1980 and 1984), it is unlikely that the building contains asbestos-containing material. See Appendix I. Two air filtration devices labeled as internally contaminated with asbestos fibers were stored in the High Bay area, Room 105.	If asbestos were present in the building, it would not present a concern unless it was damaged. No further action required. The air filtration devices were removed from the building and properly disposed of on 9 October 2002.
Drainage Sumps	There is an acid waste sump neutralizing basin under Room 126 with pipes coming from trenches under the chemical storage vaults (Rooms 113 and 114). The sump connects to the plant sanitary sewer system.	The sump liquid was analyzed and found to be below RCRA regulatory limits, and below applicable radiological levels. See Appendix K.
Lead	N/A	N/A
Mercury	The Environmental Appraisal report in Appendix F (page 53 of 58) mentions that a mercury spill from a broken blood pressure instrument was cleaned up by the Fire Department (October-November 1995).	A copy of the documentation of the cleanup activities and subsequent Industrial Hygiene testing is provided in Appendix K. Also see Section 4.2.2.
Radiological	Radiological survey results of Building 61 were within acceptable limits. See Section 2.4 for additional information.	No further action required.
Septic System	N/A	N/A
Wastewater	Handled by MCP wastewater facility.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	There is a 3,000-gallon tank of liquid nitrogen located outside of the building.	The tank will be removed by the vendor prior to building transition.
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	Within acceptable limits.	N/A
Energetic Material/HVAC	N/A	N/A

N/A: not applicable

2.4 Radiological Characterization Summary for Building 61

A radiological assessment of Building 61 was performed by reviewing operational history and radiological survey information. Operational history indicates that the building was constructed as an office facility and warehouse. It continues to serve that function presently. There were no radiological process systems in the building. Radioactive material was stored in designated locations while awaiting shipment or upon receipt onsite. Radioactive-contaminated equipment had been found outside of the designated area on several occasions. These areas were subsequently posted and controlled until the material was removed from the building. All radioactive material has been removed from the building and extensive surveys were performed to release these areas from radiological controls. All radiological postings have been removed. All of the used equipment and material currently stored in the warehouse portion of the building has been surveyed and released from radiological controls in accordance with MCP procedures.

Surveys were performed throughout the building in the impacted and non-impacted areas in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Particular attention was focused on the areas where radioactive material had been stored. A review of all of the radiological survey data supports the conclusion that Building 61 meets the release criteria established by DOE Order 5400.5 (See Table 2).

The review team concluded that the building meets radiological surface release criteria and no further radiological surveys are warranted. Supporting documentation for the information summarized in the following table is contained in Appendix G.

Table 2: 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 Alpha Smearable Activity	02-TF-1248	Building Surfaces	11.0	20
Highest Alpha Fixed Activity	02-TF-1149	Building Surfaces	71	100
Highest Beta Smearable Activity	02-TF-1248	Building Surfaces	9.8	1,000
Highest Beta Fixed Activity	02-TF-1094	Building Surfaces	1,158	5,000
Highest Tritium Smearable Activity	02-TF-1150	Building Surfaces	100.76	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.

Analytical results from roof samples of moss and sediment are provided in Appendix G, pages 119 and 120. Moss and sediment often accumulate in low areas of roofs and roof gutters and act as filters for rainwater from the entire roof area. Over time, this filtering process results in concentrated levels of isotopes. Site radiological operations have used a broad spectrum of isotopes, and some of the same isotopes are also naturally present in the environment. Therefore, it is sometimes difficult to determine the sources of activity with absolute certainty. However, if the activity/isotopes detected in the roof moss and sediment samples were a result of site operations, it could be expected that the observed isotopes would likely be accompanied by one or more parent nuclides involved in MCP mission specific processes. These parent nuclides were not observed in the roof moss and sediment samples. In addition, the presence of beryllium-7 further indicates the nuclides result from a natural radiological bioaccumulation process, and have not been introduced from site operations. Therefore, it is radiological controls' conclusion, with concurrence of the site environmental and central radiological engineering groups, that the activity found in these samples is a result of natural phenomena unrelated to site operations. The moss was discovered during the normal course of the building inspection and is not considered a human health threat. For further information regarding the moss on Building 61, please see DOE or MMCIC.

In addition to the radiological surveys of the building surfaces and roof sediment samples, water and sediment samples from the drain (room 151) and sump (room 125) were analyzed. All results were below applicable screening levels as shown in the table below and are provided in Appendix G.

Table 2a: Radiological Summary

Sample Location	Sample Number	Sample Type	Gross Alpha (dmp/mL)	Thorium^{230} (pCi/g)	Thorium^{232} (pCi/g)	Radium^{226} (pCi/g)	H^3 (tritium) (nCi/L)
Room 151 drain trough	151-1	Sediment	---	ND*	0.37	1.64	---
Room 125 sump	125-29	Water	<0.16	---	---	---	1.68
Screening Levels	---	---	2	2.0*	1.47	2.1	1,000

* The Soil Analysis Report for BD61-01151-SED-01 (Appendix G, page 79) shows a thorium-230 result of 6.78 pCi/g, which was the value detected by gamma spec analysis from the first sample collected from the trough. For areas where thorium-230 is not a contaminant of concern, gamma spec analysis is used to identify whether or not thorium-230 is present, but it is not used to quantify the result for comparison to the 2.0 pCi/g screening level. If the gamma spec result is greater than the detection limit and the detection limit is below 10 pCi/g, then the sample is reanalyzed by alpha spec analysis to obtain a result for comparison to the screening level. Per this procedure, this sediment sample should have been reanalyzed by alpha spec; however, that analysis was not performed and the sample was not archived. Because the original sample was not archived, a second sediment sample from the Room 151 drain trough was collected and analyzed by gamma spec analysis (BD61-01-151-SED-02, Appendix G, page 124). Thorium-230 was not detected in the second sediment sample, and therefore, no further analysis (by alpha spec) was indicated. All other analytical results were below applicable screening levels.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 61 is located at the DOE MCP site, formerly known as Mound Plant. The MCP Plant is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

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

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

3.2 Description of Structures, Roads, Other Improvements in Proximity to Building 61

As shown on Figures 2 and 4, Building 61 is bordered on the east by an asphalt parking lot; the south by a grassy hill; on the west by a small asphalt parking lot and an 800,000-gallon stormwater runoff retention pond; and the north by an asphalt apron and roadway.

3.3 Current and Past Uses of Buildings in Proximity to Building 61

The closest building to Building 61 is Guard Post 8, just northeast of the building. To the west of Building 61 is an 800,000-gallon impoundment, built to contain stormwater runoff.

Buildings 71 (flammable liquids storage area) and 73 (gas cylinder storage area) had been located just west of Building 61, but were sold and removed from the site in 1998, and the building pads demolished in February 2002. The areas where those buildings had been located were reseeded to prevent erosion.

These facilities are believed to have had minimal or no environmental impact on Building 61.

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), MCP Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. MCP Plant is currently operating a hazardous waste storage facility under a RCRA Part B Permit dated October 18, 1996. MCP Plant 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 the Regional Air Pollution Control Agency (RAPCA) and the Ohio Environmental Protection Agency (OEPA). MCP Plant 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 chemicals (meeting the reporting criteria) were stored in Building 61.

The MCP Plant was identified as a contaminated site on the National Priorities List under CERCLA (Superfund) in 1989. The MCP site was originally listed because of volatile organic compound (VOC) contamination in the western end of the lower valley area. The cleanup of the MCP 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 MCP 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 MCP site. The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." The Mound 2000 Process system divided the MCP site into geographical parcels containing over 400 PRSs with approximately equal numbers of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had releases of radioactive and/or hazardous materials. For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach.*

4.2 Specific Record Sources for Building 61

4.2.1 Occurrence Reports

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

- Contaminated tritium package shipped to Mound from offsite vendor (five occurrence reports).

- Radioactive contamination discovered outside a controlled area (items transferred to Building 61) (three occurrence reports).

4.2.2 Spills and Releases

No reportable spills or releases occurred in Building 61.

The Environmental Appraisal report (Appendix F, 53 of 58) mentions a mercury spill from a broken blood pressure instrument. The amount of mercury spilled was minor (less than 4 ounces) and well below the reportable level (1 pound). The spill occurred just inside the western most dock. It was cleaned up, and the recovered mercury disposed of by Waste Management. Personnel involved in the cleanup were monitored for mercury exposure. Copies of the documentation of the spill and cleanup activities (including industrial hygiene monitoring) are provided in Appendix K. Also provided is an industrial hygiene report regarding additional testing performed in October 2002.

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and BWXTO have tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, five are near Building 61 (see Table 3). Additional information is included in Appendix N.

Table 3: PRSs in Proximity to Building 61

PRS	CERCLA or Bldg. Related	Binning Status	Comments
65	CERCLA	No Further Assessment (NFA)	Bldg. 61 Area, Former Heavy Equipment Area.
68	CERCLA	Further Assessment (FA)	Asphalt-Lined Pond.
402	CERCLA	NFA	Elevated Soil Gas Location.
403	CERCLA	NFA	Elevated Soil Gas Location.
404	CERCLA	NFA	Elevated Soil Gas Location.

4.2.4 Sampling Data

4.2.4.1 Radiological Surveys

Radiological survey data of Building 61 indicates all readings are below screening criteria (see Section 2.4). Supporting documentation is provided in Appendix G.

floor tiles and associated mastics. All materials were seen to be either nonfriable or in good condition. Given the dates of construction (1980 and 1984) it is unlikely that these materials would contain asbestos. In addition to these building materials, two portable air filtration devices (HEPA filter-equipped) were in storage in High Bay 105. These air filtration devices would be considered potentially internally contaminated with asbestos fibers (they are labeled as such), and will be removed from the building and properly disposed of prior to transition. See Appendix I.

4.2.4.6 Radon

The results of a 1989-90 Mound Indoor Radon study indicated an average radon concentration of 0.9 picoCuries/liter (pCi/L) in Building 61 (Appendix H). The USEPA recommended standard for a maximum radon level is 4.0 pCi/L.

4.3 Review of Building Prints

Building prints were reviewed and no significant items were identified. Floor plans and a list of room descriptions are included in Appendix D.

4.4 Aerial Photographs

Four aerial photographs are presented in Appendix E; 1973 (prior to construction), 1983 (after construction, undergoing major addition), 1994 (recently constructed addition), and 1996 (most recent aerial photo). These photographs were reviewed and no significant items were identified.

4.5 Interviews

Past Building Manager, K.G. Koehler, was interviewed via a building manager questionnaire (included in Appendix F). The current Building Manager is Gary Weidenbach. No significant items in the building were identified based on the questionnaire or interview.

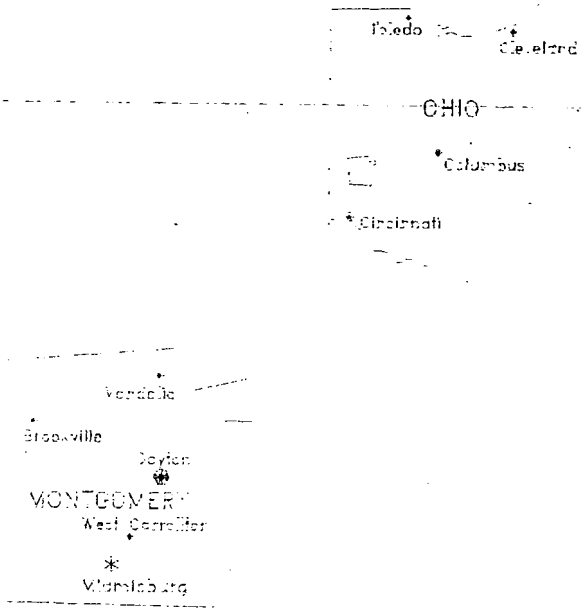
Appendix A

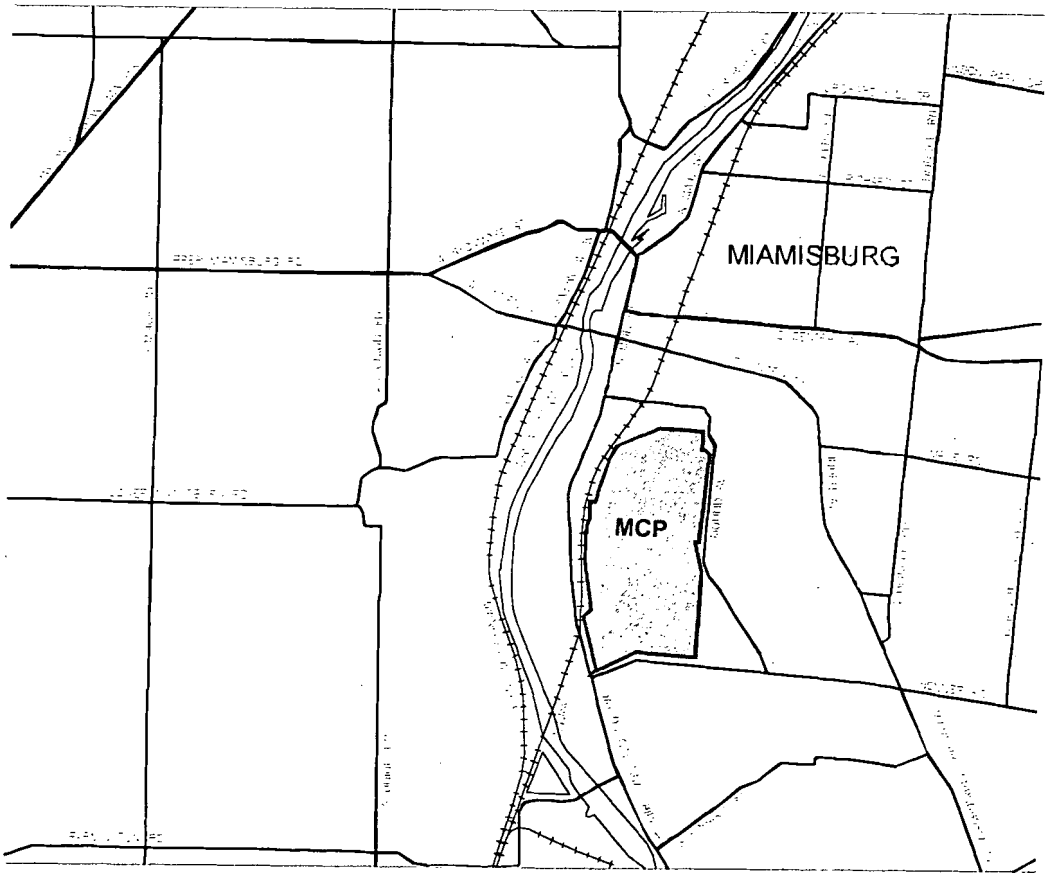
General Listing of Acronyms

ASTM	American Society for Testing and Materials
BDP	Building Data Package
BWXTO	BWXT of Ohio, Inc.
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

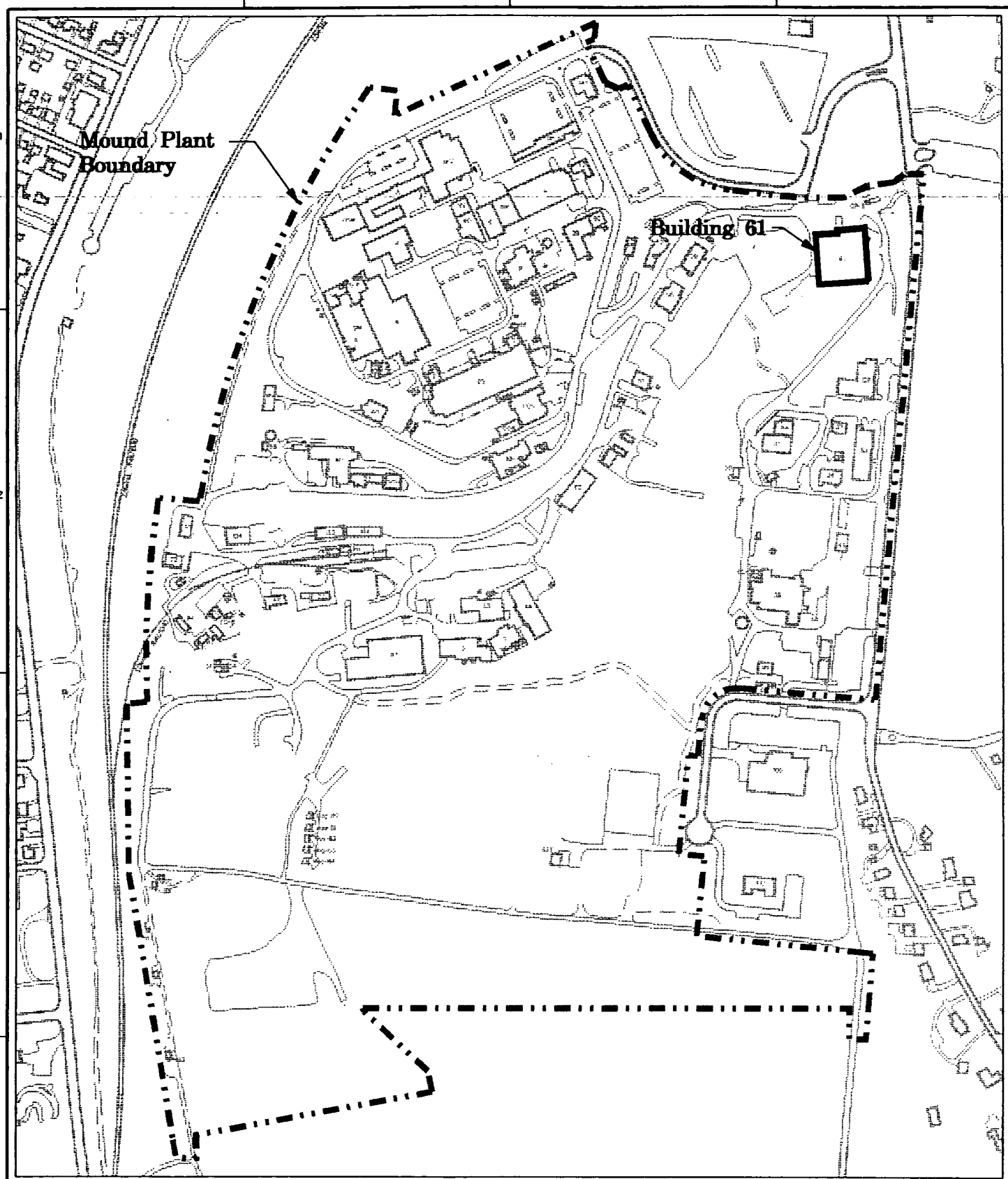
Map of Montgomery County


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


MIAMISBURG
MCP

Appendix C

Figures



Legend

Structures
Paved roadway
Unpaved roadway
Mound Plant boundary
Railroad

0 100 200 400 600 800 1000
Scale In Feet

ISS	DATE	REVISION	BY	CHKR	DNG	LPMGR	APVD	B
	04/13/02	*	SSP					

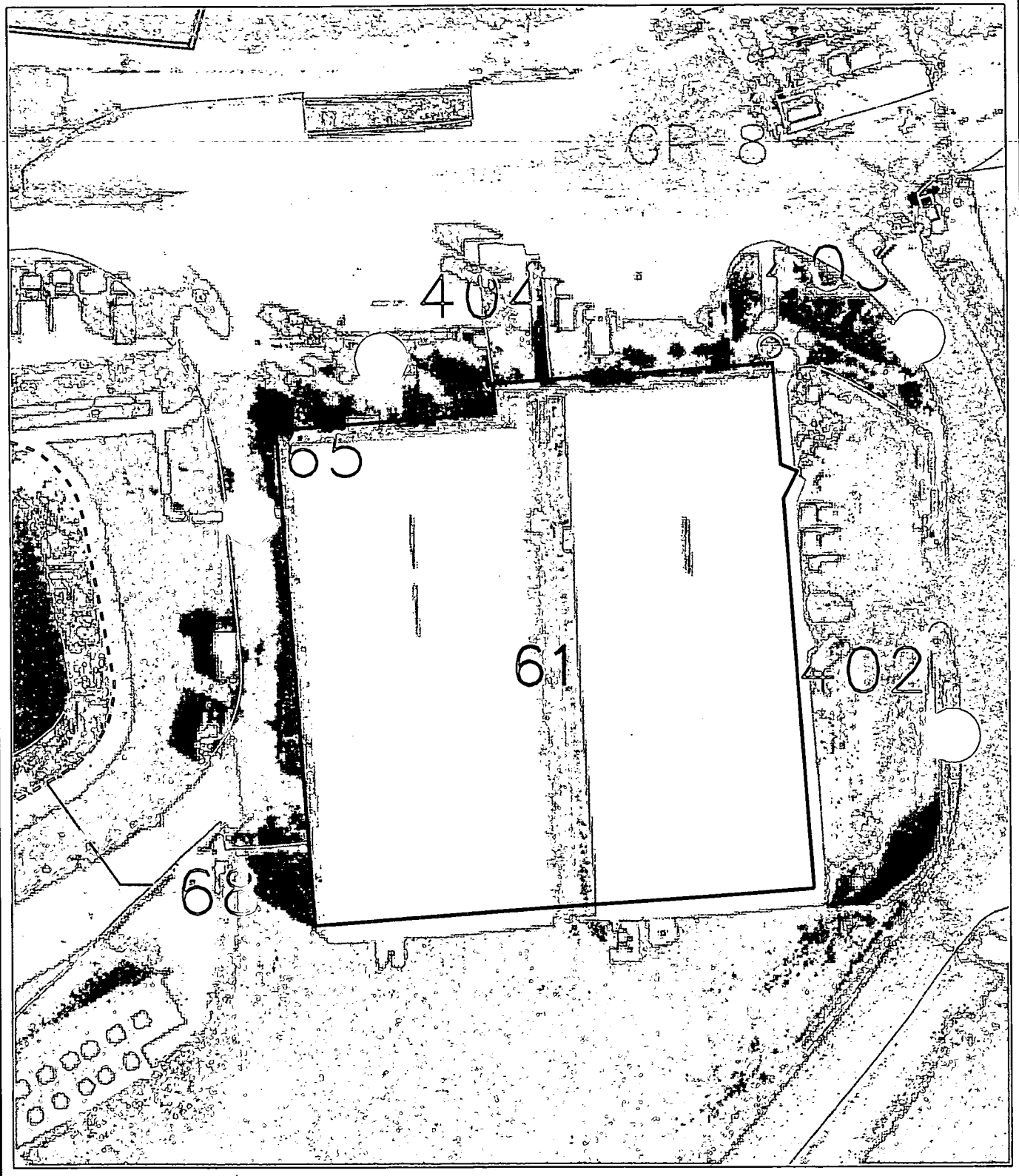
MOUND
Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

Figure 1
Location of Building 61

DRAWING CLASSIFICATION: UNCLASSIFIED
SIZE
DRAWING NUMBER: gen_site_plan.dgn
JOB NUMBER
DWG TYPE: STE
PRMG: ER-GIS
CHECK
SCALE
SHEET 1 OF
STATUS: MD-REL-**/**/**
ORIGIN: MSTATION / J



PRS Point

PRS Area

PRS Line

ISS	DATE	REVISION	BY	DWN	CKD	LRED	APVD	B
	04/12/02		SSF					

MOUND

Environmental Restoration Geographic Information System

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

SHEET	1	2	3	4	5	6
ISSUE	#					

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: vicinity.dgn | JOB NUMBER

DGN TYPE: STE | PROG: ER-GIS | CADD: | SCALE: | SHEET 1 OF

STATUS: MD-REL-##/##/## | ORIGIN: MSTATION / J

Figure 2
Building 61 and Vicinity

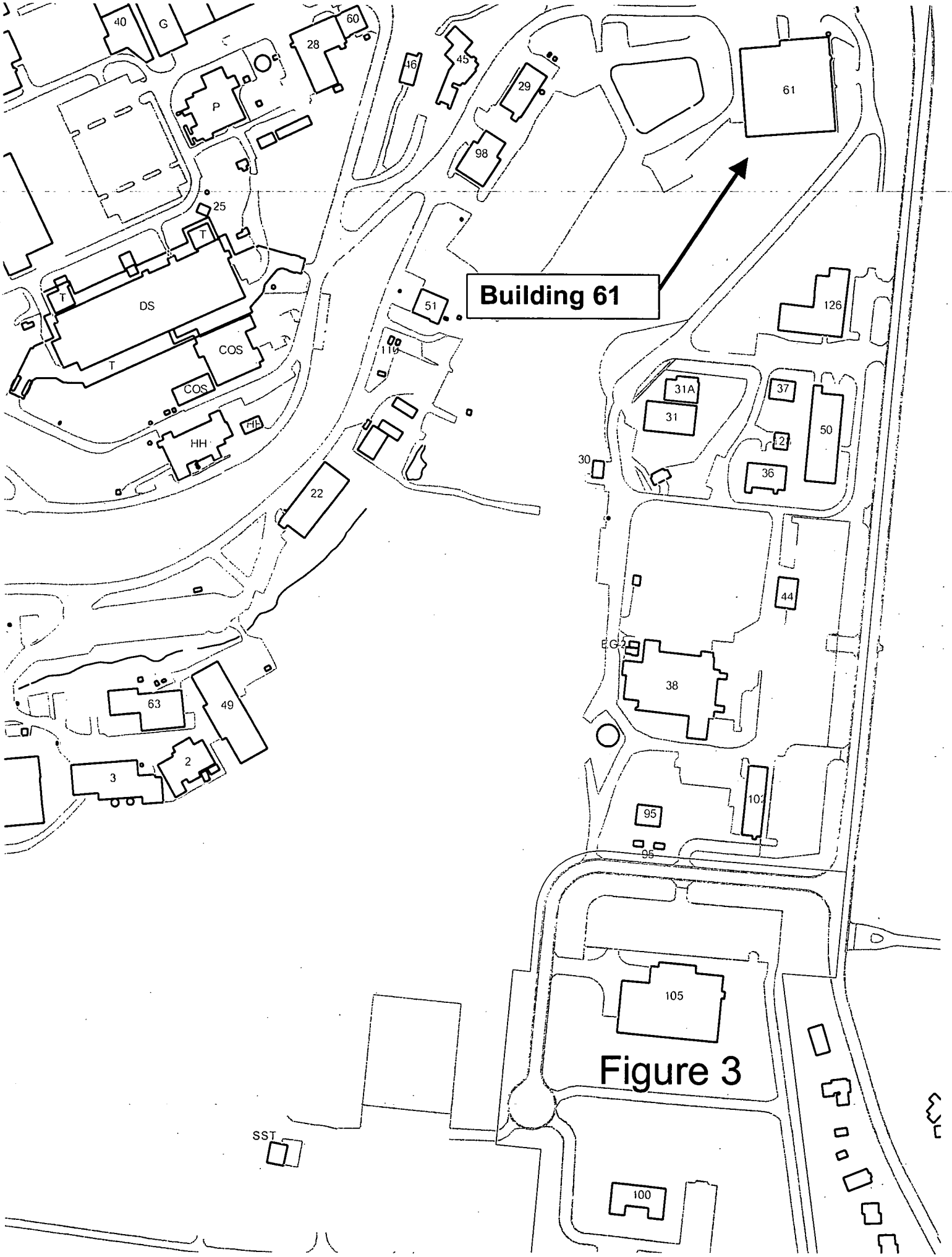
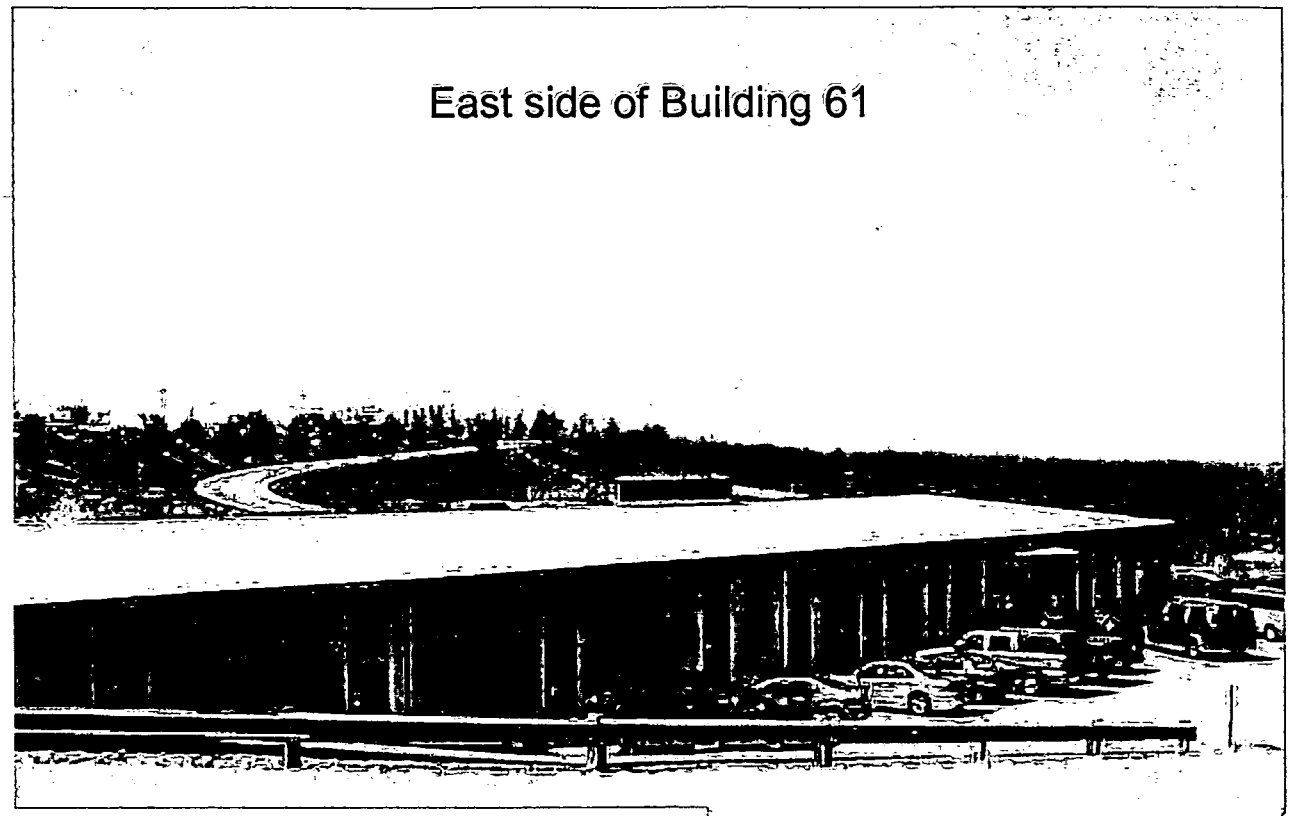

Building 61
40
G
28
60
46
45
29
61
P
98
25
T
DS
T
T
COS
COS
HH
HH
51
110
126
31A
31
37
50
21
36
30
22
44
EG
38
63
49
3
2
101
95
95
105
100
SST

Figure 3



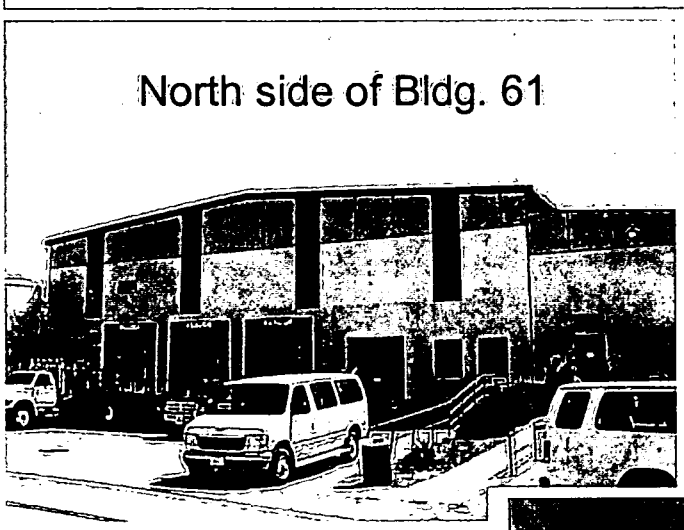
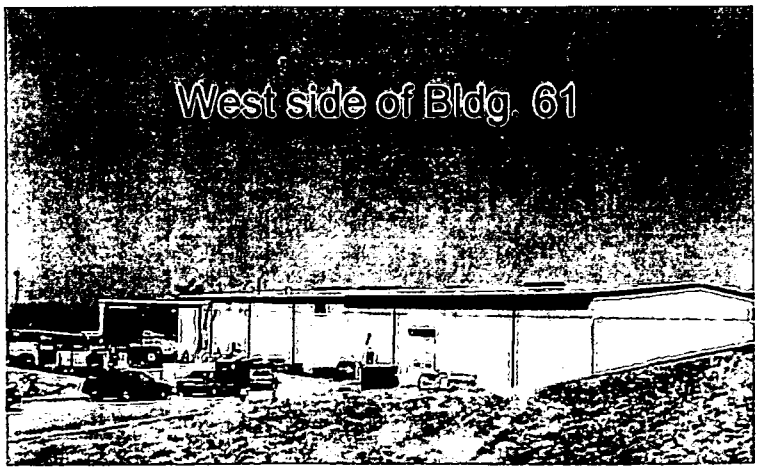
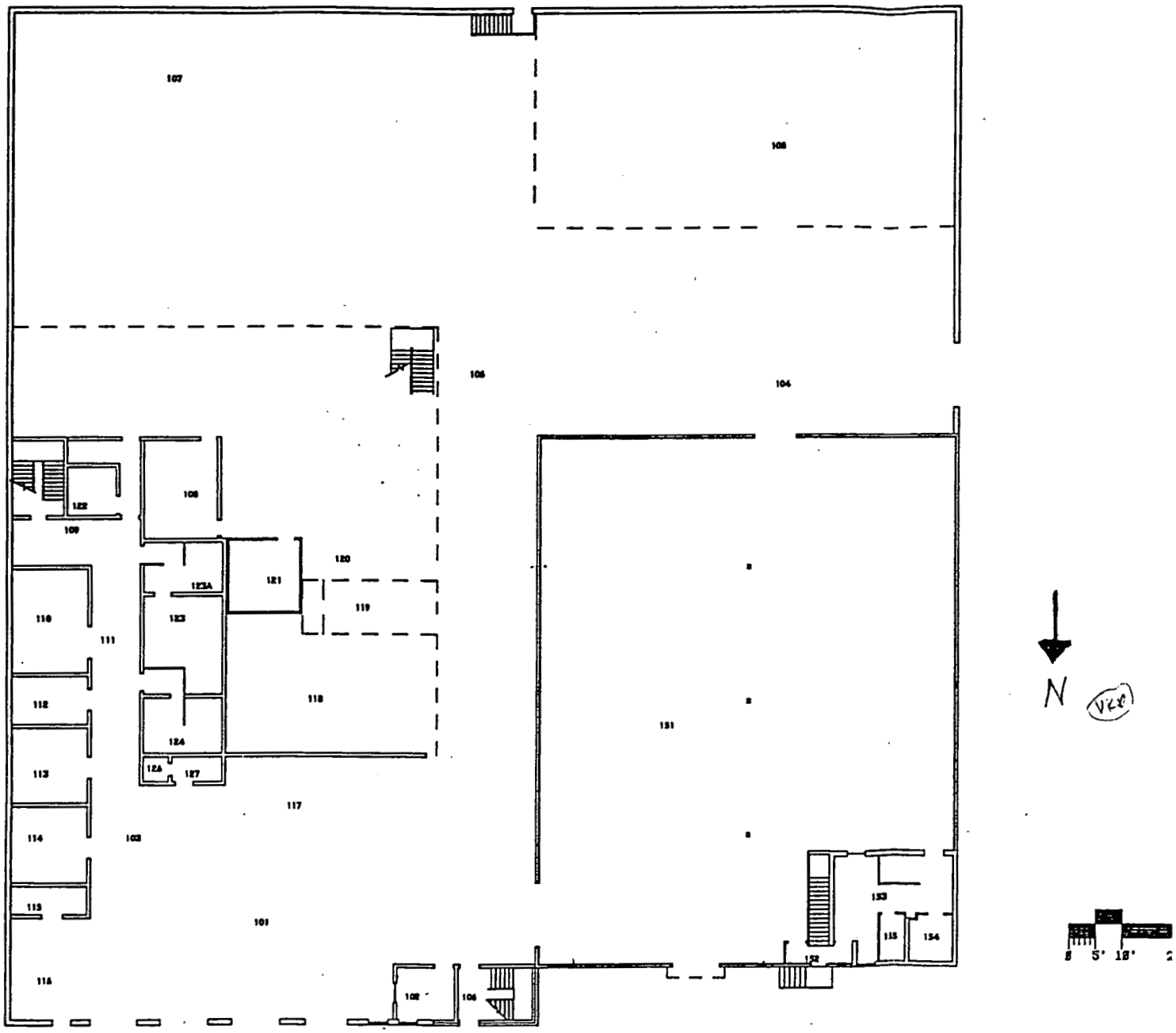


Figure 4: Building 61
Recent Exterior Photos



Appendix D

Floor Plans



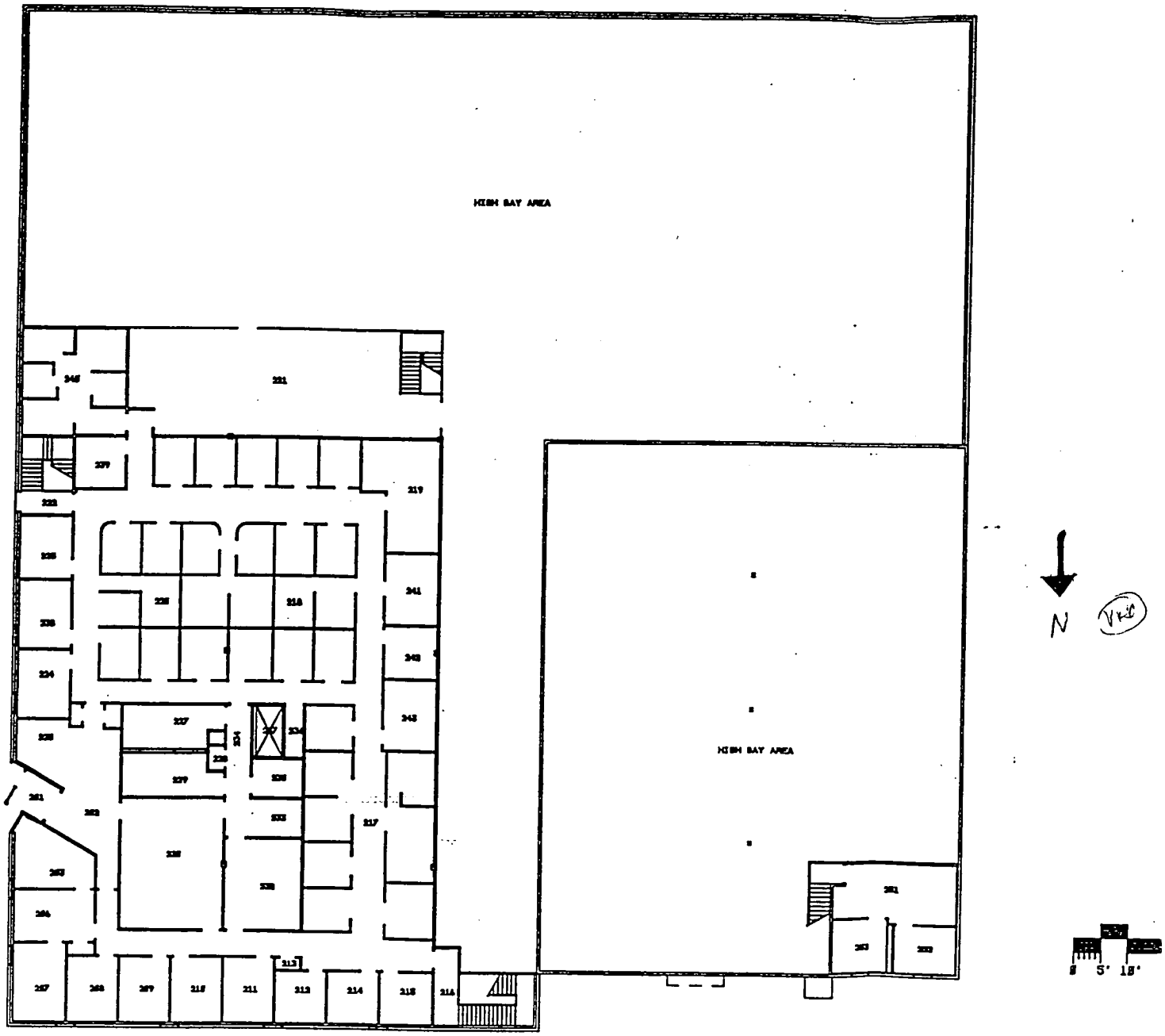
DATE:

COMMITTEE REQUIRED:

___TRUEROC ___TEROC ___EVROC

D 1 of 3

4 3 2



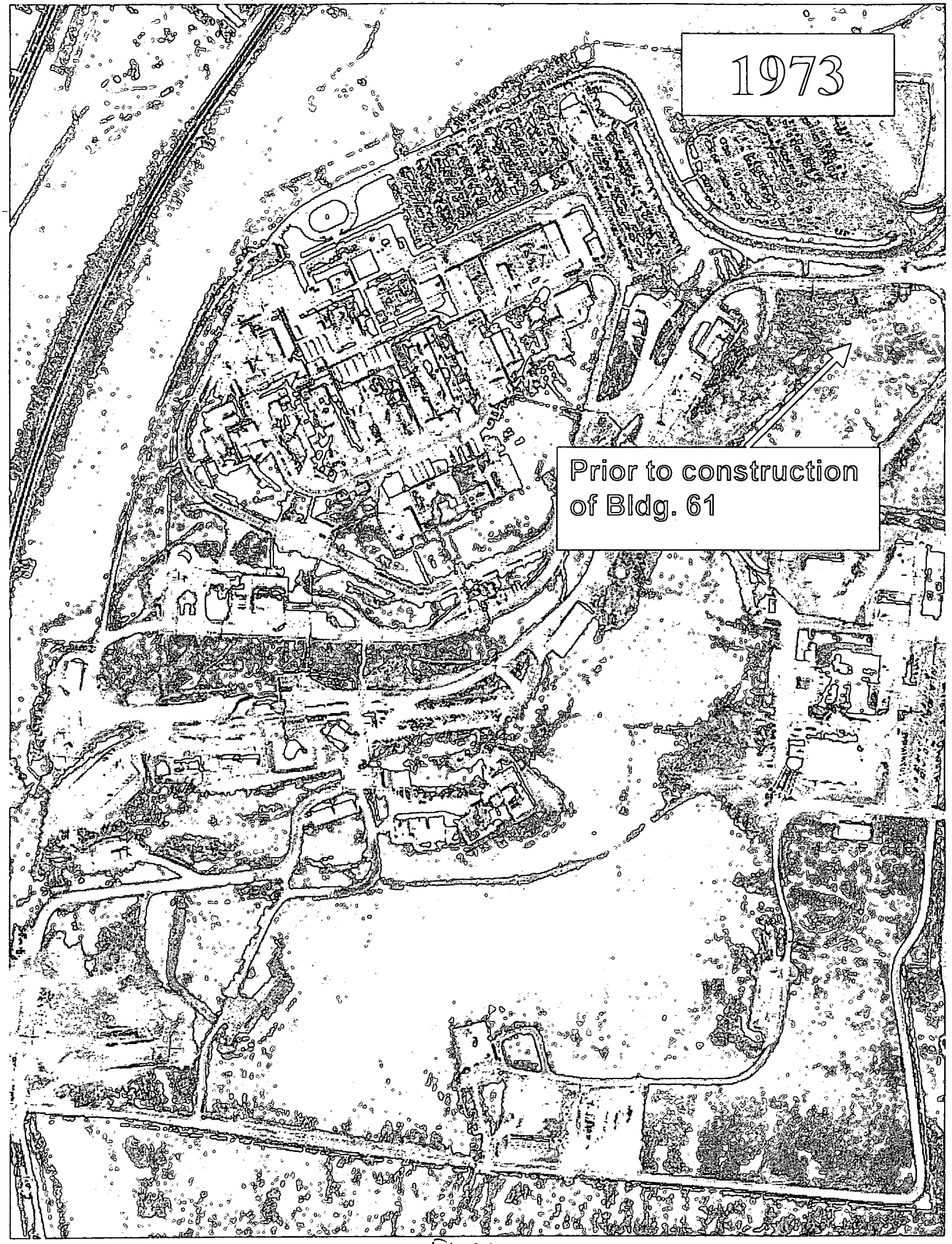
D 2 of 3

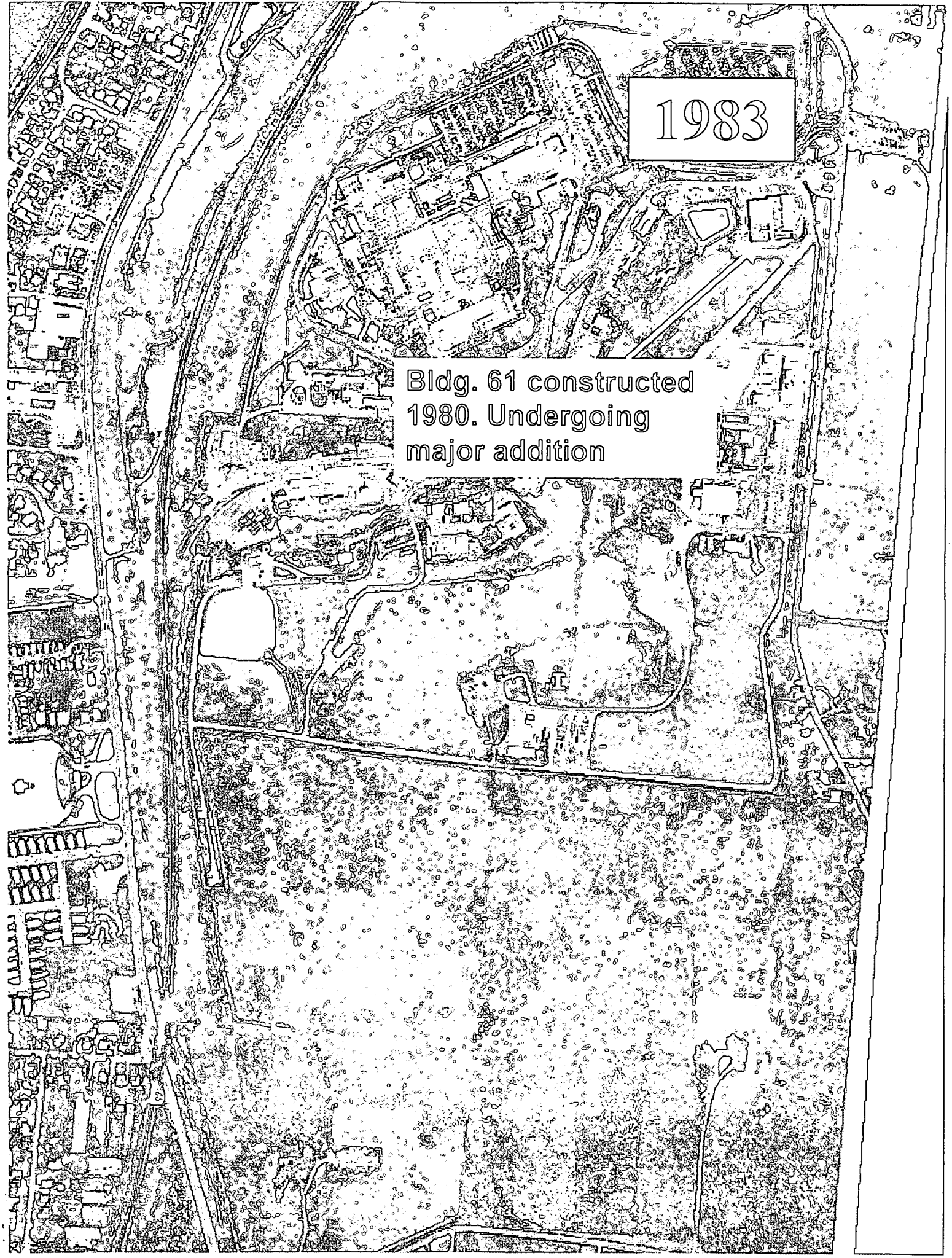
Building 61 – Room Numbers and Associated Titles/Functions (1984)

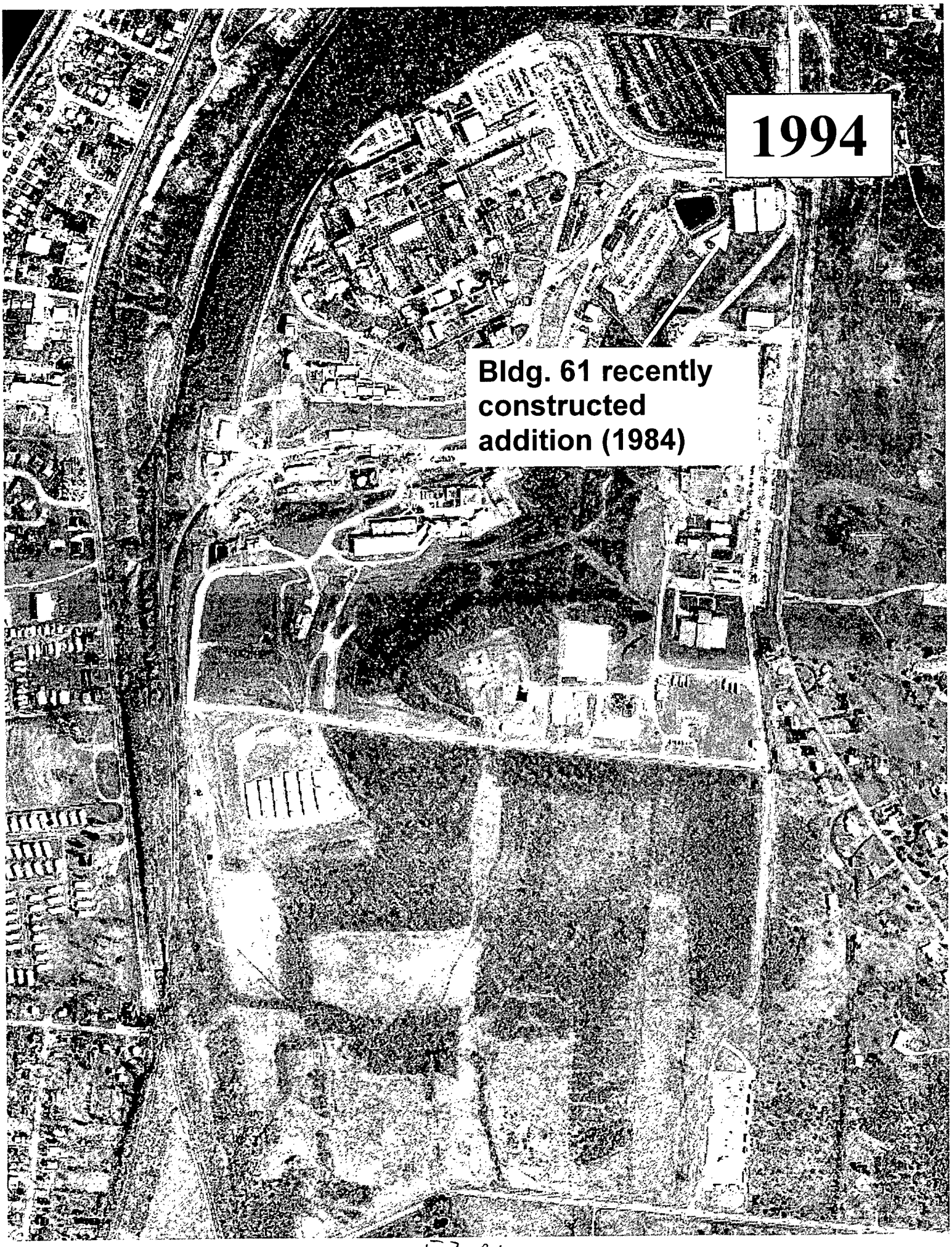
Room	Title/Function	Room	Title/Function
101	Shipping and Receiving	202	Lobby
102	Supply office	203	Vending
103	Shipping clerks	204	Closet
104/7	High-bay storage	205/26/34	Corridors
105	Engineering service order	206	Office
106	Staging corridor	208	Secretary
108	Store room	209/15	Offices
109	Supply room	216	Stair #1
110	Clerical room	217	Distribution offices
111	Corridor	218	Buyers offices
112	Secured storage	219/41	Word processing
113	Chemical storage - acids	220	Contract administration
114	Chemical storage – bases	221	Stores mezzanine
115	Bonded chemical storage	222	Stair #2
116	Liquid nitrogen and chemical distribution	223/24	Offices
117/20	Staging	225	Printers
118	Mechanical equipment room	227	Men's toilet room
119	Bonded storage	228	Janitor's closet
121	Film cooler	229	Women's toilet room
122	Supervisors office	230/31	Conference rooms
123	Men's change room	232	Training room
124	Women's change room	233	Vending area
125/55	Janitor's closet	235	Storage
126	ADP controller	236	Telephone equipment
127	Trucker's toilet room	237	Duct chase
151	Warehouse	238/9	Offices
152	Vestibule and stair	240	Clerical area
153	Office	241	Office
154	Toilet room	251	Office area
201	Vestibule	253	Offices

Appendix E

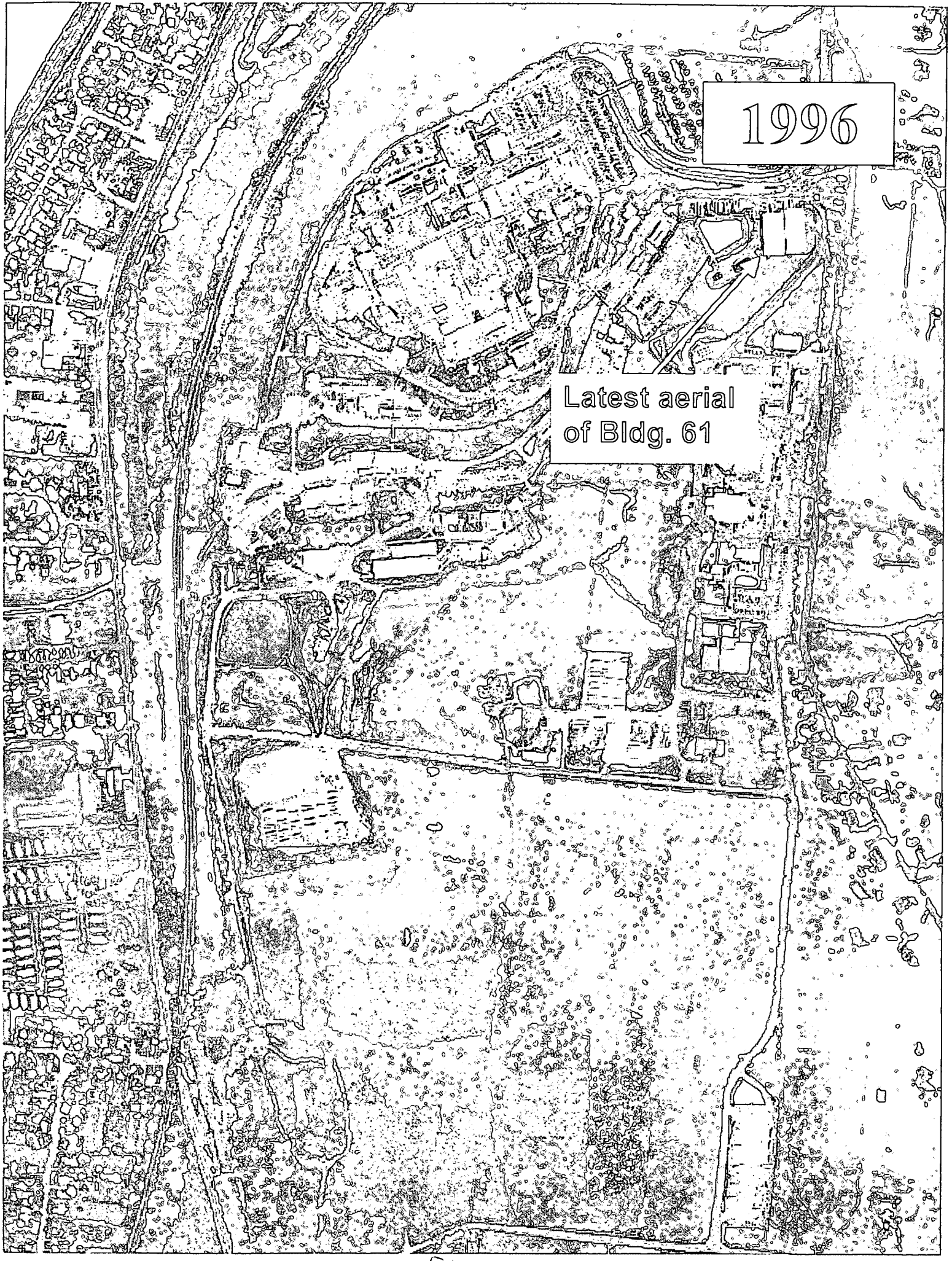
Aerial Photographs


1973
Prior to construction of Bldg. 61


1983
Bldg. 61 constructed
1980. Undergoing
major addition



E3-64


1996
Latest aerial
of Bldg. 61

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

9.80 BUILDING 61

9.80.1 Scope of Building 61 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 61 on the afternoon of January 22, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.80.6.1). The appraisers were accompanied by the building manager and the process manager. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.80.6.2).

9.80.2 Description of Building 61

Building 61 is the central warehouse facility at Mound. It is located west of the perimeter fence, and east of Building 73, a gas cylinder storage area, Building 71, a flammable chemical storage building, and an 800,000-gallon impoundment, built to contain storm runoff. Location is shown in Attachment 3 (Section 9.80.6.3).

The building is a 45,490-square-foot reinforced concrete structure with a metal roof. It was constructed in 1980. A floor plan is presented as Attachment 4 (Section 9.80.6.4). One-half of the building is offices, the other one-half is high, open bays for materials handling. Heating and air conditioning is by ~~is~~ central steam and chilled water. There is electrical service of 240V. No research, development, or production activities using radioactive or energetic materials have occurred in the building (*Mound Facilities Physical Characterization*, 12-1-93).

9.80.3 Summary of Findings

The warehouse appeared to be a clean, well-run facility. Some issues of environmental concern were identified during the walk-through or review of reference materials. They were discussed with the building manager and the process manager. Also, several suggestions were made related for improvement of management practices.

9.80.4 Observations

9.80.4.1 Air Emissions

Emissions from the chemical storage vaults exhaust on the roof. No air emissions permit application has been submitted to the Ohio Environmental Protection Agency (OEPA) for activities in Building 61. There is no evidence that emission loadings have been calculated or that emissions are *de minimis*. There is no evidence of fugitive dust.

9.80.4.2 Wastewater Emissions

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

9.80.4.2.1 Sanitary Wastewater

The building has sanitary service. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.80.6.5), the building is serviced by a sanitary 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 61 does not deviate from that expected by the sanitary treatment plant manager.

9.80.4.2.2 Storm Wastewater

The building is serviced by storm drains according to drawings presented in Attachment 5 (Section 9.80.6.5). Exterior grates and drains were not tested to confirm that they connect to the storm drainage system. Inspection showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water has entered the storm drainage system.

9.80.4.3 Potable and Service Water

Potable and service water are supplied to the building. Sources are properly posted. Backflow preventors are in place as appropriate.

9.80.4.4 Chemical Storage and Hazardous Materials

A 3,000-gallon tank of liquid nitrogen is located outside of the building. It is used to supply dewars throughout the site. Chemical storage vaults are located on the first floor of the building. It was not within the scope of this project to determine if ventilation was adequate in the chemical vaults, however, observation showed ventilators to be in service and drawing air. In the flammables storage room, air flow appeared to draw most strongly from the floor. Flooring was intact, with no cracks.

Storage and handling procedures for chemicals have been developed to comply with applicable standards. However, there is no evidence of a routine inspection program of the vaults to assure that contents are stored correctly, or to limit the holding time of chemicals in the vault. One chemical had been stored for more than three years.

Occupants of the building believed that a sump was located under the chemical storage vaults. By reviewing a building design drawing (Production Support Facilities Building 61 Addition, Plumbing Second Floor Plan, Building Code 306102, Sheet No. 03003303), the process manager determined that there is an "acid waste sump neutralizing basin" which drains the vaults, but not the flammables room. Drawings show that contents of the sump should be neutralized prior to discharge to the sanitary system. There has been no maintenance or inspection of the sump. The sump is not included in The Mound Active Underground Storage Tank Plan.

9.80.4.5 Solid, Hazardous, and Radioactive Wastes

No processes in Building 61 generate solid, hazardous, or radioactive wastes.

9.80.4.6 Waste Minimization and Pollution Prevention

At Mound there is an active program to minimize waste streams in accordance with state and federal requirements and Executive Order 12856. Recycling is conducted for toners, cardboard, metals, and paper. Supplies and some equipment no longer required by requisitioners are returned to the warehouse for redistribution. Prior to disposal of equipment, an attempt is made to excess or sell it. In a unique arrangement with a software supplier, warehouse personnel return thousands of floppy discs no longer in use at Mound for reimbursement.

9.80.5 Findings and Recommendations

The environmental appraisal of Building 61 indicates that the following action items, in priority order, should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

61-1 An analysis of air emissions has not been conducted in accordance with OAC 3745-31. Documentation is not available to determine if the source is *de minimis*. Action should be taken to quantify emissions and provide adequate documentation .

61-2 Chemical vaults drain to a sump, according to design drawings. Procedures should be developed to test sump integrity, and confirm the effectiveness of treatment systems.

61-3 There is no procedure for routine inspection of chemical storage in vaults to assure that chemicals are used in a timely fashion, and that quantities ordered are appropriate to use.

61-4 If chemical storage continues to be limited at Mound, Building 71 may no longer be needed. Consideration should be given to moving chemicals from Building 71 to chemical storage vaults in the warehouse, Building 61. A review of the ventilation system is necessary to assure that adequate ventilation is available.

ENVIRONMENTAL APPRAISAL CHECKLIST

Table of Contents

Checklist	Page
Clean Water Act	1
Clean Air Act	2
Hazardous Materials	4
Safe Drinking Water Act	7
RCRA Hazardous Waste	8
TSCA and NESHAP Requirements for Asbestos	13
TSCA—PCB	14
Low-level and Transuranic Waste	17
Waste Minimization/Pollution Prevention Activities	22

Environmental A[illegible]alsal Checklist

Building Name: 61 Appraisers: Vyre Date: 1-22-96 pm

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	Chemicals stored in vaults + storage cabinets
	Is the building in operation? What are the processes and where do they discharge to?	(Y)/ N _____ _____	Warehouse storage & procurement office
	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	Check BUSTR Report for details about sump
	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)	

ACTIVE UST PROGRAM PLAN

NO-ACTIVE UST PROGRAM MANAGE NOT RM

• Bldg/process manager should learn about sump — develop a P.M. program test underneath check content & level

85 29 7

9-80-9

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	~~[illegible] large vent [illegible] to roof from chemical storage room.~~
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)	N

WHAT

CAA Checklist

Regulatory Guideline	Question	Response	Comments
	Are there existing air permits or applications applicable to the building?	Y / (N)	~~[illegible]~~ ~~[illegible]~~ documentation was not available.
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	

WHAT

- Confirm that documentation is in place to determine emission levels [illegible] minimum [illegible] ation.

F 7 of 58

Environmental . . praisal Checklist

Building Name: 61 Appraisers: Vyas Date: 1-22-96 pm

CAA Checklist

This page is not completed

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:_____

85 of 85

9.80-11

9.80-12

Environmental Appraisal Checklist

Building Name: 61 Appraisers: Vyas Date: 1-22-96

Hazardous Materials (HM) Screening Checklist

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

Chemicals are stored in vaults for distribution around the site

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.1200(b,f)	All containers of hazardous chemicals shall be labeled as to the identity of the chemical and the appropriate hazard warnings.	(Y) / N	
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	(Y) / N	
29 CFR 1910.22, 1910.106, 1910.176	All places of employment, passageways, storerooms and service areas shall be kept clean and orderly and in a sanitary manner. Aisles shall be unobstructed. Drums and containers are not leaking and are tightly sealed.	(Y) / N	
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	(Y) / N	
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	(Y) / N	No routine inspection of vaults
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	exhaust was not measured, but observed.

*Process manager/supervisor should develop & implement a routine inspection program to

F9 of 58

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	
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	Cylinders stored in B~~7~~B
CGA P-1 3.5.3	Full and empty containers should be stored separately with the storage layout planned so that containers comprising of old stock can be removed first with a minimum handling of other containers.	Y / N	
CGA P-1 3.5.8	All compressed gas containers in service or in storage shall be stored standing upright and the container shall be secured.	Y / N	
CGA P-1 4.2.2	Oxygen cylinders shall be separated from flammable gas containers or combustible materials a minimum of 20 ft. or a noncombustible barrier 5 ft. high.	Y / N	
29 CFR 1910.104(2)(10)	Oxygen stored as a liquid shall be on a noncombustible surface. Asphalt is considered combustible. Wood and long dry grass shall be cut back 15 ft. from the container.	Y / N	
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	Y / N	
	Is there an emergency response plan available?	Y / N	

F 10 of 58

9.80-13

9.80-14

F11 of 58

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	
	Is there a liquid bulk transfer area?	Y / N	
	Is there proper containment?	Y / N	
	Is there an above ground storage tank? If so, complete Table B.	Y / N	

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

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

Source: _____

Environmental Appraisal Checklist

Building Name: Appraisers: Date:

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	

F12 of 58

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
61	2nd floor 234	Oasis	
	" " lobby	Oasis	8327-093670
	1st floor 153	Oasis	~~no no~~
	Shipping dock	Oasis	no no.

Source: _____

9.80-15

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	
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	

F 13 of 58

Environmental Appraisal Checklist

Building Name: Appraisers: Date:

RCRA Checklist

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

F 14 of 58

9.80-17

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:		
	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.		

Building Name: Appraisers: Date:

RCRA Checklist

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

F16 of 58

9.80-19

9.80-20

F 17 of 58

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

General Comments:

Environmental Appraisal Checklist

Building Name: 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? If no for this building or area note this conclusion in the comment section.	Y / N	
	Is there any evidence of friable asbestos?	Y / N	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N	If there is no asbestos removal, do not complete the following section.
NESHAPS FOR ASBESTOS FOR ANY ONGOING ASBESTOS REMOVAL:			
40 CFR 61.156	There are no discharges of visible emissions to the outside air from collection, processing, packaging, transporting, or deposition of ACBM during the removal.	Y / N	
40 CFR 61.152(b) (1)	ACBM is treated with water in accordance with 40 CFR 152(b)?	Y / N	
40 CFR 61.154	Is friable asbestos adequately wetted during stripping? Or, has an adequate ventilation and collection system been installed?	Y / N	
40 CFR 61.152	Is wetting continued until the waste friable asbestos is collected for disposal?	Y / N	

F 18 of 58

9.80-21

9.80-22

F19 of 58

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

Environmental Appraisal Checklist

Building Name: 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	
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	

F 20 of 58

9.80-23

9.80-24

F 21 of 58

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	
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: Appraisers: Date:

Low-Level Waste and Transuranic Waste Screening Checklist

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

Low-Level Waste and Transuranic Waste Checklist

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

F22 of 58

9.80-25

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

F 23 of 58

Environmenta. ppraisal Checklist

Building Name: Appraisers: Date:

Low-Level Waste and Transuranic Waste Checklist

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

F24 of 58

9.80-27

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	
	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	

F25 of 58

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

GENERAL COMMENTS:

F26 of 58

9.80-29

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

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

F 28 of 58

9.80-31

9.80-32

F29 of 58

Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

F30 of 58

9.80-33

9.80-34

F 31 of 58

Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

Environment... Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

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

F32 of 58

9.80-35

1 _ u n d Electronic Message/AOS

From :K. ZIMMERMAN
ZIMMKL
Dept. :C & P
Tel. No :865-4585
Date :24-Jan-1996 08:52am EST
Subject :Response to Environmental Self-Assessment

TO :Eunice Warmoth (WARMEM)

CC :CHARLES EVANS (EVANCD)

Eunice:

Please pass this information along to Nancy Vyas. These are items that have been addressed since the self-assessment of 1/22/96 was conducted on Bldg. 61, 71 and 73.

1. All maintenance repairs and sign requests have been forwarded to Facilities Maintenance (see attached AOS messages).

2. Meeting was held on 1/23/96 with all Material Handlers and Traffic Mgt. personnel to discuss the results of the environmental self-assessment and actions that needed to be taken.

   --Provided copy of "Safe Handling of Compressed Gases In Containers" to all applicable personnel.
   --Provided copy of "Reactivity Group Numbers for Chemical Substances" to all applicable personnel.
   --Emphasized need to use FIFO system for issuing chemicals.

3. Notified Industrial Hygiene of need for animal trap for Bldg. 73 and set of new MSDS sheets for chemicals/gases handled through Bldg. 61, 71 and 73.

4. Removed chair, paper and corrosives from flammables room in Bldg. 61.

5. Inventorying cyliders in Bldg. 73 to determine:
   --contents/size for excess to auctioneer
   --empty cylinders to be returned to supplier(s)
   --unmarked cylinders to be returned to supplier(s)
   --Matheson will pickup their cylinders on 1/25/96
   --Air Products scheduled to pickup their cylinders next week

6. Removed non-brass/plastic tools from Bldg. 73

7. Cylinders that were laying horizontally along side of bldg. have been set vertically and chained

8. Notified Waste Mgt. that waste cylinders needed to be picked up weekly in lieu of quarterly. There is resistence to this request and will need further discussion/documentation to support.

9. Talked to Fire Safety Engineer who is going to meet with me next week to assess bringing chemical stocks back into Bldg. 61 storage areas and looking at shutdown of Bldg. 71.

10. Inventory Mgt. is assessing usage on all stock chemicals, looking at frequency of turns, and determining if older chemicals should be excessed to Waste Mgt. We are going to try to make chemicals an order on request which would get us out of the longterm storage business.

Action Items Yet To Be Pursued:

1. Create Self Inspection Program for Bldg. 61, 71 & 73

2. Post cylinder handling procedures

3. Write procedures for gas cylinder deliveries

4. Work with Waste Mgt. on obtaining profile sheets for chemicals/gases stored in Bldg. 61, 71 & 73

I N T E R O F F I C E M E M O R A N D U M

Date: 24-Jan-1996 07:17am EST
From: K. ZIMMERMAN
ZIMMKL
Dept: C & P
Tel No: 865-4585

TO: See Below

Subject: Information for Work Required for Bldg. 61, 71 and 73

Joe:

Below are items that were identified during an Environmental Self-Assessment on Monday that need to be addressed as soon as possible. When we meet, these are the items I would like to discuss with you:

Bldg. 61

--Repair dock safety chain
--Lift on dock #2 is malfunctioning
--Repair all lights that are motion-sensored on Property Mgt. side of building This has been a safety concern of mine for several months.
Repair two lights located in Flammables Room.
--First floor of Bldg. 61 has no load limit signs
--Need A-frame signs made that read "Metals Only" and "Wood Only" for area around dumpsters on west side of building.

Bldg. 71

--Drill holes in MSDS box in Bldg. 71 for water drainage
--Check placarding on building
--Inspect/repair lights
--Fabricate and place sign between bldg. 71 and 73 - "Do Not Discard Skids At This Location"

Bldg. 73

--Fabricate/install sign designating location of MSDS sheets (Refer to Kathy Koehler AOS message)
--Install MSDS station & drill holes in tray for water drainage
--Install No Smoking signs
--Fabricate/install a sign alerting personnel of location of fire extinguisher
--Repair dock safety chain
--Inspect/repair lights

Distribution:

TO: George Fudge (FUDGGJ)

CC: AMMO, MSR - Responses (AMMO)
CC: CHARLES EVANS (EVANCD)

F35 of 58

9.80-39

Title: Building 71, Repair Floor cracks.

Please caulk all concrete floor cracks on the Building 71 concrete slab. Use a caulk that is fairly resistant to flammable liquids which include ethylene glycol, alcohol 200 proof, acetone, etc.

MSR 3:

Title: Building 61, Clean Exhaust Air louvers/grills in Rooms 115, 114, 113, and 112.

Clean exhaust louvers/grills in rooms 115, 114, 113, and 112. Clean exhaust Duct work. Confirm that each room is under negative pressure.

MSR 4:

Title: Building 71 and 73 Signs

Make 2 of each of the following signs which state (or something comparable) the italicized text below. The signs should be large enough to be noticeable but not too large to be in the operators way.

"In case of emergency, call 911"

"No Smoking"

Install one of each sign in building 71 and building 73.

This completes the Building Managers action items.

Note: John Hausfeld and Nancy were going to inquire about the Sump at building 61. There are presently no action items for the building manager associated with the sump at 61 which supports the temporary storages areas in room 115, room 114, and room 113.

Kathy Koehler

Distribution:

TO: Margaret Sticklen F36 of 58 (STICMA2)

M O U N D Electronic Message

Date: 23-Jan-1996 08:46am EST
From: Katherine Koehler
KOEHKG
Dept: ENGINEERING
Tel No: 865-4886

TO: See Below

Subject: MSR's for Environmental Audit Response

Margie, January 23, 1996

Please enter the following MSR's on the AMMO system. This work requires a high priority for completion to ensure that it will not show up as a potential environmental concern in the final Environmental Audit report hired by EG&G.

The audit was conducted the afternoon of January 22, 1996. Building managers and Operations managers were told that response actions must be initiated within 72 hours of the audit close-out meeting to ensure that the Environmental Deficiencies would not be included in the final Environmental Assessment Report.

My HP is [redacted].
My extension is 4886.
Please use the building repair charge numbers.

MSR 1:

Title: Drain and Inspect Building 71 floor drain collection tank

Please dispose of water in the collection tank located below the floor drain at building 71. The water may be discharged to the storm sewer upon verbal approval of John Hausfeld. John will conduct any necessary sampling/analysis prior to the discharge to the storm sewer.

Once the tank is drained, please inspect the tank to verify that there are no leaks. If visual inspection is not possible, do the following:
1) Ensure that there will be minimal change of rain through the next two working days.
2.) Fill the tank with water. Remove the floor drain and mark the water level with a grease pencil. Check the water level the following business day, approximately 24 hours. Measure drop in water level and inform Kathy Koehler.
3.) Drain Tank. Discharge water to storm sewer.

MSR 2:

Title: Building 71, Repair Floor cracks.

Please caulk all concrete floor cracks on the Building 71 concrete slab. Use a caulk that is fairly resistant to flammable liquids which include ethylene glycol, alcohol 200 proof, acetone, etc.

MSR 3:

Title: Building 61, Clean Exhaust Air louvers/grills in Rooms 115, 114, 113, and 112.

Clean exhaust louvers/grills in rooms 115, 114, 113, and 112. Clean exhaust Duct work. Confirm that each room is under negative pressure.

MSR 4:

Title: Building 71 and 73 Signs

Make 2 of each of the following signs which state (or something comparable) the italicized text below. The signs should be large enough to be noticeable but not too large to be in the operators way.

"In case of emergency, call 911"

"No Smoking"

Install one of each sign in building 71 and building 73.

This completes the Building Managers action items.

Note: John Hausfeld and Nancy were going to inquire about the Sump at building 61. There are presently no action items for the building manager associated with the sump at 61 which supports the temporary storages areas in room 115, room 114, and room 113.

Kathy Koehler

Distribution:

TO: Margaret Sticklen F38 of 58 (STICMA2)

o 80-44

C	John Hausfeld	(HAUSJR)
C:	JON D. YONKO	(YONKJD)
C:	ALLEN W. UPSHAW	(UPSHAW)
C:	Johnny V. Adams	(ADAMJV)
C:	George Fudge	(FUDGGJ)
C:	W. B. Clark	(CLARWB)
C:	Dave B. Armstrong	(ARMSDB)
C:	K. ZIMMERMAN	(ZIMMKL)
C:	CHARLES EVANS	(EVANCD)
C:	Eunice Warmoth	(WARMEM)

I N T E R O F F I C E M E M O R A N D U M

Date: 24-Jan-1996 08:15am EST
From: K. ZIMMERMAN
ZIMMKL
Dept: C & P
Tel No: 865-4585

TO: See Below

Subject:Request for Trap

Randy:

This is to document my TAMI message to you on 1/23/96. As a result of a self-assessment environmental audit of Bldg. 73 on 1/22/96, it appears our racoon friend has returned. Would Ind. Hygiene please set a trap to see if we can get our friend removed? We will be locking the gates to the building which may help deter the visitor(s), but the building has openings that I'm sure they will find their way in if the weather drives them to it.

Also, would you please produce one set of MSDS sheets for the chemicals and gases we have in Bldg. 61, 71 and 73? I will duplicate them and get them posted when they are received. I want to make sure the set(s) we have in Bldg. 61 and 71 are up-to-date.

Thanks for your assistance!

Karen Zimmerman
Distribution:

TO: Randall Wood (WOODRL)

CC: Katherine Koehler (KOEHKG)

9.80-47

Distribution:

TO:	Margaret Sticklen	(STICMA2)
CC:	John Hausfeld	(HAUSJR)
CC:	JON D. YONKO	(YONKJD)
CC:	ALLEN W. UPSHAW	(UPSHAW)
CC:	Johnny V. Adams	(ADAMJV)
CC:	George Fudge	(FUDGGJ)
CC:	W. B. Clark	(CLARWB)
CC:	Dave B. Armstrong	(ARMSDB)
CC:	K. ZIMMERMAN	(ZIMMKL)
CC:	CHARLES EVANS	(EVANCD)
CC:	Eunice Warmoth	(WARMEM)

Distribution:

TO:	PAUL C. MOLLOY	(MOLLPC)
TO:	Gary D. Miller	(MILLGD)
TO:	DOUG GABRIEL	(GABRDM)
TO:	Francis A. Koehler	(KOEHFA)
TO:	GARY L. MORRIS	(MORRGL)
CC:	Eunice Warmoth	(WARMEM)

M o u n d Electronic Message/AOS

From :Timothy J. Hoye
HOYETJ
Dept. :Technology
Tel. No :(513)865-4847; hoyetj@doe-md.gov
Date :19-Jan-1996 06:13am EST
Subject :Environmental Assessment Update

Current status of Observations from the Wednesday Tour:

1. The un-labled bag of waste liquid has been labeled and placed into a protective container. HP survey of the liquid is in process. (CLOSED)

2. Housekeeping in storage area has been addressed. Paint and adhesive will be transferred to maintenance for storage or disposed of with Waste Management. No ethanol was noted in the area as previously reported. (CLOSED)

3. The MSDS listing for the building has been properly labeled indicating that the last update was in 6/95. (CLOSED)

4. Concern over the building sump are being reviewed.

5. All discussions to date indicate that PCB containing transformers and capacitors were removed from the building/substation during a project engineered by John Lyons, approximately 3 years ago. T. Geesner has information to assist in locating project files if that is required. (CLOSED?)

6. (drums on N. side) No Status.

7. Steve Romage indicated that the crane bridge and trolley should be labeled with capacity. An MSR is being initiated to assure that this is completed. Since the crane has been inspected and approved by Mound personnel its use will continue as needed.

M o u n d Electronic Message/AOS

From :Katherine Koehler

KOEHKG

Dept. :ENGINEERING

Tel. No :865-4886

Date :23-Jan-1996 08:46am EST

Subject :MSR's for Environmental Audit Response

Margie, January 23, 1996

Please enter the following MSR's on the AMMO system. This work requires a high priority for completion to ensure that it will not show up as a potential environmental concern in the final Environmental Audit report hired by EG&G.

The audit was conducted the afternoon of January 22, 1996. Building managers and Operations managers were told that response actions must be initiated within 72 hours of the audit close-out meeting to ensure that the Environmental Deficiencies would not be included in the final Environmental Assessment Report.

My HP is [redacted].

My extension is 4886.

Please use the building repair charge numbers.

F44 of 58

9.80-55

MSR 1:

Title: Drain and Inspect Building 71 floor drain collection tank

Please dispose of water in the collection tank located below the floor drain at building 71. The water may be discharged to the storm sewer upon verbal approval of John Hausfeld. John will conduct any necessary sampling/analysis prior to the discharge to the storm sewer.

Once the tank is drained, please inspect the tank to verify that there are no leaks. If visual inspection is not possible, do the following:

1) Ensure that there will be minimal change of rain through the next two working days.

2.) Fill the tank with water. Remove the floor drain and mark the water level with a grease pencil. Check the water level the following business day, approximately 24 hours. Measure drop in water level and inform Kathy Koehler.

3.) Drain Tank. Discharge water to storm sewer.

MSR 2:

Title: Building 71, Repair Floor cracks.

Please caulk all concrete floor cracks on the Building 71 concrete slab. Use a caulk that is fairly resistant to flammable liquids which include ethylene glycol, alcohol 200 proof, acetone, etc.

MSR 3:

Title: Building 61, Clean Exhaust Air louvers/grills in Rooms 115, 114, 113, and 112.

Clean exhaust louvers/grills in rooms 115, 114, 113, and 112. Clean exhaust Duct work. Confirm that each room is under negative pressure.

MSR 4:

Title: Building 71 and 73 Signs

Make 2 of each of the following signs which state (or something comparable) the italicized text below. The signs should be large enough to be noticeable but not too large to be in the operators way.

"In case of emergency, call 911"

"No Smoking"

Install one of each sign in building 71 and building 73.

This completes the Building Managers action items.

Note: John Hausfeld and Nancy were going to inquire about the Sump at building 61. There are presently no action items for the building manager associated with the sump at 61 which supports the temporary storages areas in room 115, room 114, and room 113.

Kathy Koehler

COMPLETED BY ORA SIMPSON W/HELP FROM BILL ABNEY

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler Phone: 196 Date: 12-07-95
Alternate: _____ Phone: _____

Post-it® Fax Note 7671	Date 12/13/95	# of pages ▶ 33
To CHUCK EVANS	From KATHY KOEHLER	
Co./Dept.		
Phone # 4760	Phone # 4886	
Fax # 4803	Fax #	

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

Board of the Power

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

none

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

Banding [illegible] shipping - [illegible] and [illegible] - [illegible]

4. Provide a physical description of the building.

Building is a 45,490-ft² structure of reinforced concrete with a metal roof. One-half the building is in offices, the other one-half is high, open bays for warehouse and materials handling. HVAC is central steam and chilled water. The building is not contaminated with radioactive or energetic materials.

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

5. Provide a drawing of the building.

Attached.

6. What is the current building use?

Building is used for contracting and procurement, shipping and receiving, Property Management storage, warehouse, ~~and~~ mail services, and transportation services. Building contains both office and warehousing areas. A large tank of liquid nitrogen outside the building supplies dewars throughout the Mound site. isotopes groups, & construction inspection groups Office

Source: Mound Buildings, 5-9-95

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

Source: Mound Buildings, 5-9-95

9.80-61

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler 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: Materials management — Karen Zimmerman

How Wastes Are Generated:

No hazardous wastes are generated in this building.

Contact: Karen Zimmerman
Phone #: 4585

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

F 49 of 58

9.80-62

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

10. Does the building have air emission sources? No

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

Source: Mound Air Emissions Database 11/30/95

F50 of 58

9.80-63

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95

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

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

Source: Air Permits 2/4/95

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

14. Does the building discharge to the storm sewer? Yes No UNKNOWN
Where? Check with Frank Baker 3438

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

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

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

F51 of 58

Building Manager's Questionnaire

Building Name: 81 Building Manager: K.G. Koehler 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.

NOT CURRENT SEE NOTE

Chemical Name	State	Amount (MAX)
ANCO TREAT	L	330 GA
CLEANER/CONQUEST	L	180 GA
CLEANER, DAMP MOP	L	246 GA
CLEANER, SPARTAN	L	2400 QT
CLEANER, WINDOW	L	408 GA
FLOOR, FINISH	L	270 GA
GREASE-B-GONE	L	90 GA
ODOR BANE	L	90 QT
SEALER	L	90 GA
SOAP	L	
SOAP, LOTION	L	12 GA
STRIPPER	L	486 GA
STRIPPER	L	162 GA
WASP KILLER	L	2584 OZ
ANCO FLOC	L	55 GA
ANCO STEAM	L	55 GA
HYDROCHLORIC ACID	L	780 LB
HYDROFLUORIC ACID	L	24 L
HYDROGEN PEROXIDE	L	36 PT
NITRIC ACID ARGON(R)	L	288 L
PHOSPHORIC ACID	L	12 LB
SULFURIC ACID	L	15 L
AMMONIUM HYDROXIDE	L	1152 LB
AQUA AMMONIA	L	188 GA
CHLORETHANE	L	576 OZ
LIQUID PLUMBER	L	72 QT
REFRIGERANT #22	L	1800 LB
REFRIGERANT # 502	L	90 LB
REFRGERANAT # 12	L	60 LB
SODIUM HYDROXIDE	S	160 LB
ULTIMA GOLD	L	150 GA
ULTIMA GOLD AB	L	60 GA
ULTIMA GOLD EXTENDED RANGE	L	24 GA
MARKING PAINT	L	600 OZ
MARKING PAINT	L	144 OZ

NOTE: Source: Chemical Inventory 1994 – The 1995 Chemical Inventory should be used and was submitted to Industrial Hygiene

9.80-65

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler 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
mercury spill	blood pressure cuff	Fire department

Source: Fire Department report Oct-Nov 1995

21. Where do waste chemicals go?

Waste Management

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

all normal janitorial supplies are located in southeast corner of Bldg 61 (first floor)

23. Where do excess janitorial supplies go?

Property management or Waste Management

Source: N/A

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

Chemical	Amount	Chemical	Amount

Source: _____

FS3 of 58

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler 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.

Delete

Registration Number	Content	Quantity	Last Inspection Date	Preventive Maintenance Performed	Inside Or Outside
	Nitrogen	3000 gal		Y/N	
7697-37-2	Nutric acid	02C		Y/N	
7664-93-9	sulfuric acid	01C		Y/N	
7782-37-9	nitrogen	04C		Y/N	outside
				Y/N	

OK

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

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

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

Source: _____

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

Materials	Amount

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

9.80-67

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

28. Does the building have abandoned process equipment such as tanks, piping, containers, etc.? Yes No
Property management has abandoned process equipment
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
Scrap metal and recyclable cardboard
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: _____

F55 of 58

9 80-68

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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

F57 of 58

9.80-70

Building Manager's Questionnaire

Building Name: 61 Building Manager: K.G. Koehler 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.

Scrap metal, toner cartridges, paper recycling

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

P 58 of 58

9.80-71

Appendix G

Radiological Information

Final Status Report

For

Building 61

Prepared by:	Roderick C. Case /	Date:	August 26, 2002
Reviewed by:	Galen Tomlinson /	Date:	August 26, 2002
Approved by:	Steve Collas /	Date:	August 26, 2002

G1 of 124

1.0 Historical Review

Building 61 is located in the plant valley, near the plant entrance gate ("Post 8"), off the SM/PP Hill, in the northeastern part of the site.

Based upon construction drawings, Building 61 was constructed in about 1980, as the " Logistical Support Warehouse." At the time of construction, the building contained 8,588 ft^2as noted by a 1984 Mound Fact Book, Today Building 61 square footage is noted as 45,490 ft^2.

Building 61 through most of its history has functioned as a warehouse. The materials stored have ranged from chemical product, office supplies, newly purchased waste storage containers, as well as excess furniture, equipment, and computers. The building has also provided office areas for warehousing staff and for materials acquisition staff. Building 61 was a warehouse for specialty items unique to nuclear facilities (i.e. there was a source vault for storing radiological sources).

The building warehouse function of Building 61 was expanded in the 1990's to include a function unique to a closure facility. This function is the management of excess materials. As a consequence of this expanded function, a limited number of radioactively contaminated items found their way to Building 61's warehouse. Once discovered, these items were removed, and the affected areas cleaned and checked for radiological contamination. Three distinct areas were posted as Radioactive Materials Management Areas (RMMA) in accordance with Mound Radiological Controls procedures as a result of this discovery. Additionally, the vault (Room 112) was used to hold incoming radioactive material or radioactive material awaiting shipment and was also posted as an RMMA. These areas have a slight potential for residual contamination and will require investigation as impacted areas. Building 61 is scheduled for transition to public use in the second half of 2002. A complete history of Building 61 can be found in Reference 1.

2.0 Survey Objectives

An assessment of Building 61 history and use indicate that there is no reasonable potential for residual contamination to be present on most building surfaces. Exceptions were noted at four distinct areas where radiological material was found or stored. A scoping survey plan was designed to evaluate the non-impacted designation of the major areas of the building. A characterization survey plan was developed to evaluate residual contamination in the designated RMMA areas.

The objectives for the survey were to measure the fixed and removable contamination on building floor surfaces and analyze any sediment found in building drains or sumps for the presence of any radionuclides. Floor surfaces have the greatest potential for residual contamination. Floor drains and sumps are likely areas for residual contamination to build up over a period of time. The specific survey objectives are outlined on Survey Plan Form SPF 61-01 and SPF 61-02.

The Scoping Survey results were compared directly to the Derived Concentration Guideline Level ($DCGL_W$). Any result that is greater than 50% of the DCGLw was

investigated to determine if the measured activity is a result of plant operations or of natural origin. Characterization results were averaged for the survey unit and compared to the $DCGL_w$. If all results are less than the $DCGL_w$, the null hypothesis is rejected and the survey unit passes.

2.1 Survey Design

The initial scoping survey was designed to evaluate the administrative office areas and the large, open warehouse area. The first floor surface is predominately concrete and the second floor is predominately carpet. Major walkways throughout the survey unit were scanned with a floor type monitor. Seventy (70) data points were bias located throughout the survey unit and fixed and removable contamination surveys were performed at each location. External surfaces (roof and exterior walls) are surveyed as a unit and are considered to be non-impacted.

The four areas where radioactive materials had been stored are collectively one survey unit (approximately $72m^2$) and initially classified as a Class 3 survey area per Reference 2. Twenty (20) Data points were located by a random number process and 50% of the surface area was scanned for alpha contamination. Fixed and removable contamination surveys were performed at each data point. A grid representation of these areas is shown in Attachment 2.

Ten (10) additional judgmental data points were surveyed in the survey unit. Sediment and water samples were taken of accessible drain and sumps. Sediment was collected at low points near the roof drains. If no sediment was available in these areas, smears were obtained for isotopic analysis.

Replicate surveys were performed in accordance with Reference 3.

The instruments selected for this survey were the Ludlum 2350-1 data logger with a 43-20 hand-held gas flow proportional (GFP) detector and a 43-37 GFP large area floor probe for alpha measurements. A NE Electra with a dual scintillation probe was selected for beta measurements. Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The gross alpha and beta measurements of the non-impacted interior areas of the first floor and the second floor were compared directly to the $DCGL_w$. Direct measurements taken in these areas were all less than 50% of the $DCGL_w$ for surface activity. The highest alpha activity observed by scanning the non-impacted areas was 49 dpm/$100cm^2$ except as noted below.

It was noted that elevated counts were observed at five locations while scanning sections of carpeting on the second floor. The highest observed activity was 1084 dpm/$100cm^2$ alpha on small sections of carpet tape. The tape was removed and the areas under the tape surveyed. The highest observed activity under the taped areas was 32dpm/$100cm^2$ alpha. The tape was allowed to decay for 48 hours and was resurveyed. The highest activity on the resurveyed tape was 43dpm/$100cm^2$. The short half-life of this activity (8 hours) is consistent with naturally occurring background radioactive materials (e.g. Radon daughters) which have an affinity for the plastic and tacky nature of carpet tape and would tend to concentrate on these

surfaces. Smears taken on and under the taped surfaces showed no loose surface alpha, beta, or tritium activity (See RSDS# 02-TF-1092).

The gross alpha and beta measurements of the Class 3 areas were averaged and compared to the $DCGL_w$. None of the results were greater than the $DCGL_w$, therefore the Sign Test was not utilized. 50% of the total surface area was scanned for alpha contamination. The highest observed measurement was 71 dpm/100cm^2.

The roof and exterior walls showed gross alpha activity in excess of the $DCGL_w$. The highest observed activity on the roof was 184dpm/100cm^2 and the highest observed activity on the exterior walls was 165dpm/100cm^2. These areas were sampled by intrusive methods (acid etching) to determine the radionuclide(s) present. The two data points with the highest activity on the roof and outside walls were selected as sample locations. All sample results were predominantly Po^{210} (average 84%) which is prevalent in the background at Mound. When corrected for Po^{210}, the highest alpha reading on exterior walls is 40dpm/100cm^2 and the highest alpha reading on the roof is 22dpm/100cm^2.

The following table shows the results of the maximum and average total (fixed and removable) alpha and beta activity for each area. A graphical representation of the Class 3 area is shown in Attachment 1.

Total Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	σ	Max	Average	σ
1st & 2nd Floor	21	15.8	± 12.3	1718	1304.4	± 209.7
Class 3 Area	52	31.4	± 5.81	910.0	594.1	± 62.43
Roof	184	147.2	± 32.8	522	1012.4	± 129.85
Outside Walls	165	98.6	± 29.11	649	1093.7	± 136.32

The highest removable tritium activity was 100.8 dpm/100cm2 (RSDS# 02-TF-1150). The average removable tritium was 2.35 dpm/100cm2 (±11.2).

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

Removable Alpha & Beta Activity Results

Area	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Max	Average	σ	Max	Average	σ
1st & 2nd Floor	5.91	0.91	± 1.43	5.26	1.45	± 1.39
Class 3 Areas	.36	.09	± 0.18	3.17	1.76	± 1.14
Roof	11	3.26	± 4.56	3.1	1.20	± 1.48
Outside Walls	3.5	1.01	± 1.26	9.8	4.04	± 2.88

2.3 Sediment Sample Data

Sediment (or water) samples were obtained from all accessible floor drains, sink traps, and sumps. If no sediment was present then a smear sample was obtained for isotopic analysis. Sixteen smears were taken in various drains and ventilation ducts throughout the building. The highest gross alpha activity was 5.43 dpm/smear (#124-5) and the highest gross beta activity was 7.87 dpm/smear (#155-2). See RSDS # 02-TF-1140.

Eleven water samples and two sediment samples were collected. All samples were collected in accordance with the appropriate sample plan (SPF# 61-01, 61-02) and submitted to the on-site laboratory for gamma spectroscopy analysis. All results were below the Mound screening levels for each identified isotope. The following table shows the highest activity detected by sample location and type:

Sediment Sample Results

Sample Location	Sample Number	Sample Type	Gross Alpha (dpm/ml)	Th230 (pCi/g)	Th232 (pCi/g)	Ra226 (pCi/g)	H3 (nCi/L)
Room 151 Drain Trough	151-1	Sediment	-	6.78*	.37	1.64	-
Room 125 Sump	125-29	Water	<.16	-	-	-	1.68
Screening Level	-	-	2	~~10~~*	1.47	2.1	1,000

*See Appendix G, pages 123 and 124. (VKH) 11/25/02.

Sediment was collected from the roof storm drain areas and composited into two samples. The first sample was predominantly moss debris and the second sample was dirt. The samples were analyzed on site by the Environmental Laboratory using gamma and alpha spectroscopy (RSDS# 02-TF-1250). The results are consistent with levels found in similar natural materials on site.

2.4 Quality Control

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

Replicate Analysis Results

Location #	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Initial	± 2σ	Replicate	Initial	± 2σ	Replicate
4	19	8.72	26	1282	71.61	1306
15	6	4.90	2	1335	73.08	1220
8	15	7.75	30	1062	65.18	1118
SU#1	28	10.58	47	1316	72.55	1300
SU#2	109	20.88	85	1117	66.84	1005
Variance (S^2)	1755.3		948.5	15457.3		16466.2
Ratio			1.9			.94
Agreement			Yes			Yes

Replicate analysis were not performed on smears since the analysis for tritium is a destructive process. 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 additional assurance of nuclide identification reliability and ensures a high quality of sample results. Since a relatively small number of samples were taken for this survey, additional replicate analysis is not required for this survey.

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

Chain of custody was maintained for all sediment samples and is documented on the Field Sample Data Collection Sheet.

2.5 Conclusion

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

Building 61 Survey Results (Inside Surfaces)

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)	COMMENTS
Highest Alpha Smearable Activity	02-TF-1094	Room 217 Floor, #19	5.91	20	
Highest Alpha Fixed Activity	02-TF-1149	Room 112, Vault Floor, #1	71	100	Scan result. Highest fixed point = 52 dpm/100cm^2
Highest Beta Smearable Activity	02-TF-1150	Area 1, #1 & Vault, #18	5.48	1,000	Two locations were the same
Highest Beta Fixed Activity	02-TF-1094	Floor Room 228, #5	1,158	5,000	
Highest Tritium Smearable Activity	02-TF-1150	Vault Floor, #16	100.76	10,000	

Note 1: Core Team determined values
Note 2: Corrected for background

Building 61 Survey Results (Outside Surfaces)

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm²) (Note 2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm²) (Note 1)	COMMENTS
Highest Alpha Smearable Activity	02-TF-1248	#12 Southeast Roof	11.0	20	
Highest Alpha Fixed Activity	02-TF-1248	#12 Southeast Roof	40	100	Note 3
Highest Beta Smearable Activity	02-TF-1248	#5 Northeast Wall	9.8	1000	
Highest Beta Fixed Activity	02-TF-1248	#8 South Wall	648	5000	
Highest Tritium Smearable Activity	02-TF-1248	#1 Southwest Wall	5.8	10,000	

Note 1: Core Team determined values
Note 2: Corrected for background
Note 3: Corrected for Po-210 interference

The scoping survey results support the designation of Building 61 as non-impacted in accordance with Reference 2. All of the DQO's for this survey plan have been met and the data supports the Class 3 designation of Survey Unit 1. The characterization survey results of the small areas where radioactive material had been stored (Survey Unit 1) demonstrate that residual activity is less than the $DCGL_W$. The null hypothesis is stated as "The average residual activity in the survey unit does not meet the release criteria". Based on the results of this survey, the null hypothesis is rejected and the survey unit passes.

3.0 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

Attachment 2 – Survey Unit 1 Data Points

Attachment 3 – Sample Data Analysis Worksheets

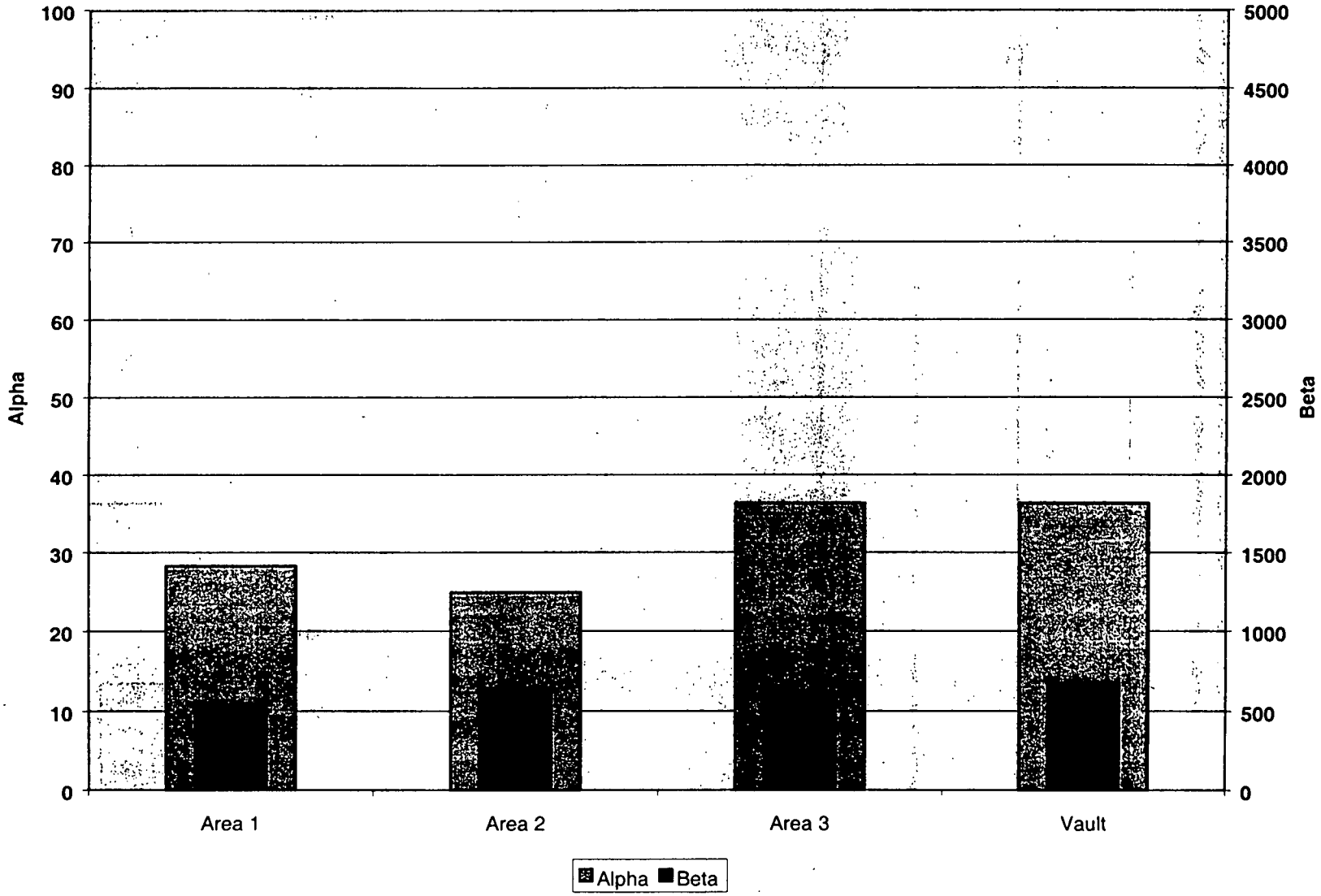
Enclosures – SPF 61-01

SPF 61-02

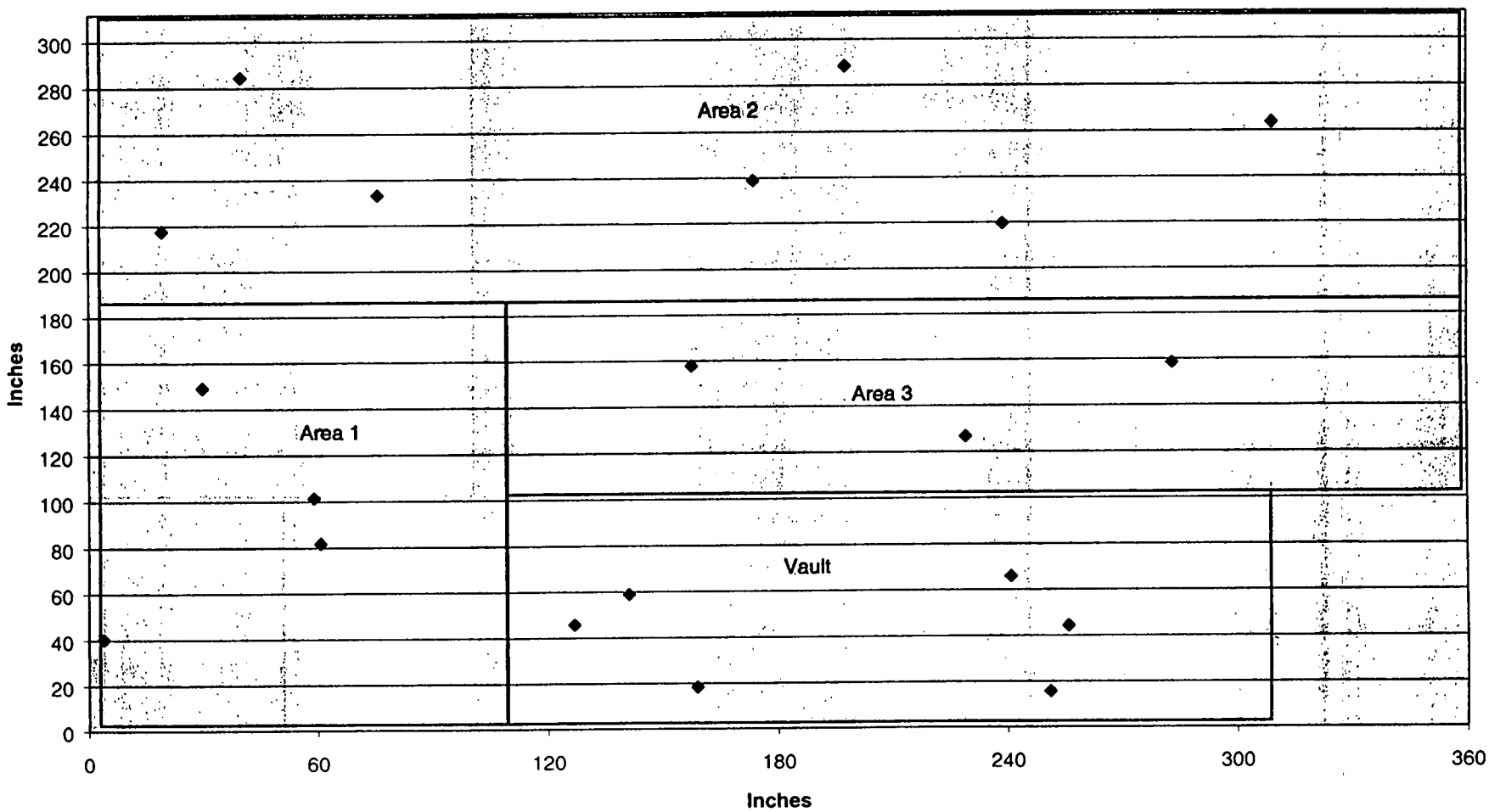
4.0 References

1. BWXTO, EC&AS Department, White Paper: *Building 61 Structural History and Process History Summary Background Document*, February 2002
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

Building 61 Average Total Alpha and Beta (dpm/100cm2)



Building 61 Survey Unit 1



Survey Data Building 61

	REMOVABLE				FIXED		
Smear #	DPM α	DPM β	H3	Loc #	dpm α	dpm β	Net dpm β
1	3.48	1.81	0.00	1	6	1345	618
2	3.51	2.08	2.08	2	6	1490	763
3	3.79	2.48	0.00	3	9	1244	517
4	0.00	3.14	0.15	4	11	1876	1149
5	0.00	2.17	0.00	5	7	1885	1158
6	0.00	1.19	0.00	6	9	1837	1110
7	1.59	1.29	0.16	7	2	1545	818
8	0.00	2.33	7.92	8	15	1062	335
9	1.56	2.50	0.00	9	13	1412	685
10	0.00	2.00	1.31	10	9	1617	890
11	3.73	1.76	0.00	11	2	1313	586
12	0.00	1.95	2.33	12	6	1292	565
13	0.00	2.48	6.81	13	4	1330	603
14	1.57	2.10	3.77	14	9	1258	531
15	1.62	2.22	0.16	15	9	1335	608
16	1.48	2.67	0.00	16	2	1445	718
17	1.45	1.28	1.71	17	7	1316	589
18	3.50	3.41	0.00	18	9	1325	598
19	5.91	2.48	1.20	19	7	1282	555
20	3.45	2.64	0.00	20	13	1545	818
1	0	5.26	0.00	1	11	1114	387
2	0	0.00	0.00	2	7	1115	388
3	0	1.44	0.00	3	7	1135	408
4	0	0.00	0.00	4	19	1282	555
5	0	0.00	0.00	5	11	1282	555
6	0	0.00	0.00	6	2	1158	431
7	0	4.65	0.00	7	4	943	216
8	0	0.00	0.00	8	7	1005	278
9	1.65	0.00	0.00	9	9	1536	809
10	0	0.69	0.00	10	15	1010	283
11	1.78	0.00	0.00	11	21	1718	991
12	0	1.19	0.00	12	9	1110	383
13	0	0.60	0.00	13	6	1062	335
14	0	4.94	0.00	14	9	1072	345
15	0	0.00	0.00	15	6	1019	292
16	0	0.00	0.00	16	21	1182	455
17	0	1.46	0.00	17	19	1321	594
18	1.89	3.44	0.00	18	21	1139	412
19	0	0.23	0.00	19	7	890	163
20	0	0.00	0.00	20	7	938	211
21	0	0.24	0.00	21	7	1005	278
22	0	0.00	0.00	22	15	1167	440

Building 61 Survey Data Analysis Worksheets

Attachment 3

Smear #	DPM α	DPM β	H3	Loc #	dpm α	dpm β	Net dpm β
23	0	0.00	0.00	23	19	1230	503
24	0	0.59	0.00	24	21	1402	675
25	0	1.36	0.00	25	15	1283	556
26	0	0.69	0.00	26	13	1230	503
27	1.78	0.00	0.00	27	4	1134	407
28	0	0.00	3.21	28	11	1282	555
29	1.76	0.43	0.00	29	9	1493	766
30	0	1.08	0.00	30	7	1230	503
1	0.00	5.48	0.00	1	47	1172	426
2	0.00	0.00	5.90	2	33	1407	661
3	0.00	1.37	0.00	3	19	1211	465
4	0.00	1.37	3.79	4	14	1359	613
[redacted]	0.00	0.00	2.98	[redacted]	28	1263	517
[redacted]	0.00	2.74	0.00	[redacted]	24	1517	771
[redacted]	0.00	2.74	9.91	[redacted]	42	1483	737
[redacted]	0.00	0.00	1.97	[redacted]	28	1316	570
[redacted]	0.00	1.37	0.00	[redacted]	14	1349	603
[redacted]	0.00	1.37	3.19	[redacted]	19	1340	594
[redacted]	0.00	1.37	0.75	[redacted]	19	1254	508
[redacted]	0.00	0.00	4.86	[redacted]	19	1345	599
[redacted]	0.00	0.00	0.91	[redacted]	52	1172	426
[redacted]	0.00	1.37	4.71	[redacted]	38	1363	617
[redacted]	0.00	2.74	5.61	[redacted]	24	1397	651
[redacted]	2.18	2.58	100.76	[redacted]	24	1287	541
[redacted]	0.00	4.11	8.47	[redacted]	38	1397	651
[redacted]	0.00	5.48	1.98	[redacted]	52	1392	646
[redacted]	0.00	0.00	0.43	[redacted]	38	1388	642
[redacted]	0.00	4.11	0.00	[redacted]	42	1656	910
1	0	6.1	5.8	OSW	99	1083	384
2	0	4.6	1.2	OSW	85	953	254
3	0	3.3	0	OSW	76	906	207
4	0	1.4	0	OSW*	109	1117	418
5	1.5	9.8	0	OSW	76	1038	339
6	1.6	3.8	0	OSW	85	1160	461
7	1.5	0.8	0	OSW*	165	1146	447
8	3.5	2.5	0	OSW	94	1347	648
9	1.8	0.4	0	Roof*	165	1000	301
10	0	0	0	Roof	132	930	231
11	3.5	3.1	0	Roof	156	883	184
12	11	2.5	0	Roof*	184	1028	329
13	0	0	0	Roof	99	1221	522
4R				QC	85	1005	306
S8R				QC	30	1118	811
8				QC	47	1300	699
S4R				QC	26	1306	786
S15R				QC	2	1220	786

* sampled

=Max

SU 1 Data Point Plotting

Building 61 Survey Data Analysis Worksheets

Attachment 3

Area 1
Area 2
Area 3
Vault

	X	Y				X	Y
1	256	8	45	45	Area1	4	40
2	59	59	102	102		61	82
3	127	55	46	46		59	102
4	157	85	158	44		30	149
5	[illegible]	[illegible]	[illegible]	[illegible]	Area 2	[illegible]	[illegible]
10	61	61	82	82		[illegible]	[illegible]
6	283	85	158	44		[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	Area 3	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
13	4	4	40	40		[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	Vault	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
16	30	30	149	149		[illegible]	[illegible]

List of Survey Numbers

02-TF-1091
02-TF-1092
02-TF-1094
02-TF-1133
02-TF-1134
02-TF-1140
02-TF-1149
02-TF-1150
02-TF-1151
02-TF-1248
02-TF-1250

Building 61 Survey Data Analysis Worksheets

Attachment 3

Survey Data Parameters

	SMEARS α	SMEARS β	H3		FIXED α	FIXED β
N	70	70	70	N	70	70
Mean	0.68	1.58	2.67	Mean	15.83	1304.41
SD	1.29	1.52	12.11	SD	12.30	209.71
Median	0	1.37	0	Median	11	1289.5
Mode	0	0	0	Mode	9	1282
Var	1.65	2.31	146.77		151.33	43977.0578
High	5.91	5.26	7.92		21.00	1158.00

Parameters by Material Type

			Alpha (Fixed)				Beta (Fixed)		
Location	Type	Code	Mean	Variance	SD	Code	Mean	Variance	SD
	Carpet	car	6.31	10.73	3.28	car	633.62	7440	86.26
2nd Floor	Ceramic tile	floor							
	Vinyl tile	vtf	10.43	7.62	2.76	vtf	853.86	105083	324.17
1st Floor	Concrete fl	ccf	11.30	34.42	5.87	ccf	455.90	34236	185.03
Total			9.88	28.60	5.3		1284.82	55355	235.3
Max			21.00				1158.00		

Parameters by Area

SU 1		Mean	Variance	SD		Mean	Variance	SD
Area 1	Area 1	28.25	220.92	14.86	Area 1	541.25	12861.58	113.41
Area 2	Area 2	24.86	83.48	9.14	Area 2	614.29	10479.90	102.37
Area 3	Area 3	36.33	274.33	16.56	Area 3	547.33	11122.33	105.46
Vault	Vault	36.33	117.47	10.84	Vault	673.50	15249.90	123.49
Total	Avg	30.70	149.91	12.2		607.40	13412	115.8
Max	Max	52				910.0		

SU 2	Max	Mean	Variance	SD	Max	Mean	Variance	SD
Roof	184	147.20	1075.70	32.80	522	1012.40	16861	129.85
Walls	165	98.63	847.13	29.11	648	1093.75	18583	136.32

Graphing Data	Alpha	Beta
Area 1	28.25	541.25
Area 2	24.86	614.29
Area 3	36.33	547.33
Vault	36.33	673.50

Building 61 Survey Data Analysis Worksheets

Attachment 3

RSDS 02-TF-1151

Judgementals

Biased Locations	Smear #	REMOVABLE DPM α	DPM β	H3	Loc #	FIXED dpm α	dpm β	Net of Inst Bkg
A1PC	1	0	0	0	1	24	1059	277
A1PC	2	0	0.0	0	2	33	1033	251
A2MS	3	1.8	0.6	0	3	24	1005	223
A2MS	4	0	0.0	0	4	19	1095	313
A2MS	5	0	1.1	0	5	19	1133	351
A3MS	6	0	1.4	0	6	19	983	201
A3MS	7	0	2.1	12.25	7	19	955	173
VtCW	8	0	4.0	0	8	42	1184	402
VtCC	9	0	0.0	0	9	28	1148	366
VtCW	10	0	0.0	0	10	47	991	209

PC=Painted Concrete
MS=Metal Shelf
CW=Cinderblock wall
CC=Poured Concrete wall

Scan DATA (dpm/100cm2)

	Location	Alpha
Vault	[redacted]	71
	[redacted]	22
	[redacted]	15
	[redacted]	22
	[redacted]	15
	[redacted]	19
	[redacted]	22
	[redacted]	4
	[redacted]	7
	[redacted]	15
Area 1	11	41
	12	34
	13	34
	14	34
	15	19
	16	22
	17	37
	18	11
	19	22
	20	26
Area 2	[redacted]	22
	[redacted]	22
	[redacted]	30
	[redacted]	34
	[redacted]	34
	[redacted]	4
	[redacted]	19
	[redacted]	22
	[redacted]	30
	[redacted]	30
	[redacted]	41
	[redacted]	37
	[redacted]	26

	Location	Alpha
Area 3	[redacted]	42
	[redacted]	24
	[redacted]	19
	[redacted]	24
	[redacted]	14

Summary SU 1

	Floor	Hand
Avg	25.5	24.6
Max	71.0	42
SD	12.8	10.6

2nd Floor Tape Analysis (dpm/100cm2)

Location	w/Tape	W/O Tape	Tape>48hrs
1	475	22	22
2	247	2	30
3	1084	17	17
4	762	13	43
5	307	32	9

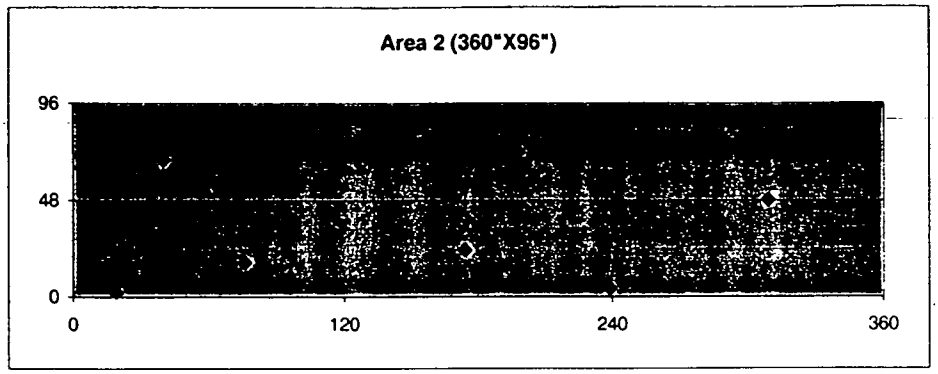
Time Interv 48 Hrs
T1/2 = 8.0 Hrs

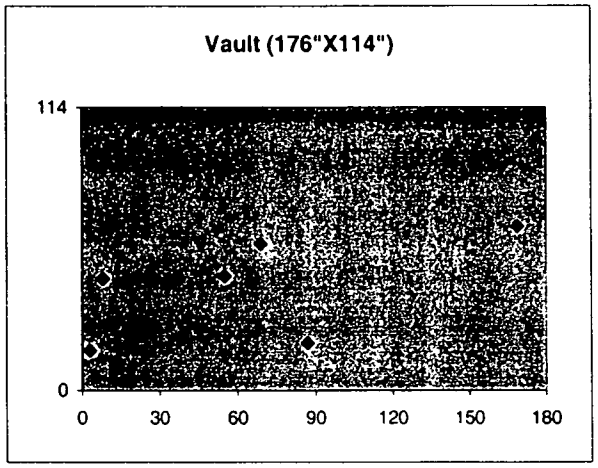
Data Points by Area

Area 2 (360"X96")

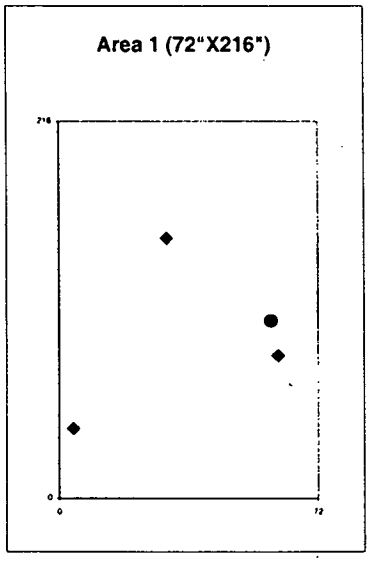
Building 61 Survey Data Analysis Worksheets

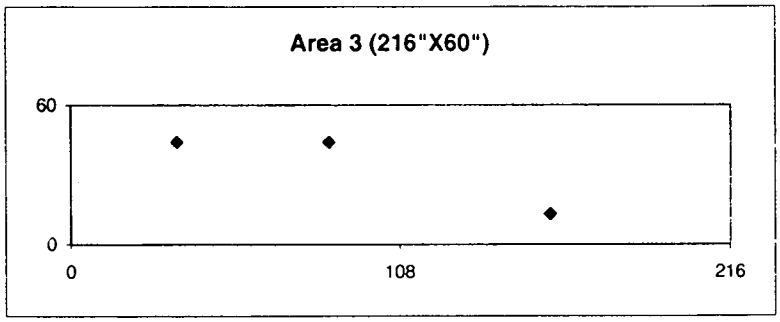
Attachment 3





Inches	X	Y
Area1	4	40
	61	82
	59	102
	30	149
Area 2	19	2
	40	68
	76	17
	174	23
	198	72
	239	4
	309	48
Area 3	157	13
	35	44
	85	44
Vault	69	59
	55	46
	87	19
	169	66
	3	16
	8	45





Building 61 Survey Data Analysis Worksheets

Attachment 3

Replicate Fixed Point QC

		alpha (dpm/100cm^2)			beta (dpm/100cm^2)		
	Location #	initial	2σ	replicate 1	initial	2σ	replicate
1st flr	4	19	8.72	26	1282	71.61	1306
	15	6	4.90	2	1335	73.08	1220
2ndflr	8	15	7.75	30	1062	65.18	1118
SU 1	8	28	10.58	47	1316	72.55	1300
SU 2	4W	109	20.88	85	1117	66.84	1005
Variance (S^2) =		1755.3		948.5	15457.3		16466.2
Ratio				1.9			0.94
Agreement				*YES*			*YES*

Loose Surface Data

	Alpha (Loose)				Beta (Loose)		
Code	Mean	Variance	SD	Code	Mean	Variance	SD
car	2.26	2.78	1.67	car	2.16	0.33	0.58
Ceramic tile floor				ctf			
vtf	1.03	3.13	1.77	vtf	2.28	0.37	0.60
ccf	0.30	0.45	0.67	ccf	0.30	0.45	0.67
Total	1.20	2.12	0.6	ctw	1.58	0.00	0.0
MAX	5.91				5.26		

Survey Unit 1 Parameters by Area

SU 1		Mean	Variance	SD		Mean	Variance	SD	
Area 1	Area 1	0.00	0.00	0.00		2.06	5.63	2.37	
Area 2	Area 2	0.00	0.00	0.00		1.37	1.25	1.12	
Area 3	Area 3	0.00	0.00	0.00		0.46	0.63	0.79	
Vault	Vault	0.36	0.79	0.89		3.17	3.54	1.88	
Total		0.09	0.03	0.18		1.76	1.31	1.14	
Max		2.18				5.48			
SU 2					Max				Max
Roof		3.26	20.84	4.56	11	1.20	2.21	1.48	3.1
Walls		1.01	1.59	1.26	3.5	4.04	8.31	2.88	9.8

	Tritium			
	Mean	Variance	SD	Max
1st Floor	0.11	0.34	0.59	3.21
2nd Floor	1.38	5.32	2.31	7.92
SU 1	7.81	487.22	22.07	100.76
	2.34	78216.3	11.15765	100.76

Building 61 Survey Data Analysis Worksheets

Attachment 3

NUREG 1507 Table 5.1

Background Count Rates for Various Materials	GFP Alpha	GFP Beta
Brick	6.00	567.20
Ceramic Block	15.00	792.00
Ceramic Tile	12.60	647.00
Concrete Block	2.60	344.00
Drywall	2.60	325.00
Floor Tile	4.00	308.00
Linoleum	2.60	346.00
Carbon Steel	2.4	322.6

SU 2 Po210 Adjustment

		NON Po210 ALPHA	
	99	16	
	85	14	
	76	12	
	109	17	40
Po210 ave	76	12	
0.840522	85	14	
	165	26	16
	94	15	
	165	26	9
	132	21	
	156	25	
	184	29	22
	99	16	

Graphing Data	Alpha		Beta		Bkg Corrected Alpha
car	6.3	car	633.6	car	
vtf	10.4	vtf	853.9	ctf	
ccf	11.3	ccf	455.9	vtf	
				ccf	
				ctw	
				dw	
				mr	
				pbw	
				pcw	
				ucw	
				cbw	
				rbw	
				pco	
				sw	

alpha Code	Mean	Variance	SD
car	6.31	10.73	3.28
vtf	10.43	7.62	2.76
ccf	11.30	34.42	5.87

beta Code	Mean	Variance	SD
car	633.62	7440	86.26
vtf	853.86	105083	324.17
ccf	455.90	34235.68	185.03

Sediment Results			dpm		pCi/g			
Location #		Type	α	β	Th-230	Th-232	Ra-226	H3
151-1	Trough	Sed			6.78	0.37	1.64	

155-2	Drain	Smear	0	7.87				
154-3	Sink	Water			<MDA	<MDA	<MDA	
124-4	Sink	Water			<MDA	<MDA	<MDA	
124-5	Drain	Smear	5.43	3.55				
124-6	Drain	Smear	1.68	1.53				
123-7	L Sink	Water			<MDA	<MDA	<MDA	
123-8	R Sink	Water			<MDA	<MDA	<MDA	
123-9	Drain	Smear	1.47	1.38				
123-10	L Drain	Smear	0	0				
123-11	R Drain	Smear	0	0				
229-12	L Sink	Water			<MDA	<MDA	<MDA	
229-13	R Sink	Water			<MDA	<MDA	<MDA	
228-14	Jan Closet	Smear	3.67	0				
227-15	L Sink	Water			<MDA	<MDA	<MDA	
227-16	R Sink	Water			<MDA	<MDA	<MDA	
234-17	Sink	Water			<MDA	<MDA	<MDA	
106-18	Fire Main Drai	Smear	3.44	0				
114-19	Vent	Smear	3.48	5.01				
114-20	Trough	Smear	1.58	2.66				
113-21	Trough	Smear	0	0.44				
113-22	Vent	Smear	0	2.7				
127-23	Sink	Water	<.16dpm/ml					.61nCi/L
125-24	Vent	Smear	0	0.29				
125-25	Drain	Smear	0	2.68				
125-26	Sump	Smear	0	0				
125-27	Sump	Smear	0	0				
114-28	Trough	Sed			<MDA	<MDA	<MDA	
125-29	Sump	Water	<.16dpm/ml					1.68nCi/L
		Max	5.43	7.87				

Roof Samples

					#4	#7	#9	#12	
Moss/dirt		dpm/g	pCi/g	%	%	%	%	%	
	Pu-238	44.71	20.2	0.2					
	Pu239/240	<.53	0.0	0.0					
	Th232	9.27	4.2	0.0	0.122827	0.019913			
	Th230	13.04	5.9	0.1	0.05562			0.049641	
	Th228	7.44	3.4	0.0	0.118192	0.062636			
	Th227	0.97	0.4	0.0	0.073001				
	U238	14.97	6.8	0.1				0.034197	
	U235	1.1	0.5	0.0					
	U233/234	15.15	6.8	0.1		0.01231	0.055375	0.034197	
	Po210	92.12	41.5	0.5	0.630359	0.905141	0.944625	0.881964	0.840522
				1.0	1.0	1.0	1.0	1.0	

	Pu-238	Pu239/240	Th232	Th230	Th228	Th227	U238	U235	U233/234
OSW 4	<.69	<.57	1.06	0.48	1.02	0.63	<.31	<.61	<.61
OSW 7	<.65	<.33	0.55	<.74	1.73	<.89	<.31	<.60	0.34
R 9	<.87	<.44	<.83	<1.65	<.83	<.83	<.33	<.97	0.85
R 12	<.31	<.31	<.24	0.9	<.24	<.24	0.62	<.42	0.62

Building 61 Survey Data Analysis Worksheets

Attachment 3

Scanning Data (dpm/100cm^2)

1st Floor A		B		2nd Floor		2nd Floor Cont	
1	15	1	22	47	7		
2	11	19	7	48	26		
3	15	8	15	49	22		
4	7	15	4	50	7		
5	19	15	22	51	7		
6	11	15	7	52	15		
7	11	0	30	53	19		
8	11	8	7	54	22		
9	19	4	11	55	0		
10	49	19	11	56	15		
11	22	15	4	57	11		
12	15	8	19	58	15		
13	19	8	15	59	4		
14	11	12	26	60	11		
15	4	15	19	61	19		
16	22	12	11				
17	30	15	26				
18	30	8	7				
19	7	23	4				
20	37	12	11				
21	15	23	15				
22	26	23	15				
23	41	12	19				
24	30	19	19				
25	11	4	15				
26	0	8	7				
27	26	12	19				
28	7	19	15				
29	4	12	11				
30	22	15	19				
31	34	8	30				
32	22	8	11				
33	26	15	15				
34	4		11				
35			11				
36			7				
37			11				
38			15				
39			0				
40			0				
41			4				
42			15				
43			7				
44			15				
45			0				
46			19				

	Average	S/D	Max
1st Floor	18.6	11.5	49
	12.4	6.0	23
2nd Floor	13.1	7.4	30
	13.3	7.5	26
Ave	14.4		
S/D	2.4		
Max	49		

SURVEY PLAN FORM

SP NUMBER	61-01	DATE OF REQUEST	June 20, 2002
TYPE OF SP	☐ FSS ☐ CHARACTERIZATION ☐ REFERENCE ☒ OTHER: Scoping		
AREA/LOCATION	Building 61		
PURPOSE	Obtain baseline scoping survey data to support building classification.		
SURVEY UNIT #	1 – First Floor	GRID #	N/A
SURVEY UNIT #	2 – Second Floor	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A

SAMPLE TYPE

☐ **SURFACE SOIL SAMPLE:**

☐ **SUB-SURFACE SOIL SAMPLE:**

☒ **SEDIMENT SAMPLE:** See page 2 for specific instructions

☐ **CORE SAMPLE:**

☐ **WATER SAMPLE:**

☒ **Loose Surface Contamination:** See page 2 for specific instructions

☐ **OTHER:**

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	Ludlum 2350 Ludlum 43-37 (Floor Probe)	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Scan at 1 inch per second within ¼ inch of surface. See page 2 for specific survey instructions.
SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	Ludlum 2350 (or equivalent) 43-20 Alpha (Hand Probe)	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Scan at 1 inch per second within ¼ inch of surface. See page 2 for specific survey instructions.
STATIC MEASUREMENT	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	Ludlum 2350 (or equivalent) 43-20 Alpha (Hand Probe)	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 1 minute integrated fixed-point surface measurements. See page 2 for specific survey instructions.
STATIC MEASUREMENT	☒ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE	NE Electra (or Equivalent) Dual Probe	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 1 minute integrated fixed-point surface measurements. See page 2 for specific survey instructions.

OTHER SURVEY TYPES OR COMMENTS

Laboratory analysis equipment shall be appropriate for the requested analysis and operated in accordance with Mound Procedures.

Record Sample Plan Form number (61-01) on each RSDS used.

SP NUMBER	61-01	DATE OF REQUEST	June 20, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS

Safety Considerations

Obtain assistance from the responsible building custodian for access to upper walls, ceilings, roof, etc. when necessary. Exercise caution when performing surveys from ladders or scaffolds. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.

Floor Scan Measurements using a Ludlum 2350 with 43-37 Floor Monitor (or equivalent)

1. Perform a floor scan at 1" per second on the centerline of all hallways and major walkways in the survey unit.
2. If two (2) or more counts are heard using the audible output of the instrument during a five (5) second scanning period, perform a thirty (30) second integrated count at that location
3. Record the location of the area scanned on the RSDS map and indicate any integrated counts

Static Measurements Using L 2350 With a 43-20 alpha probe and NE Electra (β) (or equivalent)

1. Perform a 1 minute integrated alpha and beta count at 30 data points on the floor surfaces of the First Floor of the building. Data points are randomly selected by the surveyor throughout the survey unit and should be broadly representative of the various surface types within the survey unit (concrete, carpet, vinyl, etc.).
2. Perform a 1 minute integrated alpha and beta count at 20 data points on the floor surfaces of the Second Floor of the building. Data points are randomly selected by the surveyor throughout the survey unit and should be broadly representative of the various surface types within the survey unit (concrete, carpet, vinyl, etc.).
3. Perform a 1 minute integrated alpha and beta measurement in any additional area where either by scanning, or in the judgement of the surveyor, a potential exists for residual contamination (e.g. stairways, floor drains, etc).
4. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
5. Document gross activity for each location (No "<" values).

Loose Surface Contamination

1. Obtain a 100cm^2 coin smear for each survey point identified above.
2. Obtain a 100cm^2 coin smear at all accessible ventilation openings.
3. Count each smear for alpha, beta, and H^3.
4. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

Sediment Samples

1. Collect approximately 250ml of debris from each accessible floor drain, sump, and sink trap.
2. If insufficient material is present at these sample locations, obtain a representative smear or swab.
3. Label sample container (EPA Dish) with sample number, date, time, and location in accordance with Mound procedures.
4. Document sample information and description of material on Attachment 1.
5. Show sample location on the RSDS map.
6. Submit sample to laboratory for gamma spectroscopy analysis.

(Continued on next page)

SP NUMBER	61-01	DATE OF REQUEST	June 20, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS

Quality Control (QC) Measurements

1. QC measurements will be performed by re-surveying 5% of survey points in each survey unit, as determined by the MARSSIM Engineer.
2. Any sediment sample or smear with measured activity above the MDA shall 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.

NOTE: Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Survey Plan Form.

APPROVAL SIGNATURES

MARISSM Engineer	Roderick C. Case	DATE	June 20, 2002
Concurrence	Galen Tomlinson	DATE	June 20, 2002
Rad Con Manager	Steve Collas	DATE	June 20, 2002

SP CLOSE-OUT SIGNATURES

MARISSM Engineer	R. CASE	DATE	8/26/02
QA/QC Review	G. TOMLINSON	DATE	8/26/02
Rad Con Manager	A S Collas	DATE	8/26/02

COMMENTS

Attachment 1

Field Sample Data Collection Sheet

02-TF-1140

Sheet 3 of ~~3~~ 24 ~~14~~ 19 PGR

Note: Attach to SP Form when complete

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
61-01-151-SED-01	6/28/02	12:30		SEDIMENT - TROUGH	[redacted]	/02	1000	PGR	SEH
61-01-155-SMR-02		12:45	N/A	SMEAR - DRAIN		1-02	0930	PGR	SAB
61-01-154-WTR-03		13:00	158g	WATER - SINK		/1/02	1000	PGR	SEH
61-01-124-WTR-04		13:15	128g	WATER - SINK		/1/02	1000	PGR	SEH
61-01-124-SMR-05		14:50	N/A	SMEAR - SHOWER DRAIN		1-02	0930	PGR	SAB
61-01-124-SMR-06		14:50	N/A	SMEAR - DRAIN		1-02	0930	PGR	SAB
61-01-123-WTR-07		14:55	288g	WATER - LEFT SINK		/1/02	1000	PGR	SEH
61-01-123-WTR-08		15:00	102g	WATER - RIGHT SINK		/1/02	1000	PGR	SEH
61-01-123-SMR-09		15:05	N/A	SMEAR - DRAIN		1-02	0930	PGR	SAB
61-01-123-SMR-10		15:05	N/A	SMEAR - LEFT SHOWER		1-02	0930	PGR	SAB
61-01-123-SMR-11		15:05	N/A	SMEAR - RIGHT SHOWER		1-02	0930	PGR	SAB
61-01-229-WTR-12		15:15	115g	WATER - LEFT SINK		/1/02	1000	PGR	SEH
61-01-229-WTR-13	6/28/02	15:20	160g	WATER - RIGHT SINK		/1/02	1000	PGR	SEH

G23 of 124

Attachment 1

Field Sample Data Collection Sheet

Note: Attach to SP Form when complete

02-TF-1140

Sheet 3 of ~~3~~ 14 (24 ~~19~~ PGS)

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
61-01-228-SMR-14	6/28/02	15:27	N/A	SMEAR - JANITOR'S CLOSET	7868 [redacted]	7-1-02	0930	PJR	[illegible]
61-01-227-WTR-15	↓	15:25	103g	WATER - LEFT SINK		1/02	1000	PJR	[illegible]
61-01-227-WTR-16		15:27	108g	WATER - RIGHT SINK		1/02	1000	PJR	[illegible]
61-01-234-WTR-17		15:31	120g	WATER - SINK		1/02	1000	PJR	[illegible]
61-01-106-SMR-18	6/28/02	15:35	N/A	SMEAR FIRE WATER - DRAIN		1-02	0930	PJR	[illegible]
61-01-									
61-01-									
61-01-									
61-01-									
61-01-									
61-01-									
61-01-									
61-01-									

N/A

Page 4 of 24

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 61 / 2ND FLOOR	SURVEY NO. 02-TF-1091
PURPOSE: MARSSIM L2350 SCAN for CONFIRMATION	RWP NO. N/A
	DATE: 6-22-02
	TIME: 1500

MAP/DRAWING

NOTE:

SEE MAP (Pg. 2 of 6) -AND- (Pg 3 of 6) FOR MEASUREMENT LOCATIONS AT WHICH INTEGRATED 30 SEC COUNTS WERE TAKEN

* Note: Scoping Survey Taken In Accordance with Sample Plan 61-01

COPY

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

= swipe number

cr/β = direct cont. measurement in dpm/100cm²

[redacted]

[redacted] HP # 7868 6178		Date: 6-22-02
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/ [redacted]	HP # 7707	Date: 6-28-02
Reviewed/ [redacted]		

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
LUDLUM 2350-1	5671/5675	9-21-02
	N/A	

ML-9620 (2-98)

Survey No.

Page ____ of ____

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

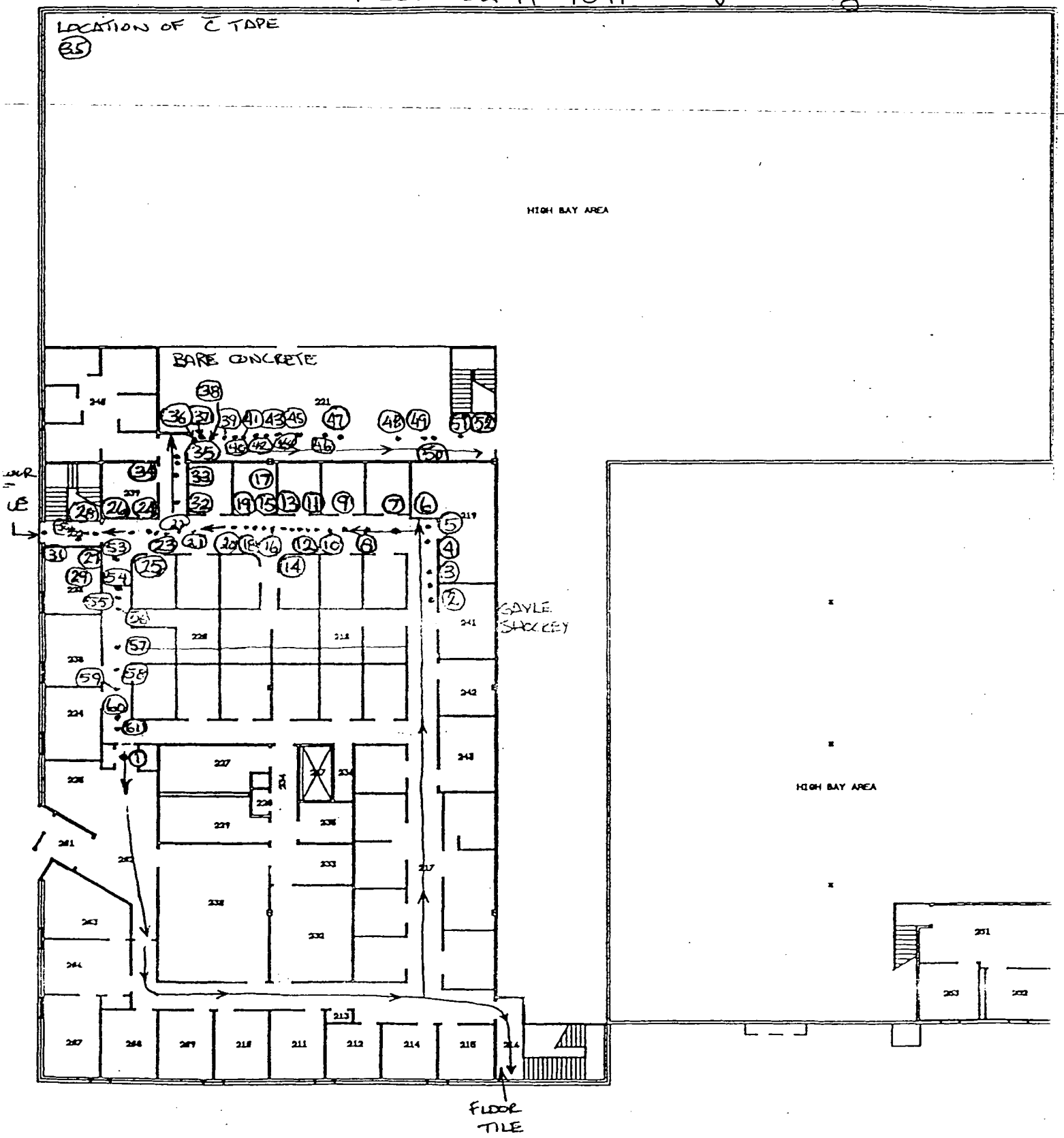
N/A

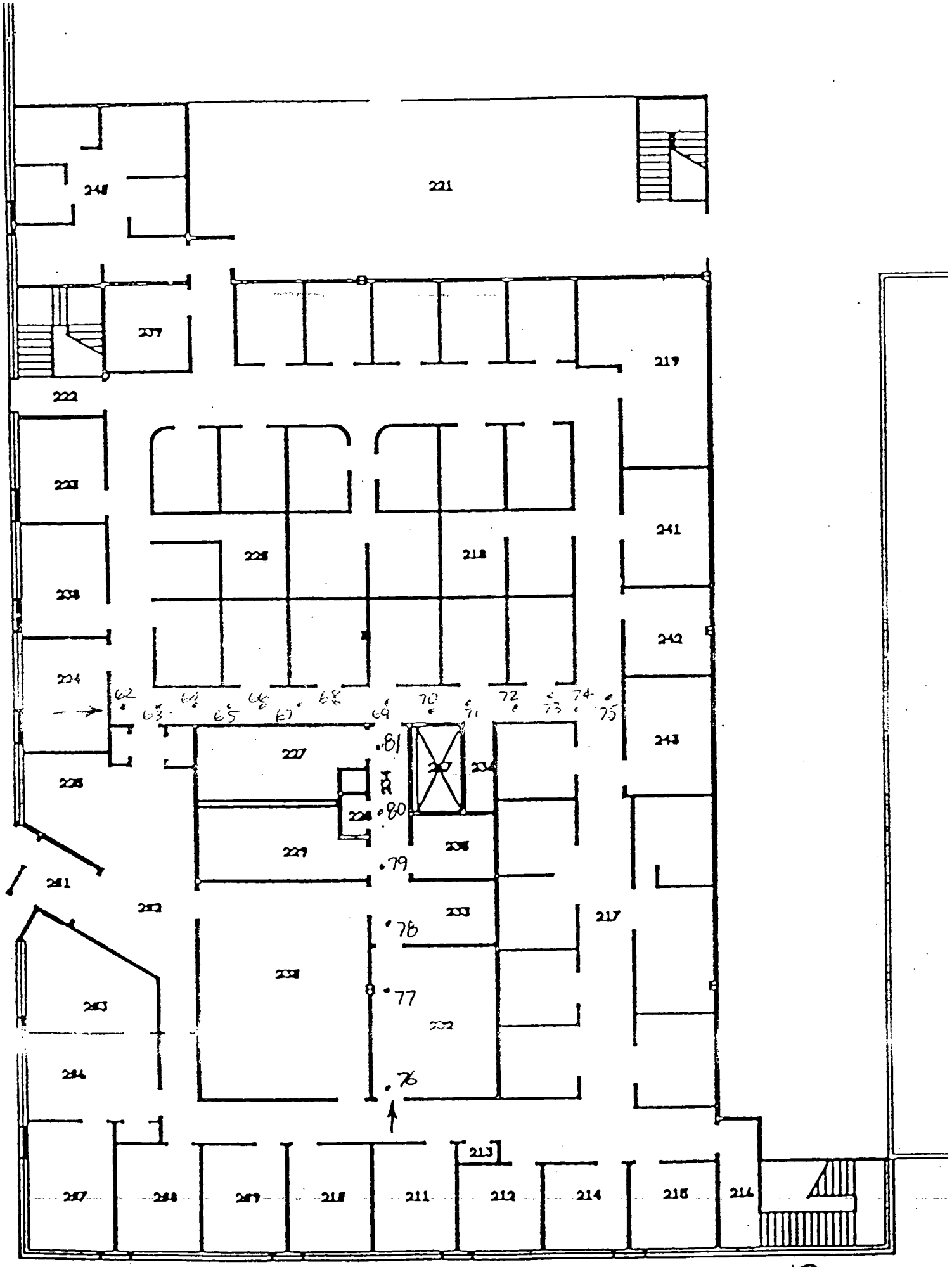
COMMENTS: N/A

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 not needed, mark N/A.

ML-9620A (4-98)


LOCATION OF C TAPE
35
HIGH BAY AREA
BARE CONCRETE
GAYLE SHOCKEY
HIGH BAY AREA
FLOOR TILE


221
219
222
241
242
243
217
211
212
214
215
216
213
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81

61 BUILDING MARSSIM TRANSITION

RSDS# 02-TF-1091 RCT:_____ RCT:_____

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6178/7868	5675	4		6/22/02	7:31	27	300	10	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:34	2002	60	3747	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:35	2063	60	3861	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:37	2145	60	4014	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:39	2095	60	3921	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:40	2091	60	3913	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:42	2285	60	4276	
CARPF01	5671	6178/7868	5675	4	1	6/22/02	7:56	6	30	22	
CARPF02	5671	6178/7868	5675	4	2	6/22/02	8:40	2	30	7	
CARPF03	5671	6178/7868	5675	4	3	6/22/02	8:42	4	30	15	
CARPF04	5671	6178/7868	5675	4	4	6/22/02	8:43	1	30	4	
CARPF05	5671	6178/7868	5675	4	5	6/22/02	8:45	6	30	22	
CARPF06	5671	6178/7868	5675	4	6	6/22/02	8:47	2	30	7	
CARPF07	5671	6178/7868	5675	4	7	6/22/02	8:51	8	30	30	
CARPF08	5671	6178/7868	5675	4	8	6/22/02	8:53	2	30	7	
CARPF09	5671	6178/7868	5675	4	9	6/22/02	8:55	3	30	11	
CARPF10	5671	6178/7868	5675	4	10	6/22/02	8:57	3	30	11	
CARPF11	5671	6178/7868	5675	4	11	6/22/02	8:59	1	30	4	
CARPF12	5671	6178/7868	5675	4	12	6/22/02	9:00	5	30	19	
CARPF13	5671	6178/7868	5675	4	13	6/22/02	9:01	4	30	15	
CARPF14	5671	6178/7868	5675	4	14	6/22/02	9:03	7	30	26	
CARPF15	5671	6178/7868	5675	4	15	6/22/02	9:05	5	30	19	
CARPF16	5671	6178/7868	5675	4	16	6/22/02	9:07	3	30	11	
CARPF17	5671	6178/7868	5675	4	17	6/22/02	9:08	7	30	26	
CARPF18	5671	6178/7868	5675	4	18	6/22/02	9:10	2	30	7	
CARPF19	5671	6178/7868	5675	4	19	6/22/02	9:11	1	30	4	
CARPF20	5671	6178/7868	5675	4	20	6/22/02	9:12	3	30	11	
CARPF21	5671	6178/7868	5675	4	21	6/22/02	9:14	4	30	15	
CARPF22	5671	6178/7868	5675	4	22	6/22/02	9:16	4	30	15	
CARPF23	5671	6178/7868	5675	4	23	6/22/02	9:18	5	30	19	
CARPF24	5671	6178/7868	5675	4	24	6/22/02	9:19	5	30	19	
CARPF25	5671	6178/7868	5675	4	25	6/22/02	9:20	4	30	15	
CARPF26	5671	6178/7868	5675	4	26	6/22/02	9:22	2	30	7	
TILE 27	5671	6178/7868	5675	4	27	6/22/02	9:24	5	30	19	
TILE 28	5671	6178/7868	5675	4	28	6/22/02	9:25	4	30	15	
TILE 29	5671	6178/7868	5675	4	29	6/22/02	9:26	3	30	11	
TILE 30	5671	6178/7868	5675	4	30	6/22/02	9:30	5	30	19	
TILE 31	5671	6178/7868	5675	4	31	6/22/02	9:31	8	30	30	
CARPF32	5671	6178/7868	5675	4	32	6/22/02	9:33	3	30	11	
CARPF33	5671	6178/7868	5675	4	33	6/22/02	9:35	4	30	15	
CARPF34	5671	6178/7868	5675	4	34	6/22/02	9:36	3	30	11	

61 BUILDING MARSSIM TRANSITION

RSDS#02-TF-1091 RCT:_____ RCT:_____

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
CARPF35	5671	6178/7868	5675	4	35	6/22/02	9:51	3	30	11
CNCRTF36	5671	6178/7868	5675	4	36	6/22/02	11:26	2	30	7
CNCRTF37	5671	6178/7868	5675	4	37	6/22/02	11:27	3	30	11
CNCRTF38	5671	6178/7868	5675	4	38	6/22/02	11:29	4	30	15
CNCRTF39	5671	6178/7868	5675	4	39	6/22/02	11:31	0	30	0
CNCRTF40	5671	6178/7868	5675	4	40	6/22/02	11:32	0	30	0
CNCRTF41	5671	6178/7868	5675	4	41	6/22/02	11:33	1	30	4
CNCRTF42	5671	6178/7868	5675	4	42	6/22/02	11:35	4	30	15
CNCRTF43	5671	6178/7868	5675	4	43	6/22/02	11:37	2	30	7
CNCRTF44	5671	6178/7868	5675	4	44	6/22/02	11:38	4	30	15
CNCRTF45	5671	6178/7868	5675	4	45	6/22/02	11:40	0	30	0
CNCRTF46	5671	6178/7868	5675	4	46	6/22/02	11:43	5	30	19
CNCRTF47	5671	6178/7868	5675	4	47	6/22/02	11:44	2	30	7
CNCRTF48	5671	6178/7868	5675	4	48	6/22/02	11:47	7	30	26
CNCRTF49	5671	6178/7868	5675	4	49	6/22/02	11:49	6	30	22
CNCRTF50	5671	6178/7868	5675	4	50	6/22/02	11:50	2	30	7
CNCRTF51	5671	6178/7868	5675	4	51	6/22/02	11:53	2	30	7
CNCRTF52	5671	6178/7868	5675	4	52	6/22/02	11:55	4	30	15
CARPF53	5671	6178/7868	5675	4	53	6/22/02	11:58	5	30	19
CARPF54	5671	6178/7868	5675	4	54	6/22/02	12:00	6	30	22
CARPF55	5671	6178/7868	5675	4	55	6/22/02	12:01	0	30	0
CARPF56	5671	6178/7868	5675	4	56	6/22/02	12:04	4	30	15
CARPF57	5671	6178/7868	5675	4	57	6/22/02	12:06	3	30	11
CARPF58	5671	6178/7868	5675	4	58	6/22/02	12:08	4	30	15
CARPF59	5671	6178/7868	5675	4	59	6/22/02	12:10	1	30	4
CARPF60	5671	6178/7868	5675	4	60	6/22/02	12:14	3	30	11
CARPF61	5671	6178/7868	5675	4	61	6/22/02	12:15	5	30	19

61 BUILDING MARSSIM TRANSITION

RSDS# 02-TF-1091 RCT: _____ RCT: _____

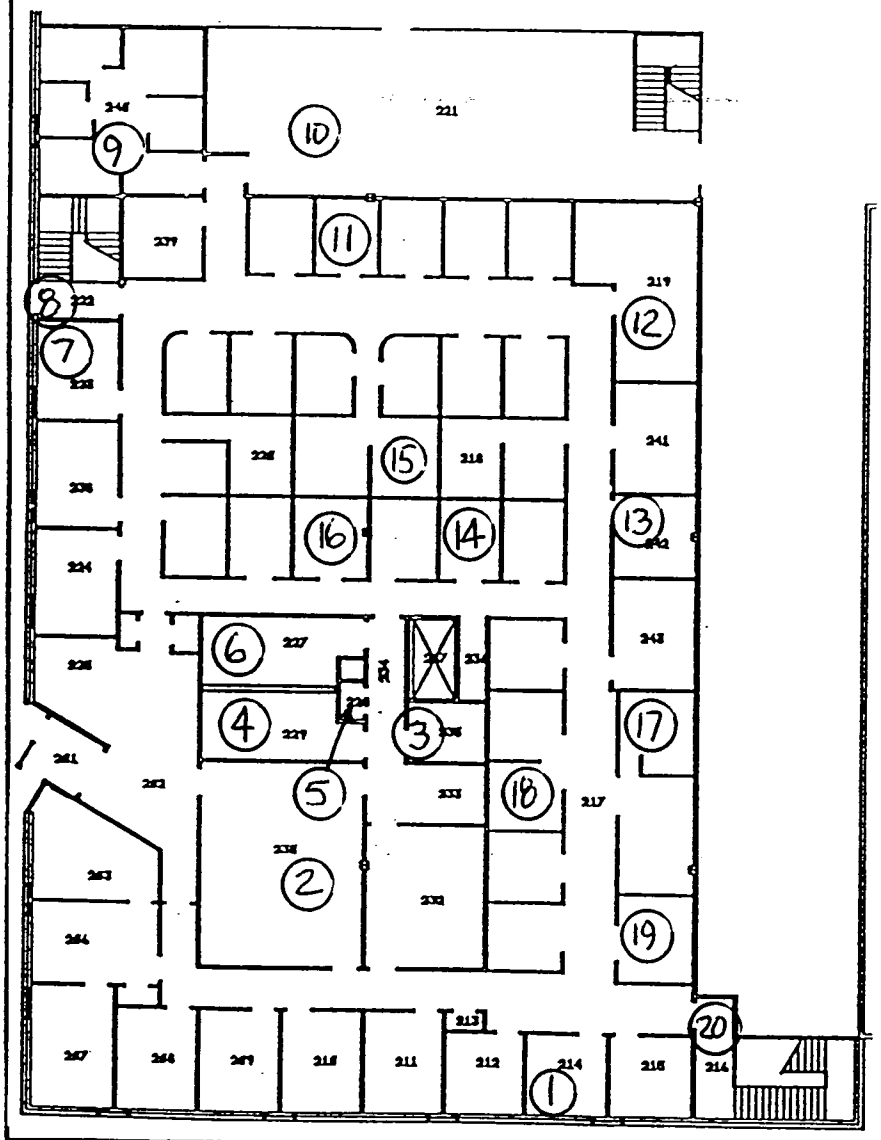
43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6192	5675	4		6/24/02	6:46	33	300	12	
SRCCHECK	5671	6192	5675	4		6/24/02	6:52	2132	60	3990	
SRCCHECK	5671	6192	5675	4		6/24/02	6:54	2115	60	3958	
SRCCHECK	5671	6192	5675	4		6/24/02	6:55	2168	60	4057	
SRCCHECK	5671	6192	5675	4		6/24/02	6:57	2133	60	3992	
SRCCHECK	5671	6192	5675	4		6/24/02	6:59	2145	60	4014	
SRCCHECK	5671	6192	5675	4		6/24/02	7:01	2199	60	4115	
SRCBKG	5671	6192	5148	3		6/24/02	7:21	3	300	3	
SRCCHECK	5671	6192	5148	3		6/24/02	7:23	1955	60	11193	
SRCCHECK	5671	6192	5148	3		6/24/02	7:24	1926	60	11027	
SRCCHECK	5671	6192	5148	3		6/24/02	7:25	2008	60	11496	
SRCCHECK	5671	6192	5148	3		6/24/02	7:27	2133	60	12212	
CARP62	5671	6192	5675	4	62	6/24/02	9:12	2	30	7	
CARP63	5671	6192	5675	4	63	6/24/02	9:16	2	30	7	
CARP64	5671	6192	5675	4	64	6/24/02	9:17	2	30	7	
CARP65	5671	6192	5675	4	65	6/24/02	9:19	6	30	22	
CARP66	5671	6192	5675	4	66	6/24/02	9:21	6	30	22	
CARP67	5671	6192	5675	4	67	6/24/02	9:23	4	30	15	
CARP68	5671	6192	5675	4	68	6/24/02	9:26	5	30	19	
CARP69	5671	6192	5675	4	69	6/24/02	9:29	1	30	4	
CARP70	5671	6192	5675	4	70	6/24/02	9:36	4	30	15	
CARP71	5671	6192	5675	4	71	6/24/02	9:38	4	30	15	
CARP72	5671	6192	5675	4	72	6/24/02	9:40	2	30	7	
CARP73	5671	6192	5675	4	73	6/24/02	9:42	6	30	22	
CARP74	5671	6192	5675	4	74	6/24/02	9:45	3	30	11	
CARP75	5671	6192	5675	4	75	6/24/02	9:47	3	30	11	
TILE76	5671	6192	5675	4	76	6/24/02	12:09	4	30	15	
TILE77	5671	6192	5675	4	77	6/24/02	12:15	3	30	11	
TILE78	5671	6192	5675	4	78	6/24/02	12:23	3	30	11	
TILE79	5671	6192	5675	4	79	6/24/02	12:26	3	30	11	
TILE80	5671	6192	5675	4	80	6/24/02	12:30	1	30	4	
TILE81	5671	6192	5675	4	81	6/24/02	12:36	4	30	15	

RADIOLOGICAL SURVEY DATA SHEET

6/25/02

LOCATION: (BLDG./AREA/ROOM) BLD 61 SECOND FLOOR	SURVEY NO. 02-TF-~~1064~~ 1094
PURPOSE: MARSSIM TRANSITION SURVEY	RWP NO. NA
	DATE: 062402
	TIME: 1600

MAP/DRAWING



COPY

* Note: Scoping Survey Taken in Accordance with Sample Plan 61-01

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350	5671/5675	9/21/02
ELECTRA	5435/5495	5/8/03
	N	
	A	

Comp[redacted]	HP# 6192 7456	Date: 6/24/02
Comp[redacted]		
Counted by: (Signature) SEE ATTACHED	HP#	Date:
Counted by: (Print Name)		
Reviewed/A[redacted]	HP# 7707	Date: 6-26-02
Reviewed/A[redacted]		

ML-9620 (2-98)

Survey No. 02-TF-~~1084~~ 1094 4/25/02

Page ___ of ___

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				[redacted]
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE ATTACHED			FLOOR
			N/A	

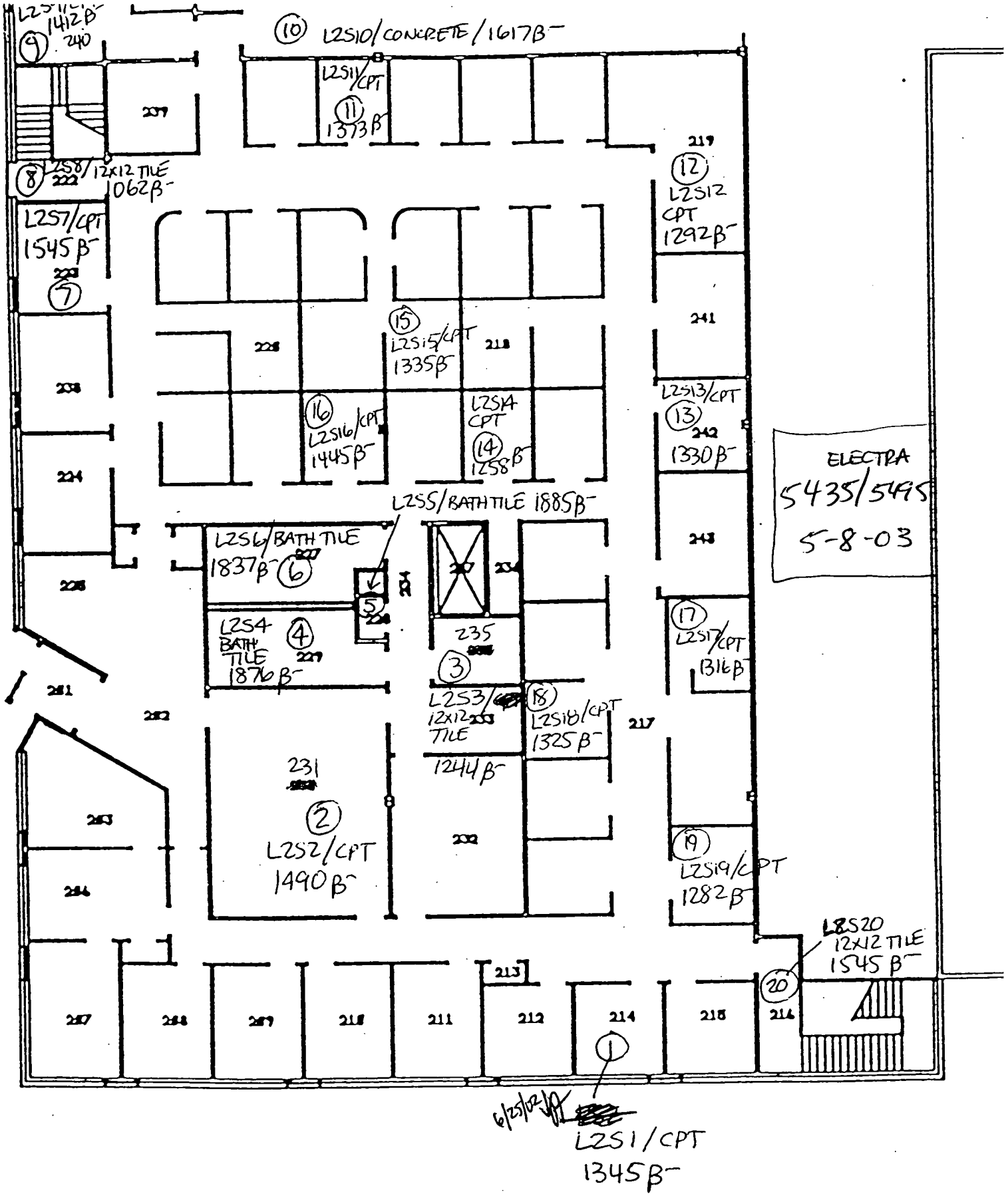
Removable Contamination				
Swipes (dpm/100cm²)				[redacted]
Sample #	β/γ	Alpha	Tritium	Comments
			N/A	

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)


L251 1412β⁻
9
240
10
L2510/CONCRETE/1617β⁻
L2511/CPT
11
1373β⁻
237
219
12
L2512
CPT
1292β⁻
8
L258/12x12 TILE
062β⁻
L257/CPT
1545β⁻
7
241
15
L2515/CPT
1335β⁻
218
226
238
16
L2516/CPT
1445β⁻
L2514
CPT
14
1258β⁻
L2513/CPT
13
242
1330β⁻
224
ELECTRA
5435/5495
5-8-03
L255/BATH TILE 1885β⁻
L256/BATH TILE
1837β⁻
6
243
225
5
L254
BATH
TILE
1876β⁻
4
227
235
3
17
L2517/CPT
1316β⁻
261
L253/
12x12
TILE
1244β⁻
18
L2518/CPT
1325β⁻
217
262
231
2
L252/CPT
1490β⁻
232
263
19
L2519/CPT
1282β⁻
264
L8520
12x12 TILE
1545β⁻
20
213
267
268
269
210
211
212
214
215
216
1
6/25/02
L251/CPT
1345β⁻

3 of 7

L2350 ALPHA DIRECT SURVEY

61 BUILDING MARSSIM TRANSITION

RSDS# 02-TF-1094 RCT: [illegible] RCT: KBL

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6192	5675	4		6/24/02	6:46	33	300	12	
SRCCHECK	5671	6192	5675	4		6/24/02	6:52	2132	60	3990	
SRCCHECK	5671	6192	5675	4		6/24/02	6:54	2115	60	3958	
SRCCHECK	5671	6192	5675	4		6/24/02	6:55	2168	60	4057	
SRCCHECK	5671	6192	5675	4		6/24/02	6:57	2133	60	3992	
SRCCHECK	5671	6192	5675	4		6/24/02	6:59	2145	60	4014	
SRCCHECK	5671	6192	5675	4		6/24/02	7:01	2199	60	4115	
SRCBKG	5671	6192	5148	3		6/24/02	7:21	3	300	3	
SRCCHECK	5671	6192	5148	3		6/24/02	7:23	1955	60	11193	
SRCCHECK	5671	6192	5148	3		6/24/02	7:24	1926	60	11027	
SRCCHECK	5671	6192	5148	3		6/24/02	7:25	2008	60	11496	
SRCCHECK	5671	6192	5148	3		6/24/02	7:27	2133	60	12212	
CARPS1	5671	6192	5675	4	1	6/24/02	13:17	3	60	6	
CARPS2	5671	6192	5675	4	2	6/24/02	13:25	3	60	6	
TILES3	5671	6192	5675	4	3	6/24/02	13:32	5	60	9	
BTILES4	5671	6192	5675	4	4	6/24/02	13:37	6	60	11	
BTILES5	5671	6192	5675	4	5	6/24/02	13:41	4	60	7	
BTILES6	5671	6192	5675	4	6	6/24/02	13:48	5	60	9	
CARPS7	5671	6192	5675	4	7	6/24/02	13:51	1	60	2	
TILES8	5671	6192	5675	4	8	6/24/02	13:54	8	60	15	
CARPS9	5671	6192	5675	4	9	6/24/02	13:56	7	60	13	
CNCRTS10	5671	6192	5675	4	10	6/24/02	14:00	5	60	9	
CARPS11	5671	6192	5675	4	11	6/24/02	14:03	1	60	2	
CARPS12	5671	6192	5675	4	12	6/24/02	14:06	3	60	6	
CARPS13	5671	6192	5675	4	13	6/24/02	14:08	2	60	4	
CARPS14	5671	6192	5675	4	14	6/24/02	14:11	5	60	9	
CARPS15	5671	6192	5675	4	15	6/24/02	14:13	5	60	9	
CARPS16	5671	6192	5675	4	16	6/24/02	14:16	1	60	2	
CARPS17	5671	6192	5675	4	17	6/24/02	14:18	4	60	7	
CARPS18	5671	6192	5675	4	18	6/24/02	14:21	5	60	9	
CARPS19	5671	6192	5675	4	19	6/24/02	14:23	4	60	7	
TILES20	5671	6192	5675	4	20	6/24/02	14:25	7	60	13	

61-BLDG MARSSIM BETA SURVEY

RSDS# 02-TF-1094 RCT: [illegible] RCT: [illegible]

LOCATION	electra	RCT ID	PROBE	ITEM #	DATE	CT TIME	dpm/100cm2
CARPS1	5435	7456	5495	1	6/24/02	60	1345
CARPS2	5435	7456	5495	2	6/24/02	60	1490
TILES3	5435	7456	5495	3	6/24/02	60	1244
BTILES4	5435	7456	5495	4	6/24/02	60	1876
BTILES5	5435	7456	5495	5	6/24/02	60	1885
BTILES6	5435	7456	5495	6	6/24/02	60	1837
CARPS7	5435	7456	5495	7	6/24/02	60	1545
TILES8	5435	7456	5495	8	6/24/02	60	1062
CARPS9	5435	7456	5495	9	6/24/02	60	1412
CNCRTS10	5435	7456	5495	10	6/24/02	60	1617
CARPS11	5435	7456	5495	11	6/24/02	60	1313
CARPS12	5435	7456	5495	12	6/24/02	60	1292
CARPS13	5435	7456	5495	13	6/24/02	60	1330
CARPS14	5435	7456	5495	14	6/24/02	60	1258
CARPS15	5435	7456	5495	15	6/24/02	60	1335
CARPS16	5435	7456	5495	16	6/24/02	60	1445
CARPS17	5435	7456	5495	17	6/24/02	60	1316
CARPS18	5435	7456	5495	18	6/24/02	60	1325
CARPS19	5435	7456	5495	19	6/24/02	60	1282
TILES20	5435	7456	5495	20	6/24/02	60	1545
QC S8R	5435	6192	5495	21	6-25-02	60	1118

BETA BACKGROUND FOR 6-24-02 727 dpm/100cm

FOR 6-25-02 811 dpm/100cm²

61-BLDG FOLLOW-UP QC CHECK

RSDS# 02-TF-1094 RCT: [illegible] RCT: [illegible]

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671		5675	4	0	6/25/02	6:29	9	300	3	
SRCCHECK	5671		5675	4	1	6/25/02	6:33	2131	60	3988	
SRCCHECK	5671		5675	4	2	6/25/02	6:36	2160	60	4042	
SRCCHECK	5671		5675	4	3	6/25/02	6:38	2038	60	3814	
SRCCHECK	5671		5675	4	4	6/25/02	6:40	2177	60	4074	
SRCCHECK	5671		5675	4	5	6/25/02	6:43	2142	60	4009	
SRCCHECK	5671		5675	4	6	6/25/02	6:45	2220	60	4155	
QC S8R	5671	7456	5675	4	7	6/25/02	6:49	16	60	30	

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR050
Batch Ended: 6/25/02 7:43
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 02-TF-1094 FILEPPI(20) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	3.48	2.90		0.00	1.81	
A2	2	3.51	2.76		1.31	2.08	
A3	3	3.79	3.03		2.63	2.48	
A4	4	0.00	2.06		6.24	3.14	
B1	5	0.00	2.04		1.54	2.17	
B2	6	0.00	2.00		0.00	1.19	
B3	7	1.59	2.10		0.00	1.29	
B4	8	0.00	2.03		2.49	2.33	
C1	9	1.56	2.12		2.85	2.50	
C2	10	0.00	1.87		1.68	2.00	
C3	11	3.73	2.96		0.36	1.76	
C4	12	0.00	1.97		0.00	1.95	
D1	13	0.00	1.98		2.84	2.48	
D2	14	1.57	2.12		1.41	2.10	
D3	15	1.62	2.16		1.48	2.22	
D4	16	1.48	2.14		3.79	2.67	
A1	17	1.45	2.05		0.00	1.28	
A2	18	3.50	2.80		7.30	3.41	
A3	19	5.91	3.71		2.49	2.48	
A4	20	3.45	2.85		3.60	2.64	

25 Jun 2002 11:05 ALPHA/BETA - 1.09 Page #1
Protocol #: 1 Pw H3 405828 User : 5268

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

	LL	UL	LCR	2SZ	BKG
Region A:	0.5 -	18.6	0	0.0	6.42
Region B:	2.0 -	18.6	0	0.0	6.12
Region C:	40.0 -	2000	0	0.0	11.30

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
02-TF-1094 FILEPPI(20) BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT1.DAT
Count Data Filename: c:\data\SDATA1.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.42	6.12	0	B	581.10		0.00	11.30
0	2.00	149.59	144.47	0		490.49	323.61	45.57	0.70
1	2.00	0.00	0.00	0		628.60	0.00	0.00	0.00
2	2.00	2.58	2.88	0		595.43	5.08	8.93	0.00
3	2.00	0.00	0.00	0		675.21	0.00	0.00	0.00
4	2.00	0.08	0.00	0		666.38	0.15	7.32	0.20
5	2.00	0.00	0.00	0		574.57	0.00	0.00	1.14
6	2.00	0.00	0.00	0		618.20	0.00	0.00	5.06
7	2.00	0.08	0.13	0		585.45	0.16	7.83	0.00
8	2.00	4.08	3.50	0		610.86	7.92	9.45	0.00
9	2.00	0.00	0.00	0		677.75	0.00	0.00	0.00
10	2.00	0.64	0.94	0		552.92	1.31	8.34	0.00
11	2.00	0.00	0.00	0		637.18	0.00	0.00	0.00
12	2.00	1.24	1.01	0		652.01	2.33	7.94	0.70
13	2.00	3.58	3.04	0		635.34	6.81	9.05	0.00
14	2.00	1.87	1.95	0		566.71	3.77	8.83	0.00
15	2.00	0.08	0.12	0		593.01	0.16	7.76	3.70
16	2.00	0.00	0.00	0		601.33	0.00	0.00	0.00
17	2.00	0.89	0.69	0		627.36	1.71	7.94	0.00
18	2.00	0.00	0.00	0		659.07	0.00	0.00	0.00
19	2.00	0.58	0.22	0		535.94	1.20	8.43	0.00
20	2.00	0.00	0.00	0		539.42	0.00	0.00	0.00

7 of 7

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLD 61 FIRST FLOOR	SURVEY NO. 02-TF-1133
PURPOSE: MARSSIM L2350 SCAN	RWP NO. NA
	DATE: 062502
	TIME: 1600

MAP/DRAWING

SCANNED FIRST FLOOR W/ L2350
POINTS A1-A32 & B1-B33 ARE
30 SEC INTEGRATED COUNTS.
ASSOCIATED MAPS ARE ON PAGES 2 & 3

COPY

* Note: Scoping survey taken in Accordance with Sample Plan 61-01.

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350	5671/5675	9/21/02
L2350	5673/5676	8/21/02
	N	
	A	

Comp[redacted] 92 7868 Date: 6/25/02

[redacted]

Date:

(SEE ATTACHED)

Counted by: (Print Name)

Review[redacted] HP# 7707 Date: 6-28-02

Reviewed/Approved by: (P[redacted]

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

N/A

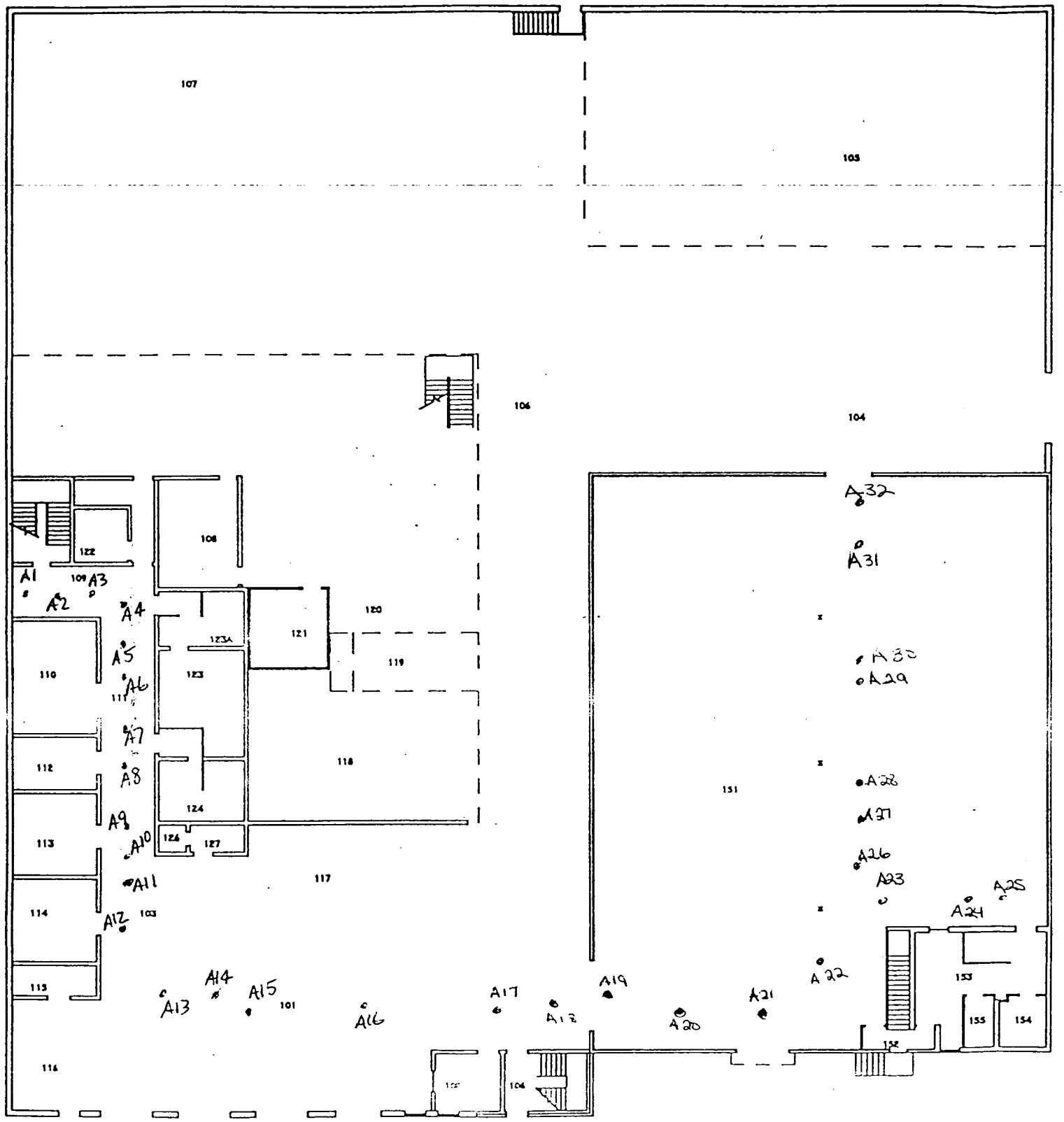
YEPP

COMMENTS:

NOTES:

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

ML-9620 (4-98)



DATE:

REQUIRED:

UEBOC ___ TEBOC ___ EHBOC

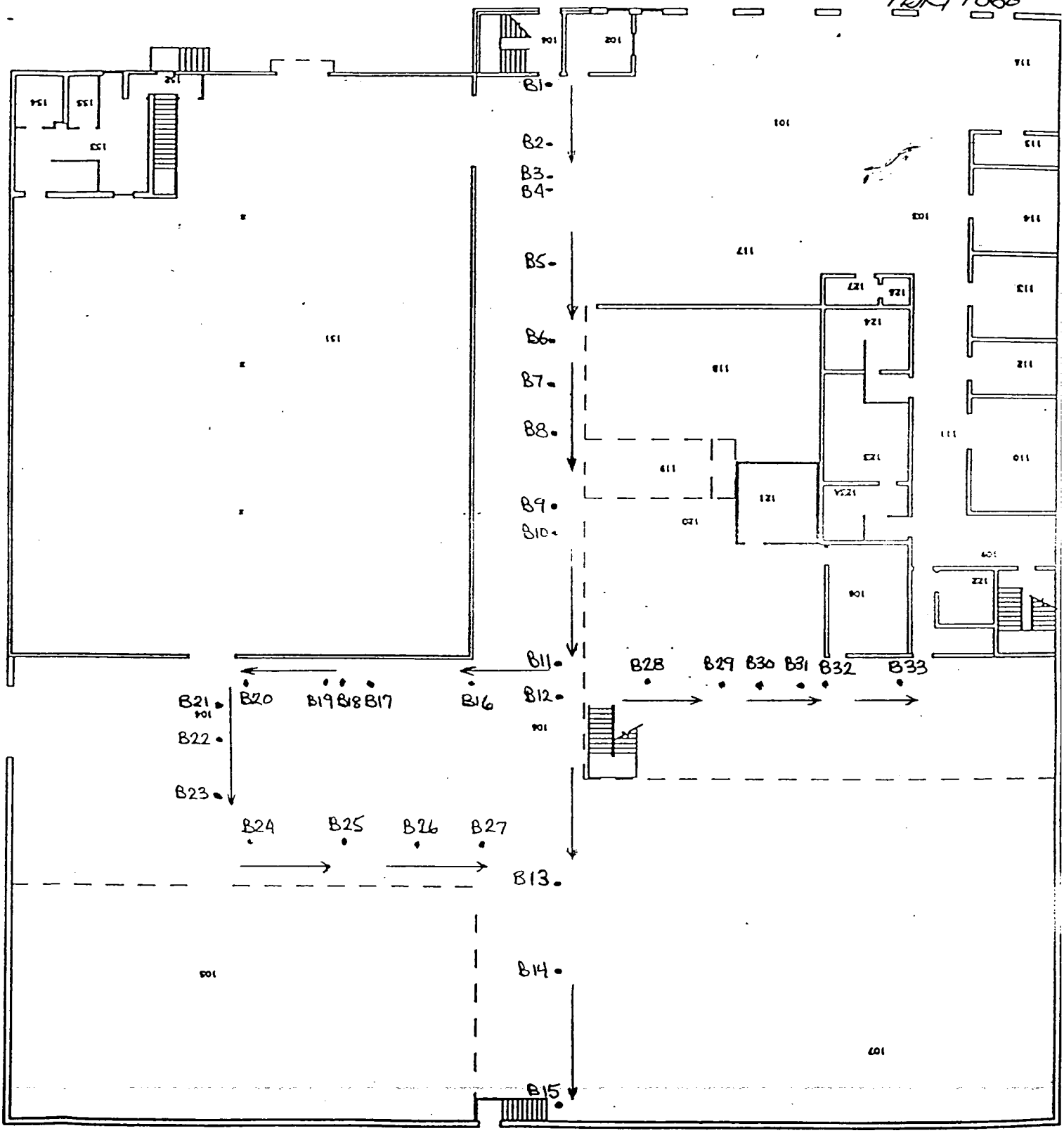
G-41 of 124

4

2 of 7

~~2 of 7~~

M-TF-1133



G42 of 124

02-TF-1133

3 of 7

61-BLDG MARSSIM SCANNNING

RSDS#02-TF-113[redacted]

RCT:_____ RCT:_____[redacted]/7868

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6192	5675	4		6/25/02	6:29	9	300	3	
SRCCHECK	5671	6192	5675	4		6/25/02	6:33	2131	60	3988	
SRCCHECK	5671	6192	5675	4		6/25/02	6:36	2160	60	4042	
SRCCHECK	5671	6192	5675	4		6/25/02	6:38	2038	60	3814	
SRCCHECK	5671	6192	5675	4		6/25/02	6:40	2177	60	4074	
SRCCHECK	5671	6192	5675	4		6/25/02	6:43	2142	60	4009	
SRCCHECK	5671	6192	5675	4		6/25/02	6:45	2220	60	4155	
SCANA1	5671	6192	5675	4	1	6/25/02	7:08	8	60	15	
SCANA2	5671	6192	5675	4	2	6/25/02	7:14	6	60	11	
SCANA3	5671	6192	5675	4	3	6/25/02	7:17	4	30	15	
SCANA4	5671	6192	5675	4	4	6/25/02	7:19	2	30	7	
SCANA5	5671	6192	5675	4	5	6/25/02	7:21	5	30	19	
SCANA6	5671	6192	5675	4	6	6/25/02	7:22	3	30	11	
SCANA7	5671	6192	5675	4	7	6/25/02	7:26	3	30	11	
SCANA8	5671	6192	5675	4	8	6/25/02	7:29	3	30	11	
SCANA9	5671	6192	5675	4	9	6/25/02	7:32	5	30	19	
SCANA10	5671	6192	5675	4	10	6/25/02	7:35	13	30	49	
SCANA11	5671	6192	5675	4	11	6/25/02	7:38	6	30	22	
SCANA12	5671	6192	5675	4	12	6/25/02	7:44	4	30	15	
SCANA13	5671	6192	5675	4	13	6/25/02	7:47	5	30	19	
SCANA14	5671	6192	5675	4	14	6/25/02	7:51	3	30	11	
SCANA15	5671	6192	5675	4	15	6/25/02	7:55	1	30	4	
SCANA16	5671	6192	5675	4	16	6/25/02	7:56	6	30	22	
SCANA17	5671	6192	5675	4	17	6/25/02	7:57	8	30	30	
SCANA18	5671	6192	5675	4	18	6/25/02	8:01	8	30	30	
SCANA19	5671	6192	5675	4	19	6/25/02	8:50	2	30	7	
SCANA20	5671	6192	5675	4	20	6/25/02	8:53	10	30	37	
SCANA21	5671	6192	5675	4	21	6/25/02	8:57	4	30	15	
SCANA22	5671	6192	5675	4	22	6/25/02	9:00	7	30	26	
SCANA23	5671	6192	5675	4	23	6/25/02	9:04	11	30	41	
SCANA24	5671	6192	5675	4	24	6/25/02	9:07	8	30	30	
SCANA25	5671	6192	5675	4	25	6/25/02	9:16	3	30	11	
SCANA26	5671	6192	5675	4	26	6/25/02	9:17	0	30	0	

G43 of 124

61-BLDG MARSSIM SCANNNING

RSDS# 02-TF-11[redacted]

RCT: [illegible] RCT: [redacted] / 1868

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCANA27	5671	6192	5675	4	27	6/25/02	9:19	7	30	26
SCANA28	5671	6192	5675	4	28	6/25/02	9:21	2	30	7
SCANA29	5671	6192	5675	4	29	6/25/02	9:23	1	30	4
SCANA30	5671	6192	5675	4	30	6/25/02	9:25	6	30	22
SCANA31	5671	6192	5675	4	31	6/25/02	9:27	9	30	34
SCANA32	5671	6192	5675	4	32	6/25/02	9:28	6	30	22
SCANA33	5671	6192	5675	4	33	6/25/02	9:30	7	30	26
SCANA34	5671	6192	5675	4	34	6/25/02	9:32	1	30	4

61-BUILDING MARSSIM SCANING

RSDS# 02-TF-1133 RCT: [illegible] RCT: [redacted]/7868

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.178	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5673	7868	5676	3		6/25/02	7:53	41	300	16	
SRCCHECK	5673	7868	5676	3		6/25/02	7:55	2145	60	4127	
SRCCHECK	5673	7868	5676	3		6/25/02	7:57	2220	60	4271	
SRCCHECK	5673	7868	5676	3		6/25/02	7:58	2219	60	4269	
SRCCHECK	5673	7868	5676	3		6/25/02	7:59	2142	60	4121	
SRCCHECK	5673	7868	5676	3		6/25/02	8:01	2157	60	4150	
SRCCHECK	5673	7868	5676	3		6/25/02	8:02	2196	60	4225	
SCANB1	5673	7868	5676	3	1	6/25/02	11:40	0	30	0	
SCANB2	5673	7868	5676	3	2	6/25/02	11:41	5	30	19	
SCANB3	5673	7868	5676	3	3	6/25/02	11:42	2	30	8	
SCANB4	5673	7868	5676	3	4	6/25/02	11:43	4	30	15	
SCANB5	5673	7868	5676	3	5	6/25/02	11:45	4	30	15	
SCANB6	5673	7868	5676	3	6	6/25/02	11:48	4	30	15	
SCANB7	5673	7868	5676	3	7	6/25/02	11:49	0	30	0	
SCANB8	5673	7868	5676	3	8	6/25/02	11:51	2	30	8	
SCANB9	5673	7868	5676	3	9	6/25/02	11:54	1	30	4	
SCANB10	5673	7868	5676	3	10	6/25/02	11:55	5	30	19	
SCANB11	5673	7868	5676	3	11	6/25/02	11:57	4	30	15	
SCANB12	5673	7868	5676	3	12	6/25/02	11:59	2	30	8	
SCANB13	5673	7868	5676	3	13	6/25/02	12:04	2	30	8	
SCANB14	5673	7868	5676	3	14	6/25/02	12:07	3	30	12	
SCANB15	5673	7868	5676	3	15	6/25/02	12:10	4	30	15	
SCANB16	5673	7868	5676	3	16	6/25/02	12:20	3	30	12	
SCANB17	5673	7868	5676	3	17	6/25/02	12:23	4	30	15	
SCANB18	5673	7868	5676	3	18	6/25/02	12:24	2	30	8	
SCANB19	5673	7868	5676	3	19	6/25/02	12:26	6	30	23	
SCANB20	5673	7868	5676	3	20	6/25/02	12:29	3	30	12	
SCANB21	5673	7868	5676	3	21	6/25/02	12:31	6	30	23	
SCANB22	5673	7868	5676	3	22	6/25/02	12:32	6	30	23	
SCANB23	5673	7868	5676	3	23	6/25/02	12:34	3	30	12	
SCANB24	5673	7868	5676	3	24	6/25/02	12:36	5	30	19	
SCANB25	5673	7868	5676	3	25	6/25/02	12:39	1	30	4	
SCANB26	5673	7868	5676	3	26	6/25/02	12:41	2	30	8	

61-BUILDING MARSSIM SCANING

RSDS# 02-TF-1133 RCT: [illegible] RCT: [redacted] 7868

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCANB27	5673	7868	5676	3	27	6/25/02	12:43	3	30	12
SCANB28	5673	7868	5676	3	28	6/25/02	12:54	5	30	19
SCANB29	5673	7868	5676	3	29	6/25/02	12:58	3	30	12
SCANB30	5673	7868	5676	3	30	6/25/02	13:00	4	30	15
SCANB31	5673	7868	5676	3	31	6/25/02	13:31	2	30	8
SCANB32	5673	7868	5676	3	32	6/25/02	13:33	2	30	8
SCANB33	5673	7868	5676	3	33	6/25/02	13:35	4	30	15

LOCATION: (BLDG./AREA/ROOM) BLD 61 FIRST FLOOR	SURVEY NO. 02-TF-1134
PURPOSE: MARSSIM SURVEYS (SCOPING) IAW SURVEY PLAN 61-01	RWP NO. NA
	DATE: 06/25-06/26/02
	TIME: 1600

MAP/DRAWING

SEE ATTACHED MAP (3 of 10) FOR LOCATION of MEASUREMENTS.

* Note: Scoping Survey Taken In Accordance with Sample Plan 61-01

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350	5671/5675	9/21/02
ELECTRA	5435/5495	5/8/03
	N/A	

Completed by: (Signature) [redacted]		HP# 6192	Date: 6/26/02
Completed by: (Print Name) [redacted]			
Counted by: (Signature) See Attached		HP#	Date:
Counted by: (Print Name)			
Reviewed [redacted]		HP# 7707	Date: 06/28/02
Reviewed/Approved by: (Print N [redacted]			

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-30	SEE	ATTACHED		FLOOR

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

N/A

N/A

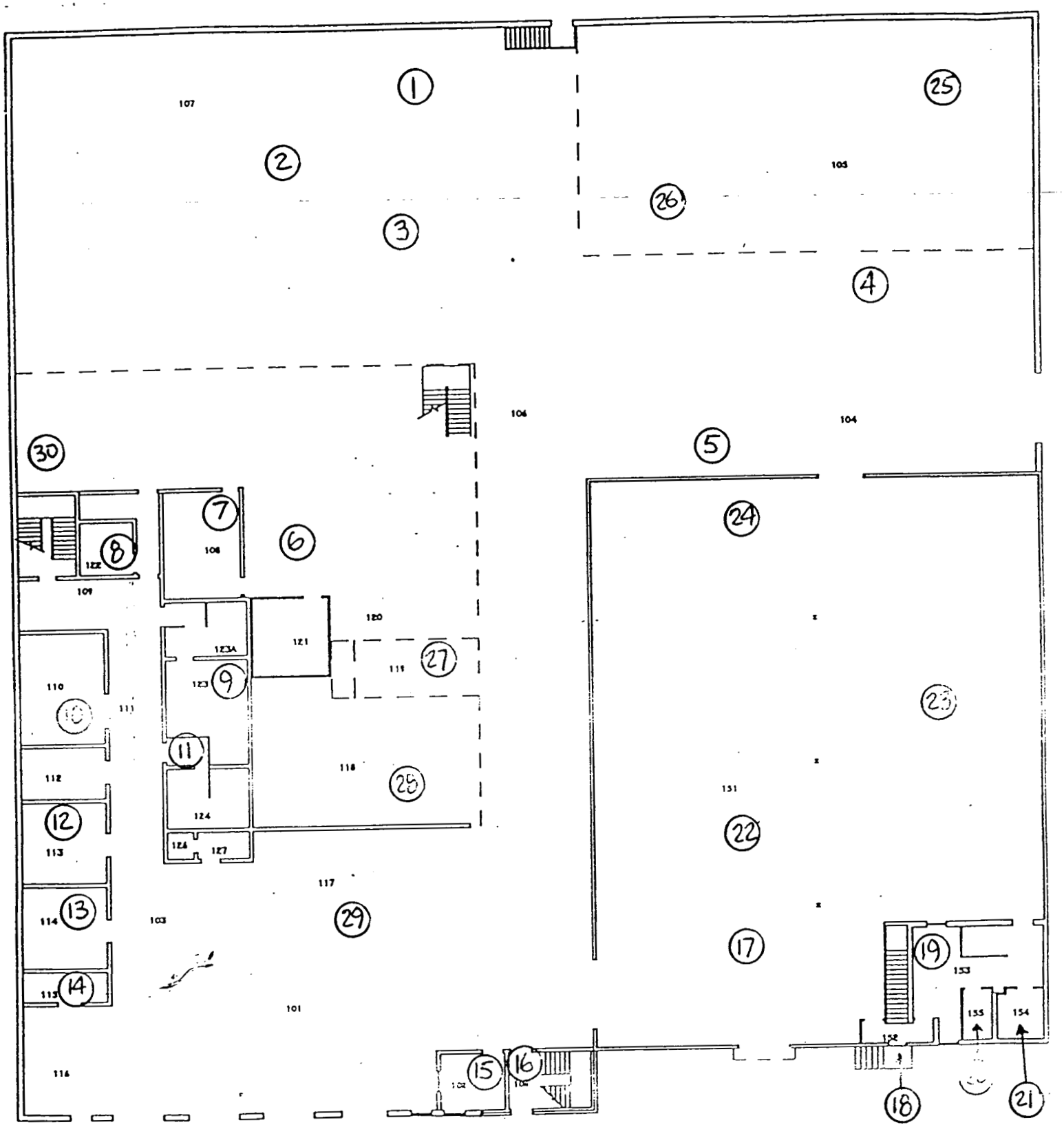
COMMENTS:

N/A

NOTES:

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

ML-9620 (4-98)



REQUIRED:	DATE:
___DOC ___TEDOC ___EDOC	

NOTE: AN INTEGRATED COUNT [W/ LUD2350], A SMEAR, AND A DIRECT BETA READING (W/ NE ELECTRA) WERE TAKEN AT EACH LOCATION.

61 -BUILDING SAMPLE LOCTIONS

RSDS# 02-TF-1134 RCT: RCT:

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6192	5675	4		6/25/02	6:29	9	300	3	
SRCCHECK	5671	6192	5675	4		6/25/02	6:33	2131	60	3988	
SRCCHECK	5671	6192	5675	4		6/25/02	6:36	2160	60	4042	
SRCCHECK	5671	6192	5675	4		6/25/02	6:38	2038	60	3814	
SRCCHECK	5671	6192	5675	4		6/25/02	6:40	2177	60	4074	
SRCCHECK	5671	6192	5675	4		6/25/02	6:43	2142	60	4009	
SRCCHECK	5671	6192	5675	4		6/25/02	6:45	2220	60	4155	
CNCRT-1	5671	6192	5675	4	1	6/25/02	12:16	6	60	11	
CNCRT-2	5671	6192	5675	4	2	6/25/02	12:21	4	60	7	
CNCRT-3	5671	6192	5675	4	3	6/25/02	12:23	4	60	7	
CNCRT-4	5671	6192	5675	4	4	6/25/02	12:26	10	60	19	
CNCRT-5	5671	6192	5675	4	5	6/25/02	12:28	6	60	11	
CNCRT-6	5671	6192	5675	4	6	6/25/02	12:30	1	60	2	
CNCRT-7	5671	6192	5675	4	7	6/25/02	12:33	2	60	4	
CNCRT-8	5671	6192	5675	4	8	6/25/02	12:37	4	60	7	
CNCRT-9	5671	6192	5675	4	9	6/25/02	12:43	5	60	9	
CNCRT-10	5671	6192	5675	4	10	6/25/02	12:46	8	60	15	
CNCRT-11	5671	6192	5675	4	11	6/25/02	12:55	11	60	21	

G50 of 124

8-7-02

61-BUILDING SAMPLE LOCATIONS

RSDS# 02-TF-1134 RCT: RCT:

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6192	5675	4		6/26/02	7:00	19	300	7	
SRCCHECK	5671	6192	5675	4		6/26/02	7:07	2044	60	3825	
SRCCHECK	5671	6192	5675	4		6/26/02	7:10	2125	60	3977	
SRCCHECK	5671	6192	5675	4		6/26/02	7:17	2171	60	4063	
SRCCHECK	5671	6192	5675	4		6/26/02	7:20	2198	60	4113	
SRCCHECK	5671	6192	5675	4		6/26/02	7:23	2217	60	4149	
SRCCHECK	5671	6192	5675	4		6/26/02	7:26	2367	60	4430	
CNCRT-12	5671	6192	5675	4	12	6/26/02	7:41	5	60	9	
CNCRT-13	5671	6192	5675	4	13	6/26/02	7:45	3	60	6	
CNCRT-14	5671	6192	5675	4	14	6/26/02	7:49	5	60	9	
CNCRT-15	5671	6192	5675	4	15	6/26/02	7:53	3	60	6	
CNCRT-16	5671	6192	5675	4	16	6/26/02	8:21	11	60	21	
CNCRT-17	5671	6192	5675	4	17	6/26/02	8:24	10	60	19	
CNCRT-18	5671	6192	5675	4	18	6/26/02	8:27	11	60	21	
CNCRT-19	5671	6192	5675	4	19	6/26/02	8:28	4	60	7	
CNCRT-20	5671	6192	5675	4	20	6/26/02	8:31	4	60	7	
CNCRT-21	5671	6192	5675	4	21	6/26/02	8:33	4	60	7	
CNCRT-22	5671	6192	5675	4	22	6/26/02	8:40	8	60	15	
CNCRT-23	5671	6192	5675	4	23	6/26/02	8:43	10	60	19	
CNCRT-24	5671	6192	5675	4	24	6/26/02	8:47	11	60	21	
CNCRT-25	5671	6192	5675	4	25	6/26/02	8:50	8	60	15	
CNCRT-26	5671	6192	5675	4	26	6/26/02	8:53	7	60	13	
CNCRT-27	5671	6192	5675	4	27	6/26/02	8:57	2	60	4	
CNCRT-28	5671	6192	5675	4	28	6/26/02	9:01	6	60	11	
CNCRT-29	5671	6192	5675	4	29	6/26/02	9:04	5	60	9	
CNCRT-30	5671	6192	5675	4	30	6/26/02	9:09	4	60	7	

G-51 of 124

61-BUILDING BETA SAMPLE LOCATIONS

RSDS# 02-TF-1134 RCT: [illegible] RCT: _____

LOCATION	electra	RCT ID	PROBE	ITEM #	DATE	CT TIME	dpm/100cm2
CNCRT-1	5435	7456	5495	1	6/25/02	60	1114
CNCRT-2	5435	7456	5495	2	6/25/02	60	1115
CNCRT-3	5435	7456	5495	3	6/25/02	60	1135
CNCRT-4	5435	7456	5495	4	6/25/02	60	1282,
CNCRT-5	5435	7456	5495	5	6/25/02	60	1282
CNCRT-6	5435	7456	5495	6	6/25/02	60	1158
CNCRT-7	5435	7456	5495	7	6/25/02	60	943
CNCRT-8	5435	7456	5495	8	6/25/02	60	1005
CNCRT-9	5435	7456	5495	9	6/25/02	60	1536
CNCRT-10	5435	7456	5495	10	6/25/02	60	1010
CNCRT-11	5435	7456	5495	11	6/25/02	60	1718
CNCRT-12	5435	7456	5495	12	6/26/02	60	1110
CNCRT-13	5435	7456	5495	13	6/26/02	60	1062
CNCRT-14	5435	7456	5495	14	6/26/02	60	1072
CNCRT-15	5435	7456	5495	15	6/26/02	60	1019
CNCRT-16	5435	7456	5495	16	6/26/02	60	1182
CNCRT-17	5435	7456	5495	17	6/26/02	60	1321
CNCRT-18	5435	7456	5495	18	6/26/02	60	1139
CNCRT-19	5435	7456	5495	19	6/26/02	60	890
CNCRT-20	5435	7456	5495	20	6/26/02	60	938
CNCRT-21	5435	7456	5495	21	6/26/02	60	1005
CNCRT-22	5435	7456	5495	22	6/26/02	60	1167
CNCRT-23	5435	7456	5495	23	6/26/02	60	1230
CNCRT-24	5435	7456	5495	24	6/26/02	60	1402
CNCRT-25	5435	7456	5495	25	6/26/02	60	1283
CNCRT-26	5435	7456	5495	26	6/26/02	60	1230
CNCRT-27	5435	7456	5495	27	6/26/02	60	1134
CNCRT-28	5435	7456	5495	28	6/26/02	60	1282
CNCRT-29	5435	7456	5495	29	6/26/02	60	1493
CNCRT-30	5435	7456	5495	30	6/26/02	60	1230

BETA BACKGROUND ON 6-26-02
WAS 786 dpm/100 cm²

[illegible]

G5206124

61-BLDG FOLLOW-UP QC CHECK

RSDS# 02-TF-1134 RCT: [illegible] RCT: _____

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6192	5675	4		6/26/02	7:00	19	300	7	
SRCCHECK	5671	6192	5675	4		6/26/02	7:07	2044	60	3825	
SRCCHECK	5671	6192	5675	4		6/26/02	7:10	2125	60	3977	
SRCCHECK	5671	6192	5675	4		6/26/02	7:17	2171	60	4063	
SRCCHECK	5671	6192	5675	4		6/26/02	7:20	2198	60	4113	
SRCCHECK	5671	6192	5675	4		6/26/02	7:23	2217	60	4149	
SRCCHECK	5671	6192	5675	4		6/26/02	7:26	2367	60	4430	
QCS4R	5671	7456	5675	4	4	6/26/02	13:14	14	60	26	
QCS15R	5671	7456	5675	4	15	6/26/02	13:21	1	60	2	

[illegible]

G-5306 124

11 [illegible]

 8-7-02

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR011
Batch Ended: 6/26/02 13:03

Crosstalk correction performed.

Recalibration Date: 4/3/03
Serial Number: 26966-1

Batch ID: FILEPPI SUR #02-TF-1134 (30)/BH

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	2.13		5.26	3.15	
A2	2	0.00	2.12		0.00	1.42	
A3	3	0.00	1.97		1.44	2.23	
A4	4	0.00	1.96		0.00	2.33	
B1	5	0.00	2.06		0.00	1.34	
B2	6	0.00	2.14		0.00	1.44	
B3	7	0.00	1.88		4.65	3.03	
B4	8	0.00	1.91		0.00	1.23	
C1	9	1.65	2.14		0.00	1.54	
C2	10	0.00	2.04		0.69	2.10	
C3	11	1.78	2.03		0.00	1.37	
C4	12	0.00	2.30		1.19	2.34	
D1	13	0.00	2.18		0.60	1.98	
D2	14	0.00	2.13		4.94	2.96	
D3	15	0.00	1.96		0.00	1.98	
D4	16	0.00	2.01		0.00	1.45	

Carol Y. Robinson

8 of 11 #
8-7-02

G54 of 124

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR012
Batch Ended: 6/26/02 13:08

Crosstalk correction performed.

Recalibration Date: 4/3/03
Serial Number: 26966-1

Batch ID: FILEPPI SUR #02-TF-1134 (30)/011

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	17	0.00	2.10		1.46	2.25	
A2	18	1.89	2.15		3.44	2.65	
A3	19	0.00	1.96		0.23	1.87	
A4	20	0.00	1.96		0.00	2.33	
B1	21	0.00	2.08		0.24	1.80	
B2	22	0.00	2.14		0.00	1.44	
B3	23	0.00	1.84		0.00	1.84	
B4	24	0.00	1.92		0.59	1.67	
C1	25	0.00	2.14		1.36	2.03	
C2	26	0.00	2.04		0.69	2.10	
C3	27	1.78	2.03		0.00	1.37	
C4	28	0.00	2.29		0.00	1.55	
D1	29	1.76	2.18		0.43	1.98	
D2	30	0.00	2.09		1.08	1.94	

Carol Y. Robinson

GS56 124

9 of 11
8-7-02

Protocol #: 2 Name:Pw H3 #401393 26-Jun-2002 13:34
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
FILEPPI SUR #02-TF-1134 (A1-A30)/BH
Conventional DPM
Nuclide 1 = 800
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
-1	10.00	2	B	8.59	7.79	5.99	661.		21.58
0	2.00	1		206.92	198.07	0.51	537.	492.04	10.12
1	2.00	0		0.00	0.00	0.00	611.	0.00	0.00
2	2.00	16		0.00	0.00	0.93	610.	0.00	0.00
3	2.00	0		0.00	0.00	0.00	581.	0.00	0.00
4	2.00	0		0.00	0.00	0.00	584.	0.00	0.00
5	2.00	12		0.00	0.00	0.00	587.	0.00	0.00
6	2.00	10		0.00	0.00	0.01	626.	0.00	0.00
7	2.00	7		0.00	0.00	8.01	635.	0.00	0.00
8	2.00	27		0.00	0.00	0.00	606.	0.00	0.00
9	2.00	0		0.00	0.00	0.00	654.	0.00	0.00
10	2.00	27		0.00	0.00	0.00	639.	0.00	0.00
11	2.00	0		0.00	0.00	0.00	631.	0.00	0.00
12	2.00	0		0.00	0.00	0.00	619.	0.00	0.00
13	2.00	0		0.00	0.00	0.00	597.	0.00	0.00
14	2.00	31		0.00	0.00	0.01	546.	0.00	0.00
15	2.00	7		0.00	0.00	0.00	629.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	653.	0.00	0.00
17	2.00	31		0.00	0.00	0.00	581.	0.00	0.00
18	2.00	0		0.00	0.00	0.00	621.	0.00	0.00
19	2.00	0		0.00	0.00	0.00	639.	0.00	0.00
20	2.00	16		0.00	0.00	0.00	541.	0.00	0.00
21	2.00	0		0.00	0.00	0.51	656.	0.00	0.00
22	2.00	0		0.00	0.00	0.00	515.	0.00	0.00
23	2.00	27		0.00	0.00	0.00	572.	0.00	0.00
24	2.00	0		0.00	0.00	0.01	565.	0.00	0.00
25	2.00	0		0.00	0.00	0.00	541.	0.00	0.00
26	2.00	0		0.00	0.00	2.01	476.	0.00	0.00
27	2.00	0		0.00	0.00	0.00	602.	0.00	0.00
28	2.00	10		1.35	2.53	0.00	536.	3.21	389.5
29	2.00	22		0.00	0.00	0.00	595.	0.00	0.00
30	2.00	10		0.00	0.00	0.00	635.	0.00	0.00

Carol G. Robinson

VJA

11 DJA
10 of ~~10~~ 8-7-02

61 -BLDG BETA SURVEY RECOUNT

RSDS# 02-TF-1134 RCT: VJF RCT:_____

LOCATION	electra	RCT ID	PROBE	ITEM #	DATE	CT TIME	dpm/100cm2
QC-S4-R	5435	6192	5495	1	6/26/02	60	1306
QC-S15-R	5435	6192	5495	2	6/26/02	60	1220
Beta background on 6-26-2002 was 786 dpm/100cm2							

D9 H

G57 of 124

SURVEY PLAN FORM

SP NUMBER	61-02	DATE OF REQUEST	July 22, 2002
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ SCOPING		
AREA/LOCATION	Building 61		
PURPOSE	Obtain characterization survey data to support building classification.		
SURVEY UNIT #	1 – First Floor Designated Areas	GRID #	N/A
SURVEY UNIT #	2 - Roof	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A

SAMPLE TYPE

☐ **SURFACE SOIL SAMPLE:**

☐ **SUB-SURFACE SOIL SAMPLE:**

☒ **SEDIMENT SAMPLE:** See page 2 for specific instructions

☐ **CORE SAMPLE:**

☐ **WATER SAMPLE:**

☒ **Loose Surface Contamination:** See page 2 for specific instructions

☐ **OTHER:**

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	Ludlum 2350 (or equivalent) 43-20 Alpha (Hand Probe)	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Scan at 1 inch per second within ¼ inch of surface. See page 2 for specific survey instructions.
STATIC MEASUREMENT	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	Ludlum 2350 (or equivalent) 43-20 Alpha (Hand Probe)	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 1 minute integrated fixed-point surface measurements. See page 2 for specific survey instructions.
STATIC MEASUREMENT	☒ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE	NE Electra (or Equivalent) Dual Probe	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 1 minute integrated fixed-point surface measurements. See page 2 for specific survey instructions.

OTHER SURVEY TYPES OR COMMENTS

Laboratory analysis equipment shall be appropriate for the requested analysis and operated in accordance with Mound Procedures.

Record Sample Plan Form number (61-02) on each RSDS used.

G58 of 124

SP NUMBER	61-02	DATE OF REQUEST	July 22, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS

Safety Considerations

Obtain assistance from the responsible building custodian for access to upper walls, ceilings, roof, etc. when necessary. Exercise caution when performing surveys from ladders or scaffolds. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.

Floor Scan Measurements using a Ludlum 2350 with 43-20 alpha probe (or equivalent)

1. Perform a floor scan at 1" per second using a serpentine pattern on 50% of floor surface in each Area of survey unit #1(Approximately 1' between each scan path).
2. If two (2) or more counts are heard using the audible output of the instrument during a five (5) second scanning period, perform a thirty (30) second integrated count at that location.
3. Record the location of the area scanned on the RSDS map and indicate any integrated counts.

Static Measurements Using L 2350 With a 43-20 alpha probe and NE Electra (β)(or equivalent)

1. Perform a 1 minute integrated alpha and beta count at 20 data points on the floor surfaces of survey unit 1. Locate data points in the survey unit as shown in Attachment 2 by measuring along the E-W (X) axis and N-S (Y) axis of each area. The Northeast corner of each Area is the origin.
2. Perform at least ten (10) 1 minute integrated alpha and beta measurements on shelves, supports, or other horizontal structural surfaces where, in the judgement of the surveyor, a potential exists for residual contamination.
3. Perform a 1 minute integrated alpha and beta measurement at 5 data points on Building 61 roof and 8 data points on the external walls (2 per side). Data points may be selected at random by the surveyor.
4. Record location and results on RSDS map in accordance with Mound Rad Con procedures.
5. Document gross activity for each location (No "<" values).

Loose Surface Contamination

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

Sediment Samples

1. Collect approximately 250ml of debris from each accessible floor drain, sump, and sink trap within the Survey Unit.
2. If insufficient material is present at these sample locations, obtain a representative smear or swab.
3. Label sample container (EPA Dish) with sample number, date, time, and location in accordance with Mound procedures.
4. Document sample information and description of material on Attachment 1.
5. Show sample location on the RSDS map.
6. Submit sample to laboratory for gamma spectroscopy analysis.

(Continued on next page)

SP NUMBER	61-02	DATE OF REQUEST	July 22, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS

Quality Control (QC) Measurements

1. QC measurements will be performed by re-surveying 5% of survey points in each survey unit, as determined by the MARSSIM Engineer.
2. Any sediment sample or smear with measured activity above the MDA shall 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.

NOTE: Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Survey Plan Form.

APPROVAL SIGNATURES

MARSSIM Engineer	Roderick C. Case	DATE	July 22, 2002
Concurrence	Galen Tomlinson	DATE	July 22, 2002
Rad Con Manager	Steve Collas N/A	DATE	July 22, 2002

SP CLOSE-OUT SIGNATURES

MARSSM Engineer	R. CASE	DATE	8/26/02
QA/QC Review	G. TOMLINSON	DATE	8/26/02
Rad Con Manager	A.S. Collas	DATE	8/26/02

COMMENTS

G60 of 124

Attachment 1

Field Sample Data Collection Sheet

Sheet 4 of ~~19~~ 24

Note: Attach to SP Form when complete 02-TF-1140

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
61-02-114-SMR-19	8-8-02	0955	N/A	VENT	[redacted]	8-8-02	1250	PJR	BJB
61-02-114-SMR-20		0956		DRAIN TROUGH	[redacted]	8-8-02	1250	PJR	BJB
61-02-113-SMR-21		0958		DRAIN TROUGH	[redacted]	8-8-02	1250	PJR	BJB
61-02-113-SMR-22		0959		VENT	[redacted]	8-8-02	1250	PJR	BJB
61-02-127-WTR-23		0955		SINK TRAP	[redacted]	8-8-02	1350	DJH	BJB
61-02-125-SMR-24		1004	N/A	VENT	[redacted]	8-8-02	1250	PJR	BJB
61-02-125-SMR-25		1004		DRAIN	[redacted]	8-8-02	1250	PJR	BJB
61-02-125-SMR-26		1007		SUMP	[redacted]	8-8-02	1250	PJR	BJB
61-02-125-SMR-27		1007		SUMP	[redacted]	8-8-02	1250	PJR	BJB
61-02-114/113-SED-28		1000		TROUGH COMPOSITE	[redacted]	8-8-02	1250	PJR	BJB
61-02-125-WTR-29		1010		SUMP ~~TROUGH COMPOSITE~~ PJR	[redacted]	8-8-02	1350	DJH	BJB
61-02-		N		N			N		
61-02-		A		A			A		

Attachment 1

Field Sample Data Collection Sheet

P

02-TF-1140

Sheet 22 of 24

Note: Attach to SP Form when complete

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
61-02-OS-AE-30	8-7-02	1300		ACID ETCH ON OUTSIDE OF BUILDING ~~SAM~~ DH 8-22-02 LOCATION #4	HOPKINS	8-7-02	1300	DGH	RCH
61-02-OS-AE-31	8-7-02	1312		ACID ETCH ON OUTSIDE OF BUILDING LOCATION #7	HOPKINS	8-7-02	1300	DGH	RCH
61-02-ROOF-AE-32	8-7-02	1325		ACID ETCH ON ROOF LOCATION #9	HOPKINS	8-7-02	1300	DGH	RCH
61-02-ROOF-AE-33	8-7-02	1340		ACID ETCH ON ROOF LOCATION #12	HOPKINS	8-7-02	1300	DGH	RCH
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									

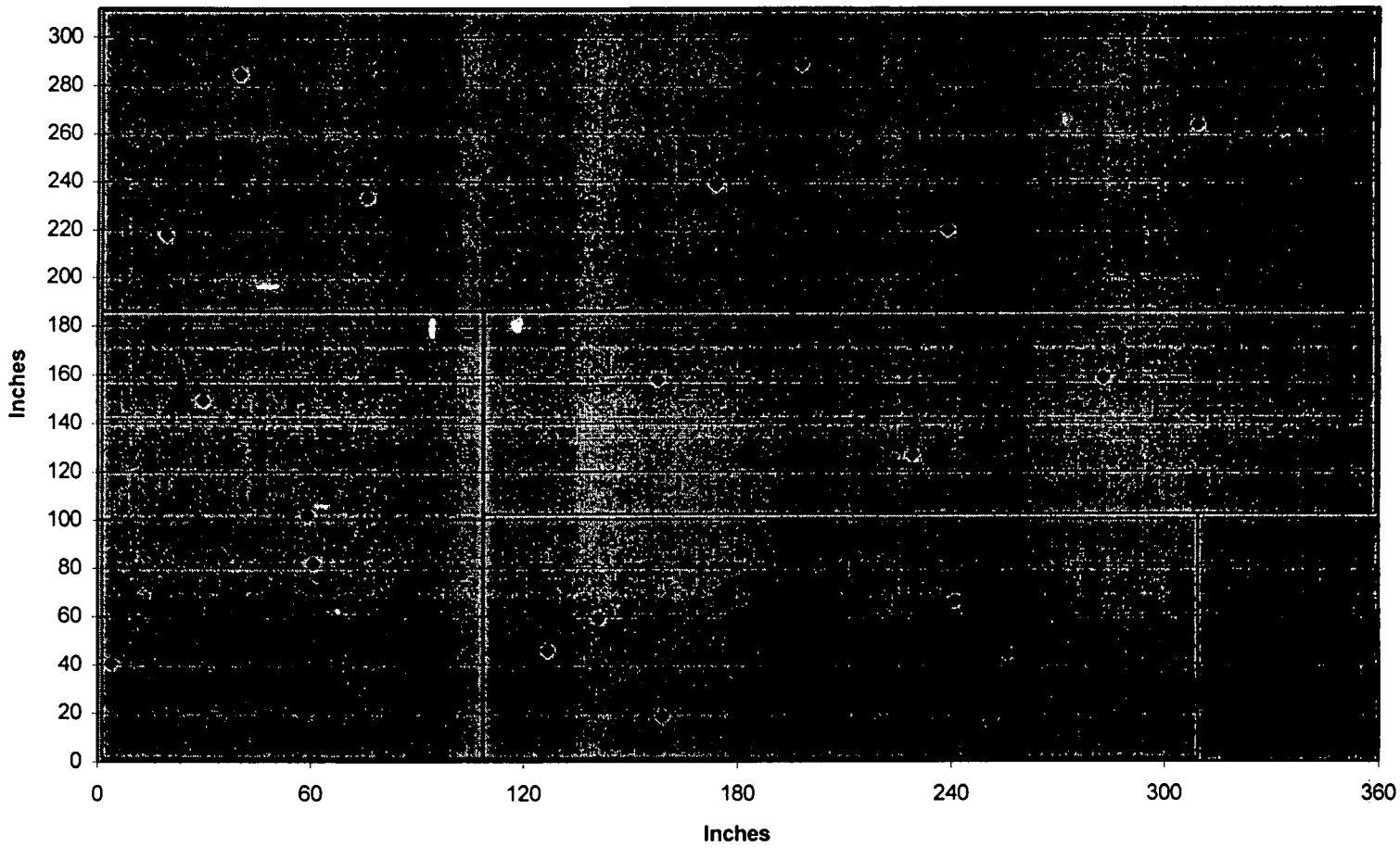
N A

G-62 of 124

Attachment 2

Survey Unit Data Point Locations

Building 61 Survey Unit 1



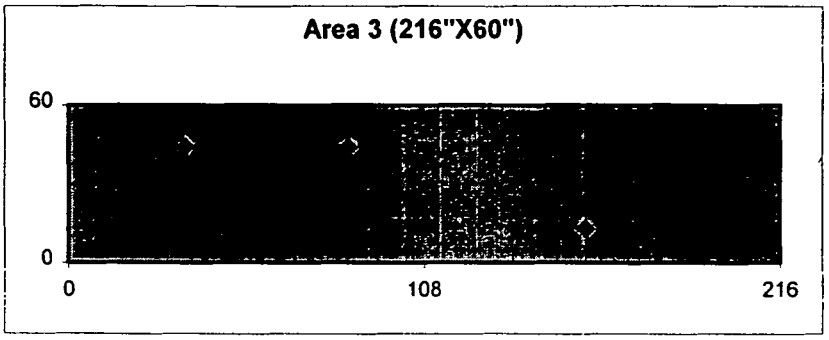
N

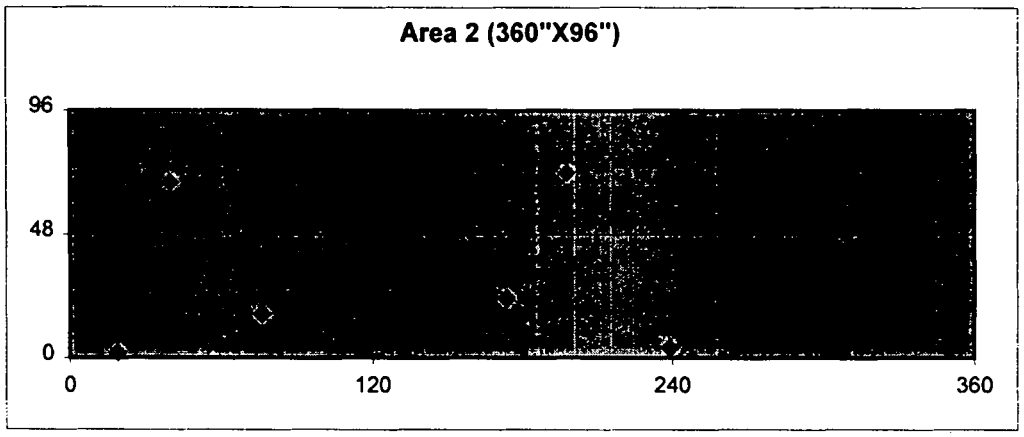
Data Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
X =	4	30	50	61	19	40	76	174	198	239	309	157	229	283	127	141	159	241	251	256
Y =	40	149	102	82	218	284	233	239	288	220	264	158	127	158	46	59	19	66	16	45

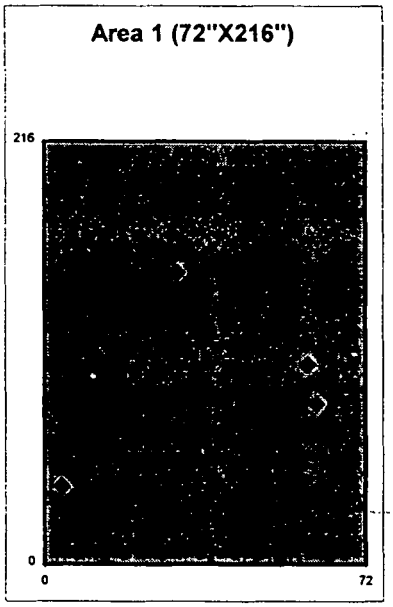
G63 of 124

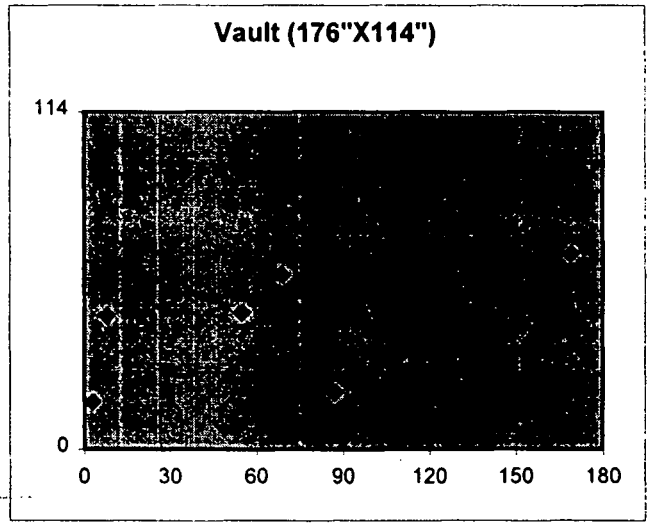
Attachment 2

Survey Unit Data Point Locations









X	Y
Area1	
4"	40"
61"	82"
59"	102"
30"	149"
Area 2	
19"	2"
40"	68"
76"	17"
174"	23"
198"	72"
239"	4"
309"	48"
Area 3	
157"	13"
35"	44"
85"	44"
Vault	
69"	59"
55"	46"
87"	19"
169"	66"
3"	16"
8"	45"

N

G 6406 124

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 61 / 2ND FLOOR	SURVEY NO. 02-TF-1092
PURPOSE: SUPPLEMENTAL TO MARSSIM	RWP NO. N/A
	DATE: 6-22-02
	TIME: 10:30

MAP/DRAWING

NOTE:

SEE MAP (Pg. ~~2~~ 3 of 7) FOR SMEAR & MEASUREMENT LOCATIONS.

COPY

* Note: Scoping Survey Taken in Accordance with Sample Plan 61-01

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
LUDLUM 2350-1	5671 / 5675	9-21-02
	N/A	

[redacted] HP# 7865 6178		Date: 6-22-02
[redacted]		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed [redacted]	HP# 7707	Date: 6-28-02
Reviewed/Approved by: (Print [redacted]		

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTA	CHED	TAPE
2	↓	↓	↓	UNDER TAPE
3				TAPE
4				UNDER TAPE
5				TAPE
6				UNDER TAPE
7				TAPE
8				UNDER TAPE
9				TAPE
10	↓	↓	↓	UNDER TAPE
			N/A	

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

COMMENTS: N/A

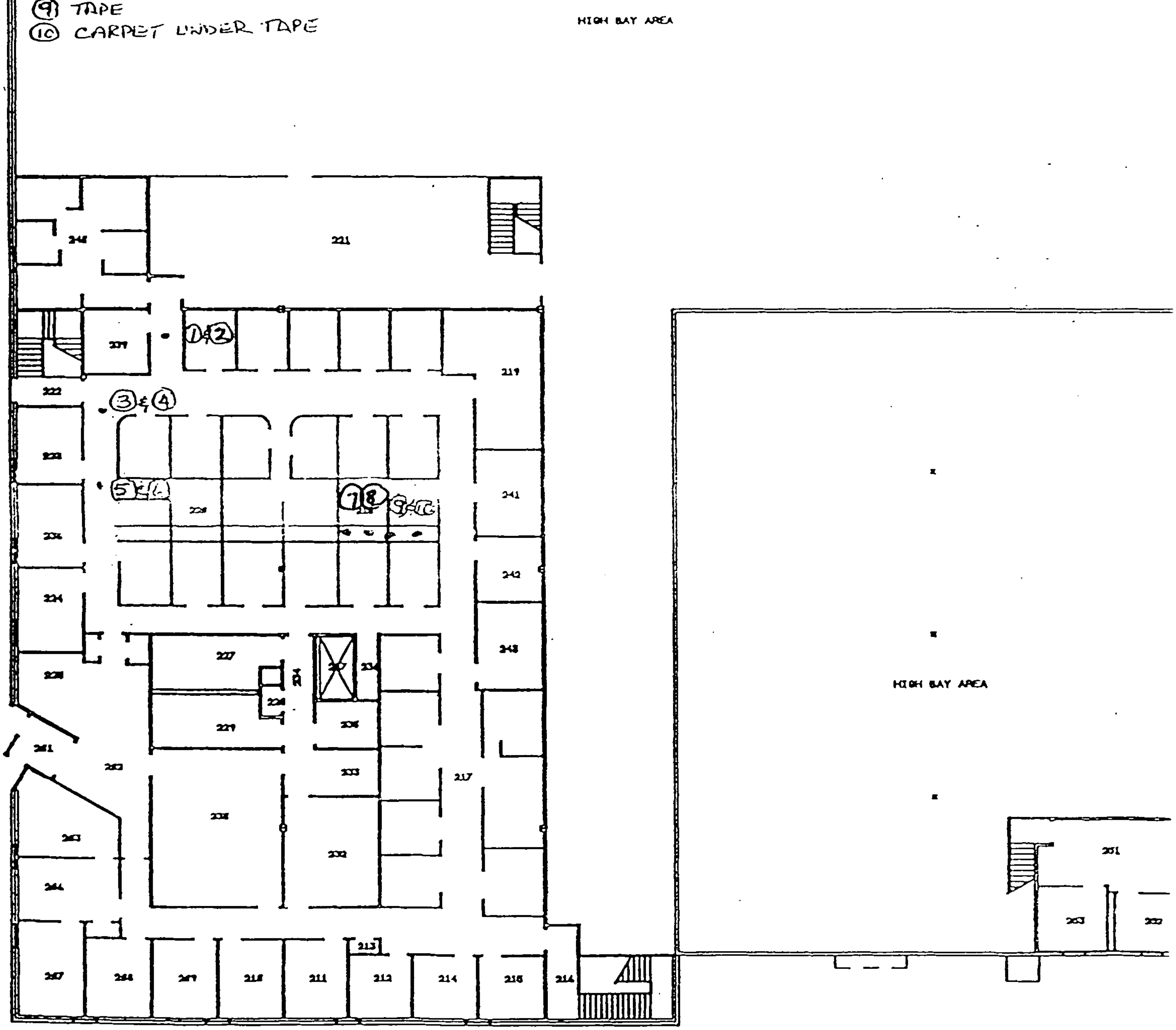
NOTES:

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

ML-9620 (4-98)

G-6606 12H

1. TAPE
2. CARPET UNDER TAPE
3. TAPE
4. CARPET UNDER TAPE
5. TAPE
6. CARPET UNDER TAPE
7. TAPE
8. CARPET UNDER TAPE
9. TAPE
10. CARPET UNDER TAPE



61 BUILDING MARSSIM TRANSITION

RSDS#02-TF-1092 RCT[redacted]7868 RCT[redacted]6178

Pg. 4 of 7

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	6178/7868	5675	4		6/22/02	7:31	27	300	10	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:34	2002	60	3747	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:35	2063	60	3861	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:37	2145	60	4014	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:39	2095	60	3921	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:40	2091	60	3913	
SRCCHECK	5671	6178/7868	5675	4		6/22/02	7:42	2285	60	4276	
TAPETOP-1	5671	6178/7868	5675	4	1	6/22/02	12:28	254	60	475	
TAPEUNDER	5671	6178/7868	5675	4	2	6/22/02	12:30	12	60	22	
TAPETOP-2	5671	6178/7868	5675	4	3	6/22/02	12:32	132	60	247	
TAPEUNDER	5671	6178/7868	5675	4	4	6/22/02	12:35	1	60	2	
TAPETOP-3	5671	6178/7868	5675	4	5	6/22/02	12:37	579	60	1084	
TAPEUNDER	5671	6178/7868	5675	4	6	6/22/02	12:38	9	60	17	
TAPETOP-4	5671	6178/7868	5675	4	7	6/22/02	12:40	407	60	762	
TAPEUNDER	5671	6178/7868	5675	4	8	6/22/02	12:42	7	60	13	
TAPETOP-5	5671	6178/7868	5675	4	9	6/22/02	12:44	164	60	307	
TAPEUNDER	5671	6178/7868	5675	4	10	6/22/02	12:45	17	60	32	

61 BUILDING MARSSIM TRANSITION

RSDS# 02-TF-1092 RCT [redacted] 7868 RCT: [redacted] 6478

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # : 3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # : 4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRCBKG	5671	6192	5675	4		6/24/02	6:46	33	300	12
SRCCHECK	5671	6192	5675	4		6/24/02	6:52	2132	60	3990
SRCCHECK	5671	6192	5675	4		6/24/02	6:54	2115	60	3958
SRCCHECK	5671	6192	5675	4		6/24/02	6:55	2168	60	4057
SRCCHECK	5671	6192	5675	4		6/24/02	6:57	2133	60	3992
SRCCHECK	5671	6192	5675	4		6/24/02	6:59	2145	60	4014
SRCCHECK	5671	6192	5675	4		6/24/02	7:01	2199	60	4115
SRCBKG	5671	6192	5148	3		6/24/02	7:21	3	300	3
SRCCHECK	5671	6192	5148	3		6/24/02	7:23	1955	60	11193
SRCCHECK	5671	6192	5148	3		6/24/02	7:24	1926	60	11027
SRCCHECK	5671	6192	5148	3		6/24/02	7:25	2008	60	11496
SRCCHECK	5671	6192	5148	3		6/24/02	7:27	2133	60	12212
TAPE1	5671	6192	5675	4	1	6/24/02	8:58	12	60	22
TAPE2	5671	6192	5675	4	2	6/24/02	9:00	16	60	30
TAPE3	5671	6192	5675	4	3	6/24/02	9:02	9	60	17
TAPE4	5671	6192	5675	4	4	6/24/02	9:04	23	60	43
TAPE5	5671	6192	5675	4	5	6/24/02	9:06	5	60	9

Recounts of Tape following decay time of 2 days - RWC

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR042
Batch Ended: 6/24/02 10:14
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 02-TF-1092 RADLEY(10) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	5.51	3.59		8.69	3.85	
A2	2	1.58	1.98		2.66	2.40	
A3	3	8.03	4.28		2.35	2.48	
A4	4	1.47	2.08		7.28	3.35	
B1	5	7.57	4.09		9.65	3.98	
B2	6	1.31	2.03		1.32	2.06	
B3	7	0.00	2.15		3.93	2.87	
B4	8	1.45	2.03		2.35	2.33	
C1	9	3.63	3.03		11.43	4.18	
C2	10	1.31	1.93		6.14	3.07	

PGR PGR

B Smith-Kirwan

24 Jun 2002 12:18 TRI-CARB - 1.09 Page #1
Protocol #: 6 PW H3 #407906 User : 5268

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5	18.6	0	0.0	7.45
Region B:	2.0	18.6	0	0.0	7.15
Region C:	40.0	2000	0	0.0	14.12

Quench Indicator: tSIE/AEC
~~Ext Std Terminator: Count~~
02-TF-1092 RADLEY-10 BSB
Luminescence Correction On
Coincidence ~~Time(ns)~~: 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT6.dat
Count Data Filename: C:\DATA\SDATA6.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	7.45	7.15	1	B	444.97		0.000	14.12
0	2.00	593.47	549.24	0		488.89	1182.50	92.543	0.00
1	2.00	1.05	0.01	0		635.11	1.86	7.898	1.88
2	2.00	0.05	0.00	0		584.22	0.10	7.799	0.00
3	2.00	1.94	1.83	0		560.27	3.63	8.748	0.00
4	2.00	28.05	26.35	0		632.80	49.66	15.441	0.00
5	2.00	3.05	2.85	0		642.86	5.36	8.604	1.38
6	2.00	0.00	0.00	0		606.88	0.00	0.000	0.00
7	2.00	0.00	0.00	6		617.54	0.00	0.000	5.38
8	2.00	2.55	1.96	0		666.19	4.42	8.305	0.00
9	2.00	7.55	6.85	0		645.69	13.24	10.087	0.00
10	2.00	4.05	3.45	0		614.08	7.28	9.162	1.38

PER

Pg. 7 of 7 G71 of 124

LOCATION: (BLDG./AREA/ROOM) 61/ALL	SURVEY NO. 02-TF-1140
PURPOSE: SEDIMENT, WATER, SMEAR SAMPLE COLLECTION (SAMPLE PLAN 61-02)	RWP NO. N/A
	DATE: 6-28-02
	TIME: 15:30

MAP/DRAWING

COLLECTION OF SEDIMENT SAMPLE, WATER & SMEAR SAMPLES OF 1ST & 2ND FLOOR, BLDG 61. (SAMPLES #1 THRU 18, 19 THRU 29) See MAPS for locations

Acid Etch of Roof - See page 22 → 30 THRU 33

RE: RSDS #'S - 02-TF-1149, 1150, 1250

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Da
	N	
	A	

[redacted]

	HP# 6178 7868	Date: 6-28-02
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Review[redacted]	HP# 7707	Date: 8/26/02
Reviewed/Approved by: (Print Na[redacted]		

ML-9620 (2-98)

Attachment 1

Field Sample Data Collection Sheet

02-TF-1140

Sheet 2 of ~~3~~ 24 ~~14~~ 19 P6R

Note: Attach to SP Form when complete

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
61-01-151-SED-01	6/28/02	12:30		SEDIMENT - TROUGH	7868 [redacted]	/1/02	1000	PGR	SEK
61-01-155-SMR-02		12:45	N/A	SMEAR - DRAIN	7868 [redacted]	-1-02	0930	PGR	SAB
61-01-154-WTR-03		13:00	158g	WATER - SINK	[redacted]	/1/02	1000	PGR	SEK
61-01-124-WTR-04		13:15	128g	WATER - SINK	7868 [redacted]	/1/02	1000	PGR	SEK
61-01-124-SMR-05		14:50	N/A	SMEAR - SHOWER DRAIN	7868 [redacted]	-1-02	0930	PGR	SAB
61-01-124-SMR-06		14:50	N/A	SMEAR - DRAIN	7868 [redacted]	-1-02	0930	PGR	SAB
61-01-123-WTR-07		14:55	288g	WATER - LEFT SINK	[redacted]	/1/02	1000	PGR	SEK
61-01-123-WTR-08		15:00	102g	WATER - RIGHT SINK	7868 [redacted]	/1/02	1000	PGR	SEK
61-01-123-SMR-09		15:05	N/A	SMEAR - DRAIN	[redacted]	-1-02	0930	PGR	SAB
61-01-123-SMR-10		15:05	N/A	SMEAR - LEFT SHOWER	[redacted]	-1-02	0930	PGR	SAB
61-01-123-SMR-11		15:05	N/A	SMEAR - RIGHT SHOWER	[redacted]	-1-02	0930	PGR	SAB
61-01-229-WTR-12		15:15	115g	WATER - LEFT SINK	[redacted]	/1/02	1000	PGR	SEK
61-01-229-WTR-13	6/28/02	15:20	160g	WATER - RIGHT SINK	[redacted]	/1/02	1000	PGR	SEK

G-TSCP 124

Attachment 1

Field Sample Data Collection Sheet

Note: Attach to SP Form when complete

02-TF-1140

Sheet 3 of 24 PGS

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
61-01-228-SMR-14	6/28/02	15:27	N/A	SMEAR - JANITOR'S CLOSET	7868 [redacted]	7-1-02	0930	PJR	[illegible]
61-01-227-WTR-15	↓	15:25	103g	WATER - LEFT SINK	7868 [redacted]	7/1/02	1000	PJR	[illegible]
61-01-227-WTR-16	↓	15:27	108g	WATER - RIGHT SINK	7868 [redacted]	7/1/02	1000	PJR	[illegible]
61-01-234-WTR-17	↓	15:31	120g	WATER - SINK	7868 [redacted]	7/1/02	1000	PJR	[illegible]
61-01-106-SMR-18	6/28/02	15:35	N/A	SMEAR FIRE WATER - DRAIN	7868 [redacted]	7-1-02	0930	PJR	[illegible]
61-01-									
61-01-									
61-01-									
61-01-				N					
61-01-				A					
61-01-									
61-01-									
61-01-									

421 of 424

Attachment 1

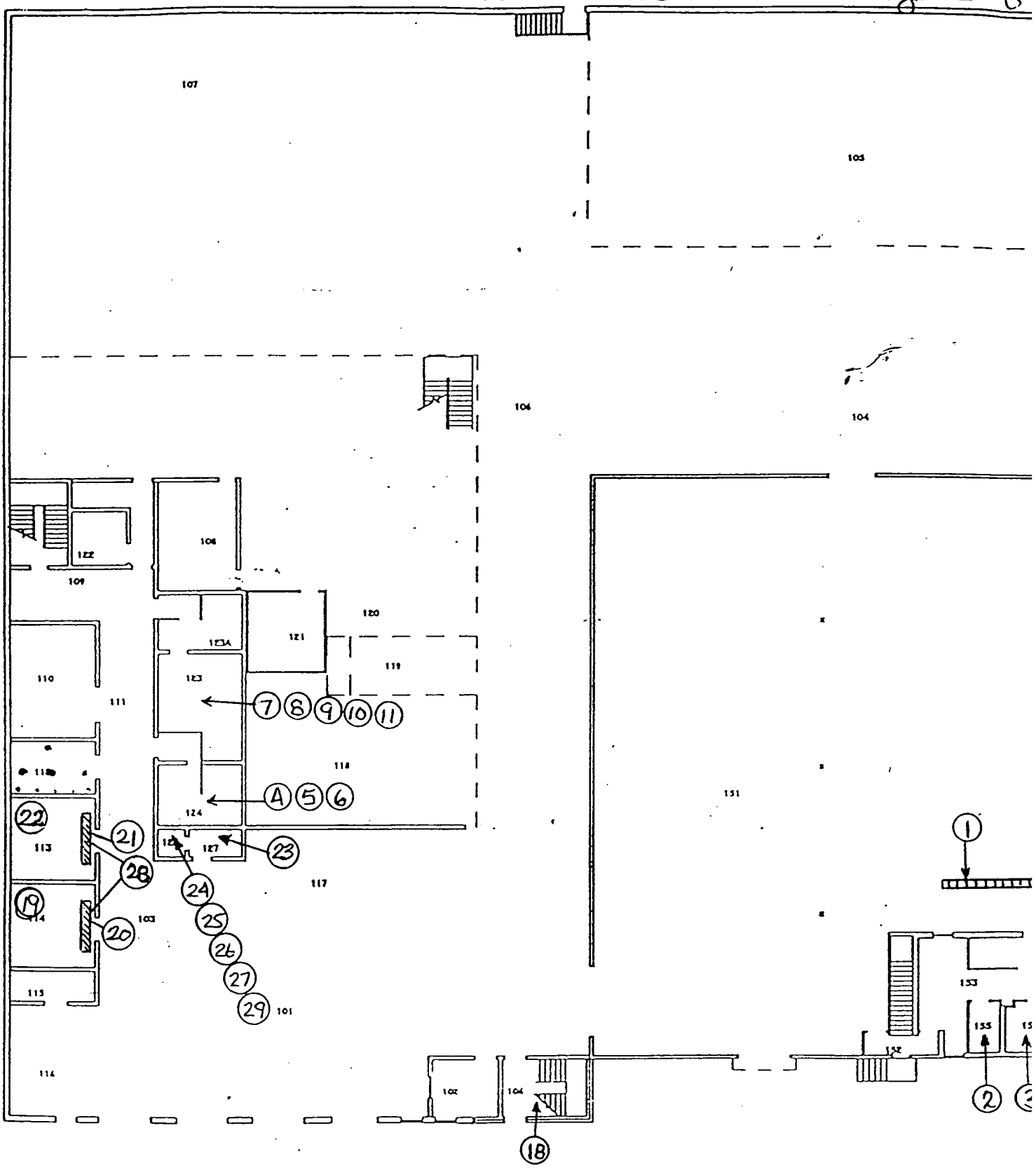
Field Sample Data Collection Sheet

Sheet 4 of ~~19~~ 24

Note: Attach to SP Form when complete 02-TF-1140

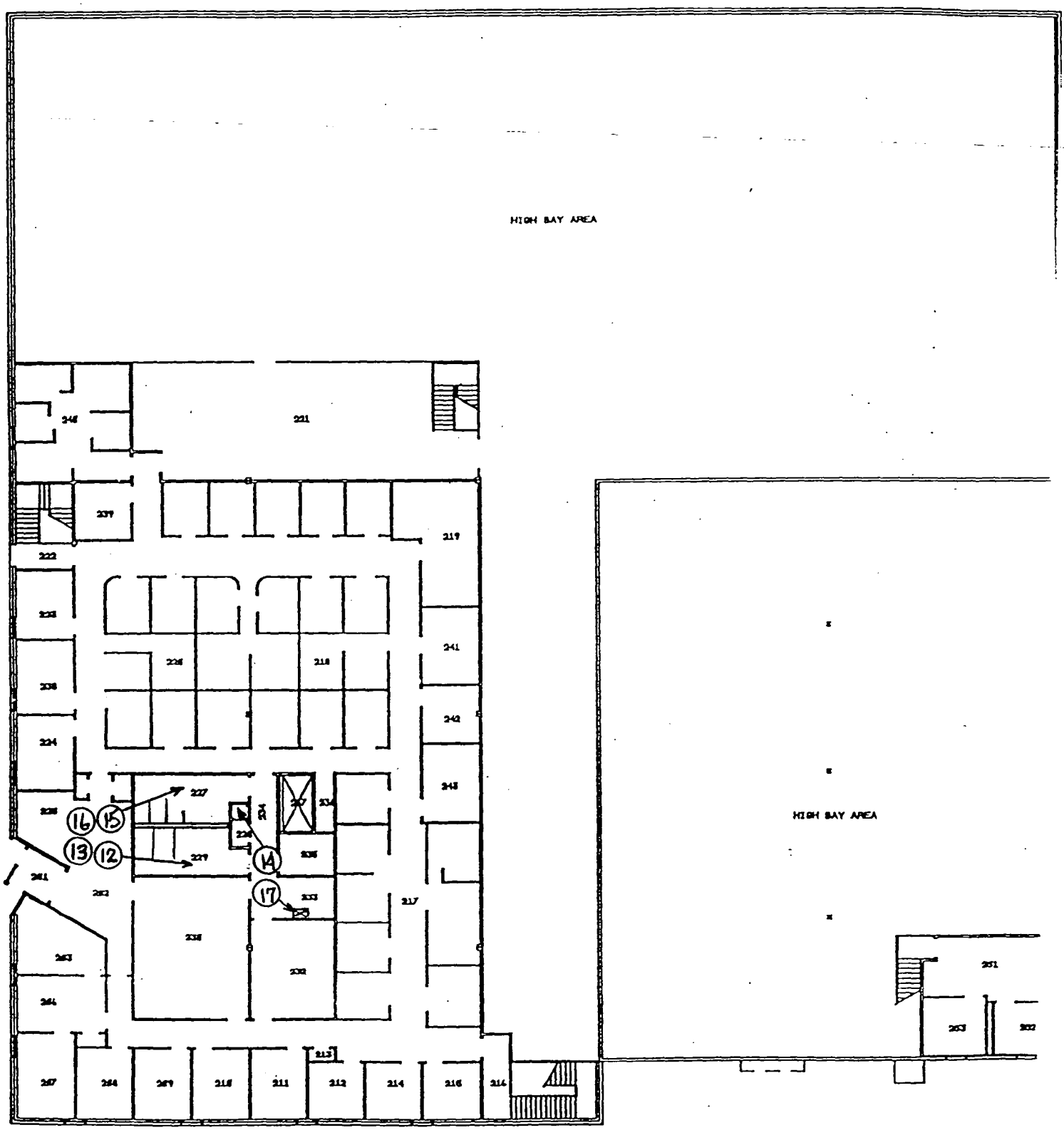
Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab: Date	Time	Initials	Rec'd By
61-02-114-SMR-19	8-8-02	0955	N/A	VENT	[redacted] 7868 6178	8-8-02	1250	PSR	BJB
61-02-114-SMR-20		0956		DRAIN TROUGH	[redacted] 7868 6178	8-8-02	1250	PSR	BJB
61-02-113-SMR-21		0958		DRAIN TROUGH	[redacted] 7868 6178	8-8-02	1250	PSR	BJB
61-02-113-SMR-22		0959		VENT	[redacted] 7868 6178	8-8-02	1250	PSR	BJB
61-02-127-WTR-23		0955		SINK TRAP	[redacted] 6178 7868	8-8-02	1350	DJH	~~BJB~~ DJH 8-20-02
61-02-125-SMR-24		1004	N/A	VENT	[redacted] 7868 6178	8-8-02	1250	PSR	~~BJB~~ BJB
61-02-125-SMR-25		1004		DRAIN	[redacted] 7868 6178	8-8-02	1250	PSR	BJB
61-02-125-SMR-26		1007		SUMP	[redacted] 7868 6178	8-8-02	1250	PSR	BJB
61-02-125-SMR-27		1007		SUMP	[redacted] 7868 6178	8-8-02	1250	PSR	BJB
61-02-114/113-SED-28		1000		TROUGH COMPOSITE	[redacted] 7868 6178	8-8-02	1250	PSR	~~BJB~~ DJH 8-20-02
61-02-125-WTR-29		1010		SUMP ~~TROUGH COMPOSITE~~ PSR	[redacted] 7868 6178	8-8-02	1350	DJH	BJ
61-02-		N		N			N		
61-02-		A		A			A		

B-75-B 124


107
105
106
104
122
109
108
120
121
123A
119
110
111
123
7 8 9 10 11
118
A 5 6
124
22
113
21
28
127
23
117
19
114
24
25
26
27
29
101
20
115
116
102
104
18
1
131
133
155
132
2

DATE:

4 3


HIGH BAY AREA
HIGH BAY AREA
221
219
222
241
242
243
227
229
16
15
13
12
14
17
217
251
253
252
213
212
214
216
211
218
249
264
267

G7706 124

02-TF-1140

BWXT of Ohio, Inc.

Pg 1 of 24

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
8-8-02	WATER	HARVEY	2
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
SMPP/TFV	HARVEY ~~[illegible]~~ 3163		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
	8-8-02		

ANALYSES REQUESTED (check):

- [x] ^3H
- [ ] Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- [x] 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
0209503	61 Building	23	0.61 nCi/L 3H <0.16 dpm/mL α
504	↓	29	1.68 nCi/L 3H <0.16 dpm/mL α

COMMENTS:

ANALYZED BY: [signature] DATE: 8/13/02

ML-5222 (1-01)

G7806 124

02-TF-1140

Pg * of 1* PGR

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML14102
File ID: MG101649.s0
Priority: Yes

Description\Location
61-01-151-SED-01

Collector: 7868
Date Received: 6/30/02
Date Collected: 6/28/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.12	45,000
Cs-137	*	0.01	0.07	45,000
Pb-210	*	0.96	0.97	45,000
Ra-226		1.64	1.23	800
Ac-227 (D)	*	0.1	0.32	40
Th-230		6.78 *	5.64	800
Th-232 (D)		0.37	0.3	130
Pu-238	*	0.57	22.28	500
Am-241	*	0.02	0.09	500

* See Appendix G, pages 123 + 124. VKD 11/25/02.

Other Nuclides

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

Σ_{DOT} 0.03 nCi/g $\Sigma_{Respirator}$ 0.07

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

Σ_{DOT} 2nCi/g limit, total activity.

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

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments: gwd

Date: 7/17/02 Counted By: 6152 Analyzed By: 6152 Initials [redacted]

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-154-WTR-03

Sample ID#: ML14093

Filename: C0000040.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 158
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.05	
Cs-137			0.06	
Pb-210			0.71	
Ra-226			0.97	
Ac-227(D)			0.29	
Th-230			6.04	
Th-232(D)			0.19	
Pu-238			13.6	
Am-241			0.07	

Comments:
No gamma activity above the MDA.

Energy Calibration File QC_00061.S0	Efficiency Calibration File 614-33-2.S0
Resolution Calibration File 614-33-2.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/10/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst: [redacted] HP #: 6152 Date: 07/25/02

02-TF-1140 Pg. 6 of 14 PGK

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-124-WTR-04

Sample ID#: ML14094

Filename: C0000039.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 128
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.09	
Cs-137			0.04	
Pb-210			0.79	
Ra-226			1.06	
Ac-227(D)			0.31	
Th-230			6.17	
Th-232(D)			0.21	
Pu-238			16.33	
Am-241			0.07	

Comments:
No gamma activity above the MDA.

Energy Calibration File QC_00060.S0	Efficiency Calibration File 614-33-2.S0
Resolution Calibration File 614-33-2.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/9/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst [redacted] HP #: 6152 Date: 07/25/02

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-123-WTR-07

Sample ID#: ML14095

Filename: C0000041.s0
Detector: Ge-C
Geometry: 250Chem
Mass (g): 288
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.04	
Cs-137			0.05	
Pb-210			0.56	
Ra-226			0.69	
Ac-227(D)			0.22	
Th-230			4.93	
Th-232(D)			0.13	
Pu-238			12.75	
Am-241			0.05	

Comments:
No gamma activity above the MDA.

Energy Calibration File QC_00062.S0	Efficiency Calibration File 614-33-1.S0
Resolution Calibration File 614-33-1.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/15/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst: [redacted] HP #: 6152 Date: 07/25/02

02-7F-1140 Fy. Audit Per

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-123-WTR-08

Sample ID#: ML14096

Filename: C0000042.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 102
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.1	
Cs-137			0.12	
Pb-210			0.93	
Ra-226			1.49	
Ac-227(D)			0.36	
Th-230			10.05	
Th-232(D)			0.27	
Pu-238			19.94	
Am-241			0.1	

Comments:
No gamma activity above the MDA.

Energy Calibration File QC_00063.S0	Efficiency Calibration File 614-33-2.S0
Resolution Calibration File 614-33-2.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/16/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst [redacted] HP #: 6152 Date: 07/25/02

G-83 of 124

PGR

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-229-WTR-12

Sample ID#: ML14097

Filename: C0000043.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 115
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.1	
Cs-137			0.05	
Pb-210			0.73	
Ra-226			1.21	
Ac-227(D)			0.3	
Th-230			8.01	
Th-232(D)			0.24	
Pu-238			18.03	
Am-241			0.08	

Comments:
No gamma activity above the MDA.

Energy Calibration File	Efficiency Calibration File
QC_00064.S0	614-33-2.S0
Resolution Calibration File	**Library File**
614-33-2.S0	SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/17/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst: [redacted] HP #: 6152 Date: 07/25/02

02-1F-1140 14-10 gy 77. PGR

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-229-WTR-13, right sink

Sample ID#: ML14098

Filename: C0000044.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 160
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.08	
Cs-137			0.06	
Pb-210			0.69	
Ra-226			0.99	
Ac-227(D)			0.23	
Th-230			6.19	
Th-232(D)			0.2	
Pu-238			13.43	
Am-241			0.05	

Comments:
No gamma activity above the MDA.

Energy Calibration File QC_00064.S0	Efficiency Calibration File 614-33-2.S0
Resolution Calibration File 614-33-2.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/17/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst: [redacted] HP #: 6152 Date: 07/25/02

02-TF-1140 Pg. Xlo D'X PGR

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-227-WTR-15

Sample ID#: ML14099

Filename: C0000045.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 103
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.12	
Cs-137			0.07	
Pb-210			0.98	
Ra-226			1.32	
Ac-227(D)			0.37	
Th-230			8.1	
Th-232(D)			0.36	
Pu-238			21.36	
Am-241			0.09	

Comments:
No gamma activity above the MDA.

Energy Calibration File
QC_00065.S0

Efficiency Calibration File
614-33-2.S0

Resolution Calibration File
614-33-2.S0

Library File
SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/18/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst: [redacted] HP #: 6152 Date: 07/25/02

G-86 of 124

02-1P-1140

PGR

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-227-WTR-16

Sample ID#: ML14100

Filename: C0000046.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 108
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.02	
Cs-137			0.09	
Pb-210			1.02	
Ra-226			1.38	
Ac-227(D)			0.42	
Th-230			8.83	
Th-232(D)			0.25	
Pu-238			19.06	
Am-241			0.1	

Comments:
No gamma activity above the MDA.

Energy Calibration File QC_00066.S0	Efficiency Calibration File 614-33-2.S0
Resolution Calibration File 614-33-2.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/22/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst: [redacted] HP #: 6152 Date: 07/25/02

G87 of 124

02-TI-1140

PGR

Gamma Spectroscopy Report

Requested By: [redacted]

HP#: 6178

Description:
61-01-234-WTR-17

Sample ID#: ML14101

Filename: C0000047.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 120
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.09	
Cs-137			0.06	
Pb-210			0.74	
Ra-226			1.36	
Ac-227(D)			0.28	
Th-230			7.63	
Th-232(D)			0.23	
Pu-238			18.5	
Am-241			0.06	

Comments:
No gamma activity above the MDA.

Energy Calibration File	Efficiency Calibration File
QC_00067.S0	614-33-2.S0
Resolution Calibration File	**Library File**
614-33-2.S0	SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 7/3/02
Sample Counted: 7/23/02
Sample Analyzed: 7/25/02
Product Cycle Time: 22 Days

Analyst: [redacted] HP #: 6152 Date: 07/25/02

G-88 of 124

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML14497
File ID: MG400417.s0
Priority: Yes

Description\Location
61-02-114/113-SED-28

Collector: 6178
Date Received: 8/8/02
Date Collected: 8/8/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.02	0.04	45,000
Cs-137	*	0.02	0.04	45,000
Pb-210		1.3	1.01	45,000
Ra-226	*	0.38	0.9	800
Ac-227 (D)	*	0.04	0.28	40
Th-230	*	0	7.13	800
Th-232 (D)	*	0.04	0.16	130
Pu-238	*	0	79.22	500
Am-241	*	0	0.08	500

Other Nuclides

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

Σ_{DOT} 0.09 nCi/g $\Sigma_{Respirator}$ 0.18

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

Σ_{DOT} 2nCi/g limit, total activity.

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

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments:

Date: 8/12/02 Counted By: 6152 Analyzed By: 6152 Initials [redacted]

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR077
Batch Ended: 7/1/02 10:16
Cal. Due Date: 4/25/03
Serial Number: 26966-3 1140

Batch ID: 02-TF-~~1139~~ 1140 RADLEY(8) BSB
PGR 7-31-02

Detector ID	Sample ID *	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	2	0.00	2.13		7.87	3.63	
A2	5	5.43	3.38		3.55	2.69	
A3	6	1.68	2.15		1.53	2.15	
A4	9	1.47	2.02		1.38	2.05	
B1	10	0.00	2.02		0.00	1.26	
B2	11	0.00	2.00		0.00	1.19	
B3	14	3.67	2.97		0.00	1.81	
B4	18	3.44	2.83		0.00	1.64	

PGR PGR

* SAMPLE ID # CORRESPONDS TO Chain of Custody Sample #, pages 2,3,&4

B S Brown

#21 of 126

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR030
Batch Ended: 8/8/02 13:08
Cal. Due Date: 4/25/03
Serial Number: 26966-3 1140 29 8-24-02
~~1240~~
Batch ID: 02-TF-~~1260~~ RADLEY(8) BSB

Detector ID	Sample ID *	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	19	3.48	2.93		5.01	3.14	
A2	20	1.58	1.98		2.66	2.40	
A3	21	0.00	2.14		0.44	1.75	
A4	22	0.00	2.03		2.70	2.36	
B1	24	0.00	2.03		0.29	1.77	
B2	25	0.00	2.04		2.68	2.39	
B3	26	0.00	2.09		0.00	1.29	
B4	27	0.00	2.00		0.00	1.16	

PGR PGR

*Sample ID corresponds with Chain of Custody Sample #, pages 2,3, & 4

G. S. Brown

1: Aug 2002 10:24 ALPHA/BETA - 1.09 Page #1
Protocol #: 3 Pw H3 405828 Head : 5268

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	16.6	0	0.0	6.78
Region B:	2.0 -	18.6	0	0.0	6.56
Region C:	40.0 -	2000	0	0.0	11.90

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
02-TF-~~1260~~ RADLEY(8) BSB 1140 PGR 8/24/02
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT3.DAT
Count Data Filename: c:\data\SDATA3.DAT
Spectrum Data Drive & Path: c:\data

BBBrown

Sample #'s

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPM
-1(19)	10.00	6.78	6.56	0	B	499.36		0.00	11.3[illegible]
0(20)	2.00	0.00	0.00	0		303.49	0.00	0.00	72.[illegible]
(19) 1(21)	2.00	0.60	0.53	0		335.10	1.71	11.82	0.[illegible]
(20) 2(22)	2.00	0.00	0.00	0		474.46	0.00	0.00	3.1[illegible]
(21) 3	2.00	3.25	3.23	0		560.60	6.47	9.52	0.00
(22) 4	2.00	0.00	0.00	0		436.31	0.00	0.00	0.[illegible]
(24) 5	2.00	0.00	0.00	0		440.52	0.00	0.00	[illegible]
(25) 6	2.00	0.00	0.00	0		531.36	0.00	0.00	[illegible]
(26) 7	2.00	0.00	0.00	0		554.11	0.00	0.00	0.[illegible]
(27) 8	2.00	0.00	0.00	0		584.99	0.00	0.00	[illegible]

PGR

Sample #2,5,6,9,10,11,14, & 18 (smears) NOT Analyzed for Tritium

Attachment 1

Field Sample Data Collection Sheet

P

02-TF-1140

Note: Attach to SP Form when complete

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
61-02-OS-AE-30	8-7-02	1300		ACID ETCH ON OUTSIDE OF BUILDING ~~3AM~~ DJH 8-22-02 LOCATION #4	HOPKINS	8-7-02	1300	DJH	RCH
61-02-OS-AE-31	8-7-02	1312		ACID ETCH ON OUTSIDE OF BUILDING LOCATION #7	HOPKINS	8-7-02	1300	DJH	RCH
61-02-ROOF-AE-32	8-7-02	1325		ACID ETCH ON ROOF LOCATION #9	HOPKINS	8-7-02	1300	DJH	RCH
61-02-ROOF-AE-33	8-7-02	1340		ACID ETCH ON ROOF LOCATION #12	HOPKINS	8-7-02	1300	DJH	RCH
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									

N A

G-236 124

02-TF-1140

Pg 23 of 24

Laboratory ID#: 0209439-0209442
Project/function: SMPP/TFV
Submitted: Aug 7, 2002
Submitted by: Hopkins / Brewer / Gavin
Point of Contact: D. Harvey
RSDS#: N/A
Date: Aug 21, 2002

Lab ID 0209439
Sample Location Building 61 #4

SAMPLE #30

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.69
Pu-239/240	<LDL	<LDL	0.57
Th-232	1.06	0.33	0.26
Th-230	0.48	0.22	0.26
Th-228	1.02	0.33	0.52
Th-227	0.63	0.26	0.52
U-238	<LDL	<LDL	0.31
U-235	<LDL	<LDL	0.61
U-233/234	<LDL	<LDL	0.61
Po-210	5.44	1.19	1.23

Lab ID 0209440
Sample Location Building 61 #7

SAMPLE #31

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.65
Pu-239/240	<LDL	<LDL	0.33
Th-232	0.55	0.28	0.37
Th-230	<LDL	<LDL	0.74
Th-228	1.73	0.53	0.74
Th-227	<LDL	<LDL	0.89
U-238	<LDL	<LDL	0.31
U-235	<LDL	<LDL	0.60
U-233/234	0.34	0.20	0.31
Po-210	25.00	3.14	1.34

Lab ID 0209441
Sample Location Building 61 #9

SAMPLE #32

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.87
Pu-239/240	<LDL	<LDL	0.44
Th-232	<LDL	<LDL	0.83
Th-230	<LDL	<LDL	1.65
Th-228	<LDL	<LDL	0.83
Th-227	<LDL	<LDL	0.83
U-238	<LDL	<LDL	0.33
U-235	<LDL	<LDL	0.97
U-233/234	0.85	0.33	0.33
Po-210	14.60	2.09	0.59

02-TF-1140

Lab ID 0209442
Sample Location Building 61 #12 SAMPLE # 33

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.31
Pu-239/240	<LDL	<LDL	0.31
Th-232	<LDL	<LDL	0.24
Th-230	0.90	0.29	0.24
Th-228	<LDL	<LDL	0.24
Th-227	<LDL	<LDL	0.24
U-238	0.62	0.32	0.42
U-235	<LDL	<LDL	0.42
U-233/234	0.62	0.32	0.42
Po-210	15.99	2.44	0.73

[redacted] 1585 8/20/02
HP# Date

[redacted] 5768 8/21/02
HP# Date

RADIOLOGICAL SURVEY DATA SHEET

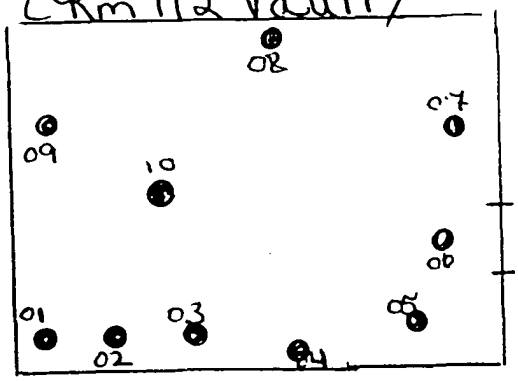
1149

LOCATION: (BLDG./AREA/ROOM) Building 61	SURVEY NO. 02-TF-~~1150~~
PURPOSE: Obtain Characterization Survey data to Support building classification. In accordance with Sample Plan number 61-02	RWP NO. N/A
	DATE: 07-23-2002
	TIME: 1320

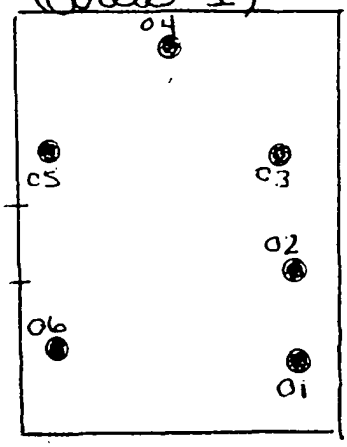
SCAN RESULTS

MAP/DRAWING

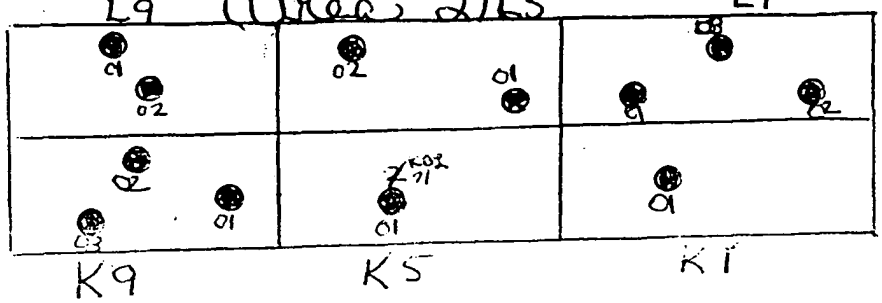
(Rm 112 Vault)



(Area 1)

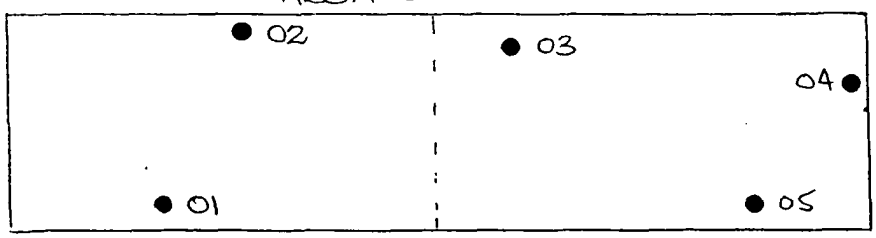


(Area 2)



RE: RSDS #s
02-TF-1140
1150
1250

AREA 3



COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Lud 2350	~~5678~~ 5671	9-21-02
Lud 2350	5673/5143	~~8-12-02~~
	N/A	

[redacted] Date: 7/23/02

[redacted] N/A N/A Date: N/A

Counted by: (Print Name) N/A

Review[redacted] HP# 7707 Date: 8-13-02

Reviewed/Approved by [redacted]

ML-9620 (2-98)

PGR 7-24-02

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

61-BLDG CHARACTERIZATION SURVEY SCANNING

RSDS# 02-TF-~~1150~~ 1149 RCT [redacted] 7456 RCT: [redacted] 7868

PGR 7-24-02

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	7456	5675	4		7/23/02	8:25	39	300	15	
SRCCHECK	5671	7456	5675	4		7/23/02	8:32	2052	60	3840	
SRCCHECK	5671	7456	5675	4		7/23/02	8:35	2008	60	3758	
SRCCHECK	5671	7456	5675	4		7/23/02	8:37	2233	60	4179	
SRCCHECK	5671	7456	5675	4		7/23/02	8:40	1963	60	3674	
SRCCHECK	5671	7456	5675	4		7/23/02	8:41	2183	60	4085	
SRCCHECK	5671	7456	5675	4		7/23/02	8:43	2117	60	3962	
SCANV01	5671	7456	5675	4	1	7/23/02	9:36	19	30	71	
SCANV02	5671	7456	5675	4	2	7/23/02	9:38	6	30	22	
SCANV03	5671	7456	5675	4	3	7/23/02	9:40	4	30	15	
SCANV04	5671	7456	5675	4	4	7/23/02	9:42	6	30	22	
SCANV05	5671	7456	5675	4	5	7/23/02	9:44	4	30	15	
SCANV06	5671	7456	5675	4	6	7/23/02	9:47	5	30	19	
SCANV07	5671	7456	5675	4	7	7/23/02	9:49	6	30	22	
SCANV08	5671	7456	5675	4	8	7/23/02	9:51	1	30	4	
SCANV09	5671	7456	5675	4	9	7/23/02	9:52	2	30	7	
SCANV10	5671	7456	5675	4	10	7/23/02	9:53	4	30	15	
SCAN101	5671	7456	5675	4	11	7/23/02	10:31	11	30	41	
SCAN102	5671	7456	5675	4	12	7/23/02	10:32	9	30	34	
SCAN103	5671	7456	5675	4	13	7/23/02	10:34	9	30	34	
SCAN104	5671	7456	5675	4	14	7/23/02	10:36	9	30	34	
SCAN105	5671	7456	5675	4	15	7/23/02	10:38	5	30	19	
SCAN106	5671	7456	5675	4	16	7/23/02	10:40	6	30	22	
SCAN107	5671	7456	5675	4	17	7/23/02	12:16	10	30	37	
SCAN108	5671	7456	5675	4	18	7/23/02	12:17	3	30	11	
SCAN109	5671	7456	5675	4	19	7/23/02	12:19	6	30	22	
SCAN110	5671	7456	5675	4	20	7/23/02	12:20	7	30	26	
SCAN2K1-01	5671	7456	5675	4	21	7/23/02	12:24	6	30	22	
SCAN2K1-01	5671	7456	5675	4	22	7/23/02	12:29	6	30	22	
SCAN2K5-01	5671	7456	5675	4	23	7/23/02	12:36	8	30	30	
SCAN2K9-01	5671	7456	5675	4	24	7/23/02	12:39	9	30	34	
SCAN2K9-02	5671	7456	5675	4	25	7/23/02	12:40	9	30	34	
SCAN2K9-03	5671	7456	5675	4	26	7/23/02	12:42	1	30	4	
SCAN2L1-01	5671	7456	5675	4	27	7/23/02	12:45	5	30	19	
SCAN2L1-02	5671	7456	5675	4	28	7/23/02	12:47	6	30	22	

61-BLDG CHARACTERIZATION SURVEY SCANNING

RSDS# 02-TF-~~1150~~ 1149 RCT [redacted] 7456 RCT [redacted] 7868

PGR 7-24-02

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCAN2L1-03	5671	7456	5675	4	29	7/23/02	12:48	8	30	30
SCAN2L5-01	5671	7456	5675	4	30	7/23/02	12:50	8	30	30
SCAN2L5-02	5671	7456	5675	4	31	7/23/02	12:51	11	30	41
SCAN2L9-01	5671	7456	5675	4	32	7/23/02	12:53	10	30	37
SCAN2L9-02	5671	7456	5675	4	33	7/23/02	12:54	7	30	26

61-BLDG CHARACTERIZATION SURVEY SCANNING

RSDS# 02-TF-~~1150~~ 1149 RCT [redacted] 7456 RCT [redacted] 7868

P&R 7-24-02

43-20 BKG:	0	EFF:	0.234	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.189	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5673	7868	5143	2		7/23/02	12:59	32	300	30	
SRCCHECK	5673	7868	5143	2		7/23/02	13:04	2180	60	10294	
SRCCHECK	5673	7868	5143	2		7/23/02	13:05	2210	60	10436	
SRCCHECK	5673	7868	5143	2		7/23/02	13:07	2229	60	10526	
SRCCHECK	5673	7868	5143	2		7/23/02	13:09	2041	60	9638	
SCAN301	5673	7868	5143	2	34	7/23/02	13:27	9	60	42	
SCAN302	5673	7868	5143	2	35	7/23/02	13:30	5	60	24	
SCAN303	5673	7868	5143	2	36	7/23/02	13:35	4	60	19	
SCAN304	5673	7868	5143	2	37	7/23/02	13:40	5	60	24	
SCAN305	5673	7868	5143	2	38	7/23/02	13:42	3	60	14	

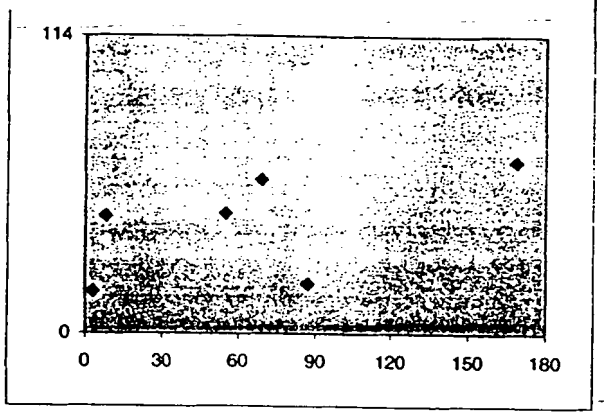
LOCATION: (BLDG./AREA/ROOM) 61 / ALL	SURVEY NO. 02-TF-1150
PURPOSE: CHARACTERIZATION DJH 8-7-02 BASELINE SCOPING SURVEY (SAMPLE PLAN 61-~~01~~ 02) 8-7-02 DJH	RWP NO. N/A
	DATE: 7-23-02
	TIME: 1600

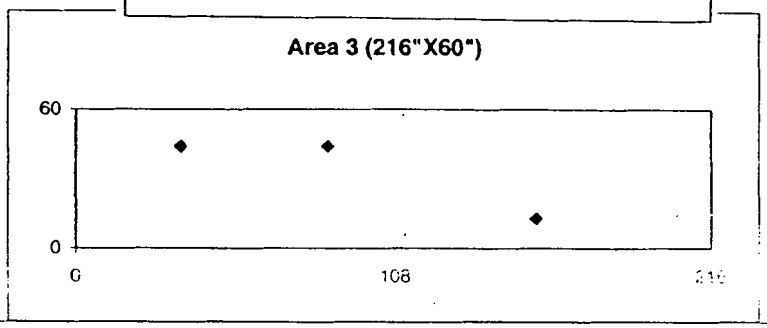
RE: RSDS #'s
02-TF-1140
1149
1250

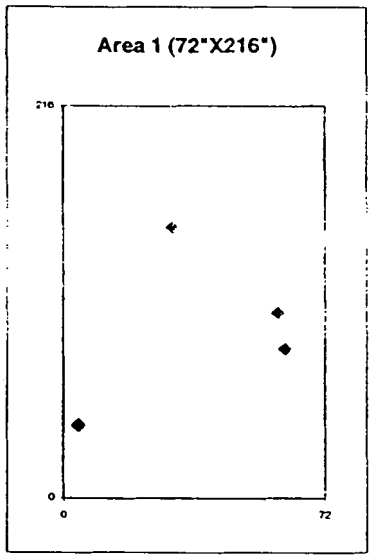
MAP/DRAWING

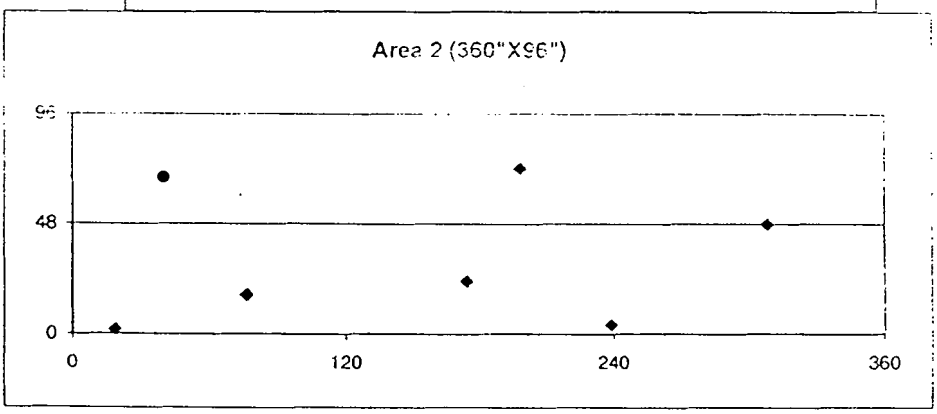
Inches	X	Y
Area1	4	40
	61	82
	59	102
	30	149
Area 2	19	2
	40	68
	76	17
	174	23
	198	72
	239	4
	309	48
Area 3	157	13
	35	44
	85	44
Vault	69	59
	55	46
	87	19
	169	66
	3	16
	8	45

COPY









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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
LUD 2350	5673/5143	8-12-02
ELECTRA	5435/5495	5-8-03

Co[redacted]	HP# 7868 7456	Date: 7-23-02
Counted by: (Signature) SEE ATTACHED	HP#	Date:
Counted by: (Print Name)		
Review[redacted]	HP# 7707	Date: 8-13-02
Review[redacted]		

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination					
Swipes (dpm/100cm²)					
Sample #	β/γ	Alpha	Tritium	x Comments	y
1	SEE	ATTA	CHED	4	40
2	↓	↓	↓	61	82
3				59	102
4				30	149
5				19	2
6				76	17
7				174	23
8				239	4
9				309	48
10				40	68
11				198	72
12				157	13
13				85	44
14				35	44
15				3	16
16				16	45
17				55	46
18				69	59
19				87	19
20	↓	↓	↓	169	66
		N/A			

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

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

61-BLDG CHARACTERIZATION SURVEY DATA POINTS

RSDS# 02-TF-1150 RCT[redacted] 7456

Pg 3 of 6

43-20 BKG:	0	EFF:	0.234	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.189	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5673	7868	5143	2		7/23/02	12:59	32	300	30	
SRCCHECK	5673	7868	5143	2		7/23/02	13:04	2180	60	10294	
SRCCHECK	5673	7868	5143	2		7/23/02	13:05	2210	60	10436	
SRCCHECK	5673	7868	5143	2		7/23/02	13:07	2229	60	10526	
SRCCHECK	5673	7868	5143	2		7/23/02	13:09	2041	60	9638	
4 40	5673	7868	5143	2	1	7/23/02	14:44	10	60	47	
61 82	5673	7868	5143	2	2	7/23/02	14:46	7	60	33	
59 102	5673	7868	5143	2	3	7/23/02	14:48	4	60	19	
30 149	5673	7868	5143	2	4	7/23/02	14:50	3	60	14	
19 2	5673	7868	5143	2	5	7/23/02	14:52	6	60	28	
76 17	5673	7868	5143	2	6	7/23/02	14:53	5	60	24	
174 23	5673	7868	5143	2	7	7/23/02	14:55	9	60	42	
239 4	5673	7868	5143	2	8	7/23/02	14:57	6	60	28	
309 48	5673	7868	5143	2	9	7/23/02	14:58	3	60	14	
40 68	5673	7868	5143	2	10	7/23/02	15:01	4	60	19	
198 72	5673	7868	5143	2	11	7/23/02	15:02	4	60	19	
157 13	5673	7868	5143	2	12	7/23/02	15:06	4	60	19	
85 44	5673	7868	5143	2	13	7/23/02	15:08	11	60	52	
35 44	5673	7868	5143	2	14	7/23/02	15:10	8	60	38	
3 16	5673	7868	5143	2	15	7/23/02	15:14	5	60	24	
16 45	5673	7868	5143	2	16	7/23/02	15:15	5	60	24	
55 46	5673	7868	5143	2	17	7/23/02	15:17	8	60	38	
69 59	5673	7868	5143	2	18	7/23/02	15:18	11	60	52	
87 19	5673	7868	5143	2	19	7/23/02	15:20	8	60	38	
169 66	5673	7868	5143	2	20	7/23/02	15:22	9	60	42	
239 4-QC	5673	7456	5143	2	21	7/24/02	14:47	10	60	47	

G103 of 124

61-BLDG MARSSIM BETA SURVEY

RSDS# 02-TF-1150 RCT: [redacted] 7868 RCT: [redacted] 7456

LOCATION	electra	RCT ID	PROBE	ITEM #	DATE	CT TIME	dpm/100cm2
4 40	5435	7456	5495	1	7/23/02	60	1172
61 82	5435	7456	5495	2	7/23/02	60	1407
59 102	5435	7456	5495	3	7/23/02	60	1211
30 149	5435	7456	5495	4	7/23/02	60	1359
19 2	5435	7456	5495	5	7/23/02	60	1263
76 17	5435	7456	5495	6	7/23/02	60	1517
174 23	5435	7456	5495	7	7/23/02	60	1483
239 4	5435	7456	5495	8	7/23/02	60	1316
309 48	5435	7456	5495	9	7/23/02	60	1349
40 68	5435	7456	5495	10	7/23/02	60	1340
198 72	5435	7456	5495	11	7/23/02	60	1254
157 13	5435	7456	5495	12	7/23/02	60	1345
85 44	5435	7456	5495	13	7/23/02	60	1172
35 44	5435	7456	5495	14	7/23/02	60	1363
3 16	5435	7456	5495	15	7/23/02	60	1397
16 45	5435	7456	5495	16	7/23/02	60	1287
55 46	5435	7456	5495	17	7/23/02	60	1397
69 59	5435	7456	5495	18	7/23/02	60	1392
87 19	5435	7456	5495	19	7/23/02	60	1388
169 66	5435	7456	5495	20	7/23/02	60	1656
239 4-QC	5347	6178	5319	21	7/24/02	60	1300
BETA BACKGROUND FOR 7-23-2002 WAS 746 dpm							
BETA BACKGROUND FOR 7-24-2002 WAS 699 dpm							

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200207241225	**Count Date:**	7/24/2002
Group:	H	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	02-TF-1150 RADLEY-20 BSB	**Operating Volts:**	1410
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	9	0.00	0.00	5.48	2.89
2	82	0.00	0.00	0.00	0.00
3	7	0.00	0.00	1.37	1.45
4	31	0.00	0.00	1.37	1.45
5	3	0.00	0.00	0.00	0.00
6	76	0.00	0.00	2.74	2.04
7	74	0.00	0.00	2.74	2.04
8	75	0.00	0.00	0.00	0.00
9	88	0.00	0.00	1.37	1.45
10	89	0.00	0.00	1.37	1.45
11	8	0.00	0.00	1.37	1.45
12	91	0.00	0.00	0.00	0.00
13	83	0.00	0.00	0.00	0.00
14	2	0.00	0.00	1.37	1.45
15	42	0.00	0.00	2.74	2.04
16	75	2.18	1.92	2.58	2.05
17	90	0.00	0.00	4.11	2.50
18	92	0.00	0.00	5.48	2.89
19	97	0.00	0.00	0.00	0.00
20	11	0.00	0.00	4.11	2.50

PGR PGR

LS Brown

Batch ID: 02-TF-1150 RADLEY-20 BSB

Page ~~1 of 1~~ 5 of 6

G10506 124

24 Jul 2002 14:13 ALPHA/BETA - 1.09 Page #1
Protocol #: 4 PW H3 #403727 User : 526E

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	6.02
Region B:	2.0	- 18.6	0	0.0	5.96
Region C:	40.0	- 2000	0	0.0	10.89

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
02-TF-1150 RADLEY(20) BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT4.dat
Count Data Filename: C:\DATA\SDATA4.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	6.02	5.96	10.89	531.89	0	B		0.00
0	2.00	312.96	304.23	1.11	489.49	0		682.99	74.49
1	2.00	0.00	0.00	0.00	533.52	0		0.00	0.00
2	2.00	2.98	3.04	3.61	593.09	0		5.90	8.96
3	2.00	0.00	0.00	0.00	543.79	0		0.00	0.00
4	2.00	1.98	2.04	1.18	639.86	0		3.79	8.23
5	2.00	1.48	0.82	0.82	566.89	0		2.98	8.43
6	2.00	0.00	0.00	1.61	557.55	0		0.00	0.00
7	2.00	4.98	4.29	0.00	585.97	0		9.91	9.87
8	2.00	0.98	1.04	1.11	565.09	0		1.97	8.19
9	2.00	0.00	0.00	1.61	577.63	0		0.00	0.00
10	2.00	1.31	1.37	3.11	410.92	0		3.19	10.08
11	2.00	0.39	0.12	0.00	633.51	0		0.75	7.52
12	2.00	2.46	2.54	8.61	605.80	0		4.86	8.66
13	2.00	0.48	0.19	3.61	641.75	0		0.91	7.52
14	2.00	2.48	2.16	0.00	653.66	0		4.71	8.39
15	2.00	2.98	3.04	1.61	670.53	0		5.61	8.53
16	2.00	50.51	42.05	32.61	583.90	0		100.76	22.67
17	2.00	4.48	4.54	3.11	664.87	0		8.47	9.18
18	2.00	0.98	1.04	0.00	560.66	0		1.98	8.22
19	2.00	0.23	0.29	0.00	653.40	0		0.43	7.35
20	2.00	0.00	0.00	4.58	642.66	0		0.00	0.00

PGR

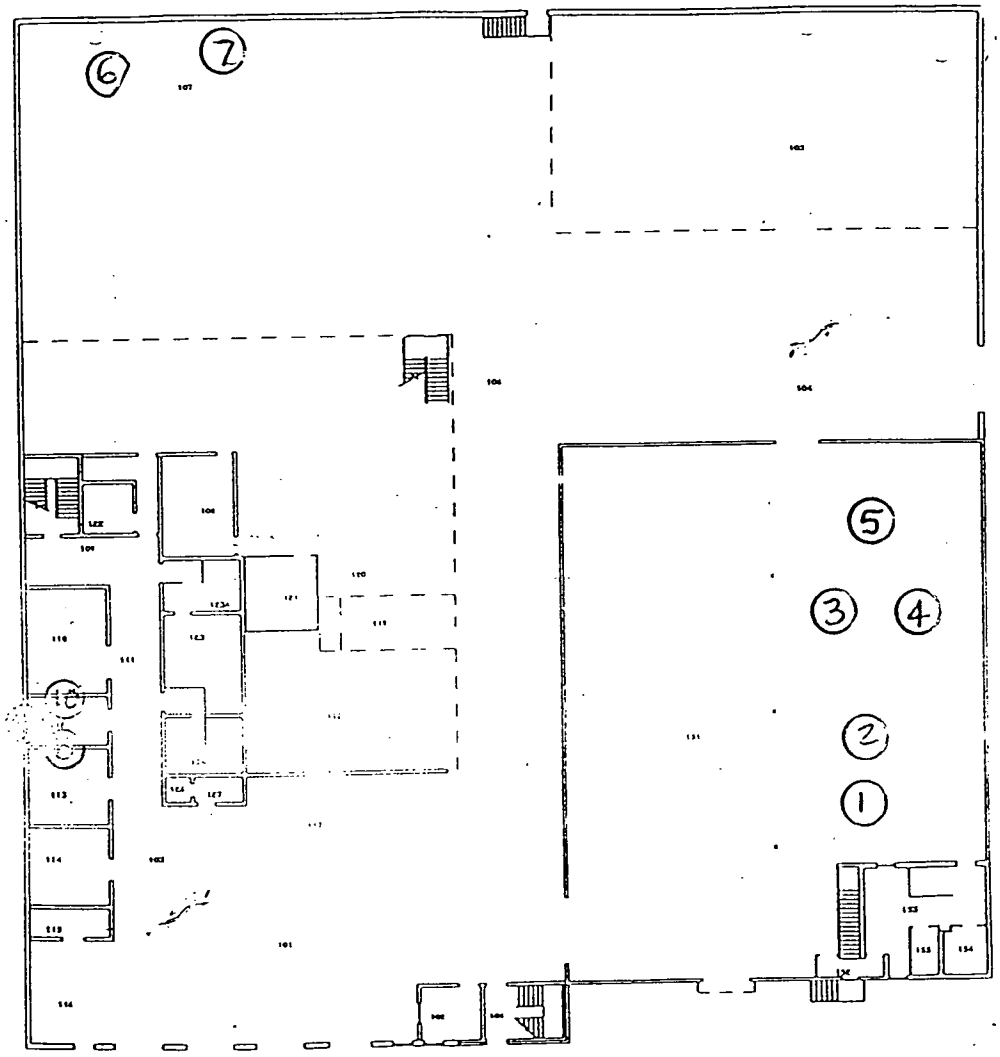
B A Brown

Pg. 6 of 6

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLD 61 FIRST FLOOR	SURVEY NO. 02-TF-1151
PURPOSE: SURVEY PLAN 61-02	RWP NO. NA
	DATE: 072402
	TIME: 0800

MAP/DRAWING



DIRECT BETA READINGS

LOCATION	DPM
1	1059
2	1033
3	1005
4	1095
5	1133
6	983
7	955
8	1184
9	1148
10	991

BKD = 782

1-2, 8-10 PAINTED CONCRETE WALL (UNDERBLOCK)

3-7 METAL SHELF

9 POUR CONCRETE WALL

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350	5673/5143	8/21/02
ELECTRA	5435/5495	5/8/03
	NA	

[redacted]	HP # 6192 7456	Date: 072402
Counted by: (Signature) See Attached	HP #	Date:
Counted by: (Print Name)		
Reviewed [redacted]	HP # 7707	Date: 7-25-02
Reviewed/Approved by: [redacted]		

ML-9620 (2-98)

Survey No. 02-TF-1151

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1		SEE		CONC. WALL
2		Attached		↓
3				METAL SHELF
4				
5				
6				
7				↓
8				CONC. WALL
9				
10		↓		↓
			N/A	

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

COMMENTS: N/A

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

ML-9620A (4-98)

7/25/02

G108 of 124

~~2 of 4~~ 2 of 5

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR002
Batch Ended: 7/24/02 13:30

Crosstalk correction performed.

Recalibration Date: 6/7/04
Serial Number: 26966-2

Batch ID: FILEPPI 02-TF-1151 (10) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.4	
A2	2	0.0	2.2		0.0	1.5	
A3	3	1.8	2.0		0.6	1.8	
A4	4	0.0	1.9		0.0	1.4	
B1	5	0.0	2.0		1.1	2.7	
B2	6	0.0	2.0		1.4	2.4	
B3	7	0.0	1.9		2.1	2.4	
B4	8	0.0	1.9		0.4	1.8	
C1	9	0.0	2.0		0.0	1.3	
C2	10	0.0	2.0		0.0	1.4	

Brenda Hislope 7-24-02

G-109 of 124

T-417

Protocol #: 3 Name:Pw H3 #401393 24-Jul-2002 14:57
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
FILEPPI SUR #02-TF-1151 (F1-F10)/BH
Conventional DPM
Nuclide 1 = 800
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
-1	10.00	8	B	8.25	7.73	5.70	643.		22.02
0	2.00	0		675.78	650.33	0.00	542.	1599.20	5.50
1	2.00	0		0.00	0.00	0.80	670.	0.00	0.00
2	2.00	0		0.00	0.00	0.00	668.	0.00	0.00
3	2.00	54		0.00	0.00	0.00	416.	0.00	0.00
4	2.00	0		0.00	0.00	1.80	450.	0.00	0.00
5	2.00	0		0.00	0.00	0.00	486.	0.00	0.00
6	2.00	0		0.00	0.00	0.00	596.	0.00	0.00
7	2.00	0		5.75	5.27	0.56	641.	12.25	97.33
8	2.00	0		0.00	0.00	0.00	658.	0.00	0.00
9	2.00	0		0.00	0.00	0.00	664.	0.00	0.00
10	2.00	0		0.00	0.00	1.30	681.	0.00	0.00

Brenda Hislope 7-24-02

61-BLDG CHARACTERIZATION SURVEY JUDGEMENTALS

RSDS# 02-TF-1151 RCT: ____ RCT: ____

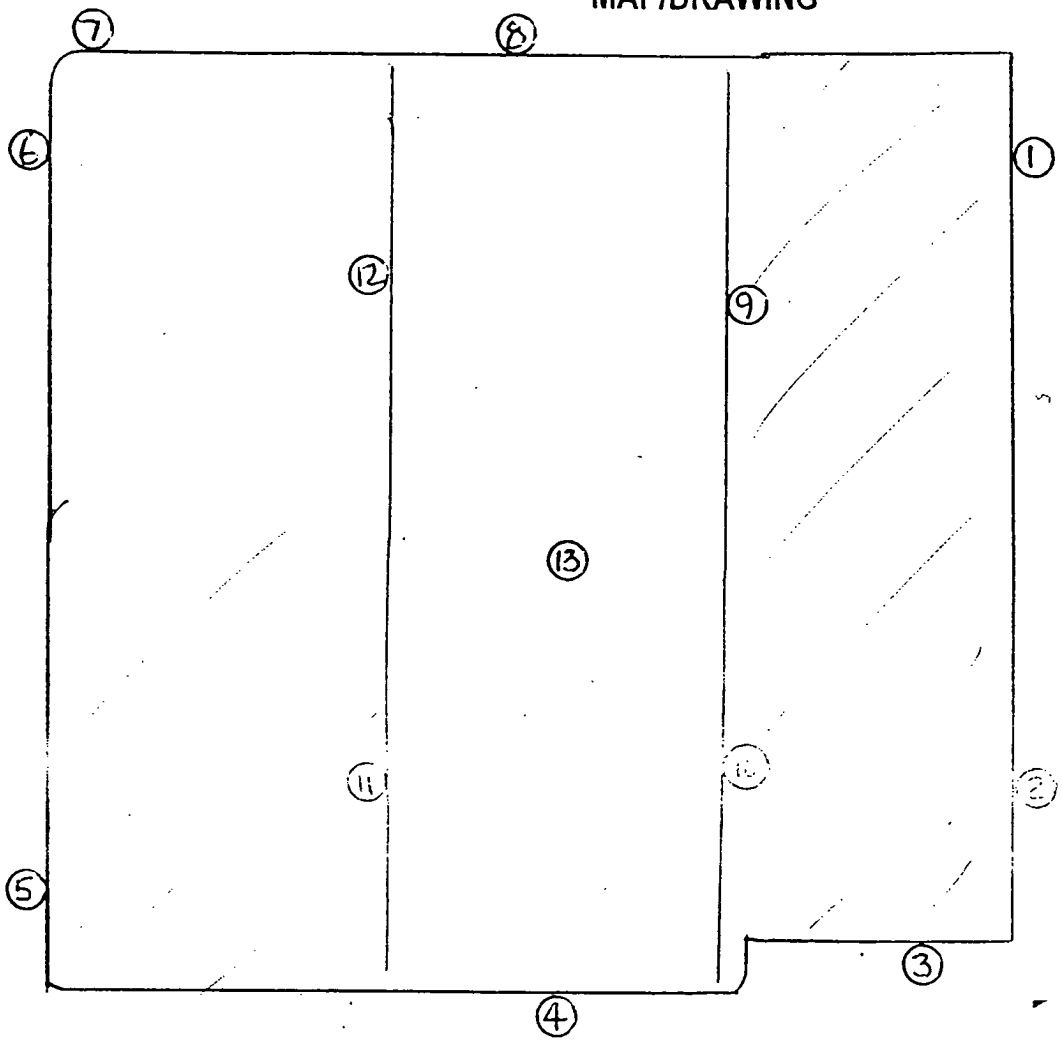
43-20 BKG:	0	EFF:	0.234	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.189	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5673	7456	5143	2		7/24/02	7:27	17	300	16	
SRCCHECK	5673	7456	5143	2		7/24/02	8:02	1972	60	9312	
SRCCHECK	5673	7456	5143	2		7/24/02	8:13	2262	60	10681	
SRCCHECK	5673	7456	5143	2		7/24/02	8:15	2215	60	10459	
SRCCHECK	5673	7456	5143	2		7/24/02	8:16	2216	60	10464	
A1J1	5673	7456	5143	2	1	7/24/02	8:33	5	60	24	
A1J2	5673	7456	5143	2	2	7/24/02	8:34	7	60	33	
A2J3	5673	7456	5143	2	3	7/24/02	8:36	5	60	24	
A2J4	5673	7456	5143	2	4	7/24/02	8:39	4	60	19	
A2J5	5673	7456	5143	2	5	7/24/02	8:43	4	60	19	
A3J6	5673	7456	5143	2	6	7/24/02	8:46	4	60	19	
A3J7	5673	7456	5143	2	7	7/24/02	8:49	4	60	19	
VTJ8	5673	7456	5143	2	8	7/24/02	8:52	9	60	42	
VTJ9	5673	7456	5143	2	9	7/24/02	8:54	6	60	28	
VTJ10	5673	7456	5143	2	10	7/24/02	8:55	10	60	47	

G-111 of 124

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLD 61	SURVEY NO. 02-TF-1248
PURPOSE: SURVEY PLAN 61-02	RWP NO. NA
	DATE: 072402
	TIME: 1500

MAP/DRAWING



BLD 61 ROOF
(TOP VIEW)

BETA READINGS

LOCATION	DPM
1	1083
2	953
3	906
4	1117
5	1038
6	1160
7	1146
8	1347
9	1000
10	930
11	883
12	1028
13	1221
BKD	699
48 (QC)	1005

COPY

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

= swipe number

= air sample number

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

[redacted]

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350	5673/5143	8/21/02
ELECTRA	5347/5319	5/22/03
	N	
	A	

[redacted]	HP # 6178 7456 6192	Date: 072402
[redacted]		
[redacted]		Date:
Counted by: (Print Name)		
Reviewed/A[redacted]	HP # 7707	Date: 7-25-02
Reviewed/Approved by: (Print N[redacted]		

ML-9620 (2-98)

G11206 124

Survey No. 02-TF-1248

Page ____ of ____

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-8	See	Attached		ds wall
9-13				ROOF
			N/A	

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

COMMENTS: N/A

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

ML-9620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR000
Batch Ended: 7/25/02 7:57

Crosstalk correction performed.

Recalibration Date: 6/7/04
Serial Number: 26966-2

Batch ID: FILEPPI SUR #02-TF-1248 (13)/BH

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.2		6.1	3.3	
A2	2	0.0	2.2		4.6	3.0	
A3	3	0.0	2.0		3.3	2.6	
A4	4	0.0	2.0		1.4	2.2	
B1	5	1.5	2.1		9.8	4.3	
B2	6	1.6	2.1		3.8	3.0	
B3	7	1.5	1.9		0.8	2.1	
B4	8	3.5	2.7		2.5	2.4	
C1	9	1.8	2.0		0.4	1.8	
C2	10	0.0	2.0		0.0	1.4	
C3	11	3.5	2.7		3.1	2.4	
C4	12	11.0	4.6		2.5	2.4	
D1	13	0.0	2.3		0.0	1.4	

Carol Y. Robinson

G-114 of 124

Protocol #: 1 Name:Pw H3 #401393 25-Jul-2002 08:34
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
FILEPPI 02-TF-1248 (T1-T13) CYR
Conventional DPM
Nuclide 1 = 800
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	A:2S%
-1	10.00	12	B	6.94	6.87	5.20	658.		24.00
0	2.00	0		916.67	869.31	2.37	576.	2086.37	4.71
1	2.00	0		2.59	2.42	0.80	588.	5.82	180.3
2	2.00	0		0.56	0.63	0.00	631.	1.19	758.7
3	2.00	0		0.00	0.00	0.80	614.	0.00	0.00
4	2.00	0		0.00	0.00	2.30	588.	0.00	0.00
5	2.00	0		0.00	0.00	0.00	574.	0.00	0.00
6	2.00	11		0.00	0.00	2.30	610.	0.00	0.00
7	2.00	20		0.00	0.00	4.63	552.	0.00	0.00
8	2.00	0		0.00	0.00	5.30	588.	0.00	0.00
9	2.00	0		0.00	0.00	7.30	560.	0.00	0.00
10	2.00	18		0.00	0.00	2.30	513.	0.00	0.00
11	2.00	0		0.00	0.00	1.80	500.	0.00	0.00
12	2.00	0		0.00	0.00	6.80	462.	0.00	0.00
13	2.00	24		0.00	0.00	0.00	581.	0.00	0.00

Carol G. Robinson

61-BLDG CHARACTERIZATION SURVEY

RSDS# 02-TF-1248 RCT: _____ RCT: _____

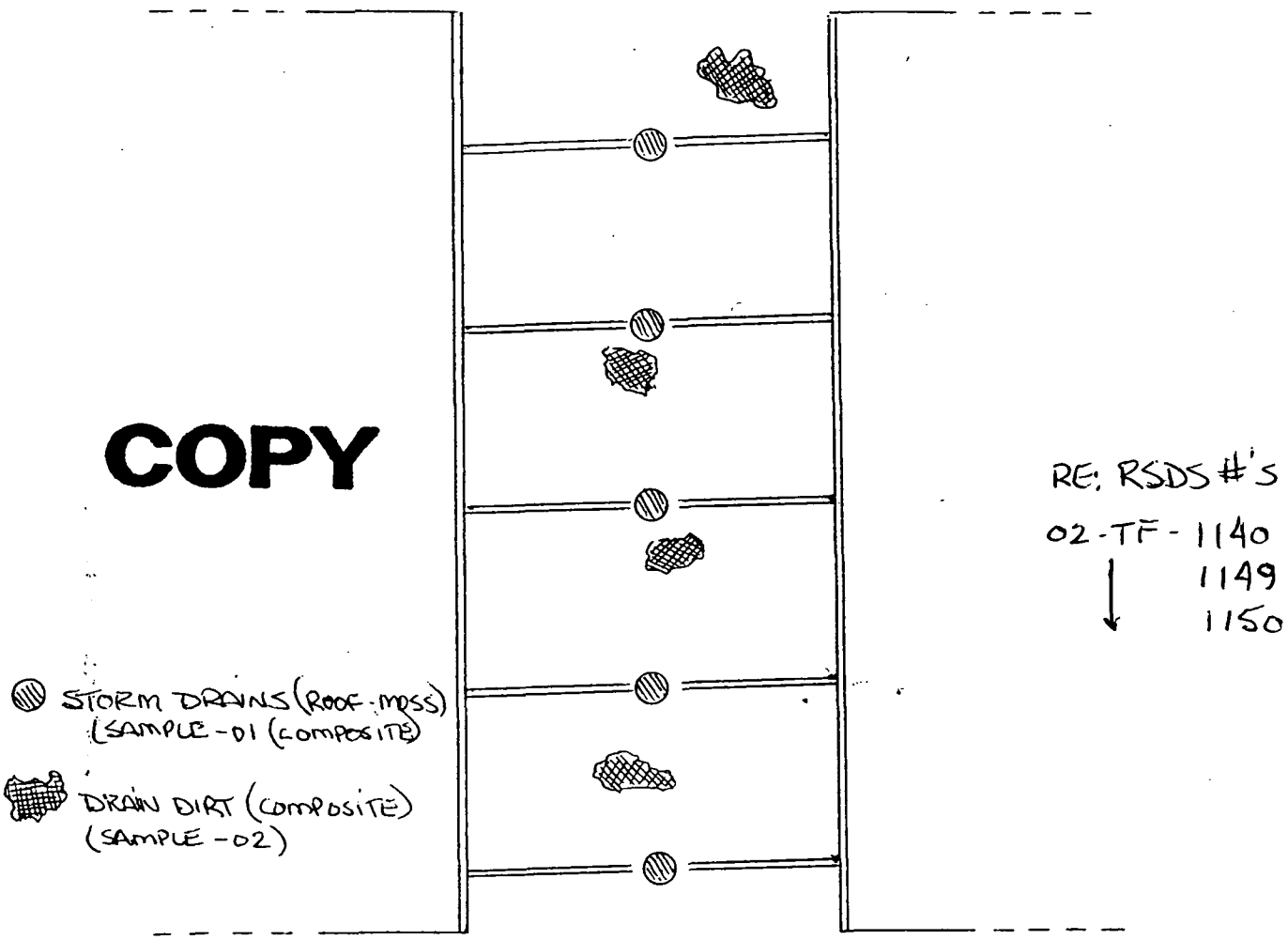
43-20 BKG:	0	EFF:	0.234	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.189	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5673	7456	5143	2		7/24/02	13:00	27	300	25	
SRCCHECK	5673	7456	5143	2		7/24/02	13:04	2184	60	10313	
SRCCHECK	5673	7456	5143	2		7/24/02	13:06	2290	60	10814	
SRCCHECK	5673	7456	5143	2		7/24/02	13:07	2114	60	9983	
SRCCHECK	5673	7456	5143	2		7/24/02	13:09	2301	60	10866	
O/S W01	5673	6178	5143	2	1	7/24/02	13:39	21	60	99	
O/S W02	5673	6178	5143	2	2	7/24/02	13:44	18	60	85	
O/S W03	5673	6178	5143	2	3	7/24/02	13:48	16	60	76	
O/S W04	5673	6178	5143	2	4	7/24/02	13:53	23	60	109	
O/S W05	5673	6178	5143	2	5	7/24/02	13:58	16	60	76	
O/S W06	5673	6178	5143	2	6	7/24/02	14:02	18	60	85	
O/S W07	5673	6178	5143	2	7	7/24/02	14:06	35	60	165	
O/S W08	5673	6178	5143	2	8	7/24/02	14:16	20	60	94	
ROOF 09	5673	6178	5143	2	9	7/24/02	14:23	35	60	165	
ROOF 10	5673	6178	5143	2	10	7/24/02	14:27	28	60	132	
ROOF 11	5673	6178	5143	2	11	7/24/02	14:31	33	60	156	
ROOF 12	5673	6178	5143	2	12	7/24/02	14:33	39	60	184	
ROOF 13	5673	6178	5143	2	13	7/24/02	14:36	21	60	99	
O/S 04-QC	5673	7456	5143	2	14	7/24/02	14:55	18	60	85	

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 61 / ROOF	SURVEY NO. 02-TF-1250
PURPOSE: DRAIN SAMPLES FOR γ SPEC.	RWP NO. N/A
	DATE: 7-25-02
	TIME: 0900

MAP/DRAWING

ROOF - BLDG 61



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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N	
	A	

[redacted]	HP# 7868 7456	Date: 7-25-02
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Revi[redacted]re)	HP# 7707	Date: 8-13-02
Revi[redacted]		

ML-9620 (2-98)

02-TF-1250

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Isotopic γ-Spec ~~Removable Contamination~~ 8/3/02

Sample #	~~β/γ~~	~~Alpha~~	~~Tritium~~	Comments
	~~Swipes (dpm/100cm²)~~			
01	SEE	ATTACHED		DRAIN MOSS
02	↓	↓	↓	DRAIN DIRT
			N/A	

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

COMMENTS: N/A

NOTES:

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

ML-9620 (4-98)

02-TF-1250

Pg. 3 of 8 6 DGH 8-22-0

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML14371
File ID: MG400407.s0
Priority: Yes

Description\Location
61-02-Roof-Moss-01

Collector: 7868
Date Received: 7/25/02
Date Collected: 7/25/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.08	45,000
Cs-137	*	0.06	0.07	45,000
Pb-210		305.9	4.85	45,000
Ra-226	*	1.34	2.01	800
Ac-227 (D)	*	0	0.64	40
Th-230	*	10.15	15.01	800
Th-232 (D)		0.33	0.22	130
Pu-238	*	111.3	153.5	500
Am-241	*	0	0.21	500

Other Nuclides

Radionuclide	Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Be-7	89.51	1.27	

Σ_{DOT} 0.57 nCi/g $\Sigma_{Respirator}$ 0.42

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

Σ_{DOT} 2nCi/g limit, total activity.

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

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments:

Date: 8/6/02 Counted By: 6152 Analyzed By: 6152 Initials [redacted]

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML14370
File ID: MG300969.s0
Priority: Yes

Description\Location
61-02-Roof-Dirt-02

Collector: 7456
Date Received: 7/25/02
Date Collected: 7/25/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.01	0.03	45,000
Cs-137		0.05	0.04	45,000
Pb-210		33.52	1.16	45,000
Ra-226		1.28	0.58	800
Ac-227 (D)	*	0.06	0.22	40
Th-230	*	0	6.98	800
Th-232 (D)		0.14	0.12	130
Pu-238	*	0	18.36	500
Am-241	*	0	0.08	500

Other Nuclides

Radionuclide	Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Be-7	1.39	0.23	

Σ_{DOT} 0.06 nCi/g $\Sigma_{Respirator}$ 0.06

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

Σ_{DOT} 2nCi/g limit, total activity.

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

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments:

Date: 8/6/02 Counted By: 6152 Analyzed By: 6152 Initials [redacted]

Attachment 1

Field Sample Data Collection Sheet

Note: Attach to SP Form when complete

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
61-02-ROOF-MOSS 01	7/25/02	0845		BLDG 61 - DRAIN MOSS	[redacted] 7456	7/25/02	0915	[redacted]	[redacted]
61-02-ROOF-DIRT-02	7/25/02	0850		BLDG 61 - DRAIN DIRT	[redacted] 7456	7/25/02	0915	[redacted]	[redacted]
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									
61-02-									

Laboratory ID#:	**0207975**
Project/function:	**SMPP/TFV**
Submitted:	**Aug 6, 2002**
Submitted by:	**Radley**
Point of Contact:	**Harvey**
RSDS#:	**N/A**
Date:	**Aug 15, 2002**

Lab ID	0209346		
Sample Location	61 Roof #1		
Isotope	**dpm/g**	**Uncertainty +/-**	**LDL**
Pu-238	44.71	3.63	0.19
Pu-239/240	<LDL	<LDL	0.53
Th-232	9.27	0.95	0.15
Th-230	13.04	1.22	0.15
Th-228	7.44	0.81	0.15
Th-227	0.97	0.24	0.15
U-238	14.97	1.59	0.25
U-235	1.10	0.33	0.25
U-233/234	15.15	1.61	0.67
Po-210	92.12	2.69	0.55

DQA
02-TF-1250

6 of 6

[redacted]

1585 8-15-02
HP# Date

[redacted]

5768 8/15/02
HP# Date

Radiological Summary

Sample Location	Sample Number	Sample Type	Gross Alpha (dmp/mL)	Thorium^{230} (pCi/g)	Thorium^{232} (pCi/g)	Radium^{226} (pCi/g)	H^3 (tritium) (nCi/L)
Room 151 drain trough	151-1	Sediment	---	ND*	0.37	1.64	---
Room 125 sump	125-29	Water	<0.16	---	---	---	1.68
Screening Levels	---	---	2	2.0*	1.47	2.1	1,000

* The Soil Analysis Report for BD61-01151-SED-01 (Appendix G, page 79) shows a thorium-230 result of 6.78 pCi/g, which was the value detected by gamma spec analysis from the first sample collected from the trough. For areas where thorium-230 is not a contaminant of concern, gamma spec analysis is used to identify whether or not thorium-230 is present, but it is not used to quantify the result for comparison to the 2.0 pCi/g screening level. If the gamma spec result is greater than the detection limit and the detection limit is below 10 pCi/g, then the sample is reanalyzed by alpha spec analysis to obtain a result for comparison to the screening level. Per this procedure, this sediment sample should have been reanalyzed by alpha spec; however, that analysis was not performed and the sample was not archived.

Because the original sample was not archived, a second sediment sample from the Room 151 drain trough was collected and analyzed by gamma spec analysis (BD61-01-151-SED-02, Appendix G, page 124). Thorium-230 was not detected in the second sediment sample, and therefore, no further analysis (by alpha spec) was indicated.

All other analytical results were below applicable screening levels.

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15073
File ID: MG101910.SO
Priority: Yes

Description\Location
BD 61-01-151-SED-02
LONG COUNT

Collector:
Date Received: 11/18/02
Date Collected: 11/18/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.14	45,000
Cs-137	*	0	0.07	45,000
Pb-210		1.45	0.78	45,000
Ra-226		1.12	1.09	800
Ac-227 (D)		0.26	0.26	40
Th-230	*	2.87	7.04	800
Th-232 (D)	*	0.18	0.34	130
Pu-238	*	0	25.06	500
Am-241	*	0.05	0.06	500

Other Nuclides

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

Σ_{DOT} 0.04 nCi/g $\Sigma_{Respirator}$ 0.07

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

Σ_{DOT} 2nCi/g limit, total activity.

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

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

Comments:

Date: 11/18/02 Counted By: 5288 Analyzed By: 5755 Initials [redacted]

Appendix H

Radon Information

UNC Geotech

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

April 12, 1990

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

File

Dear Mr. Murphy:

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

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

Sincerely yours,

Mark D. Pearson

Mark D. Pearson
Project Manager
UNC Geotech

cc: DOE Points of Contact

A subsidiary of UNC Incorporated

		[illegible]	161.1	125.8	1678055	1666782	12/14/89	2/16/90	MET - OLD THORIUM STORAGE
21		ABOVE AIR SAMPLERS	115.7		1668584		12/14/89	2/16/90	MET - OLD THORIUM STORAGE
	SW	19 MID EAST WALL	4.0		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED READINGS
48		114 B CLOSET ON SPRINKLER PIPE	3.2		1671292		12/12/89	2/19/90	
19		ROOM 1	2.6		1678051		12/12/89	2/19/90	
	OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661515		12/14/89	2/19/90	
55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/19/89	2/19/90	
57		ROOM 1	1.9		1661565		12/12/89	2/19/90	
87		143	1.5		1661563		12/13/89	2/19/90	
810	FIRE STATION	ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654464		12/12/89	2/19/90	
24		ROOM 1 PLANT NORTH WALL	1.3		1672047		12/12/89	2/19/90	
	PAINT SHOP	PS 4	1.3		1661516		12/12/89	2/16/90	
30		ROOM 3 EAST	1.1		1671242		12/12/89	2/16/90	
100		103 MIDDLE OF NORTH WALL	1.0		1678064		12/12/89	2/19/90	
37		6 NORTH WALL	1.0		1678046		12/12/89	2/19/90	
34		34 A WEST WALL	.9	.6	1672062	1672043	12/12/89	2/19/90	MET
102		123	.9		1661577		12/14/89	2/19/90	
61		RM 221 MIDDLE OF NORTH WALL	.9		1661585		12/13/89	2/19/90	
61		101 N	.9		1678029		12/12/89	2/19/90	
G-13	LOG	G-614 WEST WALL	.9		1661544		12/12/89	2/16/90	
	T	CORRIDOR 24	.9		1678019		1/15/90	2/19/90	
	T	153	.9		1678067		1/15/90	2/19/90	
	T	78	.9		1678077		1/15/90	2/19/90	
	T	30	.9		1661566		1/15/90	2/19/90	
105	PARTS MACHINING BUILDING	STAIRWELL NEXT TO ROOM 127	.8		1661564		12/12/89	2/19/90	
25	ARAC	3 ON BOOK CASE MIDDLE	.8		1671314		12/15/89	2/19/90	
60		1 ON DOOR TO ROOM 3	.8		1678049		12/12/89	2/19/90	
	A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/89	2/16/90	
	C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL RM2	.8		1672052		12/12/89	2/16/90	
	R BUILDING	68 NORTH WALL	.8		1678060		12/12/89	2/16/90	
	SW	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
	MO BLDG	MO 8	.8		1678045		12/18/89	2/16/90	
87		124	.8		1678032		12/12/89	2/19/90	
80		ROOM 116 ON NORHT WALL RIGHT OF CEN	.7	.5	1661524	1661635	12/12/89	2/19/90	
89		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666783	1668532	12/15/89	2/19/90	
22		RM 1 EAST CORRIDOR ON STORAGE BACK	.7		1678070		12/13/89	2/19/90	
56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1678066		12/12/89	2/19/90	
	E ANNEX	E 225 EAST WALL	.7		1661552		12/18/89	2/16/90	
	POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1678040		12/12/89	2/19/90	
	M BLDG	M-135	.7		1661553		12/12/89	2/16/90	
26		ROOM 84 SOUTH WEST WALL	.6	.8	1672040	1667159	12/13/89	2/16/90	
69		RM 7 ON NORTH WALL	.6	.4	1672044	1672071	12/12/89	2/19/90	
26		ROOM 84 SOUTH WEST WALL	.6		1671278		12/13/89	2/16/90	
35		RM 7	.6		1654459		12/14/89	2/19/90	
38	PP BLDG	PP CORR 136	.6		1678016		12/14/89	2/19/90	
12		ON OVERHEAD DOOR BEAM	.6		1672069		1/03/90	2/19/90	
93		HALLWAY 107 (MIDWAY)	.6		1661629		12/13/89	2/20/90	
88	FIRE STATION	ROOM 114 DORM	.6		1661507		12/12/89	2/19/90	
	COS	RM STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/89	2/19/90	
	OSW	120 C	.6		1661573		12/12/89	2/16/90	
	SW	150 WEST END GAS BOX	.6		1678043		12/11/89	2/16/90	
	A	34 EAST WALL	.5	.7	1672075	1672051	12/14/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5	.5	1658110	1666819	12/12/89	2/16/90	

Area	Bldg	Bldg Description	Room	Any Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	45		WORK STATION AREA	.4		1681568		12/14/89	2/18/90	
	46		81 EAST WALL	.4		1672070		12/12/89	2/18/90	
	49		WALL OUTSIDE RM 125	.4		1678020		12/14/89	2/18/90	
	51		107 TOP OF FUME HOOD	.4		1681575		12/12/89	2/18/90	
	63		ROOM 134	.4		1672059		12/12/89	2/20/90	
	63W		RM 4	.4		1678078		12/14/89	2/18/90	
	65		ROOM 10 CONFERANCE ROOM	.4		1671284		12/14/89	2/18/90	
	66		OFFICE AREA	.4		1681554		12/12/89	2/18/90	
	68		EAST WALL CENTER BEAM	.4		1681555		12/14/89	2/18/90	
	69		RM 18A	.4		1681576		12/12/89	2/18/90	
	70		170 MEETING ROOM CENTER WALL	.4		1678041		12/12/89	2/18/90	
	88		ROOM 116	.4		1671295		12/12/89	2/18/90	
	95	SM/PP	95- BLD-ROOM41	.4		1661531		12/12/89	2/20/90	
		OS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/12/89	2/18/90	
		I	I HALLWAY	.4		1667194		12/12/89	2/18/90	
		N BUILDING	N 21 WEST WALL	.4		1678057		12/15/89	2/20/90	
		POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1678036		12/12/89	2/18/90	
		R BUILDING	12 SOUTH WALL	.4		1681566		12/12/89	2/18/90	
	34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
	61		RM 151			1681567		12/12/89		MISSING

Bldg	Bldg Description	Room	pCi/l	pCi/l	Monid	Dupid	Date	Date	Comments
	R BUILDING	143 NEXT TO NORTH WALL	.5	.5	1660533	1660016	12/12/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671288		12/12/89	2/19/90	
	"B" 175	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
.6		ELECTRICAL PANEL RM IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
40		100	.5		1654480		12/12/89	2/16/90	
43		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
44		ON BULLETTIN BOARD	.5		1678047		12/12/89	2/16/90	
47		102 MIDDLE OF EAST WALL	.5		1678058		12/12/89	2/16/90	
50		CELL 113	.5		1661582		12/13/89	2/19/90	
78		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1661605		12/18/89	2/16/90	
89		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
91		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1661593		12/15/89	2/16/90	
92		HALLWAY RIGHT OFF ROOM 8	.5		1661509		12/12/89	2/19/90	
94		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
	A	215 WEST WALL	.5		1661572		12/14/89	2/16/90	
	A	1040 WEST WALL	.5		1661580		12/14/89	2/16/90	
	COS	119 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	219 WALL CABINET TO RIGHT OF SINK	.5		1661590		12/12/89	2/19/90	
	E BUILDING	159 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.5		1678072		12/14/89	2/16/90	
	E ANNEX	E 212 NORTH WALL	.5		1661587		12/18/89	2/16/90	
	GH BUILDING	ROOM 2	.5		1678065		12/12/89	2/16/90	
	GP 81	1A MIDDLE OF WEST WALL	.5		1678054		12/12/89	2/19/90	
	H BLDG	ROOM 127	.5		1661571		12/12/89	2/16/90	
	HH	HH-8	.5		1671268		12/18/89	2/19/90	
	I BUILDING	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	N BUILDING	N 108	.5		1678056		12/15/89	2/19/90	
	OSE	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSW	4HT FLOOR	.5		1678020		12/12/89	2/16/90	
	OSE	CORR 212 SOUTH WALL NEAR 216 DOOR	.5		1678036		12/15/89	2/16/90	
	OSW	319	.5		1678069		12/13/89	2/16/90	
	OSW	2ND FLOOR	.5		1661611		12/12/89	2/16/90	
	POWER HOUSE PH-1	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	R BUILDING	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	SW/R TRITIUM COMPLEX	128 OVER LARGE METAL FLOOR DISC	.5		1678019		12/12/89	2/16/90	
	W BLDG	W135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
	WO BLDG	WOA 110	.5		1671301		12/18/89	2/16/90	
	"B" 124	EAST WALL	.5		1667189		12/12/89	2/16/90	
	OSE	113 BULLETIN BOARD OPPOSITE ELEVATO	.5		1678027		12/15/89	2/16/90	
TF-2		114 EAST WALL CENTER OF ROOM	.4		1678064		12/12/89	2/19/90	
	HH	HH-24	.4		1667187		12/14/89	2/19/90	
	OS BUILDING	CORRIDOR 7 NEXT TO ROOM 216	.4		1661614		12/13/89	2/19/90	
	GP 81	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
27		CELL 8 - WALL	.4		1661583		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	101	.4		1672061		12/12/89	2/19/90	
29		HALLWAY	.4		1672105		12/14/89	2/19/90	
	TEST FIRE BUILDING 3	3-315	.4		1672036		12/12/89	2/19/90	
38	PP BLDG	PP CORR 16/BAY 2 WALL	.4		1661570		12/14/89	2/19/90	
39		BREAK RM	.4		1678050		12/14/89	2/19/90	
42		101 B EAST WALL	.4		1678031		12/13/89	2/19/90	

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 8/6/02 11:25AM
Subject: Building 61 Asbestos & Lead

Val -

I performed a preliminary walk-through survey of Building 61 for lead paint and asbestos concerns. The following is provided for your use:

Lead

No previous lead surveys or sampling data could be found for Building 61. Most of the paint coatings were observed to be intact. A few select areas exhibited minor damage due to water or impact damage, but no paint chips or other resultant debris was seen in connection with these coatings. Representative samples of the damaged paint were analyzed in the field using a Niton Model XL-309 XRF lead detector. The sampled paints were either found not to contain any amount of lead within the instrument's limit of detection or were found to contain minute concentrations of lead (0.03 milligrams of lead (+/- 0.05) per square centimeter of surface or less. For reference, the U.S. Department of Housing and Urban Development as well as the Ohio Department of Health have established a Lead Level of Concern in paint of 1.0 milligrams per square centimeter or more. A copy of the Niton's lead sample readout will be forwarded for your use.

No lead paint hazards currently exist within the building, and no further action would be necessary unless any of the untested coatings were to be disturbed by close worker contact (sanded, grinded, scraped, torch cut, etc.). These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.

Asbestos

No previous asbestos surveys or sampling data could be found for Building 61. Several materials were noted within the building which would be considered suspect for containing asbestos in accordance with EPA guidance. Those suspect materials which would be considered regulated by the EPA under the NESHAP include ceiling tiles, drywall systems, and cement pipe. Material which would not normally be regulated under NESHAP included floor tiles and associated mastics. All materials were seen to be either nonfriable or in good condition. Given the dates of construction (1980 and 1984) it is unlikely that these materials would contain asbestos. In addition to these building materials, two portable air filtration devices (HEPA filter-equipped) were in storage in High Bay 105. These air filtration devices would be considered potentially internally contaminated with asbestos fibers (they are labeled as such), and, presumably, would be removed from the building prior to any transition in ownership.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Hanson, W. Doug; Ransbottom, Robert; Weidenbach, Gary

Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 8/6/02 11:25AM
Subject: Building 61 Asbestos & Lead

Val -

I performed a preliminary walk-through survey of Building 61 for lead paint and asbestos concerns. The following is provided for your use:

Lead

No previous lead surveys or sampling data could be found for Building 61. Most of the paint coatings were observed to be intact. A few select areas exhibited minor damage due to water or impact damage, but no paint chips or other resultant debris was seen in connection with these coatings. Representative samples of the damaged paint were analyzed in the field using a Niton Model XL-309 XRF lead detector. The sampled paints were either found not to contain any amount of lead within the instrument's limit of detection or were found to contain minute concentrations of lead (0.03 milligrams of lead (+/- 0.05) per square centimeter of surface or less. For reference, the U.S. Department of Housing and Urban Development as well as the Ohio Department of Health have established a Lead Level of Concern in paint of 1.0 milligrams per square centimeter or more. A copy of the Niton's lead sample readout will be forwarded for your use.

No lead paint hazards currently exist within the building, and no further action would be necessary unless any of the untested coatings were to be disturbed by close worker contact (sanded, grinded, scraped, torch cut, etc.). These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.

Asbestos

No previous asbestos surveys or sampling data could be found for Building 61. Several materials were noted within the building which would be considered suspect for containing asbestos in accordance with EPA guidance. Those suspect materials which would be considered regulated by the EPA under the NESHAP include ceiling tiles, drywall systems, and cement pipe. Material which would not normally be regulated under NESHAP included floor tiles and associated mastics. All materials were seen to be either nonfriable or in good condition. Given the dates of construction (1980 and 1984) it is unlikely that these materials would contain asbestos. In addition to these building materials, two portable air filtration devices (HEPA filter-equipped) were in storage in High Bay 105. These air filtration devices would be considered potentially internally contaminated with asbestos fibers (they are labeled as such), and, presumably, would be removed from the building prior to any transition in ownership.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Hanson, W. Doug; Ransbottom, Robert; Weidenbach, Gary

Serial #XL309-U1059NR1794 Site: Building 61 Transition Date: 8/5/2002

No	XLNo	Site	Insp	Flr	Side	Room	Strc	Sub	Feat	Cnd	Clr	Note	Ssec	Date/Time	Cycle	DI	Res	Pbl ± Prec	Pbk ± Prec	Pbc ± Prec
1	1					Shutter Cal 1							47.8	8/5/2002 14:06:26	1 of 1	0.0	...	NA	NA	NA
2	**2**	**61**	**CAA**	**Surface**	**Lead**	**Calibration**							**120.4**	**8/5/2002 14:12:33**	**1 of 1**	**1.0**	**POS**	**1.13 ± 0.03**	**0.28 ± 0.23**	**1.13 ± 0.03**
3	**3**	**61**	**CAA**	**Buried**	**Lead**	**Calibration**							**34.5**	**8/5/2002 14:18:32**	**1 of 1**	**2.4**	**POS**	**1.56 ± 0.20**	**0.39 ± 0.47**	**1.56 ± 0.20**
4	4	61	CAA	1st		Bay 104	Wall - N	Concrete	Impact	Damage	Lt. Yellow		28.8	8/5/2002 15:22:40	1 of 1	5.2	NEG	0.01 ± 0.03	-0.60 ± 0.59	0.01 ± 0.03
5	5	61	CAA	1st		Bay 104	Wall - N	Concrete	Impact	Damage	Lt. Yellow		105.3	8/5/2002 15:24:31	1 of 1	1.0	NEG	0.00 ± 0.02	-0.61 ± 0.30	0.00 ± 0.02
6	6	61	CAA	1st		Bay 104	Post	Metal	Impact	Damage	Yellow		96.3	8/5/2002 15:30:23	1 of 1	1.5	NEG	0.01 ± 0.01	-1.25 ± 0.29	0.01 ± 0.01
7	7	61	CAA	1st		Bay 105	Post	Metal	Impact	Damage	Yellow		62.3	8/5/2002 15:34:52	1 of 1	3.0	NEG	0.03 ± 0.05	-0.93 ± 0.39	0.03 ± 0.05
8	8	61	CAA	1st		Bay 106	Wall - W	Concrete	Impact	Damage	Blue		79.9	8/5/2002 15:42:17	1 of 1	1.0	NEG	0.00 ± 0.02	-0.24 ± 0.34	0.00 ± 0.02
9	9	61	CAA	1st		Bay 151	Wall - W	Drywall	Impact	Damage	Lt. Yellow		26.5	8/5/2002 15:51:06	1 of 1	1.0	NEG	0.00 ± 0.00	0.34 ± 0.45	0.00 ± 0.00
10	10	61	CAA	1st		Bay 151	Wall - N	Concrete	Impact	Damage	Lt. Yellow		21.9	8/5/2002 15:52:59	1 of 1	1.0	NEG	0.00 ± 0.00	-0.79 ± 0.70	0.00 ± 0.00
11	11	61	CAA	2nd		Room 252	Wall - E	Drywall	Impact	Damage	Lt. Yellow		31.1	8/5/2002 16:00:32	1 of 1	1.0	NEG	0.00 ± 0.00	-0.10 ± 0.42	0.00 ± 0.00
12	12	61	CAA	1st		Dock 116	Wall - E	Concrete	Water	Damage	Lt. Yellow		40.6	8/5/2002 16:07:30	1 of 1	1.0	NEG	0.00 ± 0.00	0.09 ± 0.48	0.00 ± 0.00

J 2 of 2

Appendix K

Chemical Information

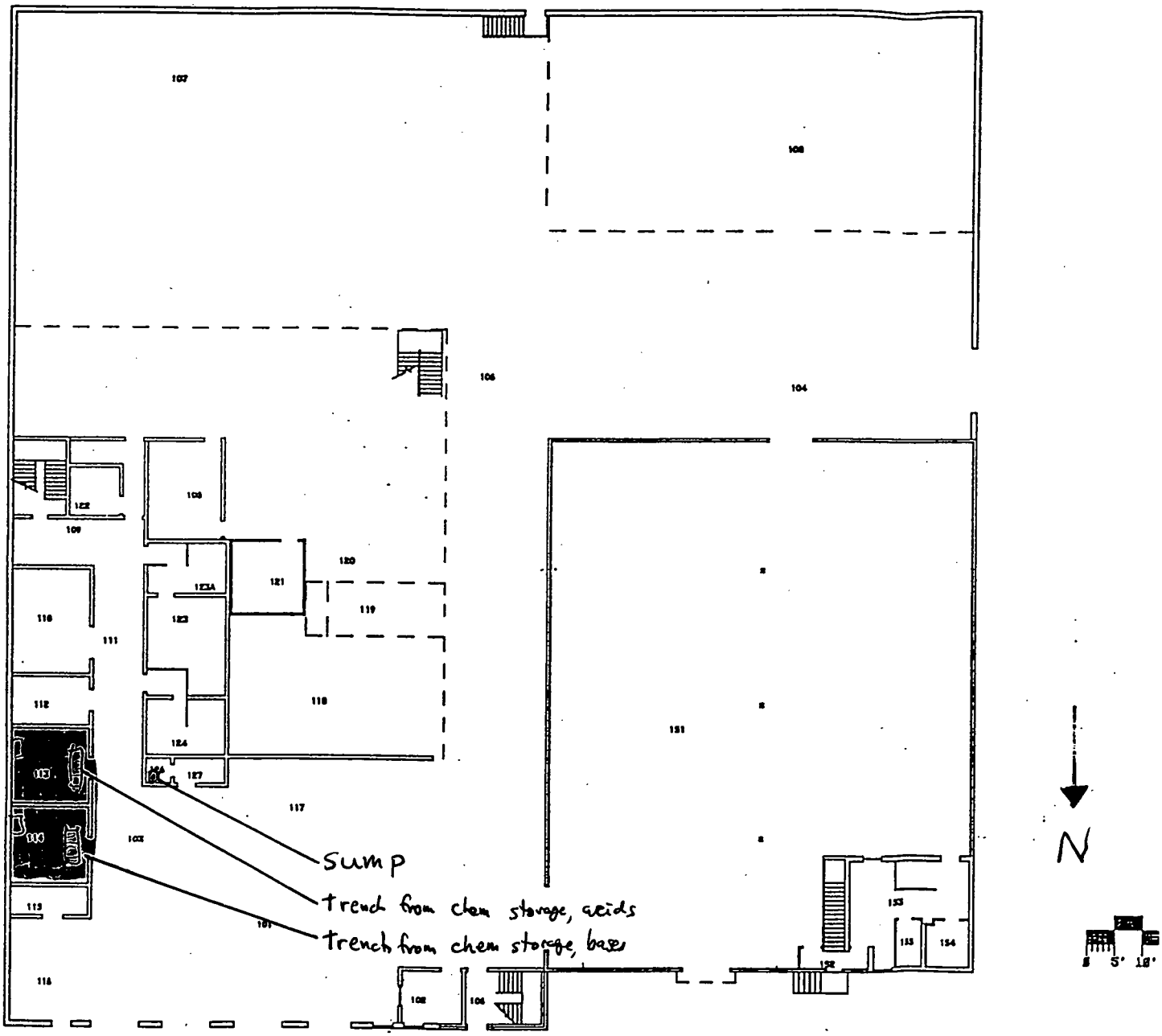
Chemicals in Building 61 between 1994 and 2001

Ammonium hydroxide
Anco treat
Ancofloc
Ancostea
Aqua ammonia
Chlorethane
Cleaner, conquest
Cleaner, damp mop
Cleaner, Spartan
Cleaner, window
Floor finish
Grease-B-Gone
Hydrochloric acid
Hydrofluoric acid
Hydrogen peroxide
Liquid nitrogen
Liquid plumber
Nitric acid
Odor bane
Paint, enamel
Paint, marking
Phosphoric acid
Refrigerant #22, #12, and #502
Repellent, insect
Repellent, tick
Sealer
Soap
Soap, lotion
Sodium hydroxide
Stripper
Sulfuric acid
Ultima gold A-B
Ultima gold extended
Ultima gold extended range
Wasp killer

Building 61

On the first floor of Building 61 are Rooms 113 (Chemical Storage, Acids) and 114 (Chemical Storage, Bases). Each of these rooms contains a trench that drains to a neutralizing sump located in Room 126. See attached floor plan.

During a building walkthrough on August 8, 2002, both trenches were observed to be dry. However, a small amount of liquid was present in the sump. The liquid from the sump was analyzed, and the results indicated the sump water was below applicable RCRA levels of concern and below applicable radiological levels of concern. Analytical results are provided following the floor plan.



DATE:

Building 61 - First Floor

K 3 of 16

Building 61
Corrosive Neutralization Sump Sludge
LSDG 780716

Sample ID	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury	Copper	Zinc
Reg Limit **mg/L**	5.0	100	1.0	5.0	5.0	1.0	5.0	0.2		
BLDG61-128	< 0.50	< 0.10	< 0.15	< 0.20	< 0.40	< 0.50	< 0.20	< 0.001	0.13	2.82

K 4 of 16

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

ATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
8-8-02	WATER	HARVEY	2
ROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:		MAIL STOP:
mPP/TFV	HARVEY ~~657~~ 3163		
HARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
	8-8-02		

NALYSES REQUESTED (check):

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

DDITIONAL 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
0209503	61 Building	23	0.61 nCi/L 3H < 0.16 dpm/mL α
504	↓	29	1.68 nCi/L 3H < 0.16 dpm/mL α
			Screening level
			1,000 nCi/L 3H

OMMENTS:

NALYZED BY:	DATE:
Bradley D Justice	8/13/02 KS 8/15

-5222 (1-01)

No reportable spills or releases occurred in Building 61.

The Environmental Appraisal report (Appendix F, 53 of 58) mentions a mercury spill from a broken blood pressure instrument. The amount of mercury spilled was minor (less than 4 ounces) and well below the reportable level (1 pound). The spill occurred just inside the western most dock. It was cleaned up, and the recovered mercury disposed of by Waste Management. Personnel involved in the cleanup were monitored for mercury exposure. Copies of the documentation of the spill and cleanup activities (including industrial hygiene monitoring) and the industrial hygiene report regarding additional testing performed in October 2002 are provided following this page.

M o u n d Electronic Message/AOS

From :Katherine Koehler
KOEHKG
Dept. :ENGINEERING
Tel. No :865-4886
Date :27-Sep-1995 07:47am EST
Subject :Morning Report, 10/9/96, Building 61, Mercury Spill

A. Category

This is a NOT a 5000.3B occurrence.

B. Group

Not applicable

C. Narrative

What happened

On Friday, October 6, 1995, at 0701 (ETZ) hours, the fire department received a call from a transportation supervisor concerning the discovery of a small mercury spill at the Building 61 dock just inside the west door. The supervisor also reported that the west garage door was also "jammed" in a partially open position and thought that the two incidents were related. The fire department immediately responded and cleaned up the few small drops of mercury inside the building with a mercury spill kit.

At approximately 0915 (ETZ) hours, the DOE Duty Manager called the fire department and informed them of additional mercury discovered on the exterior dock area on the west end of building 61. Fire department personnel immediately responded, taped off the contamination area, and proceeded to clean up the mercury with the mercury vacuum.

Upon the second cleanup completion, Fire Department personnel began investigating the source of the mercury. On Thursday morning, October 5, 1995, transportation personnel were off-loading an excessed blood pressure monitoring gage for storage at building 61. The blood pressure gage was the free-standing type on wheels with a high center of gravity (top heavy). It was accidentally broken. The glass and hardware pieces were picked up and placed into a trash bag by transportation personnel who did not recognize the health hazards, the environmental concerns, or the need to inform the transportation supervisor. The trash bag was stored inside the warehouse area (west wall of the building) for one day. On Friday, October 6, 1995, waste management personnel were contacted for proper disposal of the waste.

On October 6, 1995, fire department personnel contacted the manufacturer of the blood pressure equipment, W. A. Baum Co., to determine the amount of mercury in the gage. The manufacture stated that the gage contained no more than 4 ounces of mercury by weight. The CERCLA reportable quantity for mercury is 1 pound per 40 CFR 302.

Industrial Hygiene personnel were contacted to perform environmental monitoring of the spill site and the delivery truck that transported the mercury gage to verify all mercury had been remediated and that there were no human health concerns.

What is the significance

There were environmental concerns and possible impacts to worker safety and health. There were no impacts to production. A press release is not planned and congressional inquiries are unlikely. The spill did not exceed CERCLA reportable quantities.

Environmental concerns involved the possible spread of contamination and improper storage of hazardous waste (RCRA).

Human health concerns involved mercury off gassing within an occupied building (Building 61 warehouse) and a delivery truck.

There is no present evidence of mercury contamination outside of the spill site nor uptake by workers (via inhalation).

Corrective Actions

The spill site was taped off as a contamination area. The spilled mercury was remediated. Waste was properly stored in the proper location until final disposition. Industrial Hygiene monitoring was performed after remediation completion. The "jammed" garage door was locked out / tagged out until repairs were completed.

D. USQ Review

Not applicable

E. Occurrence Information

Occurrence Title: Building 61, Mercury Spill

Building/Location: Building 61, West Dock Area

Time of occurrence: 10/5/95

Time of Discovery: 10/6/95, 0700 hours (ETZ)

Facility Manager called: K. Koehler

Reporting Organization: FM

Report Generator: S. Ward / K. Koehler

Note: A critique will be scheduled for Tuesday afternoon, October 10, 1995, once conference room availability is determined. DOE is off Monday. Please make sure involved personnel can attend.

Thanks,
Kathy

W.A. Baum Co. Inc.
SINCE 1916
ORIGINATOR AND MAKER OF BLOOD PRESSURE APPARATUS EXCLUSIVELY
CABLE ADDRESS: WAGAUM, COPIAGUE, NY
820 OAK ST., COPIAGUE, NY 11726-3292
TEL (516) 226-3940
FAX (516) 226-3969

INFORMATION ABOUT THE MERCURY IN BAUMANOMETER® INSTRUMENTS

All Baumanometer® instruments contain less than 2 teaspoons of recyclable, triple-distilled, ACS grade mercury (1 tsp. = 5 ml). See the Material Safety Data Sheet for more detailed information.

QUANTITIES PER INSTRUMENT:

MODEL	CAT NO.	REFILL NO.	QUANTITY
Standby	0250	0661-2210	9.2 ml (cc) x .034 = 0.312 fl. oz. 9.2 ml x 13.54 = 124.5 grams x .035 = 4.35 oz. Avoirdupois
Wall 33 Panel Wall Desk	0850 0420 0320	0661-2310	8.6 ml (cc) x .034 = 0.2924 fl. oz. 8.6 ml x 13.54 = 116.44 grams x .035 = 4.07 oz. Avoirdupois
Kompak Hi/Lo	0120 0820	0661-2110	7.7 ml (cc) x .034 = 0.2618 fl. oz. 7.7 ml x 13.54 = 104.25 grams x .035 = 3.64 oz. Avoirdupois

Note: The Reportable Spill Quantity (RQ) of mercury is 16 oz. Avoirdupois.

June, 1993

Baumanometer®
BLOOD PRESSURE STANDARD THE WORLD OVER

M o u n d Electronic Mail/Message/OSOS

From :Sandra Geibel
GEIBSL
Dept. :Industrial Hygiene
Tel. No :
Date :09-Oct-1995 08:40am EST
Subject :Mercury Spill, Building 61

TO :M. DALE MILLER (MILLMD)

CC :EVAN KIRK (KIRKET3)
CC :Randall Wood (WOODRL)
CC :Building 61 casefile (PAPER MAIL)

Dale,

The following is a list of findings from Friday October 6, 1995.

Steve Ward notified industrial hygiene at approximately 1100 on Friday October 6, 1995 that some mercury had been spilled at building 61 on Thursday morning sometime between 0900 and 1100. Steve Ward escorted me to building 61 and gave me all the information he had.

Upon arrival the immediate dock area had already been roped off. Steve Ward told me that the fire department had already cleaned-up the area with a mercury vacuum (from a mercury spill kit). After speaking with Steve Ward the roped off area was enlarged to include the walk area and the second row where the remnants of the blood pressure machine was taken, the trash can where mercury contaminated trash was thrown, and the truck which delivered the blood pressure machine.

I went to pick up Evan (IH Technician) and clean-up materials and equipment. The Jerome Mercury Vapor analyzer was not serviceable. A source check was conducted with the instrument. The source check produced a positive reading. The instrument was used for gross area sampling only. Readings obtained can not be validated and should be used only for qualitative analysis.

Upon initial arrival a walkthrough was conducted of the entire area for visual inspection and to obtain readings with the Jerome. The following is a list of initial findings:
1) Second row behind west dock indoors where remnants of the broken blood pressure machine was taken. Visual = No mercury found. Jerome = 0.0 mg/m3*.
2) Area Between dock and second row. Visual = No mercury observed. Jerome = 0.0 mg/m3*.
3) Dock (lift station)- Visual = Some (~1/4 volume of normal thermometer) near door controls on floor. Jerome = 0.0 mg/m3*.
4)Pit area under lift station. Visual = Substantial quantity (~4-5 household thermometers) visible. Jerome = 0.0mg/m3*.
5) Truck - Visual = No mercury visible. Jerome = 0.0 mg/m3*.

All rope was removed except for dock lift station and area immediately surrounding lift station. The following is a sequence of events taken to clean up remaining mercury.

1) Fire department brought their mercury vacuum.
2) Started to clean residual mercury under door controls on floor. PPE worn - shoe covers, gloves, safety glasses. 1-2 minutes after vacuum was started, readings taken with the Jerome were 0.05 mg/m3* of mercury vapor. Vacuum was shut down and bagged for disposal.
3) Cleaned area under door controls using mercury absorbent (reduces mercury vapor) and treated sponges from mercury spill kit.
4) Jim Brown raised the lift station and placed it in a safe condition so IH could clean the pit area. Pit area cleaned using copious amounts of mercury absorbent and sponges. Readings with the Jerome during clean-up ranged from 0.0 mg/m3 to 0.005 mg/m3*. Final visual inspection revealed no visible mercury and Jerome readings were 0.0 mg/m3*.

All waste was bagged and labeled for removal. Waste included:
1) 50 gallon drum which workers threw away broken blood pressure machine parts. Some visible mercury in bottom of drum.
2)Mercury vacuum.
3) PPE and related materials used during clean-up.

Area was roped off with construction tape due to physical hazard posed by the broken door.

Recommendations

The following personnel should have blood drawn to ensure mercury levels are within acceptable levels.
1) Firemen who originally cleaned up the area with the mercury vacuum.
2) Evan Kirk who conducted final clean up.
3) Workers who spilled the material.

An alternative to the above recommendation would be to draw blood on the firemen, since they were the highest risk personnel. The lab analysis from the firemen would be a representative exposure for all other personnel involved.

*Readings obtained with the Jerome are approximate as to a firm calibration standard could not be established.

10/10/95 - All personnel involved are receiving blood analysis for Mercury. S L Seibel 10/10/95

BLTC

Section

M o u n d Electronic Message/AOS

From :EVAN KIRK
KIRKET3
Dept. :Industrial Hygiene
Tel. No :(513) 865-4172
Date :24-Jan-1996 01:54pm EST
Subject :Follow Up Investigation Building 61, Mercury Spill

TO :Katherine Koehler (KOEHKG)
TO :Sandra Geibel (GEIBSL)
TO :Randall Wood (WOODRL)
TO :EVAN KIRK (KIRKET3)

Kathy,

The mercury vapor analyzer (AZI, Jerome Model #411, Serial #2374) used in the clean-up of Building 61's mercury spill, has been repaired and calibrated (expiration date 11/30/96). The instrument was sent to the manufacturer for recalibration and was found to be reading 30% lower than the calibration standard of the manufacturer.

The instrument was then used to perform a follow-up inspection of the affected areas. A scan of the areas that were affected by the accident revealed readings no higher than .003mg/m3Hg. A scan of the truck involved in the spill yielded no detectable levels of mercury vapor higher than .002mg/m3Hg.

These readings indicate that at no time have the levels exceeded the Threshold Limit Value for a 10 hour shift of .02mg/m3Hg as recommended by ACGIH.

Please contact Industrial Hygiene if further information is needed.

BWXT of Ohio, Inc.

Interoffice Correspondence

Date: October 17, 2002

From: Christopher Ahlquist
Industrial Hygienist, SMPP/TFV

To: Robert Ransbottom
Project Lead Engineer, SMPP/TFV

Re: Building 61: Potential Mercury Vapor Exposure

On October 17, 2002, Mr. Christopher A. Ahlquist, an Industrial Hygienist with BWXT of Ohio, Inc. (BWXTO), conducted a survey of the west loading dock platform of Building 61 at the Mound site in Miamisburg, Ohio for the presence of potential mercury contamination and associated mercury vapor hazard. During the course of the survey, Mr. Ahlquist conducted a records review for previous incident survey reports and sampling data, performed a visual inspection of the target area, and conducted air sampling in the target area. No visible mercury contamination was found and no mercury vapor was detected.

Background

A review of health and safety related records for Building 61 indicated that on October 6, 1995 a small mercury spill occurred at the west dock platform area of Building 61. The Mound Fire Department responded and cleaned up the visible contamination with a mercury spill kit and a mercury vacuum. Research indicated that the source of the spill could contain no more than 4 ounces of mercury by weight. The entire area of the dock platform, including the pit under the platform, were listed as having been cleaned by the Fire Department and the Industrial Hygiene Group. Following cleanup, qualitative air sampling for mercury vapor was conducted by Industrial Hygiene using an Arizona Instruments Jerome Model 411 mercury vapor analyzer (gold film sensor technology) and no vapor was indicated.

Sampling Method

On October 17, 2002, Mr. Ahlquist used an Arizona Instruments Jerome Model 431-X mercury vapor analyzer (gold film sensor technology) to sample for potential existing mercury vapor. The instrument is designed for the accurate quantitative analysis of mercury vapor in the workplace environment and for the location of mercury spills. The Jerome 431-X is a real-time ambient air analyzer with a range of 0.001 to 0.999 milligrams of mercury per cubic meter of air (mg/m^3 Hg), a sensitivity of 0.003 mg/m^3 Hg, a precision of 5% relative standard deviation at 0.0100 mg/m^3 Hg, and an accuracy of +/- 5% at 0.100 mg/m^3 Hg. The instrument was factory calibrated using NIST traceable

K14 of 16

P.O. Box 3030 • Miamisburg, OH 45343-3030 • (937) 865-4020

permeation tubes on June 26, 2002 (certificate of calibration attached). The manufacturer recommends an annual recalibration. The instrument was operated in the "sample mode" in full accordance with manufacturer's direction, including a sensor regeneration cycle, a post-regeneration pause, a zero adjustment procedure and a sample warm-up procedure prior to sampling on the day of sampling. In the "sample mode" each individual sample consists of a twelve (12) second cycle which delivers the instrument's optimum accuracy.

Twelve (12) sample readings were collected from the surface of and around the perimeter of the platform. Twenty-seven (27) sample readings were collected from around the perimeter and the middle of the pit below the platform. Existing dust and debris within the pit was agitated at each of the sample points just prior to each individual sampling.

Analysis of Samples

No mercury vapor was detected at each of the thirty-nine (39) sample points.

Conclusion

Guidelines for occupational exposure are provided by the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and the American Conference of Governmental Industrial Hygienists (ACGIH). OSHA and NIOSH specify a ceiling limit of 0.1 mg/m^3 at any given time, NIOSH specifies an eight-hour time weighted average (TWA) of 0.05 mg/m^3, and the ACGIH specifies a TWA of 0.025 mg/m^3. All levels are referenced for inorganic forms of mercury.

No potential for occupational exposure to mercury vapor is indicated.

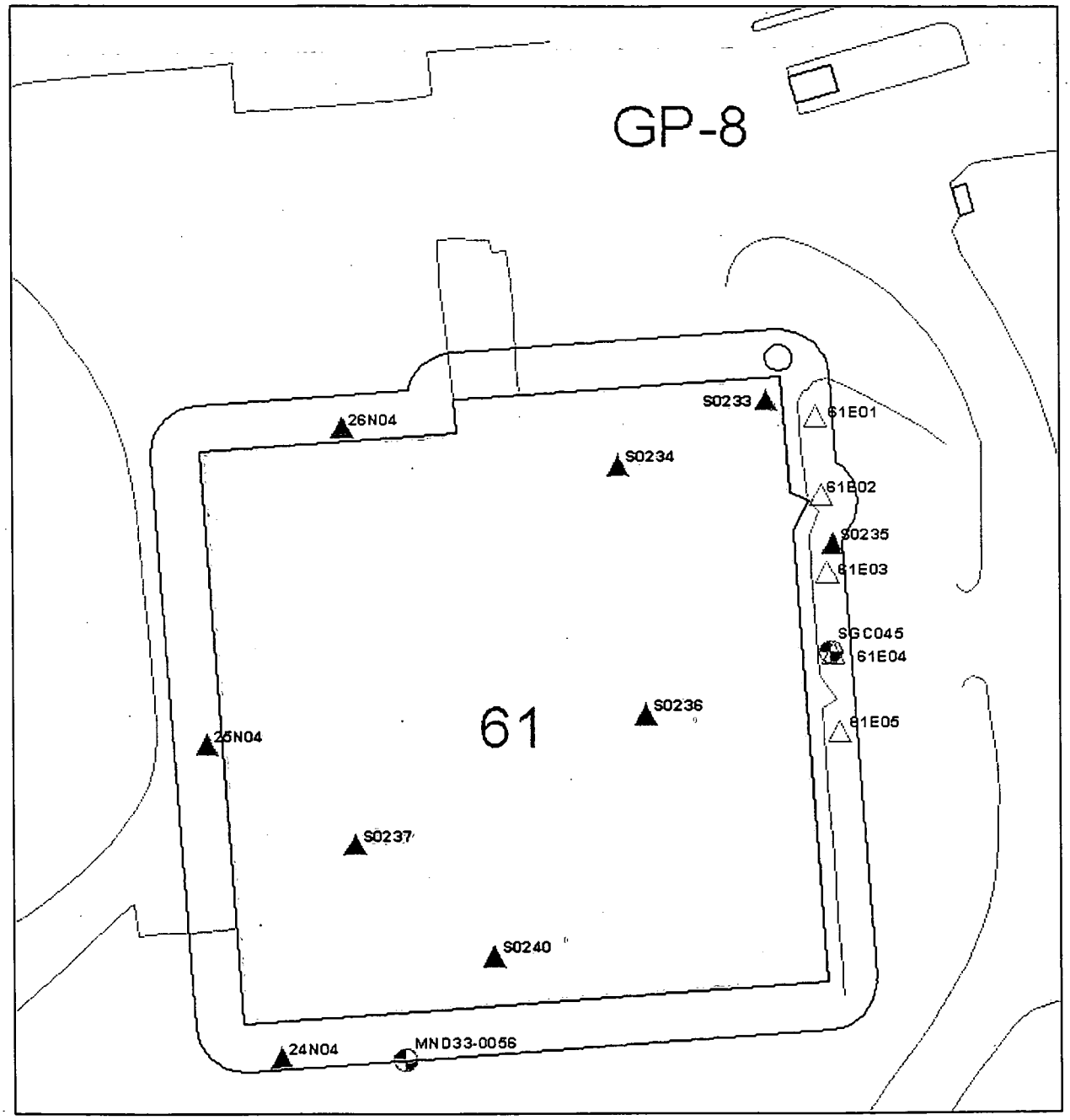
Respectfully Submitted,

Christopher Ahlquist
Industrial Hygienist

Appendix L

Soil Sampling, Vicinity

Sample Locations within 15 feet of Building 61



■ Sample Detect
— Sample Nondetect Outline

20 0 20 40 60 80 100 Feet

N

MOUND

Environmental Restoration Geographic Information System

04-13-02

Building 61 Detects

LOCATION_N	SAMPLE_ID	COLLECTI	VALUE_NAME	MEASURED_V	VALUE_	DETECTI	CHEM_C	START	END_	L	DA	PROJECT	MEDIA	Comments
SGC045	A61045	19960214	2-Butanone	5.0000	UG/KG		ORVOA	0.0	3.0	J		SGCSP	Soil	
MND33-0056	0056-0003	19911112	Acetone	53.0000	UG/KG	11.0000	ORVOA	8.0	10.0		J	MND33	Soil	
SGC045	A61045	19960214	Acetone	8.0000	UG/KG		ORVOA	0.0	3.0	J		SGCSP	Soil	
MND33-0056	0056-0002	19911112	Aluminum	12700.0000	MG/KG	4.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Aluminum	9050.0000	MG/KG	4.0000	INORG	0.0	1.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Aluminum	8930.0000	MG/KG	4.0000	INORG	8.0	10.0			MND33	Soil	
SGC045	A61045	19960214	Aluminum	1900.0000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0002	19911112	Antimony	4.3000	MG/KG	3.0000	INORG	3.0	7.0		J	MND33	Soil	
MND33-0056	0056-0001	19911112	Aroclor-1254	130.0000	UG/KG	90.0000	ORPPB	0.0	1.0		J	MND33	Soil	
MND33-0056	0056-0003	19911112	Arsenic	7.0000	MG/KG	0.2000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Arsenic	6.9000	MG/KG	0.2000	INORG	0.0	1.0		J	MND33	Soil	
SGC045	A61045	19960214	Arsenic	3.7000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0001	19911112	Barium	50.5000	MG/KG	0.2000	INORG	0.0	1.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Barium	41.2000	MG/KG	0.2000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0002	19911112	Barium	17.4000	MG/KG	0.2000	INORG	3.0	7.0			MND33	Soil	
SGC045	A61045	19960214	Barium	16.7000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
MND33-0056	0056-0002	19911112	Beryllium	0.6200	MG/KG	0.1000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Beryllium	0.5100	MG/KG	0.1000	INORG	0.0	1.0	B		MND33	Soil	
MND33-0056	0056-0003	19911112	Beryllium	0.4300	MG/KG	0.1000	INORG	8.0	10.0	B		MND33	Soil	
SGC045	A61045	19960214	Beryllium	0.1200	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
MND33-0056	0056-0003	19911112	Bis(2-ethylhexyl)phthalate	12000.0000	UG/KG	730.0000	ORSVO	8.0	10.0		J	MND33	Soil	
MND33-0056	0056-0001	19911112	Bis(2-ethylhexyl)phthalate	6500.0000	UG/KG	750.0000	ORSVO	0.0	1.0		J	MND33	Soil	
MND33-0056	0056-0002	19911112	Bis(2-ethylhexyl)phthalate	5000.0000	UG/KG	750.0000	ORSVO	3.0	7.0		J	MND33	Soil	
SGC045	A61045	19960214	Calcium	148000.0000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0003	19911112	Calcium	85000.0000	MG/KG	3.0000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Calcium	65800.0000	MG/KG	3.0000	INORG	0.0	1.0			MND33	Soil	
MND33-0056	0056-0002	19911112	Calcium	59400.0000	MG/KG	3.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0002	19911112	Chromium	15.5000	MG/KG	1.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Chromium	12.0000	MG/KG	1.0000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Chromium	11.7000	MG/KG	1.0000	INORG	0.0	1.0			MND33	Soil	
SGC045	A61045	19960214	Chromium	4.6000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0002	19911112	Cobalt	12.1000	MG/KG	2.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Cobalt	11.1000	MG/KG	2.0000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Cobalt	9.2000	MG/KG	2.0000	INORG	0.0	1.0			MND33	Soil	
SGC045	A61045	19960214	Cobalt	2.4000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
MND33-0056	0056-0001	19911112	Copper	26.1000	MG/KG	1.0000	INORG	0.0	1.0			MND33	Soil	2
MND33-0056	0056-0002	19911112	Copper	20.9000	MG/KG	1.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Copper	19.0000	MG/KG	1.0000	INORG	8.0	10.0			MND33	Soil	
SGC045	A61045	19960214	Copper	8.1000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0003	19911112	Dichloromethane (Methylene Chlorid	10.0000	UG/KG	6.0000	ORVOA	8.0	10.0			MND33	Soil	
SGC045	A61045	19960214	Dichloromethane (Methylene Chlorid	8.0000	UG/KG		ORVOA	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0001	19911112	Dichloromethane (Methylene Chlorid	3.0000	UG/KG	6.0000	ORVOA	0.0	1.0	J	J	MND33	Soil	
MND33-0056	0056-0002	19911112	Dichloromethane (Methylene Chlorid	2.0000	UG/KG	6.0000	ORVOA	3.0	7.0	J	J	MND33	Soil	

L 2 of 27

LOCATION_N	SAMPLE_ID	COLLECTI	VALUE_NAME	MEASURED_V	VALUE_	DETECTI	CHEM_C	START	END_	L	DA	PROJECT	MEDIA	Comments
MND33-0056	0056-0002	19911112	Iron	24200.0000	MG/KG	1.0000	INORG	3.0	7.0		J	MND33	Soil	
MND33-0056	0056-0001	19911112	Iron	22700.0000	MG/KG	1.0000	INORG	0.0	1.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Iron	21200.0000	MG/KG	1.0000	INORG	8.0	10.0		J	MND33	Soil	
SGC045	A61045	19960214	Iron	6910.0000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0003	19911112	Lead	7.5000	MG/KG	0.2000	INORG	8.0	10.0		J	MND33	Soil	
MND33-0056	0056-0001	19911112	Lead	6.0000	MG/KG	0.2000	INORG	0.0	1.0			MND33	Soil	
SGC045	A61045	19960214	Lead	5.0000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
SGC045	A61045	19960214	Lithium	5.6000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
SGC045	A61045	19960214	Magnesium	65800.0000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	2
MND33-0056	0056-0001	19911112	Magnesium	15300.0000	MG/KG	3.0000	INORG	0.0	1.0			MND33	Soil	
MND33-0056	0056-0002	19911112	Magnesium	12400.0000	MG/KG	3.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Magnesium	12200.0000	MG/KG	3.0000	INORG	8.0	10.0		J	MND33	Soil	
MND33-0056	0056-0003	19911112	Manganese	610.0000	MG/KG	0.2000	INORG	8.0	10.0		J	MND33	Soil	
MND33-0056	0056-0001	19911112	Manganese	566.0000	MG/KG	0.2000	INORG	0.0	1.0			MND33	Soil	
MND33-0056	0056-0002	19911112	Manganese	512.0000	MG/KG	0.2000	INORG	3.0	7.0		J	MND33	Soil	
SGC045	A61045	19960214	Manganese	235.0000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0001	19911112	Mercury	0.0400	MG/KG	0.0200	INORG	0.0	1.0			MND33	Soil	2
SGC045	A61045	19960214	Molybdenum	1.7000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
MND33-0056	0056-0001	19911112	Motor Oil Range Organics	60.0000	MG/KG	20.0000	ORMRO	0.0	1.0		J	MND33	Soil	
MND33-0056	0056-0002	19911112	Motor Oil Range Organics	35.0000	MG/KG	20.0000	ORMRO	3.0	7.0		J	MND33	Soil	
MND33-0056	0056-0002	19911112	Nickel	21.8000	MG/KG	2.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Nickel	19.1000	MG/KG	2.0000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Nickel	18.1000	MG/KG	2.0000	INORG	0.0	1.0			MND33	Soil	
SGC045	A61045	19960214	Nickel	6.7000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
SGC045	A61045	19960214	Nitrate/Nitrite	2.1000	MG/KG	0.2200	ANION	0.0	3.0			SGCSP	Soil	
SGC045	A61045	19960214	Percent Solids	93.0000	%	0.1000	GENERA	0.0	3.0			SGCSP	Soil	
S0236	2867	19831001	Plutonium-238	10.3500	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	1 2
S0240	6494	19840801	Plutonium-238	4.4500	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0233	6749	19840801	Plutonium-238	1.5200	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0234	6748	19840801	Plutonium-238	0.2000	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0235	6750	19840801	Plutonium-238	0.0900	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	
SGC045	A61045	19960214	Plutonium-238	0.0344	PCI/G	0.0031	RAD	0.0	3.0			SGCSP	Soil	
S0237	6751	19840801	Plutonium-238	0.0200	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	
MND33-0056	0056-0002	19911112	Potassium	2840.0000	MG/KG	100.0000	INORG	3.0	7.0			MND33	Soil	2
MND33-0056	0056-0003	19911112	Potassium	1340.0000	MG/KG	100.0000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Potassium	1100.0000	MG/KG	100.0000	INORG	0.0	1.0			MND33	Soil	
SGC045	A61045	19960214	Potassium	441.0000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
SGC045	A61045	19960214	Potassium-40	4.8700	PCI/G	0.0000	RAD	0.0	3.0			SGCSP	Soil	1
SGC045	A61045	19960214	Radium-226	0.6600	PCI/G	0.0000	RAD	0.0	3.0			SGCSP	Soil	1
SGC045	A61045	19960214	Sodium	566.0000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	2
MND33-0056	0056-0003	19911112	Sodium	149.0000	MG/KG	20.0000	INORG	8.0	10.0			MND33	Soil	
MND33-0056	0056-0002	19911112	Sodium	126.0000	MG/KG	20.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0001	19911112	Sodium	111.0000	MG/KG	20.0000	INORG	0.0	1.0			MND33	Soil	
SGC045	A61045	19960214	Thorium-228	0.1960	PCI/G	0.0228	RAD	0.0	3.0			SGCSP	Soil	1
SGC045	A61045	19960214	Thorium-230	0.6890	PCI/G	0.0120	RAD	0.0	3.0			SGCSP	Soil	1

L3 of 27

LOCATION_N	SAMPLE_ID	COLLECTI	VALUE_NAME	MEASURED_V	VALUE_	DETECTI	CHEM_C	START	END_	L	DA	PROJECT	MEDIA	Comments
SGC045	A61045	19960214	Thorium-232	0.2870	PCI/G	0.0178	RAD	0.0	3.0			SGCSP	Soil	1
SGC045	A61045	19960214	Tin	1.2000	MG/KG		INORG	0.0	3.0	B		SGCSP	Soil	
SGC045	A61045	19960214	Toluene	3.0000	UG/KG		ORVOA	0.0	3.0	J		SGCSP	Soil	
25N04	25N04	19940829	Total Aromatic Hydrocarbons	5779252.0000	IC		GENERA	0.0	1.5			2680	Soil	
26N04	26N04	19940829	Total Aromatic Hydrocarbons	5341738.0000	IC		GENERA	0.0	1.5			2680	Soil	
24N04	24N04	19940829	Total Aromatic Hydrocarbons	17751.0000	IC		GENERA	0.0	1.5			2680	Soil	
25N04	25N04	19940829	Total C5 TO C11 Petroleum Hydroc	9804778.0000	IC		GENERA	0.0	1.5			2680	Soil	
26N04	26N04	19940829	Total C5 TO C11 Petroleum Hydroc	6356322.0000	IC		GENERA	0.0	1.5			2680	Soil	
24N04	24N04	19940829	Total C5 TO C11 Petroleum Hydroc	38321.0000	IC		GENERA	0.0	1.5			2680	Soil	
25N04	25N04	19940829	Total Halogenated Hydrocarbons	10084.0000	IC		GENERA	0.0	1.5			2680	Soil	
25N04	25N04	19940829	Total Semivolatile Hydrocarbons	86005.0000	IC		GENERA	0.0	1.5			2680	Soil	
26N04	26N04	19940829	Total Semivolatile Hydrocarbons	1220.0000	IC		GENERA	0.0	1.5			2680	Soil	
SGC045	A61045	19960214	Uranium-234	0.8920	PCI/G	0.0603	RAD	0.0	3.0			SGCSP	Soil	
SGC045	A61045	19960214	Uranium-238	0.6050	PCI/G	0.0569	RAD	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0001	19911112	Vanadium	14.4000	MG/KG	1.0000	INORG	0.0	1.0			MND33	Soil	
MND33-0056	0056-0002	19911112	Vanadium	14.2000	MG/KG	1.0000	INORG	3.0	7.0			MND33	Soil	
MND33-0056	0056-0003	19911112	Vanadium	11.3000	MG/KG	1.0000	INORG	8.0	10.0			MND33	Soil	
SGC045	A61045	19960214	Vanadium	7.1000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
MND33-0056	0056-0001	19911112	Zinc	60.3000	MG/KG	0.5000	INORG	0.0	1.0	*		MND33	Soil	
MND33-0056	0056-0002	19911112	Zinc	46.5000	MG/KG	0.5000	INORG	3.0	7.0	*	J	MND33	Soil	
MND33-0056	0056-0003	19911112	Zinc	41.6000	MG/KG	0.5000	INORG	8.0	10.0	*	J	MND33	Soil	
SGC045	A61045	19960214	Zinc	25.7000	MG/KG		INORG	0.0	3.0			SGCSP	Soil	
*Comments														
1	Exceeds the 10-6 Risk-Based Guide Value													
2	Exceeds the OU9 Soil Background Value													
3	Exceeds screening level													
4	Exceeds MCL													
5	Exceeds the Guide Value based on the hazard index													
Lab and data qualifiers are defined on the pages immediately following the non-detects table in this appendix.														
Comparison values for results with comments are provided on the "Comparisons for Soil Analytical Results" table at the end of this appendix.														

14 of 27

Building 61 Non-Detects

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0001	19911112	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,2,4-Trichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	1,2,4-Trichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	1,2,4-Trichlorobenzene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	1,2,4-Trichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,2-Dichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	1,2-Dichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	1,2-Dichlorobenzene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	1,2-Dichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	1,3,5-Trinitrobenzene	230.0000	UG/KG	230.0000	OREXP	0.0	3.0	U		SGCSP	Soil

15 of 27

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0001	19911112	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,3-Dichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	1,3-Dichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	1,3-Dichlorobenzene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	1,3-Dichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	1,3-Dinitrobenzene	228.0000	UG/KG	228.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	1,4-Dichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	1,4-Dichlorobenzene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	1,4-Dichlorobenzene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	1,4-Dichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2,2'-oxybis(1-chloropropane)	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2,2'-oxybis(1-chloropropane)	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,2'-oxybis(1-chloropropane)	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,2'-oxybis(1-chloropropane)	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	2,4,5-Trichlorophenol	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	2,4,5-Trichlorophenol	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,4,5-Trichlorophenol	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,4,5-Trichlorophenol	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2,4,6-Trichlorophenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2,4,6-Trichlorophenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,4,6-Trichlorophenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,4,6-Trichlorophenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	2,4,6-Trinitrotoluene	230.0000	UG/KG	230.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2,4-Dichlorophenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2,4-Dichlorophenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,4-Dichlorophenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,4-Dichlorophenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2,4-Dimethylphenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2,4-Dimethylphenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,4-Dimethylphenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,4-Dimethylphenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	2,4-Dinitrophenol	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	2,4-Dinitrophenol	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,4-Dinitrophenol	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,4-Dinitrophenol	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2,4-Dinitrotoluene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0002	19911112	2,4-Dinitrotoluene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,4-Dinitrotoluene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,4-Dinitrotoluene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	2,4-Dinitrotoluene	228.0000	UG/KG	228.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2,6-Dinitrotoluene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2,6-Dinitrotoluene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2,6-Dinitrotoluene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2,6-Dinitrotoluene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	2,6-Dinitrotoluene	237.0000	UG/KG	237.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2-Butanone	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	2-Butanone	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2-Butanone	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
MND33-0056	0056-0001	19911112	2-Chloronaphthalene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2-Chloronaphthalene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2-Chloronaphthalene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2-Chloronaphthalene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2-Chlorophenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2-Chlorophenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2-Chlorophenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2-Chlorophenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2-Hexanone	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	2-Hexanone	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	2-Hexanone	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	2-Hexanone	11.0000	UG/KG	11.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2-Methylnaphthalene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2-Methylnaphthalene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2-Methylnaphthalene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2-Methylnaphthalene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2-Methylphenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2-Methylphenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2-Methylphenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2-Methylphenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	2-Nitroaniline	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	2-Nitroaniline	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2-Nitroaniline	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2-Nitroaniline	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	2-Nitrophenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	2-Nitrophenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	2-Nitrophenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	2-Nitrophenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	3,3'-Dichlorobenzidine	1500.0000	UG/KG	1500.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	3,3'-Dichlorobenzidine	1500.0000	UG/KG	1500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	3,3'-Dichlorobenzidine	1500.0000	UG/KG	1500.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
SGC045	A61045	19960214	3,3'-Dichlorobenzidine	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	3-Nitroaniline	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	3-Nitroaniline	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	3-Nitroaniline	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	3-Nitroaniline	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4,4'-DDD	8.0000	UG/KG	8.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4,4'-DDD	8.0000	UG/KG	8.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	4,4'-DDD	8.0000	UG/KG	8.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4,4'-DDD	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4,4'-DDE	6.0000	UG/KG	6.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4,4'-DDE	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0003	19911112	4,4'-DDE	2.0000	UG/KG	2.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	4,4'-DDE	2.0000	UG/KG	2.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	4,4'-DDT	12.0000	UG/KG	12.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4,4'-DDT	8.0000	UG/KG	8.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	4,4'-DDT	8.0000	UG/KG	8.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4,4'-DDT	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	4,6-Dinitro-o-Cresol	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	4,6-Dinitro-o-Cresol	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4,6-Dinitro-o-Cresol	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4,6-Dinitro-o-Cresol	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	4-Amino-2,6-Dinitrotoluene	457.0000	UG/KG	457.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4-Bromophenyl-phenyl Ether	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	4-Bromophenyl-phenyl Ether	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4-Bromophenyl-phenyl Ether	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4-Bromophenyl-phenyl Ether	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4-Chloro-3-Methylphenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	4-Chloro-3-Methylphenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4-Chloro-3-Methylphenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4-Chloro-3-Methylphenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4-Chloroaniline	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	4-Chloroaniline	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4-Chloroaniline	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4-Chloroaniline	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4-Chlorophenyl-Phenylether	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	4-Chlorophenyl-Phenylether	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4-Chlorophenyl-Phenylether	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4-Chlorophenyl-Phenylether	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4-Methyl-2-pentanone	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	4-Methyl-2-pentanone	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	4-Methyl-2-pentanone	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	4-Methyl-2-pentanone	11.0000	UG/KG	11.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	4-Methylphenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0002	19911112	4-Methylphenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4-Methylphenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4-Methylphenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	4-Nitroaniline	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	4-Nitroaniline	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4-Nitroaniline	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4-Nitroaniline	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	4-Nitrophenol	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	4-Nitrophenol	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	4-Nitrophenol	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	4-Nitrophenol	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Acenaphthene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Acenaphthene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Acenaphthene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Acenaphthene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Acenaphthylene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Acenaphthylene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Acenaphthylene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Acenaphthylene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Acetone	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Acetone	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
MND33-0056	0056-0001	19911112	Aldrin	2.0000	UG/KG	2.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Aldrin	2.0000	UG/KG	2.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aldrin	2.0000	UG/KG	2.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Aldrin	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Alpha Chlordane	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Alpha-BHC	2.0000	UG/KG	2.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Alpha-BHC	2.0000	UG/KG	2.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Alpha-BHC	2.0000	UG/KG	2.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Alpha-BHC	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Americium-241	0.8092	PCI/G	0.8090	RAD	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Anthracene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Anthracene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Anthracene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Anthracene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Antimony	3.3000	MG/KG	3.3000	INORG	0.0	1.0		UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Antimony	3.3000	MG/KG	3.3000	INORG	8.0	10.0		UJ	MND33	Soil
SGC045	A61045	19960214	Antimony	0.1900	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Aroclor-1016	40.0000	UG/KG	40.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Aroclor-1016	40.0000	UG/KG	40.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aroclor-1016	40.0000	UG/KG	40.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Aroclor-1016	36.0000	UG/KG	36.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Aroclor-1221	72.0000	UG/KG	72.0000	ORPPB	0.0	3.0	U		SGCSP	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0001	19911112	Aroclor-1221	40.0000	UG/KG	40.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Aroclor-1221	40.0000	UG/KG	40.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aroclor-1221	40.0000	UG/KG	40.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Aroclor-1232	40.0000	UG/KG	40.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Aroclor-1232	40.0000	UG/KG	40.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aroclor-1232	40.0000	UG/KG	40.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Aroclor-1232	36.0000	UG/KG	36.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Aroclor-1242	40.0000	UG/KG	40.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Aroclor-1242	40.0000	UG/KG	40.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aroclor-1242	40.0000	UG/KG	40.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Aroclor-1242	36.0000	UG/KG	36.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Aroclor-1248	40.0000	UG/KG	40.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Aroclor-1248	40.0000	UG/KG	40.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aroclor-1248	40.0000	UG/KG	40.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Aroclor-1248	36.0000	UG/KG	36.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0003	19911112	Aroclor-1254	90.0000	UG/KG	90.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aroclor-1254	90.0000	UG/KG	90.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Aroclor-1254	36.0000	UG/KG	36.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Aroclor-1260	90.0000	UG/KG	90.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Aroclor-1260	90.0000	UG/KG	90.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Aroclor-1260	90.0000	UG/KG	90.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Aroclor-1260	36.0000	UG/KG	36.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	Arsenic	0.2300	MG/KG	0.2300	INORG	3.0	7.0		UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Benzene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Benzene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Benzene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Benzene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Benzo(a)anthracene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Benzo(a)anthracene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Benzo(a)anthracene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Benzo(a)anthracene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Benzo(a)pyrene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Benzo(a)pyrene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Benzo(a)pyrene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Benzo(a)pyrene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Benzo(b)fluoranthene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Benzo(b)fluoranthene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Benzo(b)fluoranthene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Benzo(b)fluoranthene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Benzo(g,h,i)perylene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Benzo(g,h,i)perylene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Benzo(g,h,i)perylene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Benzo(g,h,i)perylene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0001	19911112	Benzo(k)fluoranthene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Benzo(k)fluoranthene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Benzo(k)fluoranthene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Benzo(k)fluoranthene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	Benzoic Acid	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Benzoic Acid	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Benzoic Acid	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Benzyl Alcohol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Benzyl Alcohol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Benzyl Alcohol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Beta-BHC	4.0000	UG/KG	4.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Beta-BHC	4.0000	UG/KG	4.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Beta-BHC	4.0000	UG/KG	4.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Beta-BHC	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Bis(2-chloroethoxy)methane	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Bis(2-chloroethoxy)methane	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Bis(2-chloroethoxy)methane	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Bis(2-chloroethoxy)methane	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Bis(2-chloroethyl)ether	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Bis(2-chloroethyl)ether	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Bis(2-chloroethyl)ether	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Bis(2-chloroethyl)ether	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Bis(2-ethylhexyl)phthalate	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Bismuth	1.0000	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Bismuth-207	0.0800	PCI/G	0.0800	RAD	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Bismuth-210	0.1180	PCI/G	0.1180	RAD	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Bromoform	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Bromoform	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Bromoform	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Bromoform	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Bromomethane	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Bromomethane	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Bromomethane	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Bromomethane	11.0000	UG/KG	11.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Butyl Benzyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Butyl Benzyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Butyl Benzyl Phthalate	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Butyl Benzyl Phthalate	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	Cadmium	0.5700	MG/KG	0.5700	INORG	3.0	7.0	U	U	MND33	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0001	19911112	Cadmium	0.5600	MG/KG	0.5600	INORG	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Cadmium	0.5600	MG/KG	0.5600	INORG	8.0	10.0	U	U	MND33	Soil
SGC045	A61045	19960214	Cadmium	0.0900	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Carbazole	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Cesium-137	0.1150	PCI/G	0.1150	RAD	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Chlordane	21.0000	UG/KG	21.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Chlordane	9.0000	UG/KG	9.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Chlordane	9.0000	UG/KG	9.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Chlorobenzene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Chlorobenzene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Chlorobenzene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Chlorobenzene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Chloroethane	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Chloroethane	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Chloroethane	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Chloroethane	11.0000	UG/KG	11.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Chloroform	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Chloroform	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Chloroform	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Chloroform	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Chloromethane	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Chloromethane	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Chloromethane	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Chloromethane	11.0000	UG/KG	11.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Chrysene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Chrysene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Chrysene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Chrysene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Cobalt-60	0.0893	PCI/G	0.0893	RAD	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0003	19911112	Cyanide	17.4000	MG/KG	1.0000	INORG	8.0	10.0		R	MND33	Soil
MND33-0056	0056-0002	19911112	Cyanide	7.4000	MG/KG	1.0000	INORG	3.0	7.0		R	MND33	Soil
MND33-0056	0056-0001	19911112	Cyanide	2.2000	MG/KG	2.2000	INORG	0.0	1.0	U	R	MND33	Soil
SGC045	A61045	19960214	Cyanide	0.5400	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Delta-BHC	6.0000	UG/KG	6.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Delta-BHC	6.0000	UG/KG	6.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil

L12 of 27

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0002	19911112	Delta-BHC	6.0000	UG/KG	6.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Delta-BHC	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Dibenz(a,h)anthracene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Dibenz(a,h)anthracene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Dibenz(a,h)anthracene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Dibenz(a,h)anthracene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Dibenzofuran	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Dibenzofuran	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Dibenzofuran	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Dibenzofuran	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Dieldrin	7.0000	UG/KG	7.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Dieldrin	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0003	19911112	Dieldrin	1.4000	UG/KG	1.4000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Dieldrin	1.4000	UG/KG	1.4000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Diethyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Diethyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Diethyl Phthalate	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Diethyl Phthalate	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Dimethyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Dimethyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Dimethyl Phthalate	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Dimethyl Phthalate	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Di-n-butyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Di-n-butyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Di-n-butyl Phthalate	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Di-n-butyl Phthalate	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Di-n-octyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Di-n-octyl Phthalate	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Di-n-octyl Phthalate	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Di-n-octyl Phthalate	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Endosulfan I	9.0000	UG/KG	9.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Endosulfan I	9.0000	UG/KG	9.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Endosulfan I	9.0000	UG/KG	9.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Endosulfan I	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Endosulfan II	8.0000	UG/KG	8.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Endosulfan II	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0003	19911112	Endosulfan II	2.0000	UG/KG	2.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Endosulfan II	2.0000	UG/KG	2.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Endosulfan Sulfate	40.0000	UG/KG	40.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil

L13 of 27

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
MND33-0056	0056-0003	19911112	Endosulfan Sulfate	40.0000	UG/KG	40.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Endosulfan Sulfate	40.0000	UG/KG	40.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Endosulfan Sulfate	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Endrin	12.0000	UG/KG	12.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Endrin	4.0000	UG/KG	4.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Endrin	4.0000	UG/KG	4.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Endrin	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Endrin Aldehyde	16.0000	UG/KG	16.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Endrin Aldehyde	16.0000	UG/KG	16.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Endrin Aldehyde	16.0000	UG/KG	16.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Endrin Aldehyde	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Endrin Ketone	40.0000	UG/KG	40.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Endrin Ketone	40.0000	UG/KG	40.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Endrin Ketone	40.0000	UG/KG	40.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Endrin Ketone	3.6000	UG/KG	3.6000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Ethylbenzene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Ethylbenzene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Ethylbenzene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Ethylbenzene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Fluoranthene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Fluoranthene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Fluoranthene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Fluoranthene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Fluorene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Fluorene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Fluorene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Fluorene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Gamma Chlordane	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Gamma-BHC (Lindane)	3.0000	UG/KG	3.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Gamma-BHC (Lindane)	3.0000	UG/KG	3.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Gamma-BHC (Lindane)	3.0000	UG/KG	3.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Gamma-BHC (Lindane)	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Heptachlor	2.0000	UG/KG	2.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Heptachlor	2.0000	UG/KG	2.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Heptachlor	2.0000	UG/KG	2.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Heptachlor	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Heptachlor Epoxide	60.0000	UG/KG	60.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Heptachlor Epoxide	60.0000	UG/KG	60.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Heptachlor Epoxide	60.0000	UG/KG	60.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Heptachlor Epoxide	1.8000	UG/KG	1.8000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Hexachlorobenzene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Hexachlorobenzene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Hexachlorobenzene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
SGC045	A61045	19960214	Hexachlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Hexachlorobutadiene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Hexachlorobutadiene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Hexachlorobutadiene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Hexachlorobutadiene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Hexachlorocyclopentadiene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Hexachlorocyclopentadiene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Hexachlorocyclopentadiene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Hexachlorocyclopentadiene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Hexachloroethane	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Hexachloroethane	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Hexachloroethane	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Hexachloroethane	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	HMX	2010.0000	UG/KG	2010.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Indeno(1,2,3-cd)pyrene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Indeno(1,2,3-cd)pyrene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Indeno(1,2,3-cd)pyrene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Indeno(1,2,3-cd)pyrene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Isophorone	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Isophorone	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Isophorone	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Isophorone	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	Lead	0.2300	MG/KG	0.2300	INORG	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Mercury	0.0500	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0003	19911112	Mercury	0.0200	MG/KG	0.0200	INORG	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Mercury	0.0200	MG/KG	0.0200	INORG	3.0	7.0	U	U	MND33	Soil
MND33-0056	0056-0001	19911112	Methoxychlor	120.0000	UG/KG	120.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Methoxychlor	120.0000	UG/KG	120.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Methoxychlor	120.0000	UG/KG	120.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Methoxychlor	18.0000	UG/KG	18.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0003	19911112	Motor Oil Range Organics	458.0000	MG/KG	20.0000	ORMRO	8.0	10.0	U	J	MND33	Soil
MND33-0056	0056-0001	19911112	Naphthalene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Naphthalene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Naphthalene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Naphthalene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Nitrobenzene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Nitrobenzene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Nitrobenzene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Nitrobenzene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Nitrobenzene	237.0000	UG/KG	237.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	N-Nitroso-di-n-propylamine	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	N-Nitroso-di-n-propylamine	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	N-Nitroso-di-n-propylamine	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
SGC045	A61045	19960214	N-Nitroso-di-n-propylamine	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	N-Nitrosodiphenylamine	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	N-Nitrosodiphenylamine	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	N-Nitrosodiphenylamine	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	N-Nitrosodiphenylamine	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	Pentachlorophenol	3700.0000	UG/KG	3700.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Pentachlorophenol	3600.0000	UG/KG	3600.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Pentachlorophenol	3500.0000	UG/KG	3500.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Pentachlorophenol	900.0000	UG/KG	900.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	PETN	913.0000	UG/KG	913.0000	OREXP	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Phenanthrene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Phenanthrene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Phenanthrene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Phenanthrene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Phenol	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Phenol	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Phenol	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Phenol	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
24N04	24N04	19940829	Plutonium-238	21.0000	PCI/G	21.0000	RAD	0.0	1.5		U	2680	Soil
25N04	25N04	19940829	Plutonium-238	11.0000	PCI/G	11.0000	RAD	0.0	1.5		U	2680	Soil
SGC045	A61045	19960214	Plutonium-239/240	0.0026	PCI/G	0.0026	RAD	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Pyrene	750.0000	UG/KG	750.0000	ORSVO	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Pyrene	750.0000	UG/KG	750.0000	ORSVO	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Pyrene	730.0000	UG/KG	730.0000	ORSVO	8.0	10.0	U	UJ	MND33	Soil
SGC045	A61045	19960214	Pyrene	360.0000	UG/KG	360.0000	ORSVO	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	RDX	913.0000	UG/KG	913.0000	OREXP	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Selenium	1.9000	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	Selenium	0.6800	MG/KG	0.6800	INORG	3.0	7.0		R	MND33	Soil
MND33-0056	0056-0003	19911112	Selenium	0.4500	MG/KG	0.4500	INORG	8.0	10.0		R	MND33	Soil
MND33-0056	0056-0001	19911112	Selenium	0.2200	MG/KG	0.2200	INORG	0.0	1.0		R	MND33	Soil
MND33-0056	0056-0002	19911112	Silver	0.5700	MG/KG	0.5700	INORG	3.0	7.0	U	U	MND33	Soil
MND33-0056	0056-0001	19911112	Silver	0.5600	MG/KG	0.5600	INORG	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Silver	0.5600	MG/KG	0.5600	INORG	8.0	10.0	U	U	MND33	Soil
SGC045	A61045	19960214	Silver	0.1700	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Styrene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Styrene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Styrene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Styrene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Tetryl	685.0000	UG/KG	685.0000	OREXP	0.0	3.0	U		SGCSP	Soil

116 of 27

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
SGC045	A61045	19960214	Thallium	0.3400	MG/KG		INORG	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0002	19911112	Thallium	0.2300	MG/KG	0.2300	INORG	3.0	7.0		UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Thallium	0.2200	MG/KG	0.2200	INORG	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Thallium	0.2200	MG/KG	0.2200	INORG	8.0	10.0	U	U	MND33	Soil
S0234	6748	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0233	6749	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0240	6494	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0237	6751	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0236	2867	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0235	6750	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
24N04	24N04	19940829	Thorium-232	1.0000	PCI/G	1.0000	RAD	0.0	1.5		U	2680	Soil
25N04	25N04	19940829	Thorium-232	0.7000	PCI/G	0.7000	RAD	0.0	1.5		U	2680	Soil
MND33-0056	0056-0001	19911112	Toluene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Toluene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Toluene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
61E04	61E04	19940906	Total Aromatic Hydrocarbons	8480611.0000	IC	8480611.0000	GENERA	0.0	1.5		U	2680	Soil
61E03	61E03	19940906	Total Aromatic Hydrocarbons	4350242.0000	IC	4350242.0000	GENERA	0.0	1.5		U	2680	Soil
61E05	61E05	19940906	Total Aromatic Hydrocarbons	3877620.0000	IC	3877620.0000	GENERA	0.0	1.5		U	2680	Soil
61E02	61E02	19940906	Total Aromatic Hydrocarbons	1911827.0000	IC	1911827.0000	GENERA	0.0	1.5		U	2680	Soil
61E01	61E01	19940906	Total Aromatic Hydrocarbons	960913.0000	IC	960913.0000	GENERA	0.0	1.5		U	2680	Soil
61E04	61E04	19940906	Total C5 TO C11 Petroleum Hydrocarbons	25595904.0000	IC	25595904.0000	GENERA	0.0	1.5		U	2680	Soil
61E03	61E03	19940906	Total C5 TO C11 Petroleum Hydrocarbons	11500184.0000	IC	11500184.0000	GENERA	0.0	1.5		U	2680	Soil
61E05	61E05	19940906	Total C5 TO C11 Petroleum Hydrocarbons	8407022.0000	IC	8407022.0000	GENERA	0.0	1.5		U	2680	Soil
61E02	61E02	19940906	Total C5 TO C11 Petroleum Hydrocarbons	3752773.0000	IC	3752773.0000	GENERA	0.0	1.5		U	2680	Soil
61E01	61E01	19940906	Total C5 TO C11 Petroleum Hydrocarbons	1709376.0000	IC	1709376.0000	GENERA	0.0	1.5		U	2680	Soil
61E01	61E01	19940906	Total Halogenated Hydrocarbons	19902.0000	IC	19902.0000	GENERA	0.0	1.5		U	2680	Soil
61E04	61E04	19940906	Total Semivolatile Hydrocarbons	1407598.0000	IC	1407598.0000	GENERA	0.0	1.5		U	2680	Soil
61E03	61E03	19940906	Total Semivolatile Hydrocarbons	821542.0000	IC	821542.0000	GENERA	0.0	1.5		U	2680	Soil
61E02	61E02	19940906	Total Semivolatile Hydrocarbons	302483.0000	IC	302483.0000	GENERA	0.0	1.5		U	2680	Soil
61E05	61E05	19940906	Total Semivolatile Hydrocarbons	276140.0000	IC	276140.0000	GENERA	0.0	1.5		U	2680	Soil
61E01	61E01	19940906	Total Semivolatile Hydrocarbons	4106.0000	IC	4106.0000	GENERA	0.0	1.5		U	2680	Soil
SGC045	A61045	19960214	Toxaphene	180.0000	UG/KG	180.0000	ORPPB	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Toxaphene	160.0000	UG/KG	160.0000	ORPPB	0.0	1.0	U	UJ	MND33	Soil
MND33-0056	0056-0003	19911112	Toxaphene	160.0000	UG/KG	160.0000	ORPPB	8.0	10.0	U	UJ	MND33	Soil
MND33-0056	0056-0002	19911112	Toxaphene	160.0000	UG/KG	160.0000	ORPPB	3.0	7.0	U	UJ	MND33	Soil
MND33-0056	0056-0001	19911112	Trichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Trichloroethene	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Trichloroethene	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Trichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
SGC045	A61045	19960214	Uranium-235	0.0603	PCI/G	0.0603	RAD	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Vinyl Acetate	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Vinyl Acetate	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Vinyl Acetate	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil

L1706 27

Location_na	Sample_id	Collection	Value_name	Measured_value	Value_unit	Detection_limit	Chem_cla	Start	End	Lab	Dat	Project	Media
SGC045	A61045	19960214	Vinyl Acetate	11.0000	UG/KG	11.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Vinyl Chloride	11.0000	UG/KG	11.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Vinyl Chloride	11.0000	UG/KG	11.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Vinyl Chloride	11.0000	UG/KG	11.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Vinyl Chloride	11.0000	UG/KG	11.0000	ORVOA	0.0	3.0	U		SGCSP	Soil
MND33-0056	0056-0001	19911112	Xylenes, Total	6.0000	UG/KG	6.0000	ORVOA	0.0	1.0	U	U	MND33	Soil
MND33-0056	0056-0003	19911112	Xylenes, Total	6.0000	UG/KG	6.0000	ORVOA	8.0	10.0	U	U	MND33	Soil
MND33-0056	0056-0002	19911112	Xylenes, Total	6.0000	UG/KG	6.0000	ORVOA	3.0	7.0	U	U	MND33	Soil
SGC045	A61045	19960214	Xylenes, Total	6.0000	UG/KG	6.0000	ORVOA	0.0	3.0	U		SGCSP	Soil

L18 of 27

LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

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

SUB-QUALIFIER CODES

ORGANICS

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

INORGANICS

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

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

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

Comparisons for Soil Analytical Results

10-6 Risk-Based Guideline Values			
107-06-2	1,2-Dichloroethane	3.20E+00	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.91E+02	MG/KG
72-55-9	4,4'-DDE	9.00E+00	MG/KG
50-29-3	4,4'-DDT	9.00E+00	MG/KG
309-00-2	Aldrin	1.80E-01	MG/KG
5103-71-9	Alpha Chlordane	8.50E+00	MG/KG
12672-29-6	Aroclor-1248	3.85E-01	MG/KG
11096-82-5	Aroclor-1260	3.85E-01	MG/KG
7440-38-2	Arsenic	1.20E+03	MG/KG
71-43-2	Benzene	8.90E+00	MG/KG
56-55-3	Benzo(a)anthracene	4.10E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.10E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.10E+00	MG/KG
207-08-9	Benzo(k)fluoranthene	4.10E+01	MG/KG
7440-41-7	Beryllium	7.00E-01	MG/KG
319-85-7	Beta-BHC	1.65E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.15E+02	MG/KG
75-27-4	Bromodichloromethane	4.80E+01	MG/KG
75-25-2	Bromoform	3.75E+02	MG/KG
7440-43-9	Cadmium	1.00E+04	MG/KG
56-23-5	Carbon Tetrachloride	4.60E+00	MG/KG
67-66-3	Chloroform	3.10E+00	MG/KG
7440-47-3	Chromium	1.50E+03	MG/KG
218-01-9	Chrysene	4.10E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.10E-01	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane	3.95E+02	MG/KG
60-57-1	Dieldrin	1.85E-01	MG/KG
5103-74-2	Gamma Chlordane	8.50E+00	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.30E+00	MG/KG
76-44-8	Heptachlor	0.66	MG/KG
1024-57-3	Heptachlor Epoxide	0.33	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.10E+00	MG/KG
78-59-1	Isophorone	3.15E+03	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.00E+02	MG/KG
87-86-5	Pentachlorophenol	2.50E+01	MG/KG
121-82-4	RDX	2.70E+01	MG/KG
79-01-6	Trichloroethene	4.10E+01	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	1.10E-02	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	1.40E-03	MG/L
7440-34-8	Actinium-227	4.50E-01	PCI/G
14596-10-2	Americium-241	6.30E+00	PCI/G
13982-38-2	Bismuth-207	1.60E-01	PCI/G
10045-97-3	Cesium-137	3.40E-01	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	6.20E-01	PCI/G

13981-16-3	Plutonium-238	6.10E+00	PCI/G
15117-48-3	Plutonium-239	5.50E+00	PCI/G
PU239/240	Plutonium-240	5.50E+00	PCI/G
13966-00-2	Potassium-40	1.42E+00	PCI/G
14331-85-2	Protactinium-231	3.90E-01	PCI/G
13982-63-3	Radium-226	9.00E-02	PCI/G
10098-97-2	Strontium-90	9.40E+00	PCI/G
14274-82-9	Thorium-228	1.10E-01	PCI/G
14269-63-7	Thorium-230	9.00E-02	PCI/G
7440-29-1	Thorium-232	7.00E-02	PCI/G
10028-17-8	Tritium	2.35E+04	PCI/G
13968-55-3	Uranium-233	9.68E-01	PCI/G
13966-29-5	Uranium-234	1.05E+01	PCI/G
15117-96-1	Uranium-235	1.60E+00	PCI/G
24678-82-8	Uranium-238	1.00E-01	PCI/G
14596-10-2	Americium-241	4.90E-01	PCI/L
14331-79-4	Bismuth-210	2.20E+01	PCI/L
15262-20-1	Radium-228	3.30E-01	PCI/L
13967-73-2	Strontium-85	1.10E+02	PCI/L
10098-97-2	Strontium-90	3.90E+00	PCI/L
15623-47-9	Thorium-227	4.00E+00	PCI/L
14274-82-9	Thorium-228	6.90E-01	PCI/L
14269-63-7	Thorium-230	1.20E-01	PCI/L
7440-29-1	Thorium-232	3.10E-01	PCI/L
24678-82-8	Uranium-238+D	2.02E-01	PCI/L
	OU9 Soil Background Values		
72-54-8	4,4'-DDD	4.2	MG/KG
72-55-9	4,4'-DDE	4.3	MG/KG
50-29-3	4,4'-DDT	13	MG/KG
309-00-2	Aldrin	ND	MG/KG
5103-71-9	Alpha Chlordane	ND	MG/KG
319-84-6	Alpha-BHC	ND	MG/KG
7429-90-5	Aluminum	19000	MG/KG
14596-10-2	Americium-241	ND	MG/KG
12672-29-6	Aroclor-1248	ND	MG/KG
11097-69-1	Aroclor-1254	58	MG/KG
11096-82-5	Aroclor-1260	ND	MG/KG
7440-38-2	Arsenic	8.6	MG/KG
7440-39-3	Barium	180	MG/KG
7440-41-7	Beryllium	1.3	MG/KG
319-85-7	Beta-BHC	ND	MG/KG
7440-69-9	Bismuth	ND	MG/KG
13982-38-2	Bismuth-207	ND	MG/KG
13982-38-2	Bismuth-207	ND	MG/KG
14331-79-4	Bismuth-210m	ND	MG/KG
7440-43-9	Cadmium	2.1	MG/KG
7440-70-2	Calcium	310000	MG/KG
7440-47-3	Chromium	20	MG/KG

7440-48-4	Cobalt	19	MG/KG
7440-50-8	Copper	26	MG/KG
57-12-5	Cyanide	ND	MG/KG
60-57-1	Dieldrin	ND	MG/KG
959-98-8	Endosulfan I	ND	MG/KG
1031-07-8	Endosulfan Sulfate	ND	MG/KG
72-20-8	Endrin	ND	MG/KG
7421-93-4	Endrin Aldehyde	ND	MG/KG
53494-70-5	Endrin Ketone	ND	MG/KG
5103-74-2	Gamma Chlordane	ND	MG/KG
58-89-9	Gamma-BHC (Lindane)	ND	MG/KG
76-44-8	Heptachlor	ND	MG/KG
1024-57-3	Heptachlor Epoxide	ND	MG/KG
77-47-4	Hexachlorocyclopentadiene	ND	MG/KG
7439-89-6	Iron	35000	MG/KG
7439-92-1	Lead	48	MG/KG
7439-93-2	Lithium	26	MG/KG
7439-95-4	Magnesium	40000	MG/KG
7439-96-5	Manganese	1400	MG/KG
7439-97-6	Mercury	ND	MG/KG
72-43-5	Methoxychlor	30	MG/KG
7439-98-7	Molybdenum	27	MG/KG
7440-02-0	Nickel	32	MG/KG
7440-09-7	Potassium	1900	MG/KG
7782-49-2	Selenium	ND	MG/KG
7440-22-4	Silver	1.7	MG/KG
7440-23-5	Sodium	240	MG/KG
7440-28-0	Thallium	0.46	MG/KG
7440-31-5	Tin	20	MG/KG
7440-62-2	Vanadium	25	MG/KG
7440-66-6	Zinc	140	MG/KG
7440-34-8	Actinium-227	1.10E-01	PCI/G
10045-97-3	Cesium-137	0.42	PCI/G
14255-04-0	Lead-210	1.20E+00	PCI/G
13981-16-3	Plutonium-238	0.13	PCI/G
15117-48-3	Plutonium-239	1.80E-01	PCI/G
PU239/240	Plutonium-240	1.80E-01	PCI/G
13966-00-2	Potassium-40	37	PCI/G
14331-85-2	Protactinium-231	1.10E-01	PCI/G
13982-63-3	Radium-226	2	PCI/G
10098-97-2	Strontium-90	0.72	PCI/G
14274-82-9	Thorium-228	1.5	PCI/G
14269-63-7	Thorium-230	1.9	PCI/G
7440-29-1	Thorium-232	1.4	PCI/G
10028-17-8	Tritium	1.6	PCI/G
13966-29-5	Uranium-234	1.1	PCI/G
15117-96-1	Uranium-235	0.11	PCI/G
24678-82-8	Uranium-238	1.2	PCI/G

L23 of 27

Core Team Determined Screening Levels			
7439-92-1	Lead	400	MG/KG
7440-34-8	Actinium-227	5.60E-01	PCI/G
14596-10-2	Americium-241	6.3	PCI/G
13982-38-2	Bismuth-207	0.175	PCI/G
10045-97-3	Cesium-137	0.76	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	1.80E+00	PCI/G
13981-16-3	Plutonium-238	55	PCI/G
14331-85-2	Protactinium-231	4.00E+00	PCI/G
13982-63-3	Radium-226	2.1	PCI/G
14274-82-9	Thorium-228	1.61	PCI/G
14269-63-7	Thorium-230	2	PCI/G
7440-29-1	Thorium-232	1.47	PCI/G
15117-96-1	Uranium-235	1.7	PCI/G
24678-82-8	Uranium-238+D	1.3	PCI/G
Maximum Contaminant Level for Drinking Water			
71-55-6	1,1,1-Trichloroethane	0.2	MG/L
79-00-5	1,1,2-Trichloroethane	0.005	MG/L
75-35-4	1,1-Dichloroethene	0.007	MG/L
120-82-1	1,2,4-Trichlorobenzene	0.07	MG/L
156-59-2	1,2-cis-Dichloroethene	0.07	MG/L
106-93-4	1,2-Dibromoethane	0.00005	MG/L
95-50-1	1,2-Dichlorobenzene	0.6	MG/L
107-06-2	1,2-Dichloroethane	0.005	MG/L
78-87-5	1,2-Dichloropropane	0.005	MG/L
156-60-5	1,2-trans-Dichloroethene	0.01	MG/L
106-46-7	1,4-Dichlorobenzene	0.075	MG/L
95-95-4	2,4,5-Trichlorophenol	0.05	MG/L
94-75-7	2,4-D	0.07	MG/L
7440-36-0	Antimony	0.0006	MG/L
7440-38-2	Arsenic	0.05	MG/L
7440-39-3	Barium	2	MG/L
71-43-2	Benzene	0.005	MG/L
50-32-8	Benzo(a)pyrene	0.002	MG/L
7440-41-7	Beryllium	0.004	MG/L
117-81-7	bis(2-ethylhexyl)phthalate	0.006	MG/L
75-27-4	Bromodichloromethane	0.008	MG/L
75-25-2	Bromoform	0.008	MG/L
7440-43-9	Cadmium	0.005	MG/L
56-23-5	Carbon Tetrachloride	0.005	MG/L
57-74-9	Chlordane	0.002	MG/L
108-90-7	Chlorobenzene	0.1	MG/L
67-66-3	Chloroform	0.008	MG/L
7440-47-3	Chromium	0.1	MG/L
7440-50-8	Copper	1.3	MG/L
57-12-5	Cyanide	0.2	MG/L
96-12-8	Dibromochloropropane	0.0002	MG/L

75-09-2	Dichloromethane (Methylene Chloride)	0.005	MG/L
88-85-7	Dinoseb	0.007	MG/L
1746-01-6	Dioxin	0.00000003	MG/L
72-20-8	Endrin	0.002	MG/L
100-41-4	Ethylbenzene	0.07	MG/L
16984-48-8	Flouride	4	MG/L
58-89-9	Gamma-BHC (Lindane)	0.0002	MG/L
76-44-8	Heptachlor	0.0004	MG/L
1024-57-3	Heptachlor Epoxide	0.0002	MG/L
118-74-1	Hexachlorobenzene	0.001	MG/L
77-47-4	Hexachlorocyclopentadiene	0.05	MG/L
7439-92-1	Lead	0.015	MG/L
7439-97-6	Mercury	0.002	MG/L
72-43-5	Methoxychlor	0.04	MG/L
7440-02-0	Nickel	0.1	MG/L
NO3	Nitrate	10	MG/L
14797-65-0	Nitrite	1	MG/L
87-86-5	Pentachlorophenol	0.001	MG/L
7782-49-2	Selenium	0.05	MG/L
100-42-5	Styrene	0.1	MG/L
127-18-4	Tetrachloroethene	0.005	MG/L
7440-28-0	Thallium	0.002	MG/L
108-88-3	Toluene	1	MG/L
8001-35-2	Toxaphene	0.003	MG/L
79-01-6	Trichloroethene	0.005	MG/L
75-01-4	Vinyl Chloride	0.002	MG/L
1330-20-7	Xylenes, Total	10	MG/L
7440-34-8	Actinium-227	0.4	PCI/L
14596-10-2	Americium-241	1.2	PCI/L
13982-38-2	Bismuth-207	1200	PCI/L
10045-97-3	Cesium-137	120	PCI/L
10198-40-0	Cobalt-60	400	PCI/L
13981-16-3	Plutonium-238	1.6	PCI/L
13982-63-3	Radium-226	4	PCI/L
10098-97-2	Strontium-90	40	PCI/L
14274-82-9	Thorium-228	16	PCI/L
14269-63-7	Thorium-230	12	PCI/L
7440-29-1	Thorium-232	2	PCI/L
10028-17-8	Tritium	20000	PCI/L
13968-55-3	Uranium-233	20	PCI/L
13966-29-5	Uranium-234	20	PCI/L
15117-96-1	Uranium-235	24	PCI/L
24678-82-8	Uranium-238	24	PCI/L
	Guideline Values based on the Hazard Index		
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	7.00E+04	MG/KG
75-34-3	1,1-Dichloroethane	7.80E+00	MG/KG
120-82-1	1,2,4-Trichlorobenzene	2.04E+04	MG/KG
156-59-2	1,2-cis-Dichloroethene	2.13E+03	MG/KG

L25 of 27

156-60-5	1,2-trans-Dichloroethene	4.30E+03	MG/KG
99-65-0	1,3-Dinitrobenzene	2.00E+02	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.00E+03	MG/KG
78-93-3	2-Butanone	9.30E+03	MG/KG
95-57-8	2-Chlorophenol	1.06E+03	MG/KG
108-10-1	2-Methyl-4-pentanone	7.00E+02	MG/KG
50-29-3	4,4'-DDT	1.10E+02	MG/KG
106-44-5	4-Methylphenol	1.10E+03	MG/KG
67-64-1	Acetone	2.10E+04	MG/KG
309-00-2	Aldrin	6.4	MG/KG
5103-71-9	Alpha Chlordane	110	MG/KG
7429-90-5	Aluminum	210000	MG/KG
120-12-7	Anthracene	6.40E+04	MG/KG
7440-36-0	Antimony	8.50E+01	MG/KG
11097-69-1	Aroclor-1254	4.30E+00	MG/KG
7440-38-2	Arsenic	6.40E+01	MG/KG
7440-39-3	Barium	1.50E+04	MG/KG
65-85-0	Benzoic Acid	8.50E+05	MG/KG
7440-41-7	Beryllium	1.10E+03	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	4.30E+03	MG/KG
75-27-4	Bromodichloromethane	4.30E+03	MG/KG
75-25-2	Bromoform	4.30E+03	MG/KG
85-68-7	Butyl Benzyl Phthalate	4.30E+04	MG/KG
7440-43-9	Cadmium	2.10E+02	MG/KG
75-15-0	Carbon Disulfide	2.80E+02	MG/KG
56-23-5	Carbon Tetrachloride	1.50E+02	MG/KG
75-00-3	Chloroethane	1.60E+02	MG/KG
67-66-3	Chloroform	2.10E+03	MG/KG
7440-47-3	Chromium	1.10E+03	MG/KG
18540-29-9	Chromium-VI	6.39E+02	MG/KG
7440-50-8	Copper	7.90E+03	MG/KG
57-12-5	Cyanide	4.30E+03	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.08E-02	MG/KG
124-48-1	Dibromochloromethane	4.30E+03	MG/KG
75-09-2	Dichloromethane	1.00E+03	MG/KG
60-57-1	Dieldrin	1.10E+01	MG/KG
84-74-2	Di-n-butyl Phthalate	2.10E+04	MG/KG
117-84-0	Di-n-octyl Phthalate	4.30E+03	MG/KG
959-98-8	Endosulfan I	1300	MG/KG
33213-65-9	Endosulfan II	1300	MG/KG
100-41-4	Ethylbenzene	4.80E-01	MG/KG
86-73-7	Flourene	8.50E+03	MG/KG
206-44-0	Fluoranthene	8.50E+03	MG/KG
5103-74-2	Gamma Chlordane	110	MG/KG
58-89-9	Gamma-BHC (Lindane)	64	MG/KG
76-44-8	Heptachlor	110	MG/KG
1024-57-3	Heptachlor Epoxide	2.8	MG/KG
110-54-3	Hexane	9.10E+01	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.08E-01	MG/KG

78-59-1	Isophorone	4.30E+04 MG/KG
7439-96-5	Manganese	2.70E+04 MG/KG
7439-97-6	Mercury	6.40E+01 MG/KG
72-43-5	Methoxychlor	1100 MG/KG
7440-02-0	Nickel	4.30E+03 MG/KG
87-86-5	Pentachlorophenol	6.40E+03 MG/KG
108-95-2	Phenol	1.30E+05 MG/KG
129-00-0	Pyrene	6.40E+03 MG/KG
7782-49-2	Selenium	1100 MG/KG
7440-22-4	Silver	1.10E+03 MG/KG
127-18-4	Tetrachloroethene	2.10E+03 MG/KG
7440-28-0	Thallium	17 MG/KG
7440-31-5	Tin	130000 MG/KG
108-88-3	Toluene	2.50E+02 MG/KG
75-69-4	Trichlorofluoromethane	7.30E+02 MG/KG
7440-62-2	Vanadium	1.50E+03 MG/KG
1330-20-7	Xylenes, Total	4.30E+05 MG/KG
7440-66-6	Zinc	6.40E+04 MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	2.90E-01 MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	2.50E-01 MG/L
71-55-6	1,1,1-Trichloroethane	1.80E+00 MG/L
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	2.50E+03 MG/L
7429-90-5	Aluminum	100 MG/L
7440-42-8	Boron	9.00E+00 MG/L
18540-29-9	Chromium-VI	3.00E-01 MG/L
7440-48-4	Cobalt	6 MG/L
7440-50-8	Copper	4.00E+00 MG/L
7439-98-7	Molybdenum	0.5 MG/L
7782-49-2	Selenium	0.5 MG/L
7440-28-0	Thallium	0.008 MG/L
7440-31-5	Tin	60 MG/L
2691-41-0	HMX	1.10E+04 UG/KG
121-82-4	RDX	6.40E+04 UG/KG

L 27 of 27

Appendix M

Occurrence Reports

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

- Contaminated tritium package shipped to Mound from offsite vendor (five occurrence reports).
- Radioactive contamination discovered outside a controlled area (items transferred to Building 61) (three occurrence reports).

ALO-DA-EGGM-EGGMAT01-1991-0005 Final Report

Occurrence Report

Tritium Facilities

(Name of Facility)

Unknown

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Woltermann, H. Anthony
Title: Director, Technology Department **Telephone No.:** (513) 865-3415

(Facility Manager/Designee)

Name: Anderson, H.F.
Title: Alternate Fac. Mgr./Mgr. Stockpile **Telephone No.:** (513) 865-3062

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. **Occurrence Report Number:** ALO-DA-EGGM-EGGMAT01-1991-0005

Receipt of shipping container, with surface tritium contamination in excess of 2200 DPM/100 CM2 on outside of package.

2. **Report Type and Date:** Final

	Date	Time
Notification:	03/13/1991	
Initial Update:	03/26/1991	
Latest Update:	03/26/1991	
Final:	06/05/1991	

3. **Occurrence Category:** Unusual

4. **Number of Occurrences:** 1 **Original OR:**

5. **Division or Project:** EG&G MOUND

6. **Secretarial Office:** NE - Nuclear Energy, Science and Technology

7. **System, Bldg., or Equipment:** Building 61

8. **UCNI?:** No

9. **Plant Area:** Shipping & Receiving

10. **Date and Time Discovered:** 03/13/1991 10:55 (ETZ)

M1 of 37

11. Date and Time Categorized: 03/13/1991 12:55 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
03/13/1991	14:55 (ETZ)		

13. Other Notifications:

14. Subject or Title of Occurrence:

Receipt of shipping container, with surface tritium contamination in excess of 2200 DPM/100 CM2 on outside of package.

15. Nature of Occurrence:

16. Description of Occurrence:

As part of the commercial tritium sales program, a shipment of one drum from Surelite, Ltd, England, arrived at Mound on March 13, 1991 am. Routine Health Physics survey of drum revealed surface tritium contamination with an average wipe of 3530 DPM/100 CM2. NOTE: This is above the limit specified in Group 6, unusual Occurrence, Subparagraph (b), page G6-1, but is below the NRC action limit of 22,000 DPM/100 CM2. Wipe surveys of the Receiving Area and the personnel who handled the drum revealed no detectable contamination.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

18. Activity Category:

- Unknown

19. Immediate Actions Taken and Results:

The drum was sealed in plastic and move into a tritium controlled area (T Building), per approved procedures. The shipper has been contacted, and we are investigating the problem with them. Because the level of contamination was below the NRC action level of 22,000 DPM/100 CM**2, there is no requirement to find and survey the delivery vehicle.
A Mound interdepartmental investigation committee has been formed.

20. Direct Cause:

2) Procedure Problem
~. Procedure Problems Reported Prior to 04/01/91

21. Contributing Cause(s):

2) Procedure Problem
~. Procedure Problems Reported Prior to 04/01/91

m 2 of 37

22. Root Cause:

5) Training Deficiency
~. Training Deficiencies Reported Prior to 04/01/91

23. Description of Cause:

The Surelite Company did not adequately clean and monitor a tritium trap which they shipped to Mound.

24. Evaluation (by Facility Manager/Designee):

We need to better train our vendors in best tritium practices.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1. Write letter to vendors explaining problem (done). Develop procedure for decontaminating and monitoring along with instructions and aids such as a video tape to give to vendors.

Target Completion Date: 01/01/1992	***Completion Date:** 05/11/1992

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

30. Lessons Learned:

Work with vendors to improve their monitoring procedures, etc.

31. Similar Occurrence Report Numbers:

1. No related 5000.3A report.

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

m3 of 37

Approved by: Woltermann, H. A., Facility Manager/Designee
Date: 06/05/1991
Telephone No.: (513) 865-3415

Approved by: Gartrell, G.R., Facility Representative/Designee
Date: 06/05/1991
Telephone No.:

Approved by: illegible, Program Manager/Designee
Date: 06/05/1991
Telephone No.:

M4 of 37

ALO-DA-EGGM-EGGMAT01-1991-1001 Final Report

Occurrence Report

Tritium Facilities
(Name of Facility)

Tritium Activities
(Facility Function)

Mound Plant EG&G Mound Applied Technologies
(Laboratory, Site, or Organization)

Name: Woltermann, H. Anthony
Title: Director, Technology **Telephone No.:** (513) 865-3415
(Facility Manager/Designee)

Name: H. A. WOLTERMANN
Title: DIRECTOR, TECHNOLOGY **Telephone No.:** (513) 865-3415
(Originator/Transmitter)

Name: **Date:**
(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT01-1991-1001

CONTAMINATED TRITIUM SHIPMENT INTO MOUND

2. Report Type and Date: Final

	Date	Time
Notification:	04/22/1991	12:04 (MTZ)
Initial Update:	05/02/1991	13:49 (MTZ)
Latest Update:	05/02/1991	13:49 (MTZ)
Final:	11/08/1991	06:28 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: EG&G MOUND APPLIED TECHNOLOGIES

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: BUILDING 61

8. UCNI?: No

9. Plant Area: SHIP/RECEIVING

10. Date and Time Discovered: 04/19/1991 11:15 (ETZ)

M 5 of 37

11. Date and Time Categorized: 04/19/1991 12:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
04/19/1991	13:00 (ETZ)	DEWAIN ECKMAN	DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

CONTAMINATED TRITIUM SHIPMENT INTO MOUND

15. Nature of Occurrence:

02) Environmental
C. Hazardous Material Contamination

06) Transportation

16. Description of Occurrence:

A shipment of a tritium trap as part of Mound's commercial sale from Saunders/Roe in Great Britian was received at Mound. The container had wipeable tritium surface contamination of 12,000 dpm/100 cm sq on one side. Although this wipe was within IAEA shipping requirements, it was higher than Mound requirements. The truck and the shipping dock were not contaminated.

This occurrence report was reviewed by an authorized Derivative Classifier and contains no classified information.

17. Operating Conditions of Facility at Time of Occurrence:

NORMAL OPERATIONS

18. Activity Category:

08 - Transportation

19. Immediate Actions Taken and Results:

The truck was wiped and found not to be contaminated and was released. The shipping container was bagged and

M 6 of 37

moved to the vault for normal transfer to T Building. We are attempting to notify Saunders/Roe.

20. Direct Cause:

1) Equipment/Material Problem
F. Contaminant

21. Contributing Cause(s):

2) Procedure Problem
A. Defective or Inadequate Procedure

22. Root Cause:

2) Procedure Problem
A. Defective or Inadequate Procedure

23. Description of Cause:

Lack of adequate tritium decontamination and wiping techniques at Saunders/Roe.

24. Evaluation (by Facility Manager/Designee):

This incident is very similar to EGGMAT-TR-91-05 but happened before lessons learned from this incident could be applied.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.

Letter written to all customers explaining the incident and our concerns.	
Target Completion Date: 06/05/1991	**Completion Date:** 06/05/1991

2.

Prepare a training video tape to demonstrate Mound decontamination and survey procedure and send to our customers.	
Target Completion Date: 01/31/1992	***Completion Date:** 05/11/1992

27. Impact on Environment, Safety and Health:

None.

28. Programmatic Impact:

None.

29. Impact on Codes and Standards:

M706 37

30. Lessons Learned:

Work with vendors to improve their
decontamination and monitoring techniques.

31. Similar Occurrence Report Numbers:

1. EGGMAT-TR-91-05

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Woltermann, H. Anthony, Facility Manager/Designee
Date: 11/07/1991
Telephone No.: (513) 865-3415

Approved by: Gartrell, George R., Facility Representative/Designee
Date: 11/07/1991
Telephone No.:

Approved by: Ordaz, John C., Program Manager/Designee
Date: 11/08/1991
Telephone No.:

ALO-DA-EGGM-EGGMAT01-1991-1012 Final Report

Occurrence Report

Tritium Facilities

(Name of Facility)

Tritium Activities

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Woltermann, H. Anthony
Title: Director, Technology **Telephone No.:** (513) 865-3415

(Facility Manager/Designee)

Name: T. L. Buxton
Title: Manager, Nuclear Technology **Telephone No.:** (513) 865-3424

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT01-1991-1012

Contaminated Tritium Sales Package

2. Report Type and Date: Final

	Date	Time
Notification:	10/30/1991	14:12 (MTZ)
Initial Update:	11/12/1991	14:33 (MTZ)
Latest Update:	11/12/1991	14:33 (MTZ)
Final:	06/05/1992	05:23 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: Tritium Sales

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Tritium Sales Cylind

8. UCNI?: No

9. Plant Area: Building 61

10. Date and Time Discovered: 10/30/1991 08:00 (ETZ)

M9 of 37

11. Date and Time Categorized: 10/30/1991 09:45 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
10/30/1991	10:00 (ETZ)	Dewain V. Eckman	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Contaminated Tritium Sales Package

15. Nature of Occurrence:

01) Facility Condition
H. Operations

02) Environmental
C. Hazardous Material Contamination

06) Transportation

16. Description of Occurrence:

Tuesday, October 29, 1991, at 3:45 PM, an empty cylinder used for tritium sales of less than 1000 Ci was returned to Mound by ICN Radiochemicals Division of ICN Biomedicals of Irvine, California for refilling. Upon arrival at Building 61 Shipping and Receiving, the package was routinely surveyed. The bottom of the shipping package was found to wipe at 5,000 DPM/sq CM. This is in excess of Mound permissible levels for uncontaminated areas. The package was bagged and marked for shipment to T Building. The truck, dock, and receiving area were surveyed and found to be free of contamination. At 8:00 AM Wednesday, October 30, 1991, the Tritium Facility Manager was notified of this event. Due to the location of ICN, it was not possible to immediately contact this company, but they were informed when they opened for business and copies of required shipping data were requested for further investigation.

M 10 of 37

Page G2-5, Group 2 Paragraph C, Off-Normal and Page G6-1, Group 6a, Off-Normal.

This occurrence report was reviewed by an authorized Derivative Classifier (John F. Lemming, May 21, 1992, 7:00 AM) and contains no classified nor UCNI information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

18. Activity Category:

08 - Transportation

19. Immediate Actions Taken and Results:

The shipping package was bagged immediately and moved to T Building on October 30, 1991, for further investigation. Attempts were made to contact ICN, but the phone was unanswered due to time differences. An investigation team will be formed. ICN was contacted later in the day.

20. Direct Cause:

3) Personnel Error
A. Inattention to Detail

21. Contributing Cause(s):

3) Personnel Error
A. Inattention to Detail

22. Root Cause:

5) Training Deficiency
B. Insufficient Practice or Hands-On Experience

23. Description of Cause:

According to representatives at ICN, the cause of the incident was the failure of the technician at ICN to wipe the bottom of the container. The technician

M 11 of 37

testified that he did not realize that wiping the bottom was required, even though it was part of the training.

24. Evaluation (by Facility Manager/Designee):

ICN appears to know how to perform the wipes. Obviously the training given the technician was less than adequate. A performance test or supervised practice session would have discovered this deficiency and avoided the incident.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1. ICN technician retrained by ICN.

Target Completion Date: 11/05/1991	**Completion Date:** 11/05/1991

2. Mound training materials distributed to all vendors: Preliminary information was given to vendors by March 1992; all information, including video tape, was sent out by May 19, 1992 due to delay in preparing the video tape.

Target Completion Date: 01/31/1992	**Completion Date:** 05/19/1992

27. Impact on Environment, Safety and Health:

None.

28. Programmatic Impact:

None.

29. Impact on Codes and Standards:

None.

30. Lessons Learned:

All vendors do not have in place the training available at Mound. Mound must share its training to avoid future problems.

31. Similar Occurrence Report Numbers:

1. EGGMAT01-1991-1001 and EGGMAT-TR-91-05

32. User-defined Field #1:

33. User-defined Field #2:

M12 of 37

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Woltermann, H. Anthony, Facility Manager/Designee
Date: 06/01/1992
Telephone No.: (513) 865-3415

Approved by: GARTRELL, GEORGE R., Facility Representative/Designee
Date: 06/04/1992
Telephone No.:

Approved by: HAGAN, RALPH A., Program Manager/Designee
Date: 06/05/1992
Telephone No.:

M13 of 37

ALO-DA-EGGM-EGGMAT01-1991-1014 Final Report

Occurrence Report

Tritium Facilities

(Name of Facility)

Tritium Activities

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Woltermann, H. Anthony
Title: Director, Technology **Telephone No.:** (513) 865-3415

(Facility Manager/Designee)

Name: Douglas G. Draper
Title: Manager Health Physics **Telephone No.:** (513) 865-4501

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT01-1991-1014

Contaminated Tritium Sales Package

2. Report Type and Date: Final

	Date	Time
Notification:	12/19/1991	13:04 (MTZ)
Initial Update:	12/19/1991	14:25 (MTZ)
Latest Update:	12/19/1991	14:25 (MTZ)
Final:	06/05/1992	05:28 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: Tritium Sales

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Tritium Trap

8. UCNI?: No

9. Plant Area: Building 61

10. Date and Time Discovered: 12/17/1991 14:30 (ETZ)

11. Date and Time Categorized: 12/19/1991 14:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
12/19/1991	15:00 (ETZ)	George R. Gartrell	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Contaminated Tritium Sales Package

15. Nature of Occurrence:

02) Environmental
C. Hazardous Material Contamination

06) Transportation

16. Description of Occurrence:

During routine monitoring at 2:30 PM on December 17, 1991, suspected contamination was found on an incoming tritium trap from MB-Microtec. Indications were removable contamination of 8500 dpm/100 cm2. However, due to rapid decay of the count rate, photoluminescence was suspected to be the cause of the elevated measurement. A more thorough evaluation was scheduled and performed by the Environmental Monitoring Group; however, the measurement required overnight evaluation. After more careful evaluation which required special handling techniques, the photoluminescence interference was removed and the wipable contamination level was determined to be 5000 dpm/100 cm2. Although this does not exceed the International Atomic Energy Commission levels, it does exceed Mound's administrative control limit. The photoluminescence interference initially masked the tritium contamination and caused the delay in reporting this result.

Group 6, Paragraph a,

M15 of 37

Off-Normal, page 6-1.

This occurrence report
was reviewed by an authorized
Derivative Classifier
(John F. Lemming,
June 1, 1992, 4:20 pm)
and contains no
classified nor UNCI
information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

18. Activity Category:

08 - Transportation

19. Immediate Actions Taken and Results:

The truck and the receiving
area were wiped and found
free of contamination and
released. The trap was
bagged and removed to T
Building for
decontamination. The vendor,
MB-Microtec, in Switzerland
was contacted. MB-Microtec
stated that since the trap
was received from another
site and never was in their
radioactive control area,
they never wiped it. An
investigation team is being
formed.

20. Direct Cause:

1) Equipment/Material Problem
F. Contaminant

21. Contributing Cause(s):

2) Procedure Problem
A. Defective or Inadequate Procedure

22. Root Cause:

2) Procedure Problem
A. Defective or Inadequate Procedure

23. Description of Cause:

The package originated at
Amersham International in
Great Britian. It was
shipped first to
Radium-Chemie in

M16 of 37

Switerzerland. Since the package was never in the radioactive control areas of Radium-Chemie and MB-Microtec, both of these sites failed to wipe the package before shipping it further.

24. Evaluation (by Facility Manager/Designee):

Each site should take its own data on radioactive shipping containers before shipping the container to another site.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1. Telephone calls to MB-Microtec and Radium Chemie to determine their actions and remind MB-Microtec of their responsibility under purchase agreement.

Target Completion Date: 12/18/1991	**Completion Date:** 12/18/1991

2. Mound training materials distributed to all vendors: Preliminary information was given to vendors by March 1992; all information, including video tape, was sent out by May 19, 1992, due to delay in preparing the video tape.

Target Completion Date: 04/01/1992	**Completion Date:** 05/19/1992

27. Impact on Environment, Safety and Health:

None.

28. Programmatic Impact:

None.

29. Impact on Codes and Standards:

None.

30. Lessons Learned:

Problem arose because of defective procedure by a foreign customer. The customer has been informed of the problem and reminded of the necessity of following procedures. We will notify all customers in lessons-learned memo.

31. Similar Occurrence Report Numbers:

1. EGGMAT01-1991-1012, EGGMAT01-1991-1001,
2. EGGMAT-TR-91-05.

M17 of 37

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Woltermann, H. Anthony, Facility Manager/Designee
Date: 06/01/1992
Telephone No.: (513) 865-3415

Approved by: GARTRELL, GEORGE R., Facility Representative/Designee
Date: 06/04/1992
Telephone No.:

Approved by: HAGAN, RALPH A., Program Manager/Designee
Date: 06/05/1992
Telephone No.:

M 18 of 37

ALO-DA-EGGM-EGGMAT01-1992-0016 Final Report

Occurrence Report

Tritium Facilities

(Name of Facility)

Tritium Activities

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Woltermann, H. Anthony
Title: Director, Technology **Telephone No.:** (513) 865-3415

(Facility Manager/Designee)

Name: Terry L. Buxton
Title: Manager, Nuclear Technology **Telephone No.:** (513) 865-3424

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT01-1992-0016

Contaminated Tritium Sales Package

2. Report Type and Date: Final

	Date	Time
Notification:	11/25/1992	14:30 (MTZ)
Initial Update:	12/10/1992	12:19 (MTZ)
Latest Update:	12/10/1992	12:19 (MTZ)
Final:	03/22/1993	05:17 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: EG&G Mound Applied Technologies

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: Tritium Container

8. UCNI?: No

9. Plant Area: Building 61

10. Date and Time Discovered: 11/25/1992 15:00 (ETZ)

M19 of 37

11. Date and Time Categorized: 11/25/1992 15:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
11/25/1992	16:30 (ETZ)	Mike Reker	DAO/DOE

13. Other Notifications:

14. Subject or Title of Occurrence:

Contaminated Tritium Sales Package

15. Nature of Occurrence:

02) Environmental
C. Hazardous Material Contamination

06) Transportation

16. Description of Occurrence:

On Wednesday, November 25, 1992 at 1530 hours (ETZ), a shipping container (drum) containing an empty uranium bed was delivered to Building 61 (Shipping & Receiving). Upon its arrival, health physics personnel conducted a routine survey of the truck, the receiving dock and the shipping package. The truck and receiving dock showed no evidence of contamination; however, three of the four wipes taken on the drum indicated contamination levels exceeding the Mound administrative limit of 1000 dpm/100 centimeter squared for tritium. Some difficulty was encountered in trying to analyze the wipes taken on the drum because of chemiluminescence when the wipes were counted in a liquid scintillation counter. Because there was some evidence of contamination, the drum was sealed inside two plastic bags and moved into a secured area in T-Building. Additional wipes were taken and analyzed on the next business day (11/30/92).

Upon further analysis, Health Physics reported that the maximum number of counts was 21,000 dpm/100 centimeter squared. This was below the International Atomic Energy Agency (IAEA) action limit of 22,000 dpm/100 centimeter squared. Thus no further reporting was required under IAEA regulations. The IAEA rules take precedence over DOT regulations since this was an international shipment. Further study determined that the tritium would not distill or extract with water. This indicated that it was not labile and was probably in the form of an oil or grease.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (T. L. Buxton) on 03/17/93 at 1455 hours (ETZ) and contains no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

m 20 of 37

18. Activity Category:

08 - Transportation

19. Immediate Actions Taken and Results:

The shipping package was bagged immediately and moved to T Building on November 25, 1992, for further investigation. An investigation team was formed.

20. Direct Cause:

3) Personnel Error
A. Inattention to Detail

21. Contributing Cause(s):

3) Personnel Error
A. Inattention to Detail

22. Root Cause:

6) Management Problem
C. Inadequate Supervision

23. Description of Cause:

The cause of this incident was incomplete decontamination of the shipping package by the customer. Incomplete training and lack of adequate oversight contributed to this situation.

24. Evaluation (by Facility Manager/Designee):

No regulations were violated. An internal Mound Standard was violated by the customer. All tritium sales customers are aware of Mound's requirement for them to meet the Mound Plant 1,000 cpm/100 centimeter squared regulation for their shipments. Mound has received assurance from this particular customer that he has every intent of meeting Mound's 1000 dpm/100 centimeter squared requirement. The customer has since sent tritium traps to Mound with no contamination.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.	Reviewed Mound's Requirements with Customer.	
	Target Completion Date: 11/30/1992	**Completion Date:** 11/30/1992
2.	Customer provided the necessary supervision and gave further training to his technicians.	
	Target Completion Date: 02/01/1993	**Completion Date:** 02/01/1993

27. Impact on Environment, Safety and Health:

There was no impact on the environment, safety, or health.

M21 of 37

28. Programmatic Impact:

Several hours were spent decontaminating the package.

29. Impact on Codes and Standards:

There was no impact on codes and standards.

30. Lessons Learned:

Customer was reminded of importance of overseeing details when a new employee is involved with radioactive work. Since two traps have been received from the customer since the incident with no further problems, it can be seen that the customer is applying these lessons.

31. Similar Occurrence Report Numbers:

1. ALO-DA-EGGM-EGGMAT01-1991-1005
2. ALO-DA-EGGM-EGGMAT01-1991-1001
3. ALO-DA-EGGM-EGGMAT01-1991-1014

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Woltermann, H. Anthony, Facility Manager/Designee
Date: 03/18/1993
Telephone No.: (513) 865-3415

Approved by: MATTHEWS, PAUL O., Facility Representative/Designee
Date: 03/18/1993
Telephone No.:

Approved by: HAGAN, RALPH A., Program Manager/Designee
Date: 03/22/1993
Telephone No.:

M22 of 37

OH-MB-BWO-BWO01-2000-0007 Final Report

Occurrence Report

Tritium Facilities
(Name of Facility)

Tritium Activities
(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.
(Laboratory, Site, or Organization)

Name: ALLISON, JERRY L
Title: TRITIUM FACILITY MANAGER **Telephone No.:** (937) 865-4533
(Facility Manager/Designee)

Name: ALLISON, JERRY L
Title: **Telephone No.:** (937) 865-4533
(Originator/Transmitter)

Name: ALLISON, JERRY L **Date:** 07/08/2000
(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO01-2000-0007

Radioactive Contamination Discovered Outside a Controlled Area

2. Report Type and Date: Final

	Date	Time
Notification:	05/25/2000	14:10 (MTZ)
Initial Update:	07/08/2000	07:01 (MTZ)
Latest Update:	07/08/2000	07:01 (MTZ)
Final:	07/26/2000	15:07 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: BWXT of Ohio, Inc.

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Building 61 and T Building

8. UCNI?: No

9. Plant Area: Main Hill Area

10. Date and Time Discovered: 05/24/2000 16:40 (ETZ)

M23 of 37

11. Date and Time Categorized: 05/24/2000 16:45 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
05/25/2000	07:30 (ETZ)	Fred Holbrook	DOE/MEMP

14. Subject or Title of Occurrence:

Radioactive Contamination Discovered Outside a Controlled Area

15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

16. Description of Occurrence:

At approximately 1640 hours (ETZ) on May 24, 2000 the isotopic identification of plutonium 238 was made for fixed contamination discovered on a voltmeter on the first floor of Building 61, a non-radiological control area. At approximately 1205 hours (ETZ) on May 24, 2000 fixed alpha contamination of 4000 dpm per 100 centimeters squared direct reading was discovered on an excess voltmeter located in Building 61. The voltmeter had come from Technical (T) Building, Room 44. It was sent to Building 61 from T Building in the April 1999 time frame. The small contaminated control knobs off the meter were sent to Alpha Spec for isotope identification.

Since these items were shipped to Building 61 from T Building, other items with uranium contamination, but with levels below the ORPS reportable levels were discovered in Building 61 that had also come from T Building. Due to this discovery in the July-August 1999 timeframe, corrective actions were put in place to prevent a re-occurrence. These were: unless the item has significant economical value, it will be disposed of in low specific activity (LSA) waste and all items being shipped to Building 61 will be given additional surveys at the T Building dock prior to leaving the building.

17. Operating Conditions of Facility at Time of Occurrence:

Not Applicable

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

The voltmeter was placed within a RMA in Building 61. The control knobs were removed and sent to Alpha Spectrometry for isotopic identification. Materials and equipment from contamination areas within T Building are no longer going to excess unless they have significant economical value.

20. Direct Cause:

3) Personnel Error
D. Other Human Error

21. Contributing Cause(s):

22. Root Cause:

M 24 of 37

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

23. Description of Cause:

Direct Cause: Personnel Error, Other Human Error; when equipment is surveyed for release for a Contamination Area (CA)or Radiological Materials Management Area (RMMA)in most cases a 100 percent survey of the item is not performed. In the case of this voltmeter that is probably true. However, surveys of the control knobs should have been completed since these areas of the the meter would have been handled on a frequent basis.

Root Cause: Radiological/Hazardous Material Problem, Legacy Contamination; the voltmeter had been purchased in 1957 and its past history is known. The fixed plutonium contamination contamination was probably on the voltmeter prior to its being in T Building Room 44 because that room has no plutonium contamination associated with it.

24. Evaluation (by Facility Manager/Designee):

Prior to the fixed contamination being discovered on the voltmeter, corrective actions were put into place to prevent items from contamination areas and radiological material management areas in T Building from being shipped to Building 61 without first having additional surveys performed. In addition, an old low value voltmeter would no longer be sent to Building 61 because of the risk for undiscovered contamination being on the item.

An interview with the technician who had performed the release surveys from the contamination area yelded no additional information as to why the contamination was missed. The instrumentation being used was source checked prior to being used and responded to the source.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.

Review Radiological Survey Data Sheets with the Radiological Control Technician who had performed the surveys to gain any knowledge possible as to the reason the fixed conatamination was missed on the survey.	
Target Completion Date: 06/08/2000	**Completion Date:** 06/08/2000

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

For low value equipment, the risk of the item being contaminated and not discovering the contamination before it is removed from the contamination or radiological materials management area, does not warrant excessing the item to gain a few dollars in salvaged equipment.

31. Similar Occurrence Report Numbers:

1. OH-MB-BWO-BWO01-1999-0004

M25 of 37

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: ALLISON, JERRY L, Facility Manager/Designee
Date: 07/08/2000
Telephone No.: (937) 865-4533

Approved by: HOLBROOK, FRED B, Facility Representative/Designee
Date: 07/26/2000
Telephone No.: (513) 865-4677

Approved by: Approval delegated to FR
Date: 07/26/2000
Telephone No.:

m26 of 37

OH-MB-BWO-BWO01-2000-0013 Final Report

Occurrence Report

Tritium Facilities

(Name of Facility)

Tritium Activities

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: ALLISON, JERRY L
Title: TRITIUM FACILITY MANAGER **Telephone No.:** (937) 865-4533

(Facility Manager/Designee)

Name: ALLISON, JERRY L
Title: **Telephone No.:** (937) 865-4533

(Originator/Transmitter)

Name: ALLISON, JERRY L. **Date:** 11/07/2000

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO01-2000-0013

Radioactive Contaminated Item Discovered Outside Controlled Area

2. Report Type and Date: Final

	Date	Time
Notification:	10/06/2000	06:34 (MTZ)
Initial Update:	11/07/2000	05:33 (MTZ)
Latest Update:	11/07/2000	05:33 (MTZ)
Final:	12/08/2000	09:43 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: BWXT of Ohio, Inc.

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Building 61, First Floor

8. UCNI?: No

9. Plant Area: Main Hill Area

10. Date and Time Discovered: 10/05/2000 15:00 (ETZ)

M27 of 37

11. Date and Time Categorized: 10/05/2000 15:30 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
10/05/2000	15:20 (ETZ)	Fred Holbrook	DOE/MEMP

14. Subject or Title of Occurrence:

Radioactive Contaminated Item Discovered Outside Controlled Area

15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

16. Description of Occurrence:

On Wednesday, October 4, 2000 at approximately 1030 hours, while performing cursory radiological surveys in Building 61, an electric stator was found to have 8000 dpm/100 centimeters squared fixed alpha and 460 dpm/100 centimeters squared removable alpha on its external surfaces. The stator had been free released from Research (R) Building in February, 1999. (At that time R Building was only a Radiological Controlled Area meaning it does not require surveying.) The electric stator was located in a non-controlled area of Building 61 at the time of the discovery.

On Thursday, October 5, 2000 at approximately 1500 hours, the radioactive isotopes were identified as Thorium 230 at 567 dpm per smear, Uranium 238 at 19 dpm per smear, and Uranium 233/234 at 21.2 dpm per smear.

Prior to February 28, 1999 only parts of R Building were inside Radioactive Material Management Areas (RMMAs). The contaminated item came from Room R-159B that was not a RMMA. At the time, items being shipped out of the building as part of Safe Shutdown operations were usually picked up within one week of making out the release tag.

As a result of an incident that occurred in the Semi-Works (SW) Building in February 1999, all the buildings associated with the Main Hill Tritium Project operations were made RMMAs on February 28, 1999. After that date all items shipped to Building 61 were required to have radiological surveys prior to shipment.

In July and August, 1999 other items with uranium contamination were discovered in Building 61 that came from SW, R, and T Buildings, but with levels below the ORPS reportable limits. At that time, the warehouse area in Building 61 containing excess items was made a Radiological Material Area (RMA) and RMMA. Due to those discoveries, corrective actions were put in place to prevent any additional potentially contaminated items from being sent to Building 61. Those were: Unless the item has significant economical value, it will be disposed of in low specific activity (LSA) waste and all items being shipped to Building 61 will be surveyed before being sent.

In September 1999 Radiological Controls completed the surveys of all the untagged excess equipment items in Building 61 including those that had come form SW, R, and T Buildings and sent any contaminated items back to the project personnel for disposal in LSA waste. If the items were tagged with green or white tags, they were put back on the shelves without being surveyed per the instructions of Radiological Controls management. Once the untagged items were cleared, the area was down posted by the Radiological Point of Contact (RPOC) for Building 61. Therefore, some green tagged items from areas within SW, R, and T Buildings that were not within RMMAs before March 1999 could be contaminated. The contaminated electrical stator was one of the green tagged items that had not been previously surveyed.

17. Operating Conditions of Facility at Time of Occurrence:

Not Applicable

18. Activity Category:

M28 of 37

11 - Facility Decontamination/Decommissioning

19. Immediate Actions Taken and Results:

Upon discovery, the item was immediately bagged, tagged, and placed in a Radioactive Materials Area (RMA) in Building 61. Follow-up surveys were performed in the area where the item was originally located. No removable contamination was detected. A smear sample from the item was submitted to the Environmental Laboratory for isotopic analysis. Appropriate notifications were made and a Radiological Awareness Report (RAR) was initiated.

20. Direct Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

21. Contributing Cause(s):

6) Management Problem
F. Other Management Problem

22. Root Cause:

6) Management Problem
A. Inadequate Administrative Control

23. Description of Cause:

The Direct Cause of this event was a Radiological/Hazardous Material Problem for Legacy Contamination that was present in R Building and on some excess equipment located within the Building and then shipped to Building 61.

The Contributing Cause which was non-causal was a Management Problem, Other Management Problem for an error in management judgement. The Radiological Controls management instructed Radiological Control Technicians (RCTs) not to survey the green tagged items located in Building 61 because they believed the newly established green, white, and yellow tagging system was working properly. Radiological Control Supervision did not take into consideration that rooms where some of the items came from were in previously contaminated areas. If this item had been surveyed at the time of the previous (July-August 1999) incidents the problem would have been discovered then.

The Root Cause was a Management Problem, Inadequate Administrative Control; Radiological Controls management failed to implement procedures that specified adequate survey requirements (number, type, and location). Surveys were not adequate for down posting from a Radiological Area to just a Controlled Area at the time R Building Room 159B was down posted. In the September 1993 time frame, areas of R Building were down posted for the purpose of lowering the level of personnel protective equipment (PPE) and in some cases only a small number of surveys were performed to accomplish this down posting. The procedures on down posting did not provide sufficient information on how many surveys or where they were to be taken. In the late 1995 time frame, RMMAs were established and some previously down posted areas which should have been declared a RMMA, were not due to lack of knowledge on the types of surveys performed when originally down posted from Radiological Areas.

24. Evaluation (by Facility Manager/Designee):

The contamination discovered on the electrical stator was more than likely the result of work with radioactive isotopes in R Building years ago. At the time this piece of equipment was sent to Building 61, the area it was located in (R Building, Room 159B) had been down posted to a Controlled Area from a Contamination Area. Under the requirements at the time, equipment in Controlled Areas could be free released without performing surveys.

Down posting of former radiological areas in SW and R Buildings occurred over a number of years during which different regulatory mechanisms were in place. Certain of these actions occurred pursuant to the then existing DOE Order requirements. Actions were implemented pursuant to guidance in the DOE RadCon Manual as applicable. Ultimately, 10 CFR 835 and its appendices became the controlling authorization. Undoubtedly, the technical requirements and their interpretation had played a major role in developing and implementing controls and practices for subsequent down posting. The controls/procedures established by Mound's Radiological Control Organization for implementing 10 CFR 835 requirements for posting of areas were inadequate for establishing RMMAs because they did not specify number, type, and location of surveys required from the area.

M29 of 37

Surveys adequate for relaxation of control in one area, such as personnel protection, would not necessarily be adequate for relaxation of controls in another area, such as free release of fixtures and unattached or attached equipment. Controls established after the implementation of the new standards should have considered the differences between the previous Radiological Control requirements and those imposed by 10 CFR 835 and went back and looked at what types of surveys had been performed to down post areas (i.e., relaxation of controls for personnel protection versus free release criteria).

Since the discovery of radioactive contamination outside of radiological area reported between February and April 1999 (OH-MB-BWO-BWO01-1999-0004), administrative controls and procedures have been put in place to properly down posted areas using rigorous reviews and taking adequate surveys.

As a result of other contaminated items being discovered in Building 61 after this item was sent to Building 61, corrective actions were put in place that would prevent this from happening in the future. Had Radiological Controls Management made a better judgement to survey the green tagged items that were located in Building 61, the problem would have been found much sooner.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1. Post high-risk equipment review area in Building 61 as a RMMA.

Target Completion Date: 10/09/2000	**Completion Date:** 10/09/2000

2. Survey items in Building 61 as required to permit disposal and process as Low Specific Activity (LSA) waste or other waste streams.

***Target Completion Date:** 01/30/2001	***Completion Date:** 01/09/2001

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Because equipment and office furniture was moved around at Mound and in some cases in and out of radiological areas, and the adequacy of the surveys performed to free release the equipment and furniture in the past is unknown, equipment and furniture can not be free released to the public without additional radiological surveys. Due to this, there is also the potential for finding radioactively contaminated items outside radiological control areas at Mound. If equipment was located inside nuclear operations buildings and there is not a high economical value to be gained from its sale to the public, then due to the potential risk of releasing contaminated equipment, it is better to survey the items and process them as waste.

31. Similar Occurrence Report Numbers:

1. OH-MB-BWO-BWO01-1999-0004
2. OH-MB-BWO-BWO01-1999-0013
3. OH-MB-BWO-BWO01-1999-0014
4. OH-MB-BWO-BWO01-1999-0020

32. User-defined Field #1:

M 30 of 37

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: ALLISON, JERRY L, Facility Manager/Designee
Date: 11/07/2000
Telephone No.: (937) 865-4533

Approved by: DEV, MADAN, Facility Representative/Designee
Date: 12/08/2000
Telephone No.: (513) 865-4714

Approved by: Approval delegated to FR
Date: 12/08/2000
Telephone No.:

M31 of 37

OH-MB-BWO-BWO04-1999-0004 Final Report

Occurrence Report

Sites and Grounds

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: WEIDENBACH, GARY L
Title: BUILDING MANAGER **Telephone No.:** (937) 865-3241

(Facility Manager/Designee)

Name: WEIDENBACH, GARY L
Title: BUILDING MANAGER **Telephone No.:** (937) 865-3241

(Originator/Transmitter)

Name: Don Dixon **Date:** 02/16/2000

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO04-1999-0004

Contaminated Wrench Found in Building 94

2. Report Type and Date: Final

	Date	Time
Notification:	03/02/1999	11:17 (MTZ)
Initial Update:	03/18/1999	13:52 (MTZ)
Latest Update:	02/16/2000	07:59 (MTZ)
Final:	02/17/2000	13:59 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 5 **Original OR:**

5. Division or Project: Babcock and Wilcox of Ohio

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Building 94, Room 3

8. UCNI?: No

9. Plant Area: Test Fire Valley

10. Date and Time Discovered: 03/01/1999 12:00 (ETZ)

M 32 of 37

11. Date and Time Categorized: 03/01/1999 12:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
03/01/1999	12:15 (ETZ)	Fred Holbrook	DOE/MEMP

13. Other Notifications:

Date	Time	Person Notified	Organization
03/01/1999	12:10 (ETZ)	Chris White	DOE/MEMP
03/01/1999	12:20 (ETZ)	Ron Berry	DOE/MEMP

14. Subject or Title of Occurrence:

Contaminated Wrench Found in Building 94

15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

16. Description of Occurrence:

Update/Roll-Up Report

Occurrence #1

On Monday, March 1, 1999 at 12:00 a.m. a hand tool was found in Building 94 room 3 to be contaminated. A pipe wrench was found to be contaminated to levels of 3700dpm/100cm2 direct alpha and 190dpm/100cm2 removable alpha. Three wipes were submitted for isotopic analysis. The wrench was not located within a posted area.

On Tuesday, March 2, 1999 the 3 wipes were analyzed simultaneously by alpha spectroscopy and revealed 450 dpm of Pu-238. This exceeds the reporting criteria of Table 2-2 of the RADCON manual.

Occurrence #2

Isotopic analysis received on March 18, 1999 determined that contaminated isotopes levels were greater than 10 times the contamination values in table 2-2 of the Radiological Control Manual for a controlled area.

During a tool box survey of W Building on March 12, & 13, 1999 the following items were found in a posted controlled area.

In W Building's Carpenter Shop chisel bits were found to be contaminated to levels of 1350 dpm/100cm2 direct alpha Pu-238.

In W Building's Pipe Fitter Shop a tool box was found to be contaminated with fixed alpha at 15000 dpm/100cm2 of Pu-238.

M 33 of 37

In W Building room 125 a drill and drill box revealed levels of 8820 dpm/100cm2 and 6500 dpm/100cm2 fixed contamination with removal contamination of 450 dpm of Pu-238.

Occurrence #3

On Thursday, April 15, 1999, two boxes filled with material going to auction were identified as having fixed contamination on them at levels of 200 dpm/100cm2 and 4000 dpm/100cm2. The samples were sent to gamma spec for isotope identification and results found to be
Pu-238 and Am-241. Surveys of the reminder of the boxes and material contained within were identified resulting with no other contamination present.

On Thursday, April 15, 1999, contamination was found in Building 61 during surveying of excess equipment. A screen off the back of a piece of electronic equipment (Tenelec counting module) was found to be contaminated. The screen read 2000 dpm/100 cm2 direct contamination without any removable contamination. Two covers from over separate power supplies for the Tenelec module housing and Tenelec amplifier housing were found to be contaminated. One of the covers read 1500 dpm/100 cm2 direct and the other cover was 500 dpm/100 cm2 direct. The power cord for the unit was at 500 dpm/100 cm2 direct. No removable contamination was present on either power supply cover or power cord. The equipment was found in a non-radiological area.

The screen, covers, and power cord were sent to gamma spec for isotope identification and results found to be Pu-238 and Am-241.

Occurrence #4

As a result of the discovery of previously unidentified and uncontrolled contamination in SW-5 and subsequent discovery of contaminated tools in Buildings 94 & 301 it was determined to be necessary to perform surveys of the tools used by the site trades organization. These surveys were performed to determine if any of the tools had been radioactively contamined during past use. These surveys have been completed for the main tool storage area on plant site (W-Building) and this report provides the results of those surveys. During the surveys of the approximately 309 toolboxes and cabinets located in W-Building 36 items were discovered to be contaminated above todays's release criteria. Four of the items had removable contamination. The maximum direct contamination found was 44,000 dpm/100 cm2 alpha on a tool box drawer. The maximum removable contamination found was 4,400 dpm/100 cm2 removable alpha contamination on a toolbox and 57,210 dpm/100cm2 removable tritium on screwdrivers. The predominant isotope identified during these surveys was Pu-238.

A table is available from the Facility Manager, Site and Grounds, that identifies the specific items found to be contaminated and provides a summary of the type and amount of contamination found.

Occurrence #5

Two additional items that were not reported under occurrence #4 are listed as follows:

Box in drawer of Pipe Shop (W Building) with 1373 dpm/100cm2 tritium.

DOP test units - 650 dpm/100cm2 direct alpha contamination Pu-238.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Operations

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

M34 of 37

Occurrence #1

The pipe wrench was disassembled using proper Personnel Protection Equipment (PPE)for sending to the lab for isotopic analysis. In the process of disassembling the 190dpm/100cm2 removable alpha was found. The entire area (room 3 of Building 94) was posted as an Radiological Material Management Area (RMMA).

Occurrence #2

Each item was secured in a Radioactive Material Area (RMA). Radiological surveys continue on the balance of the W Building tool storage area and other plant areas.

Occurrence #3

Each item listed under occurrence #3 was secured in a Radioactive Material Area (RMA) and will be disposed of properly.

Occurrences #4 and #5

Each item listed was secured in a Radioacive Material Area (RMA) and will be disposed of properly.

---

20. Direct Cause:

6) Management Problem
A. Inadequate Administrative Control

21. Contributing Cause(s):

22. Root Cause:

6) Management Problem
A. Inadequate Administrative Control

---

23. Description of Cause:

Inadequacy of Managerial Administrative Controls have contributed to the spread of radiological contamination such as the events identified in this report. Tools or equipment radiologically contaminated must be kept within radiologically controlled areas and not permitted to leave those areas improperly. The removal of tools and equipment from areas without the approval of Radiological Control technicians must be emphasized and enforced by management. Radiological Control technicians and count room technicians must be thorough in their monitoring and release of tools and equipment from radiological areas.

The Corrective Action of evaluating controls on material and equipment addressed the above concerns related to removal and release of tools and equipment from radiological areas.
The Corrective Action of defining existing tool storage areas allowed for the inventorying and surveying of these tools across the site.
The Corrective Action to develop controls for tool storage areas resulted in the identification by color coding tools used and to be kept within radiological areas for control.

---

24. Evaluation (by Facility Manager/Designee):

The event of finding radiologically contaminated tools outside of radiological control areas prompted the survey of tools across the plant site. Tools used within radiological areas will be identified by color coding and are to remain in those areas only.
The finding of radiologically contaminated equipment outside of radiological control areas has increased the emphasis of controls of material movement within the plant and the release of equipment from off the plant site.

---

25. Is Further Evaluation Required?: No

M35 of 37

Approved by: WEIDENBACH, GARY L, Facility Manager/Designee
Date: 02/16/2000
Telephone No.: (937) 865-3241

Approved by: WHITE, CHRISTOPHER A, Facility Representative/Designee
Date: 02/17/2000
Telephone No.: (937) 865-4396

Approved by: Approval delegated to FR
Date: 02/17/2000
Telephone No.:

M37 of 37

Appendix N

PRS Information

Recommendation sheets are not generated for PRSs requiring Further Assessment. Accordingly, there is no recommendation sheet for PRS 68 included herein.

MOUND PLANT
PRS 65/402/403/404
BUILDING 61 HEAVY EQUIPMENT AREA-SOIL CONTAMINATION

RECOMMENDATION:

Potential Release Site (PRS) 65 was identified as the Building 61 Heavy Equipment Storage Area. PRSs 402, 403 and 404 were identified based on soil gas results from the OU5 Operational Area Non AOC Phase I Investigation.

Quantitative sampling in 1996 indicated no contamination above Guideline Criteria with the exception of benzo(a)pyrene which was detected at a concentration of 1,300 ug/kg in the soil. This concentration, although above the 10^{-6} Risk Based Guideline Value of 410 ug/kg is well below the 10^{-5} Risk Based Guideline Value of 4,100 ug/kg. All radionuclide sampling indicate that radionuclides are all below the regulatory guideline criteria.

Therefore, NO FURTHER ASSESSMENT is recommended.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 11/21/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 11/21/96 (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.

Appendix O

Work Plan

Not applicable for buildings to be transferred to MMCIC.