3001 0406100012

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

CH2MHILL

SM-041/03
June 30, 2003

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

ATTENTION: Paul Lucas

SUBJECT: Contract No. DE-AC24-03OH20152
BUILDING 19 BUILDING DATA PACKAGE, FINAL
Bldg 19-GFS/I: Planning Documents Approved- Activity ID: EBDEE034AL

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Mr. Provencher:

Paul Lucas from your office has approved the release of the following final document:

- Building 19, 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,

RC Ransbottom for K. L. Kehler

K. L. Kehler
SMPP/TFV Project Manager

KLK/VKD

Enclosures

Approved: Paul Lucas 6/30/03
Paul Lucas Date
CERCLA Program Manager

cc: Dave Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Frank Schmaltz, DOE/MCP, (1) w/attachments
Lisa Rawls, DOE/MCP, w/o attachments
Randy Tormey, DOE/MCP, (1) w/attachments
Terry Tracy, DOE/HQ, (1) w/attachments
Dann Bird, MMCIC, (1) w/attachments
Jim Bonfiglio, MESH, (1) w/attachments
Public Reading Room, (4) 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
DCC (1) w/attachments
Admin Record (2) w/attachments

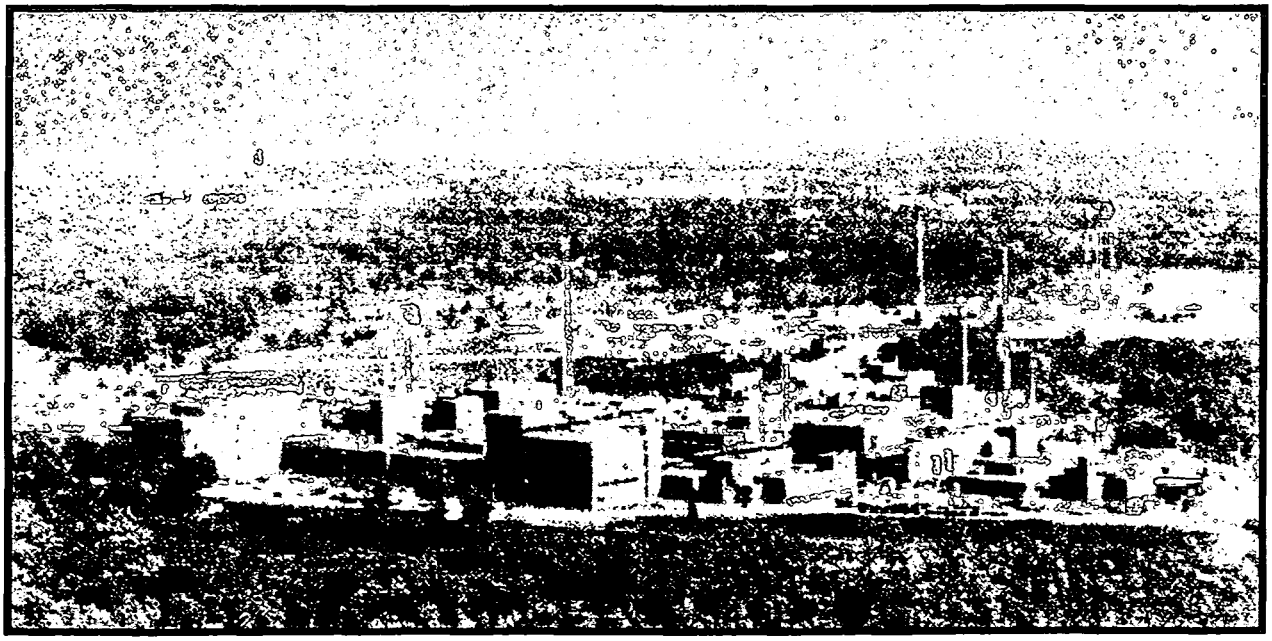
Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Building 19

(Demolition)

Final
June 2003



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

June 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 19 Building Data Package. Attached is our response.

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

Sincerely,

DOE/MCP: Paul Lucas — 6/5/03
Paul Lucas, Remedial Project Manager — date

USEPA: David P. Seely — 6/24/03
David P. Seely, Remedial Project Manager — date

OEPA: Brian K. Nickel — 6/10/03
Brian K. Nickel, Project Manager — date

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Response to MMCIC Comments on the Building 19 Building Data Package Public Review Draft March 2003

Substantive Comments

Comment 1. From our review of the Building 19 Draft Data Package, MMCIC is in agreement with the decision to demolish the building. MMCIC understands from the Draft Data Package that all appropriate inspections have been completed or will be completed prior to demolition. The Building Data Package states that the building has undergone the Predemolition Survey, which indicates that the building floors and walls may have been impacted by the past uses of the building. A Final Status Survey will be performed, then reviewed and approved by the Core Team prior to the commencement of demolition activities. MMCIC would like to request a copy of the Final Status Survey when it becomes available. MMCIC understands that any other potential environmental concerns, such as asbestos or lead paint, will be addressed prior to commencement of the demolition activity.

Response 1. We appreciate your input and review of the document. A copy of the Final Status Survey was sent to you on 2 June 2003 for your information, and will be included as Appendix G in the Building 19 BDP, Final. The Core Team approved of commencement of demolition after their review of the Final Status Survey. CH2M Hill Mound, Inc. confirms that all appropriate inspections were completed and environmental concerns addressed prior to demolition. As indicated in the Public Review Draft of the Building 19 BDP, Page 4 of 10, lead-based paint was not a concern for demolition of this building. The removal of friable asbestos containing material (as described on that same page) was accomplished prior to demolition.

Comment 2. MMCIC understands that one PRS is in the immediate vicinity of Building 19. PRS 63 is a former pipe storage area believed to have radiological contamination. MMCIC understands that the Environmental Restoration group will address PRS 63 separately from the Building 19 demolition.

Response 2. Yes, this statement is correct.

Comment 3. It is MMCIC's understanding that after the demolition process is completed, the area will be restored to a natural state in accordance with the *Mound Reuse Plan.*

Response 3. As indicated in the Building 19 BDP Appendix O (Work Plan), page O 22 of 50, the area will be graded with gravel for erosion control following demolition activities. Section 3.2 of the BDP states, "As shown on Figures 2 and 4, Building 19 is bordered on all sides by asphalt pavement..." Because this location is completely

surrounded by pavement and will be used as a parking and storage area, it would be inappropriate to create a 'natural' area in this location at this time.

Errata

Comment 1. No comments.

MOUND

Environmental Restoration Program

MIAMISBURG CLOSURE PROJECT BUILDING DATA PACKAGE

The following Building Data Packages (BDP) will be available for your information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio. Building 19: 5 March 2003, Building 60: 10 March 2003

BDP Building 19: Salvage and Sales
BDP Building 60: Ceramic Facility

Questions can be referred to Frank Schmaltz at (937) 865-3178.

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REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**February 2003**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
DRAFT PROPOSED FINAL (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	The BDP was made available in the CERCLA Public Reading Room on March 5, 2003	**March 2003**
FINAL	No comments were received from USEPA. A correction was made in the Final Status Report (Appendix G) in response to OEPA comments. The Core Team response to public comments is included in this document. No changes to the BDP were indicated. Section 2.4 and Appendix G were revised to provide the final radiological survey information.	**June 2003**

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1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the demolition of Building 19 (Quonset Hut) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and building.

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

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for Building 19 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 19, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation of Building 19 included the following:

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

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

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

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

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

2.0 BUILDING 19 OVERVIEW

Building 19 has been used for a number of functions and housed a number of processes during its nearly 57 year history supporting activities at three different locations: first at the Dayton Unit III location (Manhattan Project) (1946-1949), and two locations at the Mound site (1950-1962, and 1962-present).

Building 19 is a prefabricated "classic" Quonset Hut-type (corrugated-metal) building. At the time it was erected at its current location it contained approximately 3,200 square feet (40' x 80') of floor space. The construction of a metal framed/plywood floored mezzanine in the mid-1960s added approximately 1,500 square feet. A second addition in the later 1960s added approximately 32 square feet constructing a "valve room" at the northeastern corner of the building. The valve room was added to allow for the installation of fire sprinklers in the building. Building 19 is supported by a 6-inch thick reinforced concrete slab and 2' 6" footers. A bed of tamped sand or crushed concrete block (6 inches minimum) underlies the slab. The building is bounded on all sides by asphalt pavement. Floor plans of the building are included as Appendix D.

The building is serviced by two forced-air propane heaters and two small electric heaters. A window air conditioner is installed in the small office area. Electric service of 240 volts is provided by the MCP facility distribution system. According to a diagram of underground utility lines, Building 19 has no potable water service and no sanitary services. There are

two storm drains in the vicinity (closest one approximately 15 feet) of Building 19. There are no gutters/downspouts on Building 19. Surface runoff flows overland to either the down gradient storm drain or a nearby concrete stormwater channel.

2.1 Past Uses of Building 19

Building 19 was originally located at Dayton Unit III (a precursor site to the Mound Plant) at the intersection of First and Euclid Streets in downtown Dayton, Ohio. In its original location at Dayton Unit III (1946 to 1949), the majority of the building was designated as laboratories supporting the objectives of the Manhattan Project. While specific processes are unknown, it is believed that polonium-210 was the focus of much of the work. When the Dayton facility was closed, the building materials were dismantled and sent to Mound where it was reassembled at its second location.

At its second location near Buildings 2 and 3, the Quonset Hut was used to store drums of radioactive wastes from several site missions including SW Building evaporator material, HH Building bismuth-chloride sludge, Purex waste, and thorium waste. In the early 1960s, the structure was dismantled and reassembled at its present location.

At its current location, on the western edge of the plant site north of Building 72, Building 19 served as a warehouse and a salvage storage and surplus sales facility. During the 1990s it was principally used for storing Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) soil sample drums dating back to 1988 and, on the mezzanine, storing new empty drums. A portion of the building contained a packaging area for samples taken from current CERCLA activities.

Site documentation supports the above reported 'past uses' with an initial construction date of 1946. However, the actual history of Building 19 is questionable. Inspection of Building 19 suggests that this building was a newly manufactured Quonset Hut constructed at its current location in 1963, and had not been previously located in downtown Dayton or at the Building 2 location as the historical documentation suggests. Inspection of the exposed building panels revealed a manufacturer's date stamp of 1962. Further, if the structure had been assembled and disassembled multiple times, it would be reasonable to expect evidence of the multiple assemblies to be apparent on the seams of the panels. However, the exposed seams show no signs of multiple assemblies. Even though inspection of the building indicates a construction date of 1963, the entire documented history of the building has been considered as a worst-case scenario for purposes of identifying potential environmental concerns.

2.2 Current Uses of Building 19

Building 19 was vacated in January 2003 and is currently undergoing Safe Shutdown activities in preparation for demolition.

2.3 Summary of Environmental Concerns and Findings - Building 19

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data was found. Paint coatings in a few areas within the building exhibited some damage due to water or impact damage. Representative samples of the damaged paint were analyzed using a Niton Model XL-309 XRF (x-ray fluorescence) lead detector and found to not contain any amount of lead within the instrument's detection limit (Appendix J). No lead paint hazards currently exist within the building and no further action would be necessary unless any of the untested coating were to be disturbed by close worked contact (sanding, grinding, scraping, torching).	If lead-based paint were present, it would not impact the demolition or disposal of the debris. Close worker disturbance of paint coatings will be avoided during demolition. If close disturbance is necessary, the point of contact will be tested for lead and appropriate controls and personal protective equipment (PPE) used for disturbance as required.
Chemicals	A list of chemicals or hazardous wastes known to have been used or stored in Building 19 is provided in Appendix K.	Chemicals and hazardous wastes will be removed prior to demolition.
Fluorescent Lamps and PCBs	Fluorescent lamps were used in the building. Ballasts may contain polychlorinated biphenyls (PCBs).	Will be removed prior to demolition.
Air Emissions	There are no active sources of air emissions.	N/A
Asbestos	An asbestos-survey was conducted in accordance with EPA NESHAP requirements. Asbestos containing material (ACM) is present in the building.	Friable ACM will be removed prior to demolition. The roofing-type mastic sealant which is nonfriable does not have to be removed prior to demolition so long as it remains nonfriable up to that point. A copy of the asbestos survey is provided in Appendix I. All work will be performed in accordance with current state and federal regulations.
Drainage Sumps	There are no drainage sumps.	N/A
Lead	N/A	N/A
Mercury	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Radiological	Radiological materials were reportedly handled within the building (see Sections 2.1 and 2.4). Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).	The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5, and no further radiological surveys are required. Additional information is provided in Section 2.4 and Appendix G.
Septic System	N/A	N/A
Wastewater	No sanitary system.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	A propane storage tank is located near the building.	Tank will be removed prior to demolition.
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	The results of a 1989-90 Mound Indoor Radon study indicated an average radon concentration of 2.6 picoCuries/liter (pCi/L) in Building 19 (Appendix H). The USEPA recommended standard for a maximum radon level is 4.0 pCi/L.	N/A
HVAC	Window air conditioner will be removed.	No further action required.
Energetic Material	N/A	N/A
Soil Contamination	Appendix L contains a graphic and tables of all soil sampling data results within a 15-foot perimeter of Building 19. All results are below applicable screening levels. Common nutrients (such as sodium, potassium, and magnesium) and common anions (such as nitrate, nitrite, sulfate, sulfide, phosphate, fluoride, iodide, nitrogen, and bromide) are not considered in site risk assessments and therefore not evaluated herein. Located near Building 19, PRS 63 is a former pipe storage area measuring approximately 2 feet by 2 feet believed to have radiological contamination.	The Environmental Restoration (ER) group will handle the PRS 63 RA separate from the Building 19 demolition. The asphalt covering the PRS 63 location will be left in place and removed by the ER group.

N/A: Not applicable

2.4 Radiological Summary for Building 19

A radiological assessment of Building 19 was performed by reviewing the historical, operational, and radiological survey information. Building 19 is a prefabricated Quonset hut-type building. It has housed a variety of functions, including radioactive material storage, as well as administrative functions such as storage of excess materials. Building 19 was classified as impacted because of its history of radioactive material use.

The floor of Building 19 was found to be contaminated and was remediated. Contaminated sections of the concrete floor and steel sill plate were cut out and disposed of as radioactive waste. The Final Status Survey (FSS) demonstrates that remediation was complete and no additional elevated areas were found. The FSS assessed the structural surfaces of Building 19 only. The under side of the concrete floor and under-slab soils, foundations, etc. associated with Building 19 will be surveyed when they are accessible.

Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5, and no further radiological surveys are required. Supporting documentation for the information summarized in Table 2 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	03-TF-0103	Floor	6.56	20
Highest Alpha Fixed Activity (Group 1 Nuclides)	03-TF-0103	Floor	71	100
Highest Alpha Fixed Activity (Group 3 Nuclides)	03-TF-0108	Exterior	414	5000
Highest Beta Smearable Activity	03-TF-0107	Ceiling	6.89	1,000
Highest Beta Fixed Activity	03-TF-0103	Floor	735	5,000
Highest Tritium Smearable Activity	03-TF-0107	Ceiling	25.42	10,000

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

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

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 19 is located at the DOE MCP site, formerly known as Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

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

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

3.2 Description of Structures, Roads, Other Improvements in Proximity to Building 19

As shown on Figures 2 and 4, Building 19 is bordered on all sides by asphalt pavement. Site traffic passes on the eastside of Building 19. Beyond the pavement to the north and west is a grassy area, a small concrete stormwater channel, and the current site fenceline, with trees and overgrown vegetation beyond. Two trailers, 27 and 28, are adjacent to the asphalt pavement on the west side of Building 19. Building 72 is to the south of Building 19 and Building 124 is to the east of Building 19.

3.3 Current and Past Uses of Buildings in Proximity to Building 19

Four buildings are in the vicinity of Building 19. Building 72 is a 2,400 square-foot Resource Conservation and Recovery Act (RCRA) –permitted hazardous waste storage building located south of Building 19. Building 124 is a 5,250 square-foot central waste processing facility located east of Building 19. Trailer 27 and Trailer 28 to the west of Building 19 are used for office and storage space.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under RCRA, the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), the site has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B Permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that no reportable chemicals are stored in Building 19.

Mound Plant was identified as a contaminated site on the National Priorities List under CERCLA (Superfund) in 1989. Mound Plant was originally listed due to volatile organic compound (VOC) contamination in the western end of the lower valley area. The cleanup of the site was originally to be accomplished under the CERCLA mandated procedures for regulating Superfund Sites using the operable unit system to define and characterize cleanup areas. As the cleanup effort went forward, it became apparent that the site did not fit the profile for a cleanup strategy based on the operable units. The DOE, the United States Environmental Protection Agency (USEPA), and OEPA designed a new decision making process for the cleanup of the site. The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." The Mound 2000 Process system divided the site into geographical parcels containing over 400 PRSs with approximately equal numbers of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had releases of radioactive and/or hazardous materials. For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach*.

4.2 Specific Record Sources for Building 19

4.2.1 Occurrence Reports

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

- radioactive contamination found outside of a radiological control area (4) (copies provided in Appendix M),
- fire suppression system actuation (4), and
- measurement machine and gaging system damaged during movement.

4.2.2 Spills and Releases

- None

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE ER Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, seven are at or near Building 19. PRSs in the vicinity of Building 19 are identified in Table 3. Additional information is included in Appendix N.

Table 3: PRSs in Proximity to Building 19

PRS	CERCLA or Bldg. Related	Binning Status	Comments
41*	CERCLA	Removal Action (RA)	Area 3, Thorium Drum Storage and Redrumming Area.
60	Building	Unbinned, PRSs To Be Dispositioned With Building 72	Hazardous Waste Storage Area (Building 72).
61	Building		Building 72 Outdoor Hazardous Waste Storage Area.
62	Building		Building 72 Empty Drum Storage Area.
63**	CERCLA	RA	Building 19 Soils.
64	CERCLA	No Further Assessment (NFA)	Building 19 Historic Gasoline Tank (Tank 238).
417	CERCLA	Further Assessment (FA)	Soil Contamination-High Soil Gas near Well 0312.

* *Soil contamination prompting the PRS 41 RA is located outside of the 15-foot perimeter around Building 19. Since building demolition activities will not disturb areas outside of the 15-foot perimeter, potential exposure to RA levels of thorium-232 related to PRS 41 is not expected to be a concern during demolition. If areas outside of the 15-foot perimeter are to be disturbed, additional soil analytical results in those areas will be evaluated prior to commencement of those activities to confirm potential exposure to elevated contamination is not anticipated.*

** *PRS 63 is a former pipe storage area measuring approximately 2 feet by 2 feet. Because it is believed to have radiological contamination based on historical use, FA was indicated. The PRS was binned as an RA because removal of the contaminated soil was deemed a more cost-effective solution than FA sampling. Because there was no FA, no soil sampling at the PRS location has been performed. The ER group will handle the RA separate from the Building 19 demolition. Soil in the PRS 63 area will not be disturbed during Building 19 demolition activities.*

4.3 Review of Building Prints

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

4.4 Aerial Photographs

Aerial photographs from 1959 (prior to construction), 1965 (following assembly at current location), and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

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

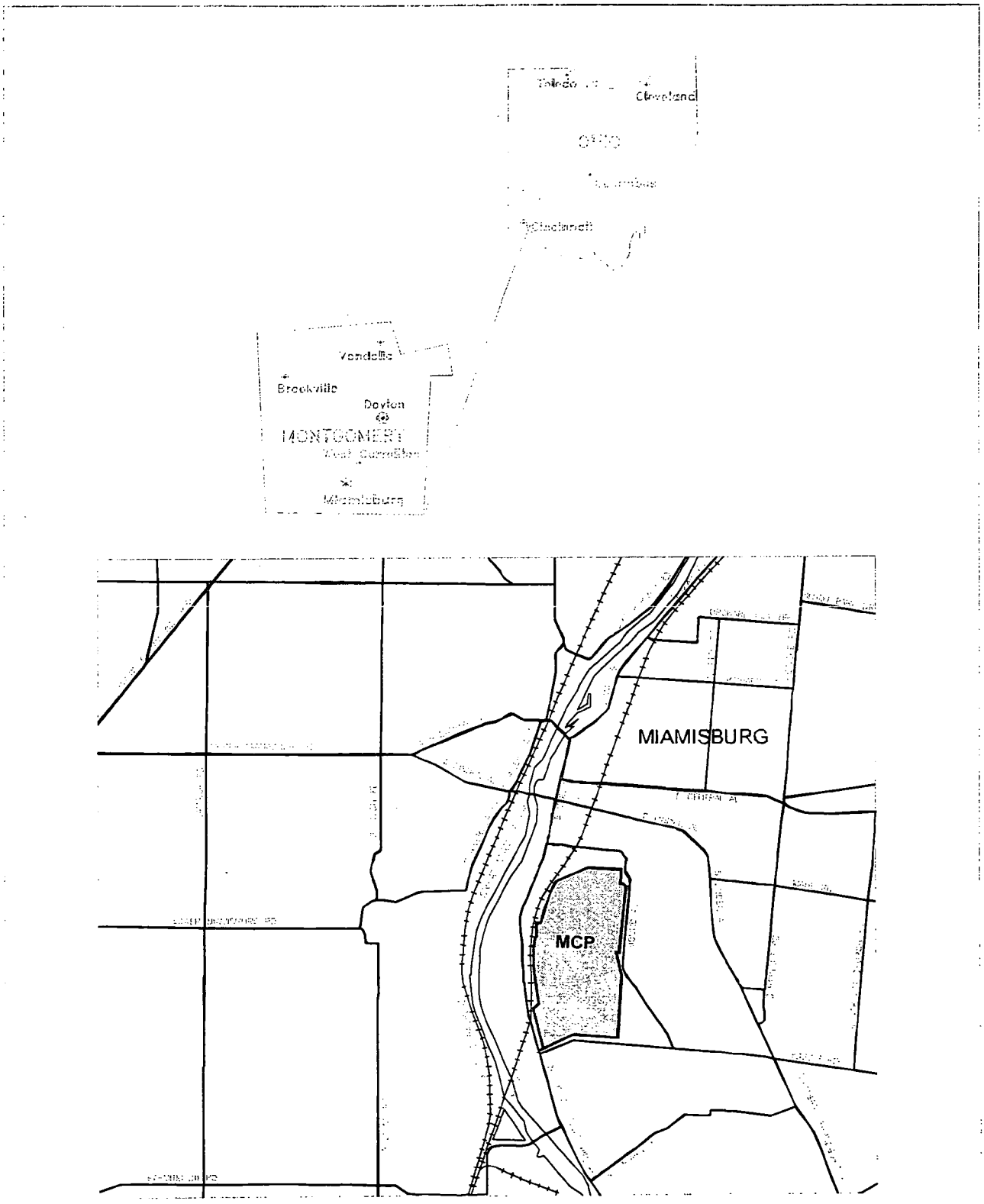
Appendix A

General Listing of Acronyms

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

Appendix B

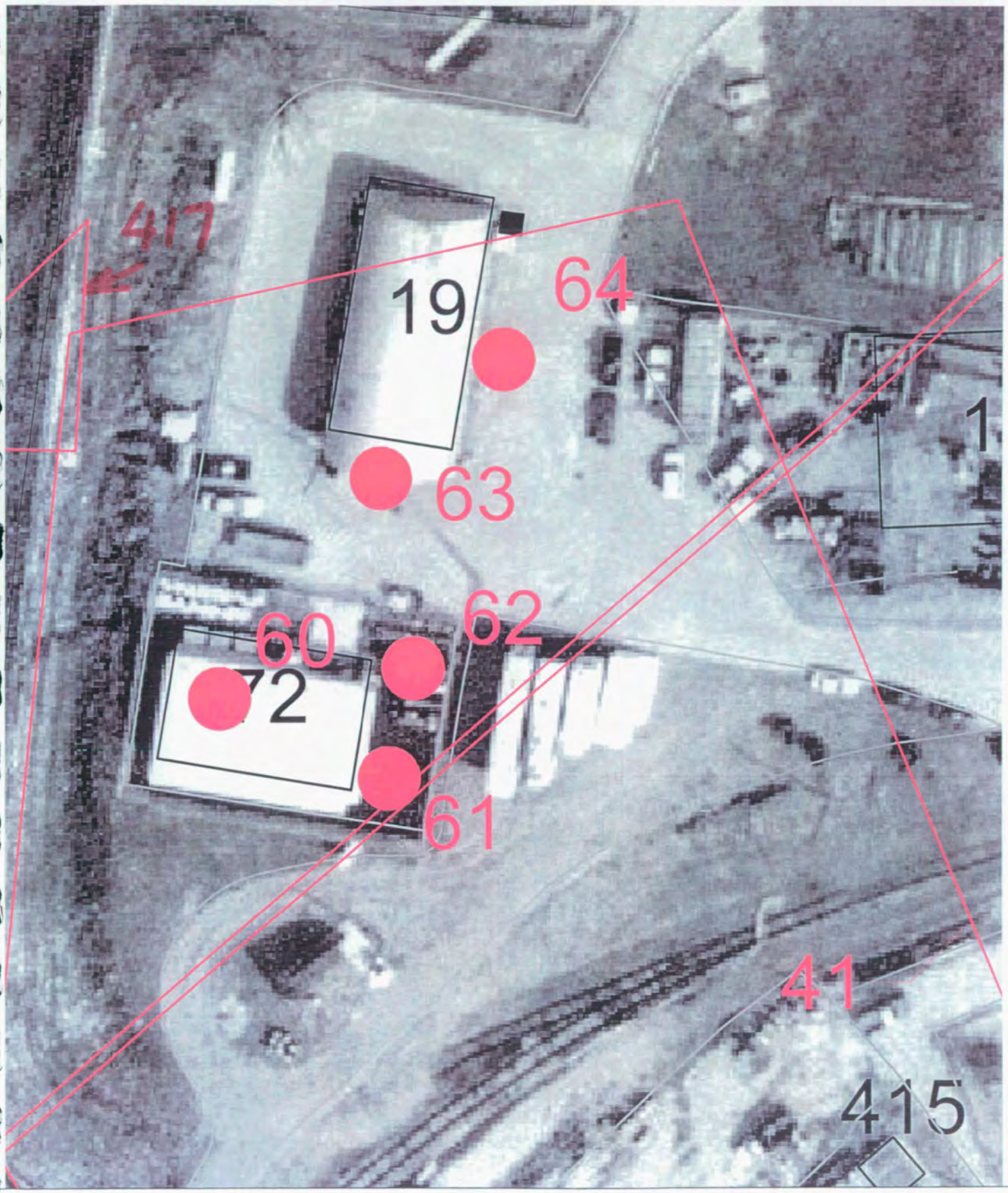
Map of Montgomery County


Cleveland
Cincinnati
Vandalia
Brookville
Dayton
MONTGOMERY
Miamisburg
MIAMISBURG
MCP

B 1 of 1

Appendix C

Figures



Legend

45 Structures

PRS Point

PRS Area

PRS Line

DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

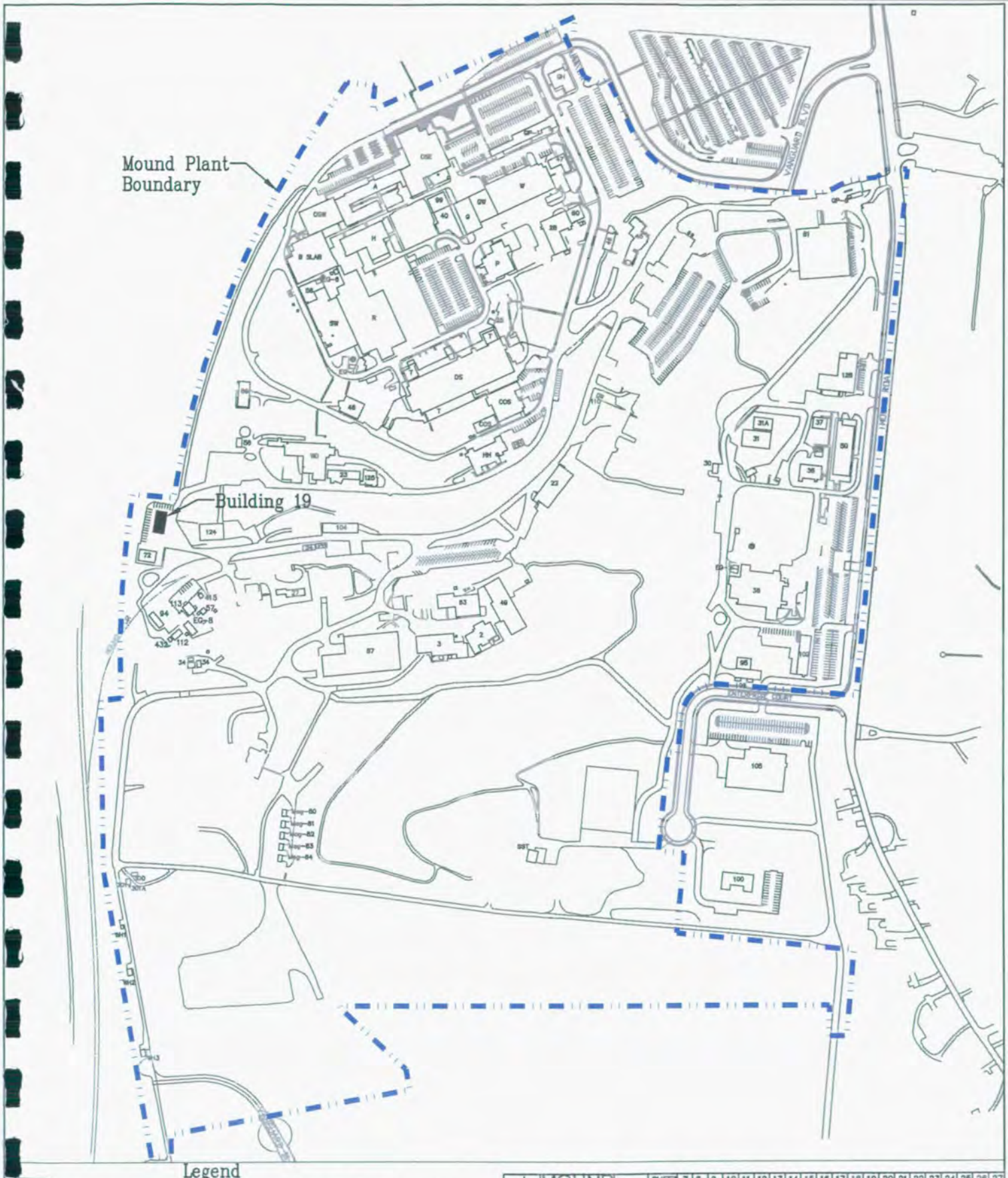
DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

Figure 2
Building 19 and Vicinity



MOUND

Environmental Restoration Geographic Information System

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

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER

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

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

Figure 1
Location of Building 19

S	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

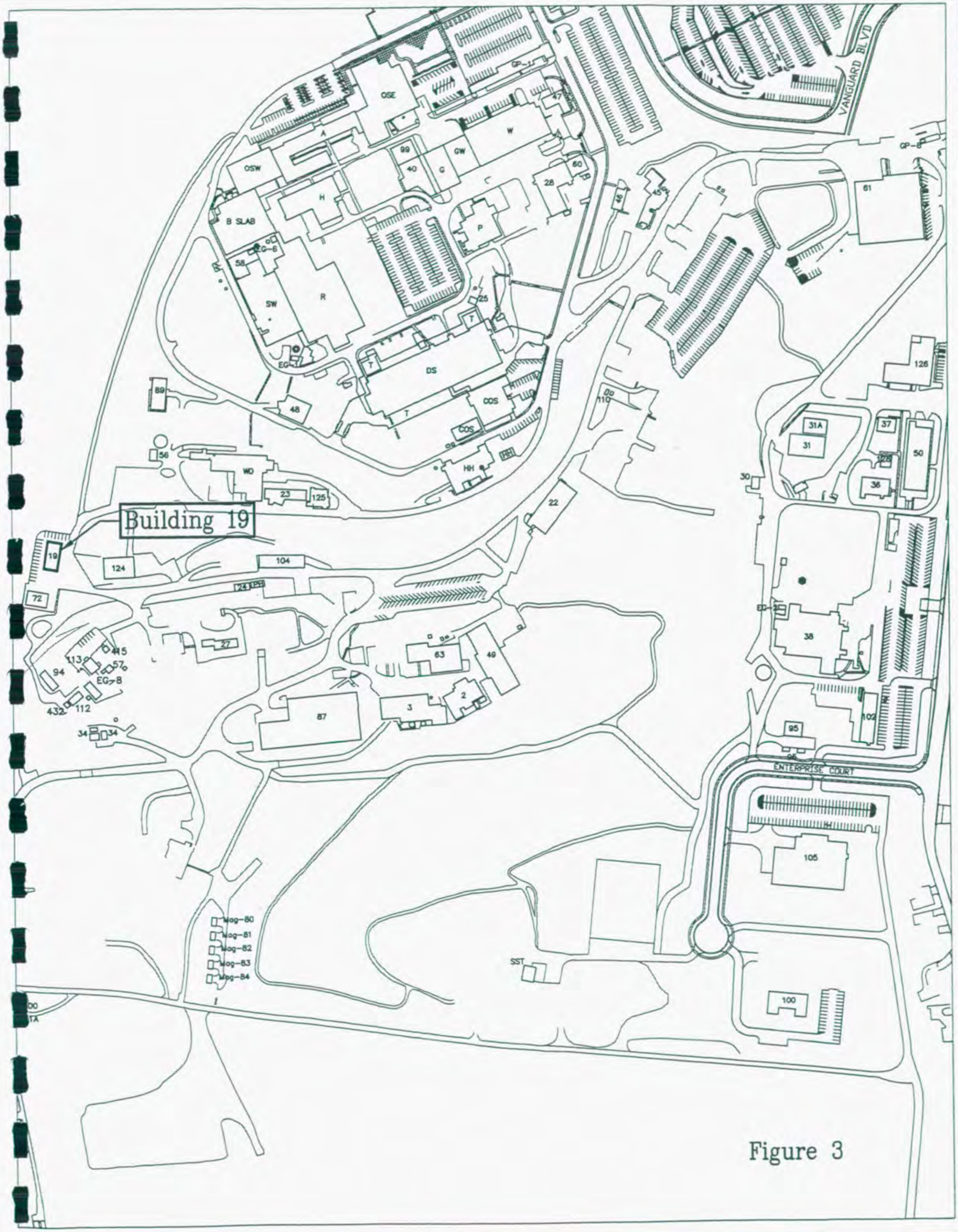

Building 19
VANGUARD BLVD
ENTERPRISE COURT
OSE
OSW
A
W
GW
G
99
40
47
60
28
H
B SLAB
P
R
SW
58
DS
COS
HH
48
89
56
WD
23
125
22
110
19
124
104
72
24
27
63
49
87
3
2
94
113
115
57
112
432
34
61
126
31A
31
37
50
36
30
38
102
95
105
100
SST
Mag-80
Mag-81
Mag-82
Mag-83
Mag-84

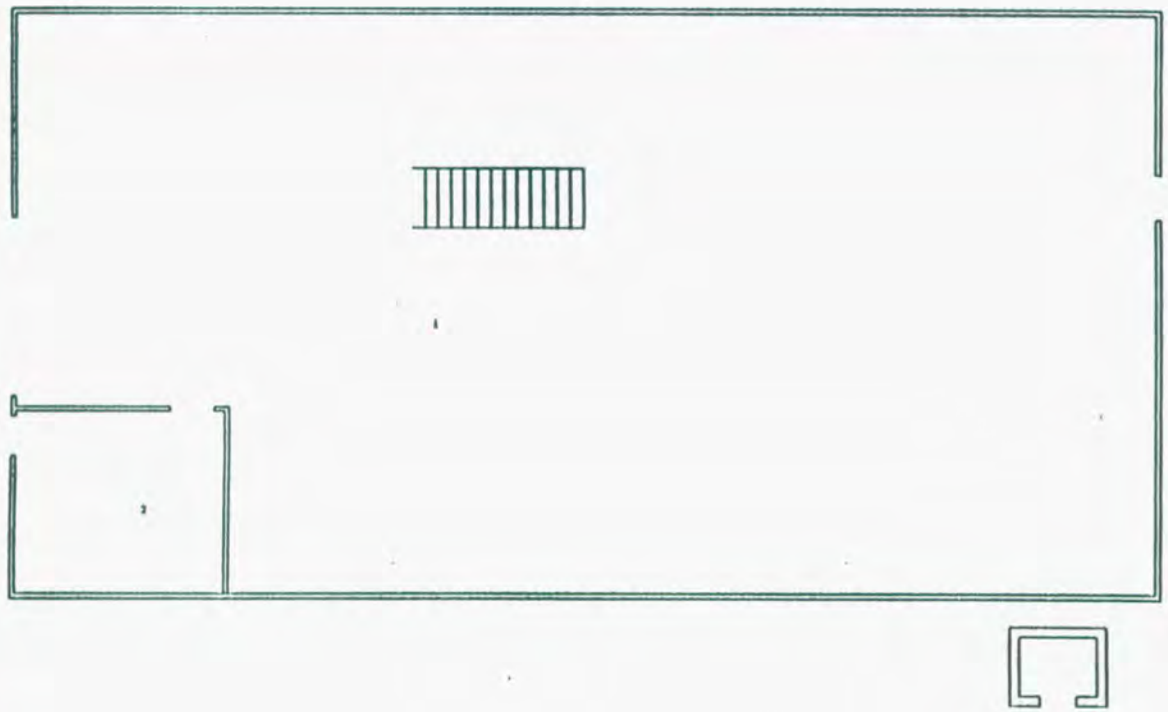
Figure 3

Figure 4
Building 19

Appendix D

Floor Plans

ISS	DATE	REVISION	BY	CHKD	ENG	LPNCE	APVD	R
0	12/12/91	ASBUILT ISSUE	DCW				DVD	



0 3' 6' 10' 20'

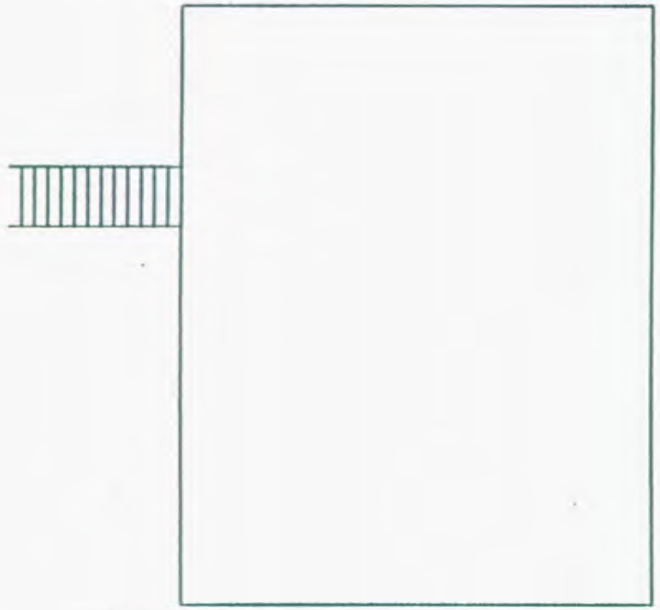
BLDG #19
FIRST FLOOR
BLDG CODE:3019

D 1 of 2

9.43-59

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED:
__NONE __TRUESDC __TCNDC __DWDC
TECH. RESP. ______ ______
GR. MGR. ______ ______
TRUESDC ______ ______
TCNDC ______ ______
DWDC ______ ______

SHEET	1	2	3	4	5	6	TITLE		(U) TITLE CLASSIFICATION
ISSUE	0	0					BLDG #19 FLOOR PLANS		
DRAWING CLASSIFICATION							SIZE	DRAWING NUMBER	JOB NUMBER
UNCLASSIFIED							C	FSC911232	12335
DWG TYPE SFP			FROM BLDG #19		CAGE 14865		SCALE AS NOTED		SHEET 1 OF 2
STATUS MD-REL-12/12/91					ORIGIN MD-BA3-V3.0				



BLDG #19
MEZZANINE
BLDG CODE:3019

DRAWING NUMBER: FSC911232	JOB NUMBER: 12335
CONFIGURATION CLASSIFICATION: UNCLASSIFIED	
SIZE: C	CAGE: 14865 SCALE: AS NOTED
	ISSUE: B SHEET: 2
STATUS: MO-REL-12/12/91	

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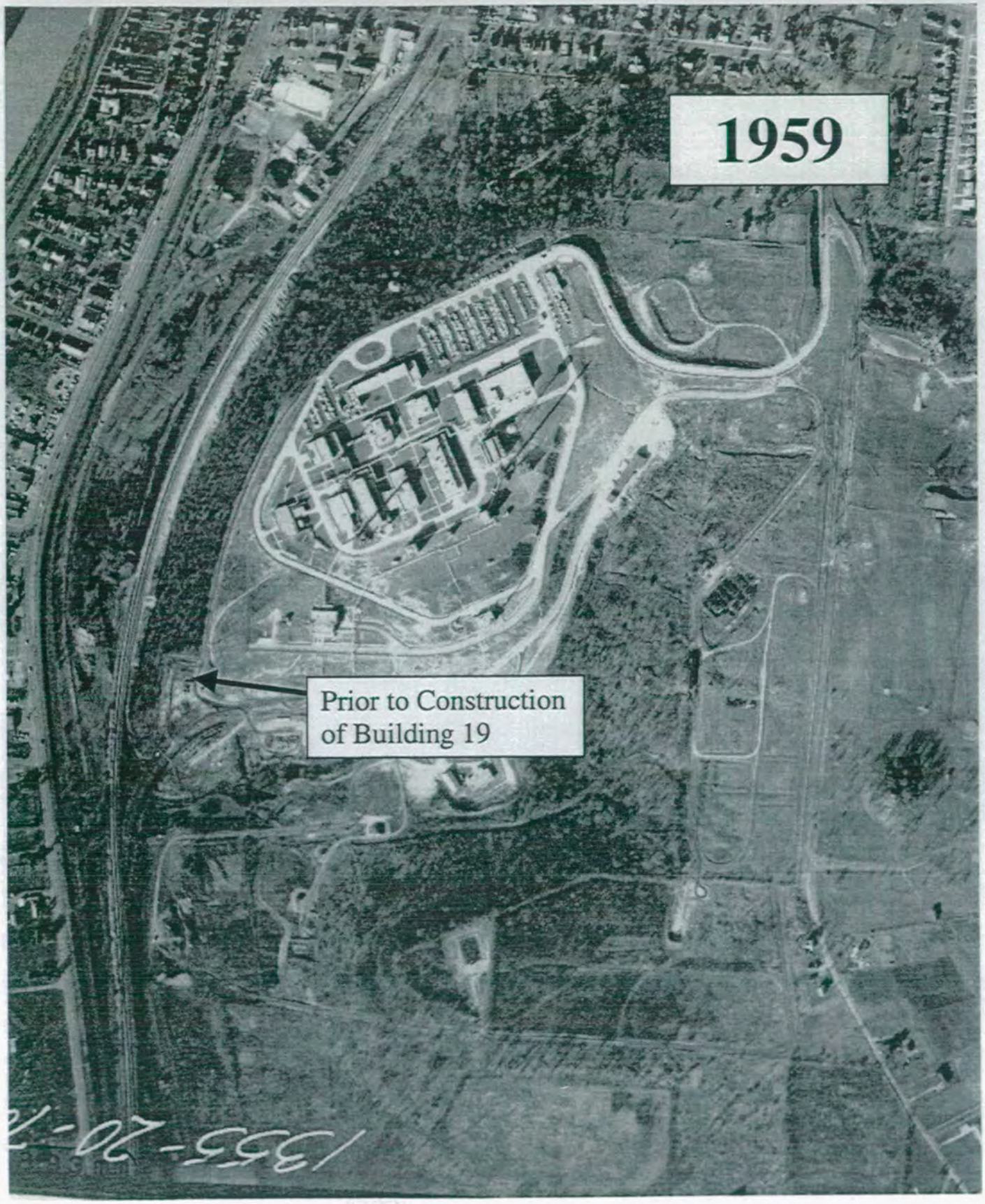
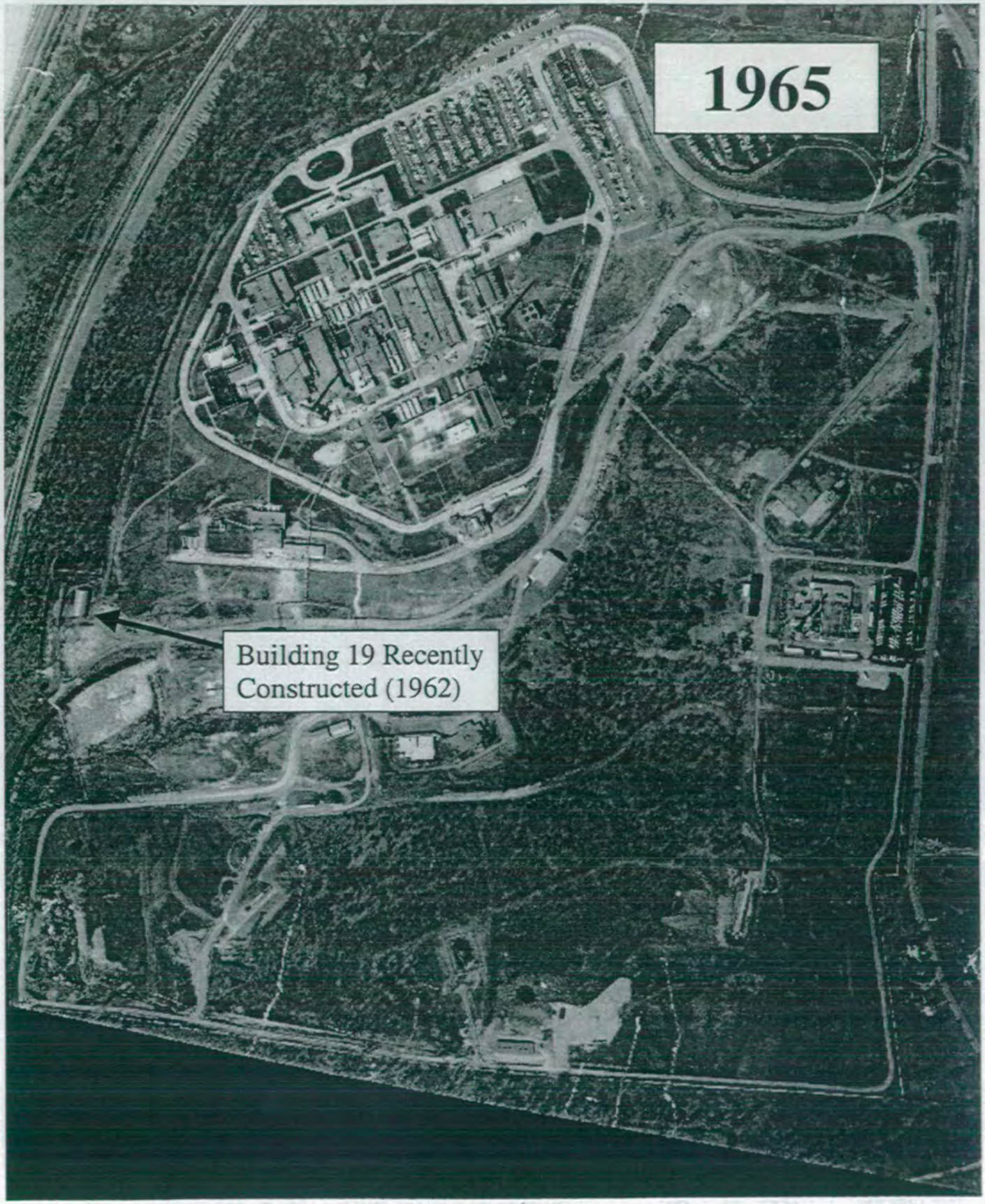
Appendix E

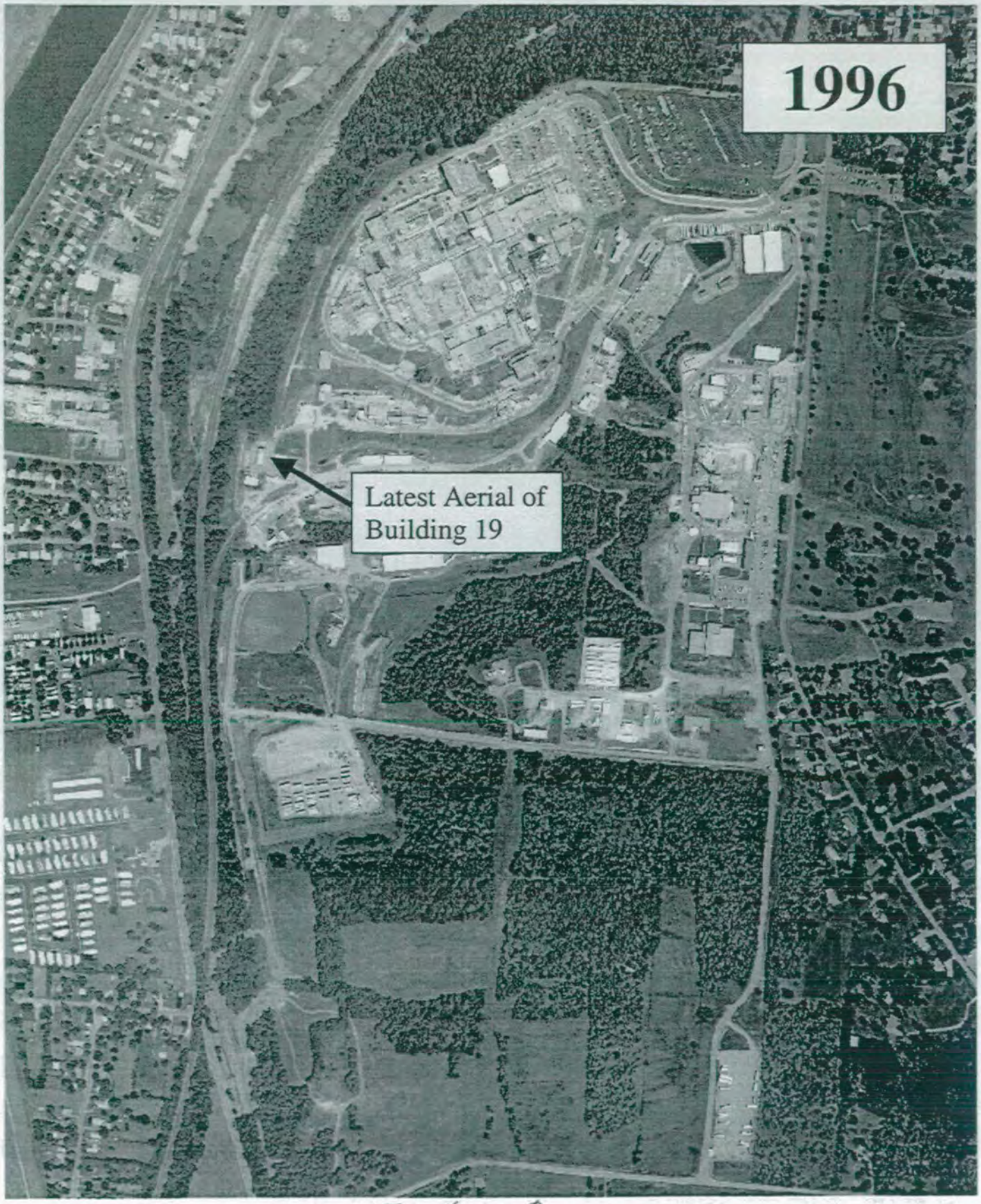
Aerial Photographs



E 1 of 3



E 243



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Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

9.43 BUILDING 19

9.43.1 Scope of Building 19 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 19 on the morning of February 8, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is presented in Attachment 1 (Section 9.43.6.1). The appraisers were accompanied by the building manager. A subsequent meeting with the process manager was held on the afternoon of February 19, 1996. The team revisited the building unaccompanied on the morning of February 26, 1996. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.43.6.2).

9.43.2 Description of Building 19

Building 19 is a one-story, 4,480-square-foot metal jumbo Quonset hut. It is a slab-on-grade structure with a 1,500-square-foot mezzanine. The location is shown in Attachment 3 (Section 9.43.6.3). The building is bounded by paved and gravel hardstand. Building 49 is located to the east of Building 19. The building contains a small office cubicle with the remainder used to store Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) soil sample drums and a packaging area for samples taken from current CERCLA activities. Floor plans are presented as Attachment 4 (Section 9.43.6.4). The building is serviced by two forced-air propane heaters and two small electric heaters, a window air conditioner in the small office area, and electric service of 240V (*Mound Facility Physical Characterization*, 12-1-93).

Building 19 was constructed in 1962 (MD-10391, *Asbestos Program Manual*, 9-14-95). The building was initially used for Mound salvage storage and salvage sales.

9.43.3 Summary of Findings

Building 19 is used principally for storing CERCLA soil sample drums dating back to 1988 and, on the mezzanine, new empty drums. In addition, it was noted that outside one end of the building (unprotected and with no secondary containment) were five 55-gallon drums labeled to contain low-level waste (LLW) and four 55-gallon drums labeled to contain low-specific activity (LSA) decontamination rinse fluids. All these drums were unprotected and had no secondary containment. Except for the nine drums and potential unlabeled asbestos-containing building material, no other issues of environmental concern were identified during the walk-through or during review of reference materials. A recommendation is included with reference to the two

F 1 of 47

propane heaters. The building is not well-maintained and the general housekeeping appeared to be less than adequate.

9.43.4 Observations

9.43.4.1 Air Emissions

There are no fumehoods. Potential sources of emissions are two propane fuel-burning space heaters located one on each side of the building. Documentation was not available from the building manager or the Environmental Monitoring Group to indicate that potential emissions have been calculated, nor have they been listed in the Mound Air Emissions Database. No permit application has been submitted for the building, as emissions are considered *de minimis*. There are no data to support this determination, as required under OAC 3745-31. There is no evidence of fugitive dust.

9.43.4.2 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.

9.43.4.2.1 Sanitary Wastewater

The building has no sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.43.6.5), the building is not serviced by a sanitary line. A portable restroom is located outside the building. Upon inspection it was found to be clean and odorless. According to the building manager, the unit is serviced by a vendor.

9.43.4.2.2 Storm Wastewater

The exterior of the building is not directly serviced by storm drains. Storm water from the building becomes surface water and is either absorbed into the ground or flows downhill to a storm water open collection ditch. 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.

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9.43.4.2.3 Process Wastewater

Radioactive process wastewater is contained in four drums outside the back end of the building.

9.43.4.2.4 Chemicals

Some chemicals are stored in Building 19. They are mostly cleaning materials, none of which are considered flammable. The list is included in the BMQ in Attachment 2 (Section 9.43.6.2). The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994. Confirmation of the 1994 inventory was not attempted as 1995 data were being compiled at the time of the appraisal.

Storage, handling, and disposal of chemicals listed in the BMQ were reviewed to assure conformance to regulations related to 40 CFR 122, 40 CFR 261-265, 40 CFR 268, and 29 CFR 1910. None of the chemicals listed in the BMQ are Clean Water Act priority pollutants. There is no evidence that chemicals stored in the building have entered the wastewater collection system. There have been no reported spills from Building 19.

Outside the building there is a flammable storage cabinet which meets standard National Fire Protection Association (NFPA) requirements. Flammable chemicals—methanol and hand cans of spray paint—were present in the building. There is no evidence that chemicals enter the wastewater system.

9.43.4.3 Potable and Service Water

Potable water and service water are not supplied to the building according to a diagram of underground utility lines, presented as Attachment 5 (Section 9.43.6.5). Bottled water is used for personal consumption.

9.43.4.4 Chemical Storage and Hazardous Materials

Chemicals are temporarily stored in the building (CERCLA support vendor was using the methanol) in accordance with applicable standards; however, food products were also stored in the same general area as the spray cans of paint. Immediate corrective action was taken by the building manager. Material Safety Data Sheets (MSDS's) are available in the building.

The building is not equipped with emergency response equipment; however, the building does have appropriate charged fire extinguishers. Each extinguisher is bar-coded. The inspection date database is maintained in the Fire Station, Building 98. There is an Emergency Evacuation Plan, and signs were posted.

There is an aboveground propane gas storage tank, without secondary containment, outside the building. There are no sumps, separators, or catch basins, in or around the building. There are no underground storage tanks associated with this building.

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The building has been inspected and is suspected to contain asbestos-containing building material (ACBM) insulation. There is no record which indicated that the insulation was tested (MD-10391, *Asbestos Program Manual*, 9-14-95). On inspection, there was no visual evidence of friable asbestos.

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

No research, development, or production activities using radioactive or energetic materials have occurred in the building (*Mound Facility Physical Characterization*, 12-1-93).

9.43.5 Solid, Hazardous, and Radioactive Wastes

Solid wastes generated are primarily paper. There is paper and aluminum can recycling to minimize solid waste. Solid wastes are removed by janitorial personnel to a local collection point, then shipped offsite to a local landfill by a service contractor. The disposal permit is maintained by the Waste Management Group. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

Outside the rear of the building, the Decontamination and Decommissioning (D&D) Group is using an area immediately outside the rear building entrance to store drums labeled LLW and LSA. The drums are exposed to the elements and have no secondary containment. By the general appearance of the full drums, including the rusty bottom rings, they may have been stored outside for a considerable period of time. According to the process manager's records; five of the drums contain mostly Pu-238 and Th-232 and to a lesser extent other low-level radioactive wastes. The wastes are mostly soils and, to a lesser extent, paper and plastics. The drum contents have not been characterized. Those records also show four drums contain decontamination rinse fluids containing LLW. Those drum contents also have not been characterized. The CERCLA vendor has also staged a partially filled drum of waste methanol, containing soap and dirt. Small quantities are added each day. The contractor employee, whose name was not obtained, did not know what would be done with the drum when full, nor did he understand questions concerning the designation of a satellite accumulation area (SAA).

According to the process manager for CERCLA, storage of materials contained in over 200 55-gallon drums in the building and management of the collected investigation-derived materials is in accordance with the Mound Plant ER Program SOP 1.15, Revision 6, same title.

9.43.4.6 Waste Minimization and Pollution Prevention

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

Programs for waste minimization are in place including aluminum can recycling. There does not appear to be additional opportunities for waste minimization activities within Building 19.

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9.43.5 Findings and Recommendations

Photographs were taken to document environmental appraisal activities. They are included as Attachment 6 (Section 9.43.6.6).

The environmental appraisal of Building 19 indicates that the following action items, in recommended priority, should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

19-1 LSA waste stored outside of Building 19 did not conform to DOE Order 5820.2A or Mound Procedure MD-81240, Issue 8, *Low Level Waste Management Procedures*. If a storage area for LSA Waste is to be continued outside Building 19 then an appropriate storage configuration, (e.g., protection of groundwater, long-term storage performance standards, and monitoring, including dosimeter placement) is required.

19-2 Documentation was not available to confirm that waste stored outside of Building 19 was characterized in accordance with DOE Order 5820.2A, 40 CFR 265, or OAC 3745-52.

19-3 CERCLA materials, i.e., samples for which characterization is incomplete, are wastes. The materials must be characterized in accordance with 40 CFR 261-265 & 268, and OAC 3745-52 to determine if the material is hazardous. If so, it must be handled accordingly.

19-4 No air emissions permit applications have been submitted to the Ohio Environmental Protection Agency (OEPA) for activities in the building. Appropriate documentation should reside with the EG&G Technology and Monitoring Group that the propane heater air emission sources have been inspected and determined to be *de minimis*.

19-5 The building insulation is exposed in the interior and has been protected from damage due to the height of the stored drums. It is recommended that it be tested to determine whether or not asbestos exists. If so, it should be properly labeled as the insulation is exposed throughout the arched building from one end to the other.

19-6 Insure that the CERCLA vendor knows the proper procedures for characterizing and disposing of the hazardous waste drum. EG&G MAT must provide oversight for subcontractors.

19-7 The area where the hazardous waste is being collected should be designated a SAA and treated as such (OAC 3745-52).

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ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 19 - SALVAGE WAREHOUSE

Appraisers:

Team #4

Name	Discipline
MARK GILLIAT	ENGINEER
MARCIA VANNET	CHEMIST
MYRON SMITH, JR	ENGINEER

Building Manager: BOB WARD (x-3821)

Process Manager: DENNY GAULT - CERCLA

GEORGE LIBBON - LSA

Date: 8 FEBRUARY 1996

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ENVIRONMENTAL APPRAISAL CHECKLIST

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

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Clean Water Act (CWA) Screening Checklist

Question	Response	Comments
Does the outside drain spouting of the building discharge directly to a storm sewer/sanitary system?	Y /(N)	If the answer to any of these questions is yes, proceed with the following checklist.
Are there sinks, toilets and floor drains in the building?	Y /(N)	
Are chemicals being used in the building?	(Y) N	
Is there a process which discharges to the storm or sanitary system?	Y (N)	

CWA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 122 Appendix D Table V	If chemicals are used/stored in the building, are they on the attached list? Are they properly contained?	(Y) / N (Y) / N	
	Is the building in operation? What are the processes and where do they discharge to?	(Y) N _____ _____	CERCLA Soil Sample Drums inside LLW & LSA outside
	Do the floor drains, sinks & toilets appear to be draining properly?	Y / N	None
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	Sanitary Storm	None
	Is there a sump/pit in the building? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	Y /(N) _____ _____ Y / N Y / N	
	Are there any manholes, catch basins, drains, or fill pipes in or around the building? If so, are there any unusual appearances, colors, and/or odors? Describe in comment section. Can chemicals flow into the drain?	Y /(N) Y / N Y / N	

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9.43-12

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Clean Air Act (CAA) Screening Checklist

Regulatory Guideline	Question	Response	Comments
	Are there any rooms that have air emissions sources that vent to the outside of the building, e.g., fumehoods, equipment? If so, note the rooms.	(Y) / N	PROPANE SPACE HEATERS
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)	

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CAA Checklist

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

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

CAA Checklist

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

TABLE A

Process Source	Room Number	Hood Number	In Database	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Hours/Yr. Operation	Air Emissions
Propane space heaters	—	N/A	Y / (N)	(Y) / N	Propane	Unknown	N/A	24 hrs/day during cold weather, no log	De minimus
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					

Source:

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9.43-13

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

9.43-14

Hazardous Materials (HM) Screening Checklist

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

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.1200(b,f)	All containers of hazardous chemicals shall be labeled as to the identity of the chemical and the appropriate hazard warnings.	(Y) / N	
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	Y / N	NONE FOUND
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	GENERAL HOUSECLEANING RECOMMENDED
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	Y / N	N/A
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	(Y) / N	
29 CFR 1910.106(d)(4)	Inside Flammable/combustible storage rooms must meet the following: 4 in. raised sill or trench that drains to a safe area, liquid tight wall/floor joints, self-closing doors, gravity or mechanical exhaust providing 6 room changes/hr., exhaust switch located outside room, at least one 3 ft. aisle; no cracks in secondary containment.	Y / N	N/A

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.106(d)(7)	All flammable/combustible storage locations have at least one 12-B portable fire extinguisher located outside and within 10 ft. of a door opening into any room for storage. No smoking signs are posted.	Y / N	N/A FIRE EXTINGUISHERS ARE CHARGED
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	Y / N	NO WATER
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	ONLY THE PROPANE TANK OUTSIDE
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	EMPTY DRUMS ON THE MEZZANINE
CGA P-1 3.5.8	All compressed gas containers in service or in storage shall be stored standing upright and the container shall be secured.	Y / N	N/A
CGA P-1 4.2.2	Oxygen cylinders shall be separated from flammable gas containers or combustible materials a minimum of 20 ft. or a noncombustible barrier 5 ft. high.	Y / N	N/A
29 CFR 1910.104(2)(10)	Oxygen stored as a liquid shall be on a noncombustible surface. Asphalt is considered combustible. Wood and long dry grass shall be cut back 15 ft. from the container.	Y / N	N/A
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	N/A
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	(Y) / N	
	Is there an emergency response plan available?	Y / (N)	

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9.43-15

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

9.43-16

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
19	50	Propane	50	(Y) / N	Y / (N)	Y / (N)	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N

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Source: Visual

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Safe Drinking Water Act (SDWA) Screening Checklist

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

SDWA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 95-02 (A)	Do actual or potential cross-connections exist between potable (light green) and service water (dark green)?	Y / N	Blank
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	

14 by 15 ft

TABLE C—Water Fountain Survey

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

9.43-17

Source: _____

9.43-18

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

RCRA Screening Checklist

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

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 52-11	Has any material generated been characterized RCRA hazardous? Was characterization 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	RECLA SOIL SAMPLE DRUMS STORAGE;
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)	NOT TESTED NOR CHARACTERIZE. DRUMS LABLED AS LLW & LSA SHOULD BE REMOVED FROM OUTSIDE BLDG

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* Contents of DRUMS NOT KNOW OTHER THAN "SOIL Sample" RANGING FROM 1988 TO PRESENT

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
I. HAZARDOUS WASTE STORED IN CONTAINERS			
	Is there an area in the building that could qualify as a Satellite Accumulation Area? Is it treated as such?	Y / N Y / N	NONE IN BLDG DRUMS ON HEADSTAND OUTSIDE QUALIFIES
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)	OUTSIDE AREA HAS 5-55 GAL DRUMS LLW - Pu^{238} & Th-232 4-55 GAL DRUMS OF DECON RINSEWATER MARKED LSA
	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	RUSTY BOTTOM RINGS
	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	N/A
	Are containers kept closed and locked except during filling?	Y / N	SEALED
	Are containers moved within 3 days of being filled?	Y / (N)	

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

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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:		CONTENTS HAVE NOT BEEN CHARACTERIZED EXCLUSION NOT KNOWN
	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	~~EE~~
	If no go to next section.		
	If yes, note.		
	For Building 23, Building 72 & Burn Area use special checklist.		

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
II. HAZARDOUS WASTE STORED IN TANKS			
OAC 3745-52-32 (B)	Has any chemical waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y (N)	NONE STORED IN A TANK
	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	Blank
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Has any hazardous waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / N	
	If the answer was no, then proceed with the following:		
	Has the tank or piece of equipment had an integrity assessment?	Y / N	
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Is there a closure plan?	Y / N	
	If yes, then note.		
OAC 3745-67	Has any of the waste been managed in a surface impoundment? If yes, then note. Go to the next section.	Y / N	

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

RCRA Checklist

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

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General Comments:

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Asbestos Screening Checklist

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

Asbestos Checklist

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

Regulatory Guideline	Question	Response	Comments
ADAPTED FROM TSCA ACBM IN SCHOOLS:			
	Has this building been characterized either through process knowledge, by analyses, or by inspection to determine if it contains asbestos? If no for this building or area note this conclusion in the comment section.	Y / N	SURVEY DID NOT DETERMINE SUSPECTED
	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	Blank
40 CFR 61.152(b) (1)	ACBM is treated with water in accordance with 40 CFR 152(b)?	Y / N	
40 CFR 61.154	Is friable asbestos adequately wetted during stripping? Or, has an adequate ventilation and collection system been installed?	Y / N	
40 CFR 61.152	Is wetting continued until the waste friable asbestos is collected for disposal?	Y / N	

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SURVEY CONDUCTED. BUILDING INSULATION NOT TESTED NOT LABELED, MAY CONTAIN

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

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

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

TSCA Checklist

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

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Building Name: 19 Appraisers: Team #4 Date: 2-8-96

TSCA Checklist

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

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

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TSCA Checklist

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

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GENERAL COMMENTS:

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Low-Level Waste and Transuranic Waste Screening Checklist

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

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
Low-Level Waste			
DOE Order 5820.2A Chapter III	Can any waste generated in, or from, this building be characterized either through process knowledge or by analyses to determine if it is LLW ? If the answer is no, note. If the answer is yes, proceed with next section.	(Y) N	
DOE Order 5820.2A Chapter III.	Are any of the materials noted by inspection LLW? If no, The audit would stop here, because there are no LLW. If yes, note the location of the management unit, and the method of management, and proceed with the section below.	(Y) N	9-55 gallon Drums located against the rear end (west) of the Quonset Bldg.
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)	open to the weather no containment
DOE Order 5820.2A Chapter III, 3.b.	Has monitoring been conducted in this area in accordance with DOE Order 5820.2A in order to evaluate the area against the performance standard?	Y / (N)	
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N	

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team # 4 Date: 2-8-96

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Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A Chapter III, 3.d.	Based on field data, is the characterization of the materials in this area sufficient to assure proper segregation to assure proper segregation, treatment, storage, and disposal?	Y (N)	NOT CHARACTERIZED
	Based on field data does the characterization as documented at the time of generation of the waste ensure that the actual physical and chemical characteristics, and major radionuclide content of this material are recorded and known at all stages of the waste management process?	Y / N	
	Do characterization data include the following:		
	Physical and chemical characteristics of the waste?	Y / N	
	Volume of the waste (including solidification and absorbent material)?	Y / N	
	Weight of the waste (including solidification and absorbent material)?	Y / N	
	Major radionuclides and their concentrations?	Y / N	
	Packaging date, package weight, external volume?	Y / N	
	How were the concentration of radionuclides determined? Direct methods?		
	How were the concentrations of radionuclides determined? Indirect methods?		
DOE Order 5820.2A Chapter III, 3.h	Is the storage configuration in long term storage sufficient to meet the performance standard?	Y / (N)	
	Are records maintained at the facility enabling this waste to be traced from its origin?	(Y) N	

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Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Low-Level Waste and Transuranic Waste Checklist

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

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Environmental Appraisal Checklist

Building Name: 19 **Appraisers:** Team #4 **Date:** 2-8-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A, Chapter II, 3.b	Has the TRU waste been assayed or otherwise evaluated to determine its radioactive content prior to storage?	Y / N	
	Has the TRU waste been characterized or otherwise evaluated to determine if hazardous waste is present?	Y / N	Blank
	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	

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Low-Level Waste and Transuranic Waste Checklist

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

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GENERAL COMMENTS:

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9.43-32

Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Waste Minimization/Pollution Prevention Activities Screening Checklist

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

Waste Minimiaztion/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Based on available information and a walk through, are there any apparent opportunities to curtail the consumption of raw materials (including but not limited to paper, chemicals, electricity, and etc.). If yes, list candidate areas in the comment section.	Y (N)	
	Are there solvent wastes?	Y / N	
	Is vehicle maintenance performed?	Y / N	
	Are oils used ?	Y / N	
	Are these corrosive wastes?	Y / N	
	Are there sludges?	Y / N	Blank
	Are there halogenated organic (nonsolvent) wastes?	Y / N	
	Are metals recovered from wastewater?	Y / N	
	Is waste sludge generated?	Y / N	
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N	
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

9.43-34

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	

Blanks

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Waste Minimization/Pollution Prevention Activities Checklist

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

Blank

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Environmental Appraisal Checklist

Building Name: 19 Appraisers: Team #4 Date: 2-8-96

Waste Minimization/Pollution Prevention Activities Checklist

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

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Building Manager's Questionnaire

Building Name: 19 Building Manager: R.A. Ward Phone: 3821 Date: 12-07-95
Alternate: K. KOEHLER Phone: 4886

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

NONE

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

NONE

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

4. Provide a physical description of the building.

Building is a one-story, metal Quonset hut with an area of 4,480 ft^2. It contains an office mezzanine. There is forced-air heating (propane) and a window air conditioner. Building is not contaminated with any radioactive or energetic materials.

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

5. Provide a drawing of the building.

Attached (mezzanine only).

6. What is the current building use?

Building warehouse and one office.

Source: Mound Building, 5-9-95

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

USED BY CERLA - STORAGE FOR PLASTIC DRUMS & ~~LOW LEVEL~~ SAMPLE WAS.
WESTON IS USING THE BUILDING FOR OFFICES & LAB AREA

Source: Mound Buildings, 5-9-95

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Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Process(es) Housed: ~~Salvage and sales~~ STORAGE & OFFICE SPACE FOR WASTE MANAGEMENT PERSONNEL, CERLA, & WESTON Company
How Wastes Are Generated:

No wastes generated.

Contact:
Phone #

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

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Building Manager's Questionnaire

Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

10. Does the building have air emission sources? No

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

Source: Mound Air Emissions Database 11/30/95

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Building Manager's Questionnaire

Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95.

12. For existing permits are emissions monitored? At what frequency? Where are the records maintained?

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? Yes (No)
Is there bottled water? (Yes) No

14. Does the building discharge to the storm sewer? Yes No
Where? ? no floor drains no water

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

16. Has an asbestos survey been conducted? Yes
What are the results? Suspected none observed

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

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Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

17. Does the building contain transformers or capacitors? No

Source: PCB ANNUAL DOCUMENT LOG

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

Source: PCB ANNUAL DOCUMENT LOG

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

Chemical Name	State	Amount (MAX)
NONE		

Source: Chemical Inventory 1994

Building Manager's Questionnaire

Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

Chemical	Amount	Clean-up Measures

Source: _____

21. Where do waste chemicals go?

NONE

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

STORAGE CABINET OUTSIDE

23. Where do excess janitorial supplies go?

BLDG #72

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

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9.43-46

Building Manager's Questionnaire

Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

NONE propane tank

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
Antimony Powder	15.4
Antimony, Berrlium Powder Mixture	3.3
Berrvlium Pellets	10.9
Berrvlium Powder	6.5
Berrylium Rods	45.9
Berrylium Rods	99.3
Bismuth Chunk	23.1
Boron Powder	2.2
Bransonic Ultrasonic Cleaner	6.7
Calcium Sulfate	22.9
Eppert Oil Dissolver 200	119.7
Henry Latex Liquid Additive	12.5
Mercury Instruments	12.8
PL500 Adhesive	9.1
Spartan SC-200	9.2
SYN-Cide NR	26.1
Tantalum Wire	2.4
Zip Cleaner	79.2
Mercury Thermometer	0.1

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

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Building Manager's Questionnaire

Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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

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

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

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

Source: _____

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Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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9.43-49

Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: _____

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

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Building Name: 19 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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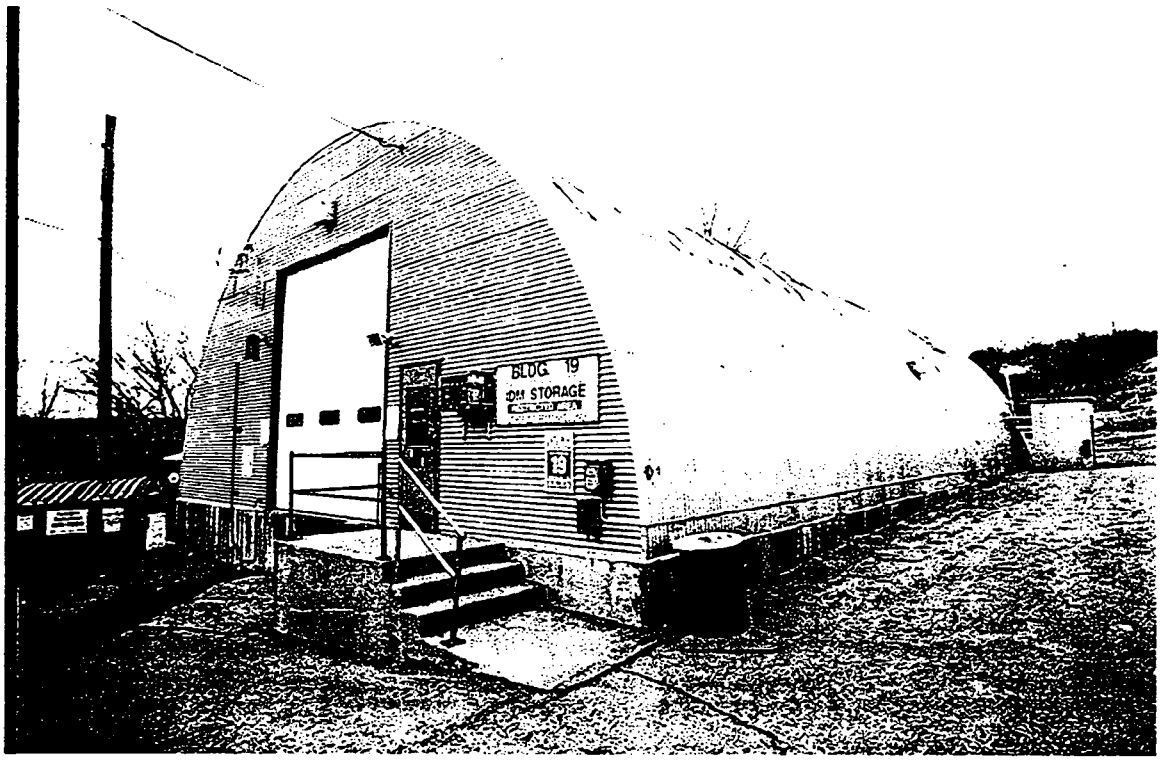
Appendix G

Radiological Information

Final Status Report

For

Building 19



Prepared by: Roderick C. Case / Date: May 14, 2003

Reviewed by: Galen Tomlinson / Date: 5-14-03

Approved by: A. Steven Collas / Date: 5-14-03

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1.0 Historical Review

Building 19 is a prefabricated Quonset hut-type building. It has also served or has housed a variety of functions, including processing related activities, as well as administrative functions such as storage or materials management and offices. As indicated by 1960s design drawings, Building 19 was actually relocated to its current location from its original location at the Mound site in the plant valley near Buildings 2 and 3. That location was not the first time this building had been used for AEC activities. Prior to the building being located at the Mound site, Building 19, named the "Quonset Hut" or "Building L", was located at the Manhattan Project site called "Dayton Unit III" (1946 to 1949). Dayton Unit III, a precursor site to the Mound site, was located at First and Euclid in downtown Dayton, Ohio on the grounds of the Bonebrake Theological Seminary.

Building 19, at the time it was erected at its current location was approximately 3,200 ft^2. The construction of a mezzanine in the mid-1960s added approximately 1,500 ft^2 in floor space. A second addition in the later 1960's added an approximately 32 ft^2 "valve room" at the northeastern corner of the building.

In its original location at Dayton III, the majority of the building was designated as laboratories. While the specific processes are unknown it is presumed that polonium (Po-210) was the focus of much of the work.[1] It is noted that the Quonset Hut itself was too contaminated to be released when the Dayton III facility was closed. The building materials were sent to Mound where it was reassembled at its second location.[2]

At this location, the Quonset Hut was used to store drums of radioactive wastes from several Mound missions. At one time, approximately 600 drums of radioactive waste were stored in this facility. According to Reference 1, this material was later shipped off site and at some point (~1963) the structure was dismantled and reassembled at its present location.

Building 19 was used as a storage facility for various items and supplies. Until recently, it was utilized as a central location to disposition excess items and equipment. There is evidence that drums of LSA material were stored inside and outside Building 19 and some of these may have been leaking.

A complete history of Building 19 can be found in Reference 1.

1.1 Areas of Particular Concern

Building 19 has been shut down and all equipment and fixtures have been removed. Characterization surveys were performed to determine the nature and extent of residual activity. Three issues were identified as potential areas of concern.

A. Residual activity from the Polonium process.

B. Corrugated steel survey

C. Fixed floor contamination

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[1] *Bonebrake Theological Seminary Site*, USAEC, FUSRAP Preliminary Assessment, September 2000

[2] *Operable Unit 9, Site Scoping Report: Volume 3*, PRS 74

A. An evaluation was made to determine if any residual activity was present from the original Polonium mission at Dayton III. An extensive search of historical documents was conducted. Building 19 has a history dating back to the early days of the Manhattan project in Dayton where the first attempts and successes in producing Po-210 were achieved.[1] Early efforts began with Pb-210 that was obtained from lead dioxide. This process was abandoned in favor of the Bismuth irradiation process. Both of these processes took place in this building. This structure reportedly was moved to Mound when the project was closed in Dayton. About 12 years later, it was moved again to its present location.

It is not clear if all of the building parts are from the original building. Visual evidence of the siding indicates that the siding material was manufactured in 1961 (Attachment 1). These panels were manufactured by Inland Steel Company (now ISPAT Inland, Inc.). A USDOE Buildings Report (3/25/2001) lists Building 19 as being purchased and built in 1963. This is consistent with the building history at its present location. An evaluation was made to determine whether any remaining Pb-210 and associated Po-210 are from natural sources (U-238 Chain) or production sources.

The structural frames of the building are probably from the original building. There is no evidence that these frames were ever repainted to conceal contamination. The paint thickness was measured and found to be a single layer of primer and a finish layer. A sampling plan was developed (SPF 19-03) to scan segments of the building arches for alpha activity and then collect a sample of the paint at each location. The samples were composited and analyzed for Pb-210 and Po-210.

To determine if Pb-210/Po-210 is from the natural chain of U-238 or from a production source, a comparison of the specific activity levels between Pb-210, Po-210, and U-238 is necessary. Pb-210 and Po-210 will always be in equilibrium regardless of the source of Pb-210, since Pb-210 $t_{1/2}$ is >> than Po-210 $t_{1/2}$. [2]

The presence of Pb-210/Po-210 in the environment has its origin in the soil where U-238 is found at approximately 1pCi/g. [3] If the Pb-210 is from the U-238 natural chain, the specific activity (pCi/g) of U-238, Pb-210 and Po-210 should be approximately the same because they are in secular equilibrium. [4] If the Pb-210 is from a production source, the specific activity level (pCi/g) of both the Pb-210 and Po-210 will be statistically higher than that of U-238 (i.e. no equilibrium). [5]

The average background activity of U-238 in the soil around Mound is 1.49 pCi/g. [6] Both the Pb-210 and the Po-210 in the sampled material were within one standard deviation ($\sigma \doteq 0.44$) of U-238 as shown in the following table:

---

[1] *Polonium*, Harvey V. Moyer, July 1956

[2] *Radioactive Equilibrium*, http://www.epa.gov/rpdweb00/understand/equilibrium.htm#secular

[3] *Radioactivity in Nature*, http://www.physics.isu.edu/radinf/natural.htm

[4] *Radioactivity in Equilibrium*, http://www.med.harvard.edu/JPNM/physics/nmltd/radprin/sect2/2.2/2_2.3.html

[5] GroupWise mail from Y. Zhu to R. Case, 3/19/03

[6] *Gamma Spectroscopy Analysis of the Surface Soil for Background Radionuclide Content in the Vicinity of the (EG&G) Mound Plant*, A. Motahamelian, et al, May 1990

G30200

Sample Results from SPF 19-02		Average Background
Pb-210 = 1.57 pCi/g	Po-210 = 1.2 pCi/g	U-238 = 1.49 pCi/g

These results indicate that the Pb-210/Po-210 observed is from natural U-238 chain.

B. This building is a typical "Quonset Hut" design where corrugated galvanized steel is attached to curved ribs to form the sides and roof of the structure. The nature of this surface is such that a flat detector is not in contact with a large portion of the surface due to the height of the corrugations. An alpha particle @ 5.5 MeV (Pu-238) can travel up to 4 centimeters in air.[1] Although the average depth of the corrugations is only 1.27 cm, the detector efficiency to measure alpha is less than it is for a flat surface.[2]

The maximum efficiency of a probe is realized when the geometry and characteristics of the surface being measured are the same as the calibration source used to calibrate the instrument. Since it is not practical to construct a source with a corrugated surface, it is necessary to correct the observed readings by a factor that relates the actual surface to the calibration geometry.

Two approaches were explored to relate the actual surface activity to the measured values. The first approach corrects the probe "window" area to the effective surface area. The second approach utilizes efficiency reductions calculated on observed responses at standard source to detector distances.

Method 1 (Area Correction)

A small (8"X10") section of siding was extracted from Bldg 19 to evaluate the surface geometry for survey with a 43-20 GFP probe. It was assumed that this was a representative piece and that all corrugations throughout the building are similar. The curvature of the building shell is shallow enough not to present an additional concern.

In order to calculate the effective probe window, it is first necessary to determine the surface area presented to the probe (See Figure 1). This was done empirically by applying masking tape at three evenly spaced locations across the corrugations and in complete contact with the surface. Peaks were labeled A, B, and C. The peak of each corrugation on the sample was then marked such that the sample and the tape were marked together. Tape strips were numbered 1, 2, and 3. The distance between the corrugations was then measured and recorded as shown in Table 1. The depth of the corrugations was also measured at the six depression locations on each tape strip and averaged.

A 43-20 probe was placed on the sample such that the probe was centered between the three corrugations and the probe outline was drawn on the sample. A depth gauge was set at ¼" (0.64 cm) and a mark was made on each tape strip at this distance from the peak. Each piece of tape was then removed and extended. The distance between the markings was measured and recorded for each tape strip as shown in Table 2. The average distance represents the true width dimension of the surface. The length dimension (20.3 cm) is not affected by the corrugations.

[1] *Handbook of Health Physics and Radiological Health*, Third Edition,1998, Section 6-35, Figure 6.7
[2] NUREG 1507, Section 4.2, Source-to-Detector Distance, *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions*, 1997

The area within ¼" of the probe face can now be calculated using an adjustment factor of 0.7387 to relate the physical probe dimensions to the probe window area (181cm / 245.02 = 0.7387). The calculated effective surface area is (7.49 cm) (20.3 cm) (0.7387) = 112.3 cm^2. The effective surface area is then used in the cpm-dpm/100 cm^2 conversion calculation to obtain reportable results.[1] This is a conservative estimate since it can be assumed that some percentage of alpha activity will be measured from the excluded areas > ¼" from the probe. This method requires the probe to be oriented parallel to the corrugations.

Table 1

	On Tape	On Model
Tape 1	14.80 cm	13.7 cm
Tape 2	14.65 cm	13.7 cm
Tape 3	14.70 cm	13.7 cm
Average	14.72 cm	13.7 cm

Area Factor = 14.72cm/13.7cm = 1.0745 = 7.4% increase in area

Table 2

(cm)	Peak A	Peak B	Peak C	Total
Tape 1	1.4	4.65	1.7	7.75
Tape 2	1.3	4.45	1.6	7.35
Tape 3	1.3	4.30	1.5	7.37
Total	4.0	13.4	4.8	22.5
Average	1.33	4.47	1.6	7.49

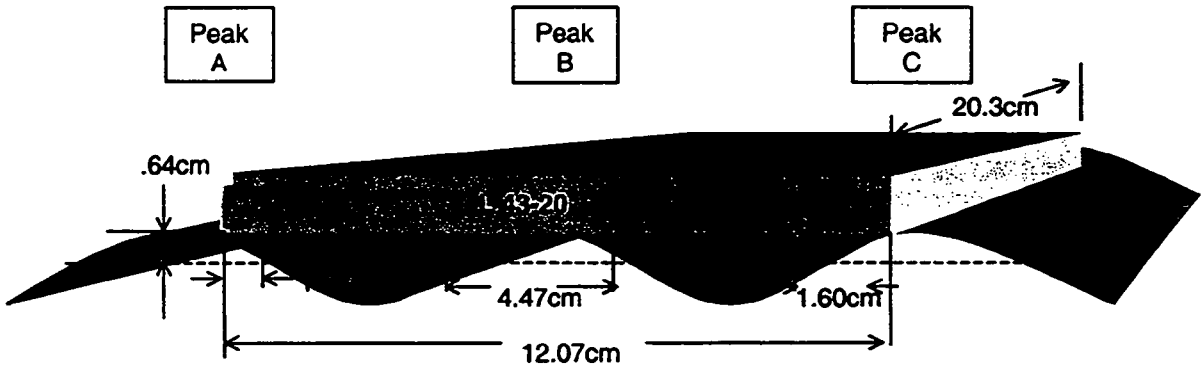

Figure 1

Probe: L 43-20 GFP
Dimensions: 12.07 cm X 20.3 cm = 245.02 cm^2
Active Area: 181 cm^2

[1] MD 80036, Issue 30, Op.No. 30060, *Performance Testing and Operation of the Ludlum 2350-1 Data Logger*

Method 2 (Efficiency Correction)

The efficiency of an instrument relates the measured activity to the actual activity of the source. During calibration, the apparent source activity (2π surface emission rate of a NIST traceable source times 2) is compared to the measured response at 0.5 cm from the source in accordance with MD 10215, Issue 25, Operation 207. The total (4π) efficiency is used to convert the measured activity in counts per minute (cpm) to disintegrations per minute (dpm).[1] However, the corrugated steel measurements present varying source-to-detector distances. NUREG 1507, Table 4.6 provides the reduction in gas proportional detector response (normalized) for Th-230 (alpha emitter) as a function of distance from the source:

NUREG 1507, Table 4.6

Distance	Detector Response
Contact	1
0.5 cm	0.76
1 cm	0.58
2 cm	0.10

The corrugated steel has a peak-to-valley distance of ≈1.27 cm (Figure 1). The goal is to determine a factor that represents the average source-to-detector distance offered by the corrugated steel. For simplicity, assume that the midpoint of the peak-to-valley distance represents the average distance (0.64 cm). Extrapolating from Table 4.6, the normalized response at a distance of 0.64 cm is ≈ 0.71. Since the probe is calibrated at a distance of 0.5 cm, the correction factor is 0.71/0.76 or 0.934. Therefore, the total corrected efficiency for the alpha measurements would be given by 0.934 times the total efficiency. This method does not require the probe to be oriented with the corrugations since the average distance from the probe will not vary with probe position.

Examples of each method were tested as shown below and the results are compared in Table 3. The counts per minute are typical of background values on various surfaces and an average total efficiency of 0.172 was used. The formula for converting counts per minute to disintegrations per minute is:

$$C = \frac{R}{(E_t)\,(A)}$$

Where:

C = concentration of surface contamination in dpm/100 cm^2
R = the measured or net count rate in cpm
E_t = total 4π efficiency
A = probe area / 100

For Method 1, the calculated effective probe area used was 112.3 cm^2 and the total efficiency used was 0.172. Therefore,

[1] Calculating Total Surface Activity – The ISO 75 03 Approach, Paul Frame, ORAU

$$C = \frac{2}{(0.172)\ (1.123)} = 10 \text{ dpm/100 cm}^2$$

For Method 2, the probe area used was 181 cm^2 and the total efficiency (0.172) was corrected by a factor of 0.934. Therefore,

$$C = \frac{2}{(0.172)\ (0.934)\ (1.81)} = 7 \text{ dpm/100 cm}^2$$

Table 3

Counts per Minute	Method 1 (dpm)	Method 2 (dpm)
2	10	7
4	21	14
6	31	21
8	41	28
10	52	34

Method 1 is more conservative since a higher reported value is obtained from the same measured counts. After review by the Core Team, it was agreed that Method 1 (Area Correction) would be used. The Final Status Survey Plan (SPF 19-04) was written to correct all alpha direct measurements by using an effective probe area of 112.3 cm^2.

C. Numerous "hot spots" were detected while performing a characterization scan of the floor surface (SPF 19 – 01). The highest spot observed was 4000 dpm/100 cm^2. These areas were sampled and analyzed by acid etching an area of approximately 181 cm^2 (RSDS# 03-TF-0029). The major isotopes observed were Pu-238 (59%), Th-232 (18%) and Th-228 (19%). A remediation plan was implemented to decontaminate these areas. Areas where contamination was embedded and that were not successfully decontaminated were removed by saw cutting (See RSDS# 03-TF-0060). Some sections of the sill plate were also found contaminated. These sections were cut out and disposed of as LSA waste.

To prepare the building for final status survey, the mezzanine, office walls, and all insulation was removed.

2.0 Survey Objectives

The objective of final status survey plan is to determine whether or not the residual radioactivity of the remaining surfaces of building materials associated with Building 19 satisfy the site release criteria. This is accomplished by measuring the fixed and removable contamination on building surfaces. The survey data is compared to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined in Survey Plan Form 19-04.

Table 4 lists the permissible surface contamination guideline values as stated in DOE Order 5400.5. These limits are the Derived Concentration Guidelines (DCGL's) for building and structure release.

Table 4

Allowable Total Residual Surface Contamination (dpm/100 cm^2)*				
Radionuclides*		**Average***	**Maximum***	**Removable***
Group 1	Transuranics, I-125, I-129, Ra-226, Ac-227, Ra-228, Th-228, Th-230, Pa-231	**100**	**300**	**20**
Group 2	Th-Natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	**1,000**	**3,000**	**200**
Group 3	U-Natural, U-235, U-238 and associated decay products, alpha emitters	**5,000**	**15,000**	**1,000**
Group 4	Beta-gamma emitters (Radionuclides with decay modes other than alpha emission or spontaneous fission) except for Sr-90 and others noted above	**5,000**	**15,000**	**1,000**
Tritium		**N/A**	**N/A**	**10,000**

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

The average activity levels shown in Table 4 assume that the residual contamination is uniformly distributed across the survey unit and is the $DCGL_w$ for this survey. The maximum activity shown in Table 1 represents the Elevated Measurement Comparison ($DCGL_{emc}$) for small (<100 cm^2) areas of activity that may be observed in the survey unit while scanning.

2.1 Survey Design

The final status survey was designed to evaluate the remaining structural surfaces in this building. The areas were arranged into survey units based on characterization and remediation results in accordance with Reference 2.

The floor was divided into three survey units and given a Class 1 designation. Interior walls to 6' were given a Class 2 designation. Since the variability is expected to be small within a survey unit, the Type I error chosen is $\alpha = 0.05$ and the Type II error is $\beta = 0.01$. The number of data points is determined by calculating the relative shift (Δ/σ) from the DCGL value, the lower bound of the gray region (LBGR), and the standard deviation (σ)

of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). For this survey plan, the LBGR is set at 50% of the $DCGL_w$. The standard deviation based on characterization data was estimated to be 17 dpm/100 cm^2 and the relative shift was calculated as 2.95. The required number of data points (n = 20) for the Class 1 & 2 survey units was obtained from Table 5.5, Reference 2.

A triangular grid sample pattern was selected and calculated as follows:

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

Where: A = Survey unit area
n = # of data points

For Class 1 Survey Units, L = 8' and the distance between each row is (L) (0.866 = 7').
For Class 2 Survey Unit, L = 5' and the distance between rows is 5'.
The starting location in each survey unit was obtained by a computer generated random number. Survey Units are shown in SPF 19-04.

Walls above 6' and ceilings are classified as Class 3 areas per Reference 2 and designated as Survey Unit 5. The data points for these survey units are randomly selected and plotted as shown in SPF 19-04.

External surfaces have the least potential for residual contamination from building processes and are designated Survey Unit 6. The following table shows the classification and size of each Survey Unit.

Survey Unit Number	Survey Unit Room Designation	Area (ft^2)	Survey Unit Class	Scan %
1	Floor Section 1	1080	1	100
2	Floor Section 2	1080	1	100
3	Floor Section 3	1040	1	100
4	Interior Walls to 6'	240	2	50
5	Interior Walls > 6' and Ceiling	3480	3	10
6	Exterior Surfaces	4840	3	10

Class 1 survey units are scanned 100% and Class 2 survey units are scanned 50%. A one meter squared area around each Class 3 data point was scanned and the highest reading in each area documented (RSDS# 03-TF-0107).

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. . Integrated beta measurements were made at the same locations in accordance with MD-80036, Issue 29, Op. No. 30031, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator*, Section 6.3.

Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The gross alpha and beta fixed point measurements from each Survey Unit were averaged and compared to the $DCGL_w$. None of the fixed point results were greater than the $DCGL_w$, therefore the Sign Test was not utilized. The alpha measurements observed on exterior surfaces (Survey Unit 6) were greater than the Group 1 $DCGL_w$. The maximum measurement was 414 dpm/100 cm^2 and the average was 176 dpm/100 cm^2 (See RSDS# 03-TF-0108). Characterization samples taken on elevated measurements on exterior surfaces show that 97.5% of the activity is Po-210 (See RSDS# 02-TF-1808). The activity observed was found on heavily oxidized (rusted) areas of the roof and is consistent with the activity observed on similarly weathered exterior surfaces.[1] The identification of Po-210 as the major radionuclide justifies the use of Group 3 $DCGL_w$ of 5000 dpm/100 cm2 as specified in DOE Order 5400.5. The gross surface activity levels in Survey Unit 6 are all well below this $DCGL_w$.

A retrospective power curve (Attachment 2) demonstrates that the survey design had sufficient power (probability) to meet the DQO's for these survey units. The average alpha measurements is 25.4 dpm/100 cm2 ±3.4 dpm/100 cm^2 and the actual standard deviation (σ) is 15.3. The relative shift (Δ/σ) = 3.27 and the calculated minimum number of data points (n) per Equation 5-2, Reference 2 is 20.

The following table shows the net results of the maximum and average total (fixed and removable) alpha and beta activity for each area. Survey Unit 6 is corrected for Po-210 interference. A graphical representation of the average total activity for each survey unit is shown in Attachment 3.

Total Activity Results

Area	Alpha (dpm/100 cm^2)			Beta (dpm/100 cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	64	23.7	8.2	735	368	59.4
Survey Unit 2	71	27.9	6.6	585	412.5	39.8
Survey Unit 3	58	26.5	6.0	545	375.8	44.5
Survey Unit 4	41	23.3	6.1	220	-126.3	45.3
Survey Unit 5	52	21.7	7.8	32	8.8	6.1
Survey Unit 6	10.4	4.4	1.35	312	128.4	41.8

[1] *Disposition of Roof Materials*, J. Guido and S. Howard, BWXTO, November 1999

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/100 cm^2)			Beta (dpm/100 cm^2)		
	Max	Average	±	Max	Average	±
Survey Unit 1	6.56	0.98	0.73	5.48	1.72	0.82
Survey Unit 2	6.56	0.66	0.70	4.11	2.04	0.60
Survey Unit 3	4.37	0.33	0.47	6.69	1.64	0.78
Survey Unit 4	6.00	0.90	0.72	4.76	1.18	0.72
Survey Unit 5	5.75	1.28	0.82	6.89	1.49	0.88
Survey Unit 6	6.55	0.80	0.81	6.85	3.19	0.85

The highest removable tritium activity was 13.16 dpm/100 cm^2 (RSDS# 03-TF-0103). The average removable tritium was 1.32 dpm/100 cm^2 (± 0.69).

The highest alpha measurement observed by scanning the survey units was 62 dpm/100 cm^2 (RSDS#03-TF-0101).

2.3 Sediment Sample Data

No sediment samples were obtained for this survey plan since no sediments were found in the building.

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Twelve data points were selected at random from the sample group of 120 data points. The locations were reviewed to ensure the data points were representative of each survey unit. Replicate measurements were taken at these locations using the same instruments and performed in the same manner as the original survey. The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is within a factor of two of the variance in the replicate samples (at 95% confidence level). Negative beta values occur when the measured value is below the instrument background level. These values are used for this analysis to show the true variability of the data set. The results of the replicate surveys are shown in the following table:

Replicate Analysis Results

Location #	Alpha (dpm/100 cm^2)			Beta (dpm/100 cm^2)		
	Initial	± 2σ	Replicate	Initial	± 2σ	Replicate
QCU1-12	64	16.00	45	380	38.99	375
QCU1-06	0	0.00	19	305	34.93	380
QCU2-10	6	4.90	26	370	38.47	495
QCU2-02	71	16.85	39	325	36.06	325
QCU3-04	58	15.23	45	305	34.93	455
QCU3-08	6	4.90	0	215	29.33	380
QCU4-03	0	0.00	10	-155	24.90	-135
QCU4-17	41	12.81	31	-125	22.36	-65
QCU5-14	1	2.00	21	-8	5.66	8
QCU5-15	52	14.42	52	32	11.31	32
QCU6-02	414	40.69	124	64	16.00	88
QCU6-16	21	9.17	52	8	5.66	32
Variance (S^2)	245.74		279.95	58305		56043
Ratio			0.88			1.04
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 acceptable assurance of nuclide identification reliability and ensures a high quality of sample results. Since a relatively small number of samples were taken for this survey, additional replicate analysis 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. The acceptance criterion is ± 20% of the initial source response following calibration. Results are documented in accordance with Mound Radiological Control procedures. Laboratory instrumentation is source checked and documented in accordance with Mound Laboratory procedures.

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

2.5 Conclusion

The objective of this survey plan is to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 19 satisfy the site release criteria established by DOE Order 5400.5. This is accomplished by comparing the survey data to the release criteria using statistical methods as defined by the MARSSIM (Reference 2). Since all of the fixed point survey results are below the $DCGL_w$, the Sign test was not necessary. The scan survey results demonstrate that there are no elevated measurement areas above the $DCGL_{emc}$.

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All of the DQO's for this survey plan have been met and no further surveys are required. The null hypothesis is rejected in favor of the alternate hypothesis in each survey unit. Building 19 meets the release criteria established by DOE Order 5400.5.

The following tables show the maximum fixed and removable activity on the inside (Survey Units 1-5) and outside (Survey Unit 6) building surfaces.

Building 19 Survey Results (Inside Surfaces)

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)	COMMENTS
Highest Alpha Smearable Activity	03-TF-0103	Floor	6.56	20	
Highest Alpha Fixed Activity	03-TF-0103	Floor	71	100	
Highest Beta Smearable Activity	03-TF-0107	Ceiling	6.89	1000	
Highest Beta Fixed Activity	03-TF-0103	Floor	735	5000	
Highest Tritium Smearable Activity	03-TF-0107	Ceiling	25.42	10,000	
Note 1: DOE Order 5400.5 Group 1 (DCGLw)					

Building 19 Survey Results (Outside Surfaces)

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)	COMMENTS
Highest Alpha Smearable Activity	03-TF-0108	Exterior	6.55	1000	
Highest Alpha Fixed Activity	03-TF-0108	Exterior	414	5000	
Highest Beta Smearable Activity	03-TF-0108	Exterior	6.85	1000	
Highest Beta Fixed Activity	03-TF-0108	Exterior	312	5000	
Highest Tritium Smearable Activity	N/A	N/A	N/A	N/A	
Note 1: DOE Order 5400.5 Group 3 (DCGLw)					

3.0 Attachments and Enclosures

Attachment 1 – Picture of Corrugated Panel

Attachment 2 – Retrospective Power Curve

Attachment 3 –Average Total Alpha and Beta Graph

Attachment 4 – Survey Data Analysis Worksheet

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Enclosures – SPF 19-01
SPF 19-03
SPF 19-04

4.0 References

1. BWXTO, EC&AS Department, White Paper: *Building 19 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, Op. 402

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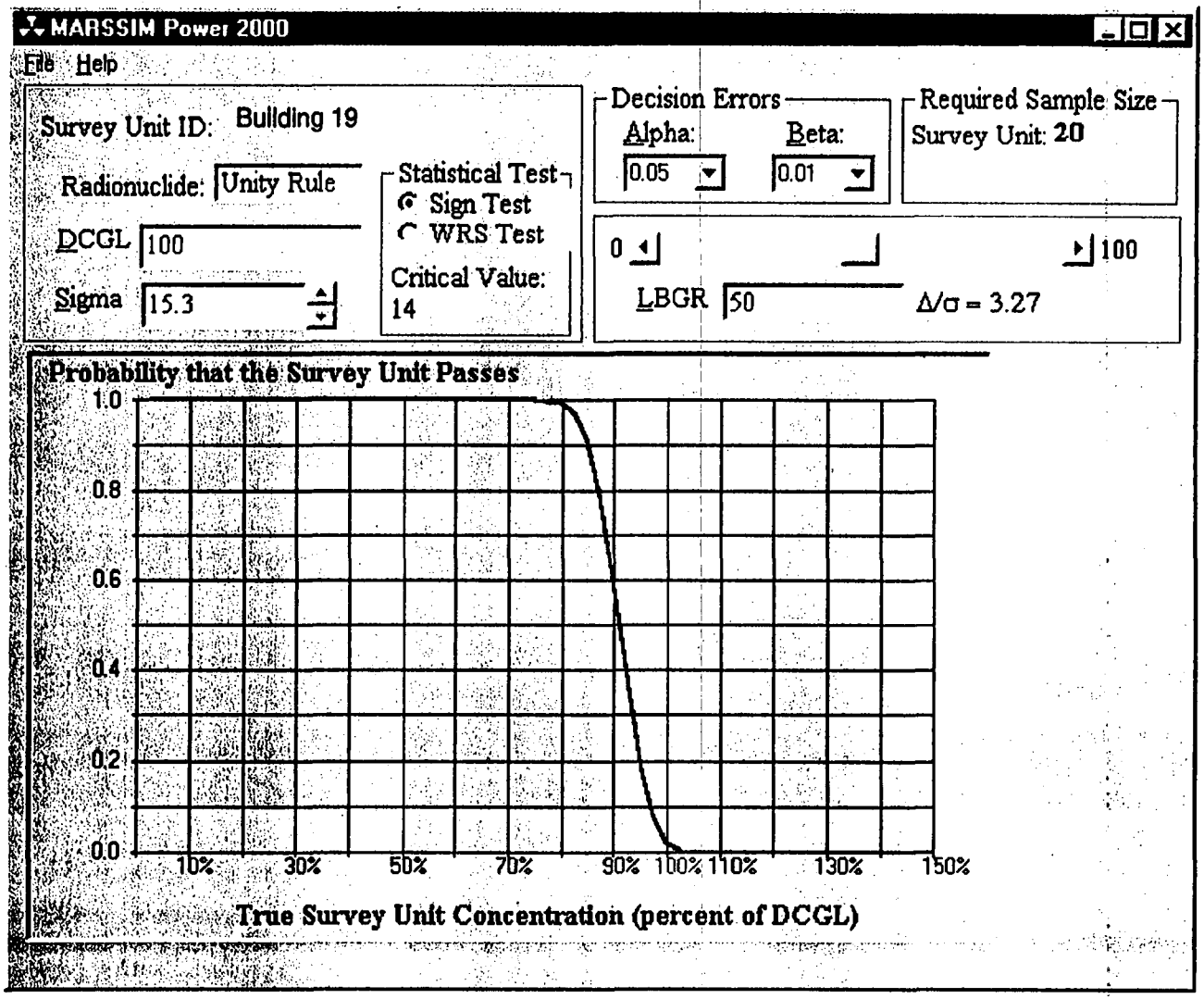
Manufacturer's label, galvanization code, and date stamp on Building 19 corrugated siding as required by ASTM A653/653M.

Building 19 Final Status Report
Attachment 2

Retrospective Power Curve



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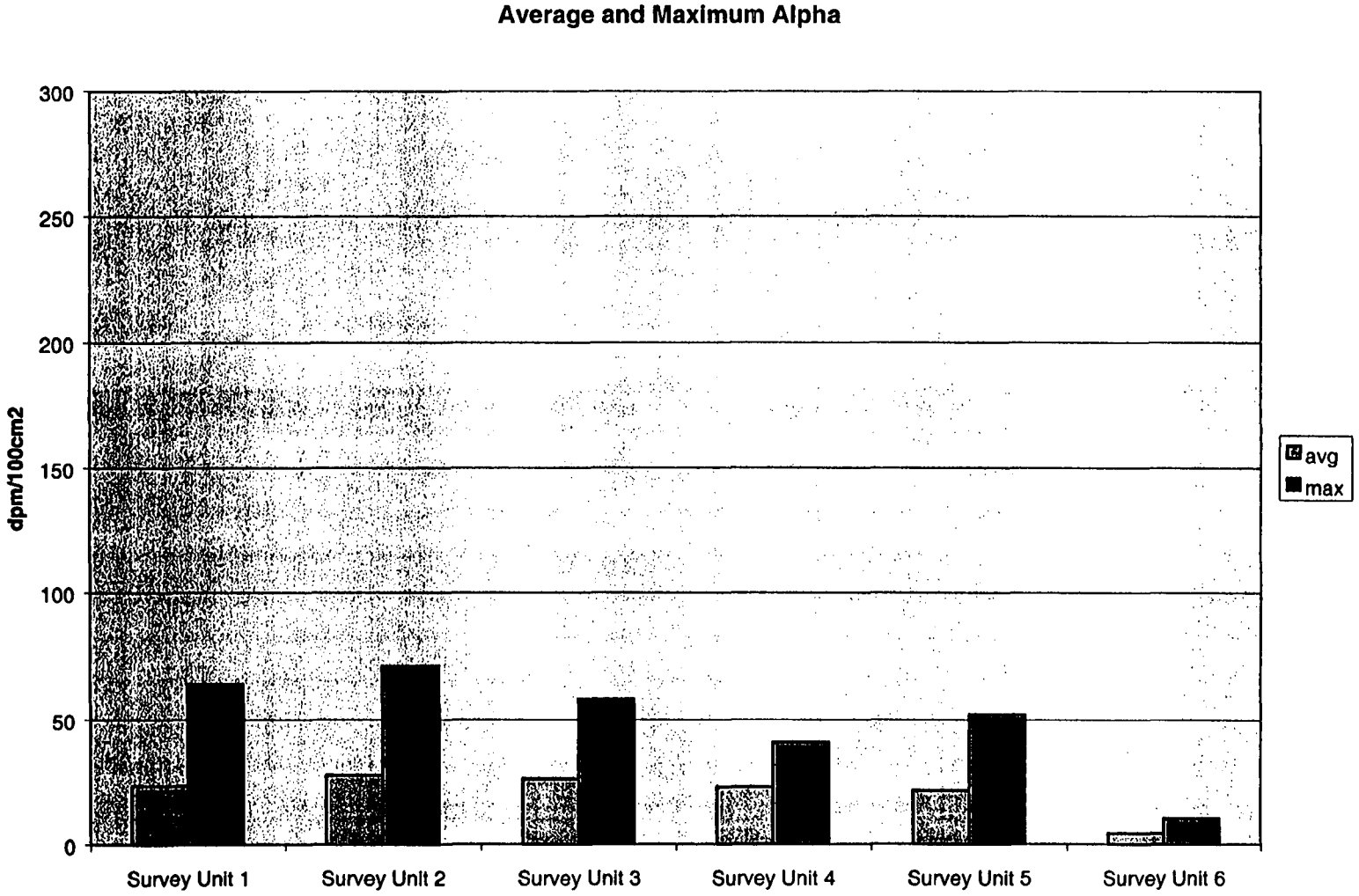
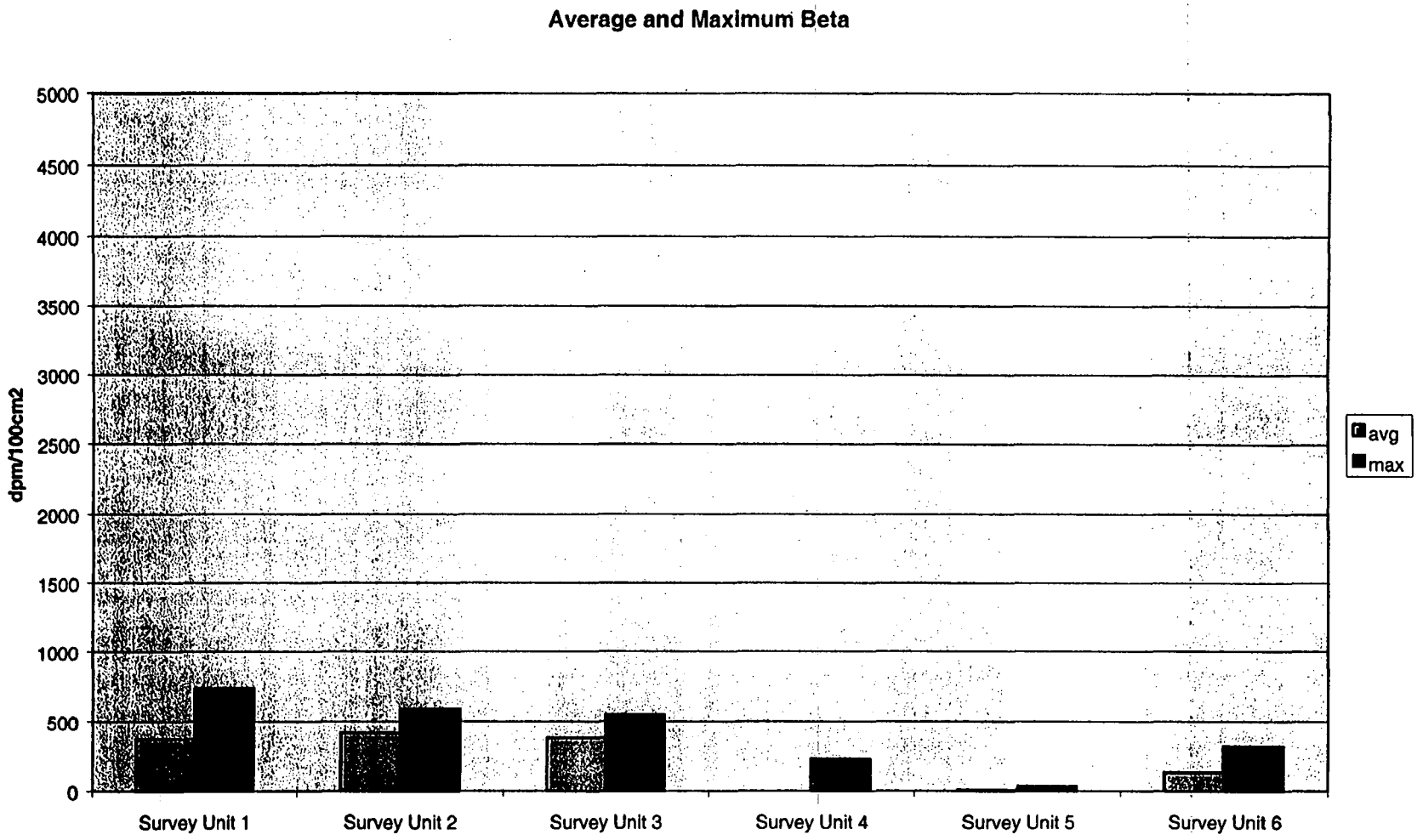

Average and Maximum Alpha
300
250
200
150
100
50
0
dpm/100cm2
Survey Unit 1
Survey Unit 2
Survey Unit 3
Survey Unit 4
Survey Unit 5
Survey Unit 6
avg
max


Average and Maximum Beta
dpm/100cm2
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Survey Unit 1
Survey Unit 2
Survey Unit 3
Survey Unit 4
Survey Unit 5
Survey Unit 6
avg
max

Building 34 Survey Data Analysis Worksheet

Attachment 4

Building 19 FSS Survey Data

		Loose(dpm/100cm^2)			100 Fixed (dpm/100cm^2)	
Location	RSDS	α	β	H	α	β
SU1-01	0103	0	2.74	0	51	395
SU1-02	0103	0	5.48	0	0	55
SU1-03	0103	2.18	5.32	0	19	555
SU1-04	0103	0	2.74	1.49	51	330
SU1-05	0103	0	0	8.28	45	470
SU1-06	0103	0	1.37	10.36	0	305
SU1-07	0103	0	0	1.72	13	445
SU1-08	0103	0	1.37	13.16	32	320
SU1-09	0103	0	0	4.25	6	405
SU1-10	0103	0	0	0	6	185
SU1-11	0103	0	0	0.66	26	330
SU1-12	0103	0	0	0	64	380
SU1-13	0103	2.18	5.32	0	19	355
SU1-14	0103	6.56	0.9	1.69	6	345
SU1-15	0103	2.19	1.21	4.06	26	390
SU1-16	0103	2.18	2.58	0	45	735
SU1-17	0103	2.19	1.21	1.43	19	240
SU1-18	0103	2.19	0	0	13	355
SU1-19	0103	0	2.74	9.66	19	410
SU1-20	0103	0	1.37	4.38	13	355
SU2 -01	0103	0	2.74	0	45	530
SU2 -02	0103	0	1.37	0	71	325
SU2 -03	0103	0	0	0	26	325
SU2 -04	0103	2.19	1.21	0.56	19	450
SU2 -05	0103	0	4.11	0	32	325
SU2 -06	0103	2.18	2.58	0	45	485
SU2 -07	0103	0	2.74	0	32	455
SU2 -08	0103	6.56	0	0	13	340
SU2 -09	0103	0	4.11	0	39	340
SU2 -10	0103	0	1.37	0	6	370
SU2 -11	0103	0	1.37	0	32	475
SU2 -12	0103	0	1.37	0	26	575
SU2 -13	0103	0	4.11	0	13	585
SU2 -14	0103	0	2.74	0	19	385
SU2 -15	0103	0	1.37	1.54	32	350
SU2 -16	0103	0	4.11	0	39	465
SU2 -17	0103	0	0	1.1	19	340
SU2 -18	0103	0	2.74	1.53	19	465
SU2 -19	0103	0	1.37	3.43	13	260
SU2 -20	0103	2.19	1.21	0	19	405
SU3 -01	0103	0	2.74	0	26	485
SU3 -02	0103	0	1.37	0	26	280
SU3 -03	0103	0	4.11	0.01	26	280
SU3 -04	0103	0	0	0	58	305
SU3 -05	0103	0	2.74	0	13	345

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Building 34 Survey Data Analysis Worksheet

Attachment 4

Location	RSDS	α	β	H	α	β
SU3 -06	0103	0	1.37	0	26	290
SU3 -07	0103	0	0	0	13	450
SU3 -08	0103	0	1.37	0	6	215
SU3 -09	0103	0	1.37	0	26	495
SU3 -10	0103	0	1.37	0	13	300
SU3 -11	0103	0	1.37	0.51	45	270
SU3 -12	0103	4.37	0	0	13	540
SU3 -13	0103	0	2.74	0.51	39	545
SU3 -14	0103	0	4.11	2.49	32	505
SU3 -15	0103	0	0	0	6	455
SU3 -16	0103	2.18	6.69	1.84	39	340
SU3 -17	0103	0	0	0	19	285
SU3 -18	0103	0	0	1.21	39	345
SU3 -19	0103	0	0	0	39	390
SU3 -20	0103	0	1.37	3.2	26	395
SU4 -01	0102	0	1.28	10.75	10	-290
SU4 -02	0102	0	1.28	5.09	21	-165
SU4 -03	0102	0	0	3.95	0	-155
SU4 -04	0102	0	0	0	10	-130
SU4 -05	0102	3.02	0	0	10	-70
SU4 -06	0102	6	4.76	0	41	-195
SU4 -07	0102	0	1.28	0	41	-120
SU4 -08	0102	2.01	1.16	14.71	31	-45
SU4 -09	0102	2.02	0	0	31	-50
SU4 -10	0102	0	2.56	0	31	220
SU4 -11	0102	2.02	0	0	10	-170
SU4 -12	0102	0	1.28	0	0	-125
SU4 -13	0102	0	3.84	0	31	-145
SU4 -14	0102	0	0	0.77	21	-140
SU4 -15	0102	1.97	3..72	0	31	-145
SU4 -16	0102	0	3.84	10.46	21	-215
SU4 -17	0102	0	0	0	41	-140
SU4 -18	0102	0	0	0	21	-160
SU4 -19	0102	0	0	0	41	-160
SU4 -20	0102					
SU5 -01	0107	0.49	1.09	18.51	10	8
SU5 -02	0107	1.58	6.89	9.56	41	24
SU5 -03	0107	0	2.28	25.42	31	16
SU5 -04	0107	0	1.08	4.76	10	0
SU5 -05	0107	5.75	0	14.7	10	0
SU5 -06	0107	5.09	4.16	16.42	10	0
SU5 -07	0107	1.15	2.54	21.37	10	0
SU5 -08	0107	0.5	2.65	12.68	21	8
SU5 -09	0107	1.06	0	6.09	0	-8
SU5 -10	0107	1.51	0	5.53	41	24
SU5 -11	0107	0	0	0	41	24
SU5 -12	0107	3.31	3.57	9.67	0	-8
SU5 -13	0107	0	2.14	0	41	24
SU5 -14	0107	0	0	9.66	1	-8
SU5 -15	0107	0.84	3	1.2	52	32
Location	RSDS	α	β	H	α	β
SU5 -16	0107	0	0	8.83	10	0

SU5 -17	0107	0	0	3.03	41		24
SU5 -18	0107	0	0	5.26	31		16
SU5 -19	0107	0	0	2.26	0		-8
SU5 -20	0107	3.6	0	4.16	21		8
SU6 -01	0108	2.18	2.58		2	93	64
SU6 -02	0108	0	2.74		10	414	312
SU6 -03	0108	0	0		5	217	160
SU6 -04	0108	0	1.37		10	383	288
SU6 -05	0108	0	2.74		9	373	280
SU6 -06	0108	4.37	3.8		7	269	200
SU6 -07	0108	0	2.74		5	207	152
SU6 -08	0108	0	0		4	155	112
SU6 -09	0108	0	4.11		8	300	224
SU6 -10	0108	6.55	6.38		6	249	184
SU6 -11	0108	0	4.11		3	135	96
SU6 -12	0108	0	4.11		2	72	48
SU6 -13	0108	0	2.74		2	93	64
SU6 -14	0108	0	1.37		4	155	112
SU6 -15	0108	0	2.74		5	207	152
SU6 -16	0108	2.18	3.95		1	21	8
SU6 -17	0108	0	1.37		1	31	16
SU6 -18	0108	0	4.11		1	52	32
SU6 -19	0108	0	6.85		1	41	24
SU6 -20	0108	2.18	5.32		2	62	40

Var	2.435867	2.893105	27.51166118	245.742115		58305
Avg	0.82958	1.877119	3.06979798	21.1363445	176.45	197.218
S/D	1.593882	1.811982	5.245155973	16.2054624	123.557	225.51
Max	6.56	6.89	25.42	71	414	735
#	119	118	99	119	20	119
+/-	0.286377	0.326941	1.0332297	2.9116825	54.1511	40.5181

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Building 34 Survey Data Analysis Worksheet

Attachment 4

Instrument Data

RSDS	Inst	Probe	CDD	Bkg α	Bkg β	
0103	2350	5673/5143	8/13/03	10		*
0103	2360	5833/5847	3/13/04		172	*
0102	2350	5673/5143	8/13/03	9		*
0102	2360	5833/5847	3/13/04		177	*
0100	2350	5673/5676	8/13/03	8.8		*
0100	2350	5671/5675	9/11/03	5		*
0107	2350	5673/5143	8/13/03	1.2		
0107	2360	5833/5847	3/13/04		167	
0108	2350	5673/5143	8/13/03	1.2		*
0108	2360	5833/5847	3/13/04		167	*
0101	2350	5673/5143	8/13/03	2.2		*

Graph Data Alpha

	Survey Ur	Survey Uni	Survey Uni	Survey Uni	Survey Uni	Survey Unit 6
avg	23.65	27.95	26.5	23.31579	21.68421	4.41125
max	64	71	58	41	52	10.35

Graph Data Beta

	Survey Ur	Survey Uni	Survey Uni	Survey Uni	Survey Uni	Survey Unit 6
avg	368	412.5	375.75	-126.3158	8.842105	128.4
max	735	585	545	220	32	312

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Attachment 4

Scan data	
RSDS 0100	dpm/100cm^2
U1-FS01	16
U1-FS02	32
U2-FS01	28
U2-FS02	31
U2-FS03	31
U3-FS01	42
U3-FS02	48
U3-FS03	48
RSDS 0101	
U4-WS01	21
U4-WS02	0
U4-WS03	0
U4-WS04	41
U4-WS05	41
U4-WS06	0
U4-WS07	62
U4-WS08	0
U4-WS09	0
U4-WS10	0
U4-WS11	0
U4-WS12	0

Building 34 Survey Data Analysis Worksheet

Attachment 4

Ext Sample Results dpm/sample	RSDS#1808			
	Th	Po	Pu	%Po
#13	0.95	3.91		0.804527
#17		16.2		1
#10	2.75	110.14	1.3	0.964533
#5	4.27	232.32		0.981952
Tot	7.97	362.57	1.3	371.84
%	0.02143	0.97507	0.003496	
S/L	<4.44		<55	

Sample Da	RSDS# 0029		dpm/sample						
Pu-238	Pu-239/240	Th-232	Th-230	Th228	Th227	U238	U235	U233/234	
251	0.15	136	14	148	0.5	9.95	0.72	8.25	568.57
8.95	0.51	87.6	10.8	92.4					200.26
336.7	1.7	6.1	1.16	7.2	0.19				353.05
2.14									2.14
6.77	0.15								6.92
149.8									149.8
755.36	2.51	229.7	25.96	247.6	0.69	9.95	0.72	8.25	1280.74
59	<1%	18	2	19	<1%	<1%	<1%	<1%	98.27287
1280.74	dpm								

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Building 34 Survey Data Analysis Worksheet

Attachment 4

Replicate Fixed Point QC

	alpha (dpm/100cm2)			beta (dpm/100cm2)		
Location #	initial	2σ	replicate	initial	2σ	replicate
QCU1-12	64	16.00	45	380	38.99	375
QCU1-06	0	0.00	19	305	34.93	380
QCU2-10	6	4.90	26	370	38.47	495
QCU2-02	71	16.85	39	325	36.06	325
QCU3-04	58	15.23	45	305	34.93	455
QCU3-08	6	4.90	0	215	29.33	380
QCU4-03	0	0.00	10	-155	24.90	-135
QCU4-17	41	12.81	31	-125	22.36	-65
QCU5-14	1	2.00	21	-8	5.66	8
QCU5-15	52	14.42	52	32	11.31	32
QCU6-02	414	40.69	124	64	16.00	88
QCU6-16	21	9.17	52	8	5.66	32
0	0	0.00	0	0	0.00	0
Variance (S2) =	245.7421		279.9556	58305.05		56043.11
Ratio			0.87779			1.040361
Agreement			YES			YES

Replicate Data

	α	β
QCU1-12	45	375
QCU1-06	19	380
QCU2-10	26	495
QCU2-02	39	325
QCU3-04	45	455
QCU3-08	0	380
QCU4-03	10	-135
QCU4-17	31	-65
QCU5-14	21	8
QCU5-15	52	32
QCU6-02	124	88
QCU6-16	52	32

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Building 34 Survey Data Analysis Worksheet

Attachment 4

Survey Unit parameters

Survey Unit 1

	α	β	H	α	β
Number	20	20	20	20	20
Average	0.9835	1.7175	3.057	23.65	368
StDev	1.659639	1.866423	4.102181	18.63295	135.4369
Max	6.56	5.48	13.16	64	735
+/-	0.727355	0.81798	1.797824	8.166088	59.35667

Survey Unit 2

	α	β	H	α	β
Number	20	20	20	20	20
Average	0.656	2.039	0.408	27.95	412.5
StDev	1.602161	1.370885	0.878747	15.05245	90.7208
Max	6.56	4.11	3.43	71	585
+/-	0.702178	0.600817	0.385128	6.597028	39.76014

Survey Unit 3

	α	β	H	α	β
Number	20	20	20	20	20
Average	0.3275	1.636	0.4885	26.5	375.75
StDev	1.068796	1.786963	0.946947	13.79741	101.4925
Max	4.37	6.69	3.2	58	545
+/-	0.468421	0.783171	0.415018	6.04698	44.48104

Survey Unit 4 Walls to6'

	α	β	H	α	β
Number	19	18	19	19	19
Average	0.896842	1.182222	2.406842	23.31579	-126.3158
StDev	1.59722	1.56137	4.554587	13.67094	100.7037
Max	6	4.76	14.71	41	220
+/-	0.718198	0.721316	2.047992	6.147207	45.28189

Survey Unit 5

	α	β	H	α	β
Number	19	19	19	19	19
Average	1.283684	1.49	8.452632	21.68421	8.84
StDev	1.822023	1.954471	7.067393	17.4485	13.56983
Max	5.75	6.89	25.42	52	32
+/-	0.819282	0.878837	3.177887	7.845804	6.101741

Survey Unit 6

	α	β	H	α	β
Number	20	20	0	20	20
Average	0.873	3.1565	#DIV/0!	4.41125	128.4
StDev	1.792	1.836694	#DIV/0!	3.088918	95.45371
Max	6.55	6.85	0	10.35	312
+/-	0.785379	0.804967	#DIV/0!	1.353778	41.83443

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SURVEY PLAN FORM

SP NUMBER	19-01	DATE OF REQUEST	November 6, 2002
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 19		
PURPOSE	Obtain characterization data to support building demolition activities and waste stream analysis.		
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

☒ SEDIMENT SAMPLE: See Page 2 for specific sampling instructions

☐ Rubbelized Material:

☒ OTHER: Acid Etch See Page 2 for specific sampling instructions.

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L-2350	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Scan surface at a rate of 1" per second at a distance of not more than ¼" from surface
		PROBE TYPE	43-37 Floor Monitor		
SURFACE SCAN	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L 2360	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	43-89		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L 2360	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	43-89		
DOSE RATE MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			

SPECIAL PRECAUTIONS AND LIMITATIONS

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

Methods to separate and close siding sections shall be approved by Building Manager prior to beginning work.

Do not attempt to remove building insulation material at survey locations. Insulation material shall be removed by qualified personnel only.

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SP NUMBER	19-01	DATE OF REQUEST	November 6, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Surface Scan Using a Ludlum 2350-1 with a 43-37 Floor Monitor

1. Set the Ludlum 2350-1 datalogger to alarm at 75dpm/100cm^2 in the ratemeter mode.
2. Scan approximately 100% of the exposed floor area at a slow rate not to exceed 1" per second.
3. Perform a 30 second integrated count at every location where an alarm is obtained. In addition, obtain a 30 second integrated count at any point where an audible or visual indication of elevated activity is observed at approximatel 3X the background count rate.
4. Mark the location of each integrated count where activity is observed > 3X background.
5. Record location and results of each integrated count on RSDS map in accordance with Mound Rad Co procedures.

Surface Scan (Alpha/Beta) Using a Ludlum 2360 with a 43-89 Probe

Note: Building wall surface is corrugated steel. Attempt to obtain the best possible geometry by keeping the probe a close as possible to the surface while scanning.

1. Perform an alpha/beta surface scan of interior wall sections between support ribs from the floor to approximately 6 at intervals of about 10' along each wall (See MD-80036, OP 30030, 6.3). Mark the location of the highest alpha and beta reading observed.
2. Perform an alpha/beta surface scan at 24 accessible locations on the exterior walls. Locations should be spaced approximately 10' apart around the building perimeter. Scan approximately 1m^2 at each location and mark the location of the highest alpha and beta reading observed.
3. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

Loose Surface Contamination

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

Sediment Sampling

1. Collect approximately 250ml of sediment from any accessible floor drain, ventilation unit, or sump.
2. Label sample container (EPA Dish) with sample number, date, time, and location in accordance with Mound procedures.
3. Document sample information and description of material on Attachment 1.
4. Show sample location on the RSDS map.
5. Submit sample to laboratory for isotopic spectroscopy analysis.

Acid Etch Sampling

1. Obtain an acid etch sample at each of the four highest activity locations on the floor.
2. Obtain an acid etch sample at each of the four highest activity locations on the interior walls.
3. Obtain an acid etch sample at each of the two highest activity locations on the exterior walls.
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 alpha spectroscopy analysis.

Continued Next Page

G-28-06 200

Sampling and Survey Instructions Continued

Intrusive Survey of Original Building Surfaces

1. Select one accessible location on each exterior wall where corrugated siding can be separated at the vertical overlap seam.
2. Scan the inside and outside surfaces at the overlap for alpha / beta activity. Document the highest results at each location.
3. Obtain a 100cm^2 smear at each location and submit for gross alpha and beta counting.

Note: Contact RPOC prior to continuing intrusive survey if fixed or loose surface contamination is detected.

4. Separate the corrugated siding material to expose a sufficient area of at least one probe size. Obtain one minute integrated fixed point alpha/beta measurements on the exposed inner and outer surfaces.
5. Obtain 100cm^2 smear of each exposed surface and submit for gross alpha and beta counting.
6. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

APPROVAL SIGNATURES			
MARISSM Engineer	R. Case	DATE	November 6, 2002
Technical Reviewer	~~G. Tomlinson~~ Robert Cibelotz	DATE	November 6, 2002
Rad Con Manager	D. Riley	DATE	November 6, 2002
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. Case	DATE	May 14, 2003
Technical Reviewer	G. Tomlinson	DATE	5-14-03
Rad Con Manager	S. Collins	DATE	5-14-03
COMMENTS			

Survey Plan Form 19-01
Attachment 1

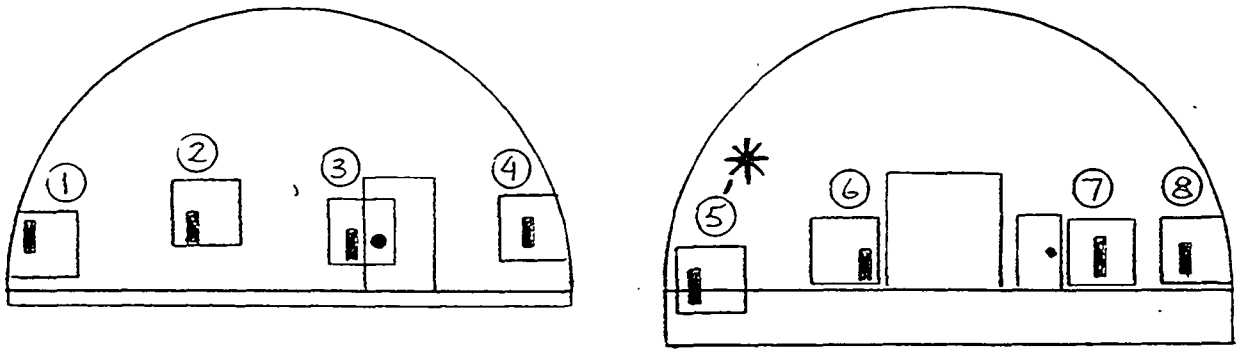
Sample Number	Sample Date	Sample Time	Sample Volume/ Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									
19-01-									

G3 of 200

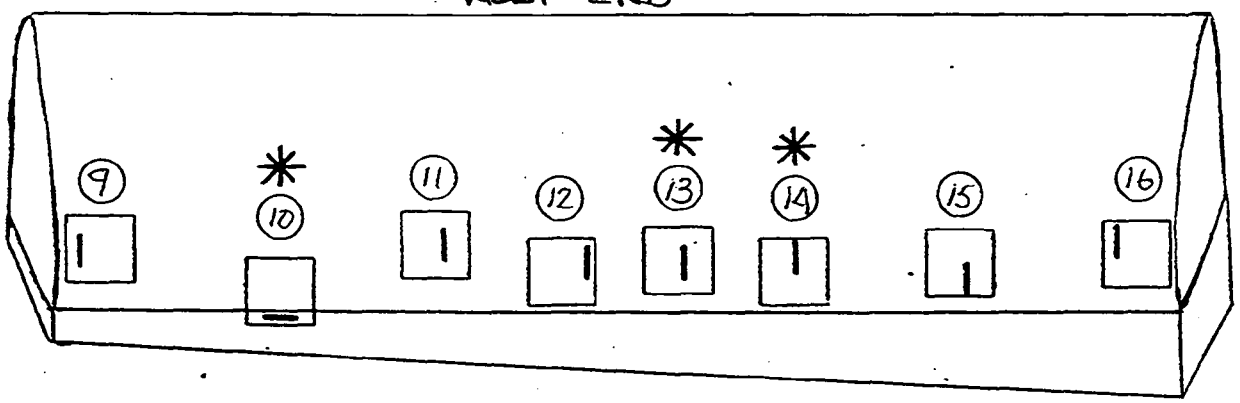
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 19 / 05	SURVEY NO. 02-TF-1808
PURPOSE: CHARACTERIZATION SURVEY I.A.W. SURVEY PLAN 19-01	RWP NO. N/A
	DATE: 11-13-02
	TIME: 1530

MAP/DRAWING



NOTE: INTEGRATED COUNT PERFORMED WHEN ALPHA AUDIBLE DETECTED



LEGEND: [1] = INDICATES LOCATION of INTEGRATED COUNT IN ONE METER^2.

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or/β = direct cont. measurement in dpm/100cm^2

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5706/5716	8-22-03
	N	
	A	

Completed by: (Signature) PG Radley / K. Abercrombie	HP # [redacted]	Date: 11-21-0
Completed by: (Print Name) PG RADLEY / K. ABERCROMBIE		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) RM Coblentz	HP # [redacted]	Date: 12-3-02
Reviewed/Approved by: (Print Name) RM Coblentz		

ML-9620 (2-88)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
	Swipes (dpm/100cm²)			
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTA	CHED	O/S BLDG. 38
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

N/A

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

N/A

COMMENTS: N/A

NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout copies 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-6620A (4-98)

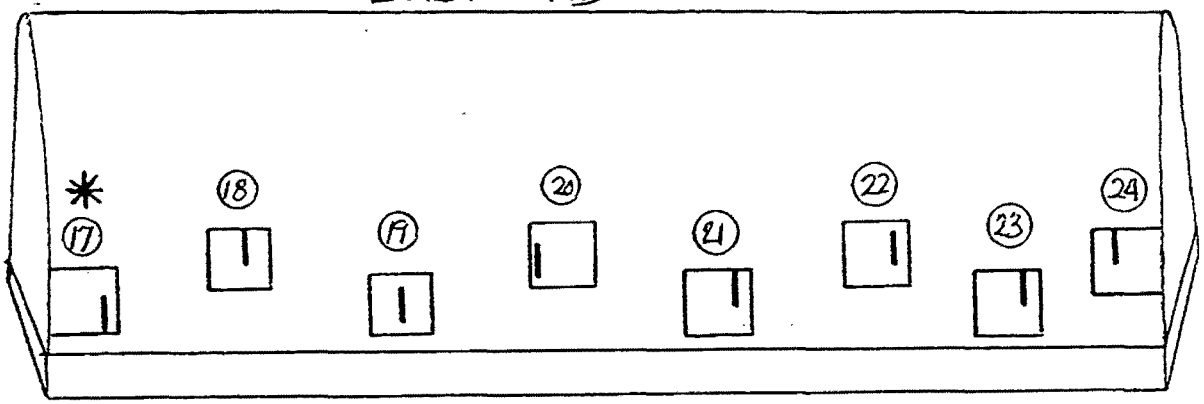
G3206 200

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 19 / 0/S	SURVEY NO. 02-TF-1808
PURPOSE: CHARACTERIZATION SURVEY I.A.W. SURVEY PLAN 1901	RWP NO. N/A
	DATE: 11-13-02
	TIME: 1600

MAP/DRAWING

EAST END



* = INDICATES READINGS > 100 dpm/100 cm²/SAMPLE. EACH READING TO BE ACID ETCHED AND ANALYZED.

COPY

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

(#) = swine number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N	
	A	

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

ML-9620 (2-98)

G-33 of 208

Survey No.
02-TF-1808

RADIOLOGICAL SURVEY DATA SHEET (cont)

[redacted]

Ludlum 2360 Integrated Measurement Results

[redacted]		Alpha			Beta		
		BKGD	0.4	cpm	BKGD	185	cpm
		DL	1.4	Net cpm	DL	30	Net cpm
No.	Item/Location Description	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)
1	BLDG. 19-0/S	4	8	28.8	207	4	< DL
2		9		68.8	170		< DL
3		3		20.8	209		< DL
4		4		28.8	184		< DL
5		17		132.8	359		696
6		3		20.8	184		< DL
7		5		36.8	201		< DL
8		3		20.8	219		< DL
9		3		20.8	194		< DL
10		25		196.8	346		644
11		4		28.8	179		< DL
12		10		76.8	178		< DL
13		13		100.8	156		< DL
14		14		108.8	200		< DL
15		7		52.8	211		< DL
16		5		36.8	182		< DL
17		17		132.8	217		128
18		11		84.8	215		120
19		4		28.8	217		128
20		7		52.8	184		< DL
21		11		84.8	227		168
22		5		36.8	221		144
23		8		60.8	240		220
24		6		44.8	253		272
			N				
				A			

ML-9620C

G-340 200

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR029
Batch Ended: 11/19/2002 16:42
Recalibration Date: 7/8/2004
Serial Number: 64575

Batch ID: 02-TF-1808 RADLEY (24) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	1.8	2.0		0.0	1.4	
A2	2	0.0	2.0		0.9	1.9	
A3	3	0.0	1.8		0.0	1.3	
A4	4	1.2	1.9		0.0	1.3	
B1	5	0.0	2.1		2.5	2.3	
B2	6	0.0	2.2		2.7	2.5	
B3	7	0.0	1.9		1.3	2.2	
B4	8	0.0	2.0		0.9	1.8	
C1	9	0.0	2.0		0.0	1.4	
C2	10	0.0	2.0		0.7	1.8	
C3	11	0.0	1.8		3.2	2.3	
C4	12	3.4	2.6		3.7	2.6	
D1	13	1.9	2.1		0.0	1.4	
D2	14	0.0	2.2		7.7	3.4	
D3	15	0.0	2.0		0.0	1.3	
D4	16	0.0	2.1		4.7	2.7	
A1	17	0.0	2.1		5.2	2.9	
A2	18	0.0	2.0		0.0	1.4	
A3	19	0.0	1.8		0.0	1.3	
A4	20	0.0	1.9		0.0	1.3	
B1	21	2.0	2.1		0.0	1.4	
B2	22	0.0	2.3		4.1	2.8	
B3	23	1.7	1.9		1.1	2.2	
B4	24	0.0	2.0		0.9	1.8	

PGR

PGR

G35ob 200

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G-3606 200

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
1-8-03	ACID ETCH	K. Abercrombie	10
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
M00404	K. Abercrombie 3163		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**

ANALYSES REQUESTED (check):

- ☐ ^3H
- ☐ Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- ☐ Gross Alpha
- ☐ Air Filter – Isotopic Analysis
- ☐ Characterization per MD-80036, Operation #10015
- ☒ Isotopic Analysis: Pu___ U___ Th___ Am___ Other___
- ☐ Other _____

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0300289	ISF-01	28	
0300290	ISF 02	18	
0300291	ISF 03	4	
0300292	ISW 04	2	
0300293	ISW 05	1	
0300294	CO 06	5	
0300295	CO 07	13	
0300296	OSW 08	17	
0300297	OSW 09	10	
0300298	OSW 10	5	

COMMENTS:

ANALYZED BY: R. C. Hopkins

DATE: 1-16-03

ML-5222 (1-01)

G-3706 200

Laboratory ID#:	**0300289 - 0300298**
Project/function:	**M00404**
Submitted:	**Jan 8, 2003**
Submitted by:	**K. Abercrombie**
Point of Contact:	**K. Abercrombie x3163**
RSDS#:	**N/A**
Date:	**Jan 16, 2003**

Lab ID	0300289		
Sample Location	ISF-01 #28		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	4791.43	448.07	0.86
Pu-239/240	14.83	2.11	0.47
Th-232	1.27	0.50	0.49
Th-230	1.45	0.53	0.49
Th-228	<LDL	<LDL	1.08
Th-227	<LDL	<LDL	0.49
U-238	2.20	0.57	0.35
U-235	<LDL	<LDL	0.64
U-233/234	1.64	0.49	0.64
Po-210	647	166	1.82

Lab ID	0300290		
Sample Location	ISF-02 #18		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	234.61	22.14	0.92
Pu-239/240	0.63	0.32	0.42
Th-232	<LDL	<LDL	0.75
Th-230	<LDL	<LDL	0.75
Th-228	0.45	0.26	0.41
Th-227	<LDL	<LDL	0.75
U-238	<LDL	<LDL	0.78
U-235	<LDL	<LDL	0.43
U-233/234	0.47	0.28	0.43
Po-210	243	61	0.99

Lab ID	0300291		
Sample Location	ISF-03 #4		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	4.25	0.91	0.43
Pu-239/240	<LDL	<LDL	0.93
Th-232	<LDL	<LDL	0.51
Th-230	<LDL	<LDL	1.12
Th-228	<LDL	<LDL	0.51
Th-227	<LDL	<LDL	0.51
U-238	<LDL	<LDL	0.37
U-235	<LDL	<LDL	0.67
U-233/234	<LDL	<LDL	0.67
Po-210	2.69	0.87	0.93

Lab ID 0300292
Sample Location ISF-04 #2

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.62
Pu-239/240	<LDL	<LDL	0.62
Th-232	<LDL	<LDL	0.74
Th-230	<LDL	<LDL	0.88
Th-228	<LDL	<LDL	0.74
Th-227	<LDL	<LDL	0.40
U-238	<LDL	<LDL	0.62
U-235	<LDL	<LDL	1.14
U-233/234	1.14	0.53	0.62
Po-210	4.85	1.34	1.87

Lab ID 0300293
Sample Location ISF-05 #1

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	1.89	0.74	0.73
Pu-239/240	<LDL	<LDL	0.73
Th-232	0.44	0.26	0.40
Th-230	0.44	0.26	0.40
Th-228	0.88	0.37	0.40
Th-227	<LDL	<LDL	0.40
U-238	<LDL	<LDL	0.65
U-235	<LDL	<LDL	1.19
U-233/234	<LDL	<LDL	0.65
Po-210	6.16	1.87	1.39

Lab ID 0300294
Sample Location ISF-06 #5

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	2.39
Pu-239/240	<LDL	<LDL	1.82
Th-232	<LDL	<LDL	0.44
Th-230	0.64	0.33	0.44
Th-228	<LDL	<LDL	0.81
Th-227	<LDL	<LDL	0.44
U-238	<LDL	<LDL	10.90
U-235	<LDL	<LDL	10.90
U-233/234	<LDL	<LDL	20.01
Po-210	4.28	1.57	1.45

Lab ID 0300295
Sample Location ISF-07 #13

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.50
Pu-239/240	<LDL	<LDL	1.09
Th-232	<LDL	<LDL	1.19
Th-230	0.95	0.49	0.64
Th-228	<LDL	<LDL	1.42
Th-227	<LDL	<LDL	0.64
U-238	<LDL	<LDL	7.78
U-235	<LDL	<LDL	7.78
U-233/234	<LDL	<LDL	7.78
Po-210	3.91	0.91	1.08

Lab ID 0300296
Sample Location ISF-08 #17

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.79
Pu-239/240	<LDL	<LDL	0.79
Th-232	<LDL	<LDL	0.42
Th-230	<LDL	<LDL	0.77
Th-228	<LDL	<LDL	0.77
Th-227	<LDL	<LDL	0.77
U-238	<LDL	<LDL	1.19
U-235	<LDL	<LDL	2.92
U-233/234	<LDL	<LDL	2.19
Po-210	16.20	2.80	1.80

Lab ID 0300297
Sample Location ISF-09 #10

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	1.30	0.50	0.84
Pu-239/240	<LDL	<LDL	0.46
Th-232	0.62	0.32	0.42
Th-230	2.13	0.62	0.78
Th-228	<LDL	<LDL	0.93
Th-227	<LDL	<LDL	0.42
U-238	<LDL	<LDL	1.04
U-235	<LDL	<LDL	1.90
U-233/234	<LDL	<LDL	1.04
Po-210	110.14	10.65	1.50

Lab ID 0300298
Sample Location ISF-10 #5

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.58
Pu-239/240	<LDL	<LDL	0.58
Th-232	1.30	0.48	0.44
Th-230	2.32	0.67	0.97
Th-228	0.65	0.33	0.44
Th-227	<LDL	<LDL	0.81
U-238	<LDL	<LDL	16.41
U-235	<LDL	<LDL	30.13
U-233/234	<LDL	<LDL	30.13
Po-210	232.32	22.04	1.87

[redacted] 1-16-03
Analyst HP # Date

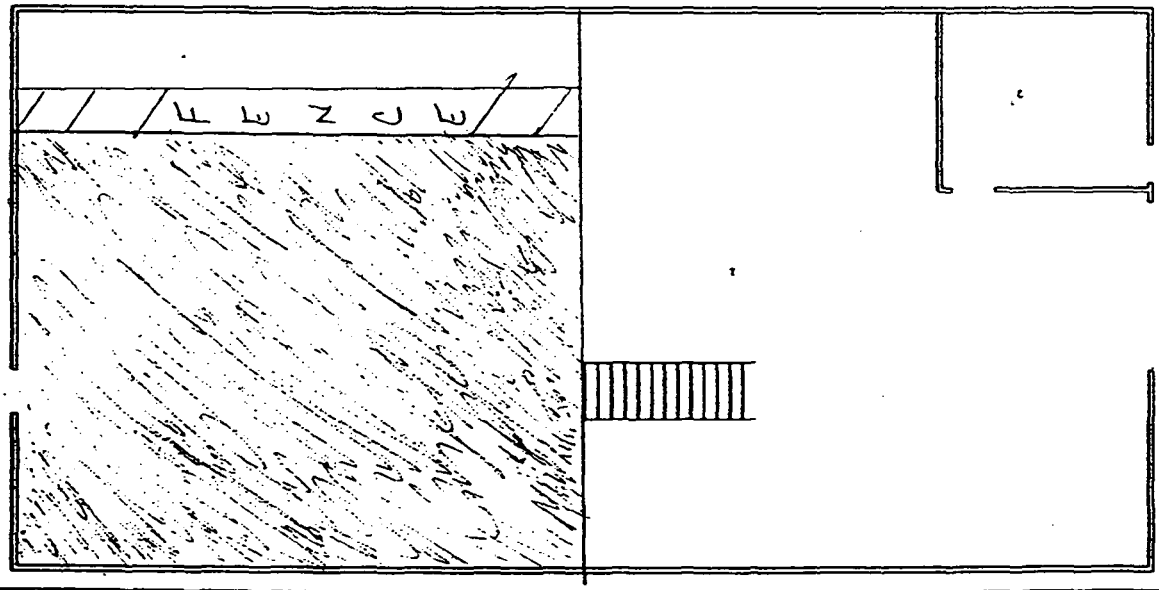
[redacted] 1/16/03
Data Verification HP # Date

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLDG. 19/UPPER & LOWER LEVEL	SURVEY NO 02-TF-1810
PURPOSE: CHARACTERIZATION	RWP NO NA
	DATE: 11-18-02 to 11-19-0
ALPHA SCAN SURVEY IAW SURVEY PLAN 19-01	TIME: 1400

MAP/DRAWING

= AREA SURVEY



LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

= swipe number

= air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5676	8-13-03
2360	5155/5723	8-8-03
	N	
	A	

Completed by: (Signature) K. Abercrombie D.J. Harwey	HP [redacted]	Date: 11-26-
Completed by: (Print Name) K. Abercrombie D. J. HARWEY		
Counted by: (Signature) See	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) RM Roberts	HP # [redacted]	Date: 12-2-0
Reviewed/Approved by: (Print Name) RM Roberts		

ML-0620 (2-98)

Survey No. 02-TF-1810

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	Co
		N/A		

COMMENTS:

NOTES:

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

ML-9620A (4-98)

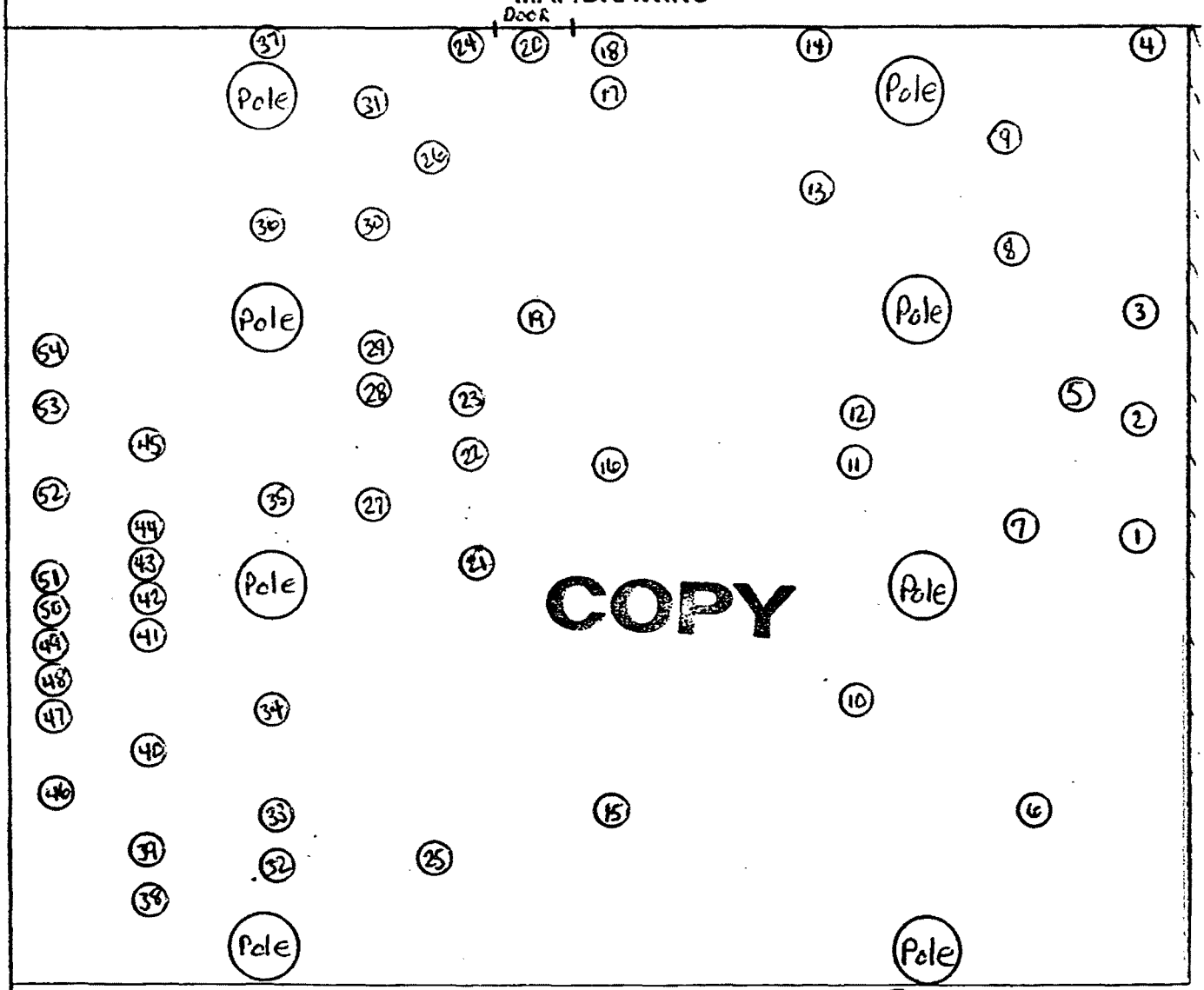
G-4206 200

RADIOLOGICAL SURVEY DATA SHEET

5 of 11

LOCATION: (BLDG./AREA/ROOM) Bldg 19 Lower Level Floor	SURVEY NO. 02-TF-181C
PURPOSE: CHARACTERIZATION	RWP NO. NA
	DATE:
	TIME:

MAP/DRAWING



LEGEND: # = mrem/hr (γ) whole body

△ # = mrem/hr neutron

(#) = swipe number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
See Page 1		
		A
N		

Completed by: (Signature) See Page 1	HP # [redacted]	Date: 4-12-02
Completed by: (Print Name) K. Abercrombie, RAC 12-2-02 See Page 1		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) N	HP #	Date:
Reviewed/Approved by: (Print Name) A		

ML-9620 (2-88)

G43 of 200

Survey No.
02-TF-1810

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comment
36	See Attached			Floor
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54	See Attached			Floor

N/A

COMMENTS: Area posted: "Controlled Area / Fixed Contamination" Rmc

NOTES:
1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout or su 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-0620A (4-98)

19 BUILDING CHARACTERIZATION ALPHA SCAN SURVEY

RSDS# 02-TF-1810 RCT: KA RCT: DGH

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5676	3		11/18/02	12:57	28	300	9
SRC CHECK	5673		5676	3		11/18/02	13:00	2126	60	3434
SRC CHECK	5673		5676	3		11/18/02	13:03	2135	60	3449
SRC CHECK	5673		5676	3		11/18/02	13:04	2106	60	3402
SRC CHECK	5673		5676	3		11/18/02	13:06	2096	60	3386
SRC CHECK	5673		5676	3		11/18/02	13:07	2061	60	3329
SRC CHECK	5673		5676	3		11/18/02	13:09	2221	60	3588
FSCAN 01	5673		5676	3	1	11/18/02	13:36	6	30	19
FSCAN 02	5673		5676	3	2	11/18/02	13:38	7	30	23
FSCAN 03	5673		5676	3	3	11/18/02	13:40	6	30	19
FSCAN 04	5673		5676	3	4	11/18/02	13:44	25	30	81
FSCAN 05	5673		5676	3	5	11/18/02	13:48	8	30	26
FSCAN 06	5673		5676	3	6	11/18/02	13:53	6	30	19
FSCAN 07	5673		5676	3	7	11/18/02	13:56	10	30	32
FSCAN 08	5673		5676	3	8	11/18/02	13:59	9	30	29
FSCAN 09	5673		5676	3	9	11/18/02	14:01	8	30	26
FSCAN 10	5673		5676	3	10	11/18/02	14:08	15	30	48
FSCAN 11	5673		5676	3	11	11/18/02	14:10	11	30	36
FSCAN 12	5673		5676	3	12	11/18/02	14:12	39	30	126
FSCAN 13	5673		5676	3	13	11/18/02	14:19	6	30	19
FSCAN 14	5673		5676	3	14	11/18/02	14:20	17	30	55
FSCAN 15	5673		5676	3	15	11/18/02	14:23	5	30	16
FSCAN 16	5673		5676	3	16	11/18/02	14:27	10	30	32
FSCAN 17	5673		5676	3	17	11/18/02	14:30	7	30	23
FSCAN 18	5673		5676	3	18	11/18/02	14:32	57	30	184
FSCAN 19	5673		5676	3	19	11/18/02	14:37	10	30	32
FSCAN 20	5673		5676	3	20	11/18/02	14:40	17	30	55
FSCAN 21	5673		5676	3	21	11/18/02	14:45	13	30	42
FSCAN 22	5673		5676	3	22	11/18/02	14:46	9	30	29
FSCAN 23	5673		5676	3	23	11/18/02	14:49	8	30	26
FSCAN 24	5673		5676	3	24	11/18/02	14:52	16	30	52

0450 280

19 BUILDING CHARACTERIZATION ALPHA SCAN SURVEY

RSDS# 02-TF-1810 RCT: KA RCT: DJA

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRCBKG	5673	[redacted]	5676	3		11/19/02	9:02	29	300	9
SRC CHECK	5673		5676	3		11/19/02	9:04	2073	60	3349
SRC CHECK	5673		5676	3		11/19/02	9:06	2155	60	3481
SRC CHECK	5673		5676	3		11/19/02	9:07	2260	60	3651
SRC CHECK	5673		5676	3		11/19/02	9:08	2137	60	3452
SRC CHECK	5673		5676	3		11/19/02	9:10	2177	60	3517
SRC CHECK	5673		5676	3		11/19/02	9:12	2312	60	3735
FSCAN 25	5673		5676	3	25	11/19/02	9:24	8	30	26
FSCAN 26	5673		5676	3	26	11/19/02	9:29	6	30	19
FSCAN 27	5673		5676	3	27	11/19/02	9:35	7	30	23
FSCAN 28	5673		5676	3	28	11/19/02	9:37	5	30	16
FSCAN 29	5673		5676	3	29	11/19/02	9:38	9	30	29
FSCAN 30	5673		5676	3	30	11/19/02	9:41	11	30	36
FSCAN 31	5673		5676	3	31	11/19/02	9:44	10	30	32
FSCAN 32	5673		5676	3	32	11/19/02	9:45	14	30	45
FSCAN 33	5673		5676	3	33	11/19/02	9:47	5	30	16
FSCAN 34	5673		5676	3	34	11/19/02	9:48	12	30	39
FSCAN 35	5673		5676	3	35	11/19/02	9:50	15	30	48
FSCAN 36	5673		5676	3	36	11/19/02	9:53	10	30	32
FSCAN 37	5673		5676	3	37	11/19/02	9:56	39	30	126
FSCAN 38	5673		5676	3	38	11/19/02	9:59	38	30	123
FSCAN 39	5673		5676	3	39	11/19/02	10:00	22	30	71
FSCAN 40	5673		5676	3	40	11/19/02	10:02	9	30	29
FSCAN 41	5673		5676	3	41	11/19/02	10:03	15	30	48
FSCAN 42	5673		5676	3	42	11/19/02	12:47	9	30	29
FSCAN 43	5673		5676	3	43	11/19/02	12:48	5	30	16
FSCAN 44	5673		5676	3	44	11/19/02	12:50	15	30	48
FSCAN 45	5673		5676	3	45	11/19/02	12:53	17	30	55
FSCAN 46	5673		5676	3	46	11/19/02	12:56	19	30	61
FSCAN 47	5673		5676	3	47	11/19/02	12:58	70	30	226
FSCAN 48	5673		5676	3	48	11/19/02	13:01	22	30	71
FSCAN 49	5673		5676	3	49	11/19/02	13:02	25	30	81
FSCAN 50	5673		5676	3	50	11/19/02	13:04	18	30	58
FSCAN 51	5673		5676	3	51	11/19/02	13:05	20	30	65

19 BUILDING CHARACTERIZATION ALPHA SCAN SURVEY

RSDS# 02-TF-1810 RCT: KA RCT: DJH

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
FSCAN 52	5673	[redacted]	5676	3	52	11/19/02	13:09	13	30	42
FSCAN 53	5673	[redacted]	5676	3	53	11/19/02	13:11	14	30	45
FSCAN 54	5673	[redacted]	5676	3	54	11/19/02	13:13	68	30	220

G476 200

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR028
Batch Ended: 11/19/2002 16:26
Recalibration Date: 7/8/2004
Serial Number: 64575

Batch ID: 02-TF-1810 RADLEY (54) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.0		0.0	1.4	
A2	2	0.0	2.0		0.9	1.9	
A3	3	0.0	1.9		5.4	3.0	
A4	4	1.2	1.9		0.0	1.3	
B1	5	0.0	2.1		0.0	1.4	
B2	6	0.0	2.3		4.1	2.8	
B3	7	1.7	1.9		0.0	1.8	
B4	8	0.0	2.0		0.9	1.8	
C1	9	0.0	2.0		0.0	1.4	
C2	10	0.0	2.0		0.7	1.8	
C3	11	0.0	1.8		0.9	1.7	
C4	12	0.0	1.8		1.7	2.0	
D1	13	0.0	2.1		1.0	1.9	
D2	14	0.0	2.2		6.4	3.2	
D3	15	0.0	2.0		1.2	1.7	
D4	16	0.0	2.0		0.0	1.3	
A1	17	0.0	2.0		0.0	1.4	
A2	18	3.7	2.8		3.2	2.6	
A3	19	0.0	1.8		0.0	1.3	
A4	20	0.0	1.9		0.0	1.3	
B1	21	2.0	2.1		0.0	1.4	
B2	22	0.0	2.2		2.7	2.5	
B3	23	0.0	1.9		0.0	1.4	
B4	24	0.0	2.0		0.0	1.3	
C1	25	1.9	2.0		0.5	1.8	
C2	26	0.0	2.0		0.0	1.3	
C3	27	0.0	1.8		0.0	1.2	
C4	28	0.0	1.9		3.9	2.6	
D1	29	0.0	2.1		1.0	1.9	
D2	30	0.0	2.1		0.1	1.4	
D3	31	0.0	2.0		2.4	2.1	
D4	32	0.0	2.0		0.0	1.3	

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KA 11-25-02

KA 11-25-02

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR028
Batch Ended: 11/19/2002 16:26
Recalibration Date: 7/8/2004
Serial Number: 64575

Batch ID: 02-TF-1810 RADLEY (54) BSB

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	33	0.0	2.0		0.0	1.4	
A2	34	0.0	2.0		0.9	1.9	
A3	35	0.0	1.8		0.0	1.3	
A4	36	0.0	1.9		0.0	1.3	
B1	37	0.0	2.1		0.0	1.4	
B2	38	0.0	2.2		0.0	1.5	
B3	39	0.0	1.9		0.0	1.4	
B4	40	0.0	2.0		2.1	2.2	
C1	41	0.0	2.0		0.0	1.4	
C2	42	1.8	2.0		0.0	1.3	
C3	43	0.0	1.8		2.1	2.0	
C4	44	1.7	1.8		1.6	2.0	
D1	45	0.0	2.1		1.0	1.9	
D2	46	0.0	2.1		0.1	1.4	
D3	47	0.0	2.0		0.0	1.3	
D4	48	1.8	2.0		2.1	2.1	
A1	49	0.0	2.0		2.6	2.3	
A2	50	0.0	2.0		0.0	1.4	
A3	51	0.0	1.9		1.8	2.1	
A4	52	0.0	1.9		2.0	2.1	
B1	53	0.0	2.1		1.1	1.9	
B2	54	0.0	2.2		0.0	1.5	

KA
11-25-02

KA
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KA

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Protocol #: 5 Name:PW H3 #401388 19-Nov-2002 16:20
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
RADLEY 02-TF-1810 1-54 JC
Conventional DPM
Nuclide 1 = 1
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	2.36	2.97	4.60	B	32	679.		41.14
0	2.00	234.71	226.44	1.90	L	1	499.	505.05	9.37
1	2.00	8.10	5.88	0.90	L	5	583.	15.94	60.46
2	2.00	4.14	2.43	0.40	L	0	576.	8.19	90.28
3	2.00	8.14	6.54	0.40	L	0	593.	15.85	57.58
4	2.00	10.60	7.91	2.90	L	4	577.	20.98	50.79
5	2.00	22.19	18.93	1.40	L	2	591.	43.30	32.55
6	2.00	9.57	6.88	1.90	L	8	552.	19.42	56.33
7	2.00	19.66	14.95	2.40	L	2	587.	38.51	34.92
8	2.00	11.64	8.84	4.90	L	0	558.	23.46	46.24
9	2.00	21.32	15.93	2.40	L	0	626.	40.26	32.60
10	2.00	6.24	3.40	3.40	L	0	593.	12.17	68.26
11	2.00	5.92	5.42	0.40	L	12	607.	11.37	78.85
12	2.00	4.65	3.81	3.40	L	0	586.	9.11	83.26
13	2.00	3.14	1.78	0.90	L	0	598.	6.08	110.2
14	2.00	2.64	2.03	5.01	L	0	418.	6.33	125.5
15	2.00	18.52	14.79	1.90	L	0	577.	36.62	35.29
16	2.00	13.60	9.91	1.90	L	3	583.	26.76	43.49
17	2.00	11.14	8.76	2.90	L	0	570.	22.19	47.47
18	2.00	10.64	7.66	4.43	L	0	546.	21.72	48.80
19	2.00	10.14	8.15	1.40	L	0	608.	19.46	50.25
20	2.00	12.64	9.84	2.40	L	0	589.	24.71	44.02
21	2.00	1.11	0.56	0.00	L	14	604.	2.13	286.3
22	2.00	5.41	3.05	0.90	L	7	605.	10.41	79.80
23	2.00	11.83	10.50	2.90	L	4	600.	22.88	47.41
24	2.00	8.00	5.88	1.40	L	13	603.	15.43	66.21
25	2.00	10.14	6.73	4.40	L	0	598.	19.66	50.25
26	2.00	20.14	16.30	0.00	L	0	591.	39.29	33.66
27	2.00	5.14	2.72	1.40	L	0	636.	9.61	77.75
28	2.00	9.93	7.75	1.90	L	0	604.	19.13	50.90
29	2.00	5.14	3.04	0.00	L	0	592.	10.01	77.75
30	2.00	7.60	5.80	0.00	L	5	596.	14.76	63.07
31	2.00	5.60	4.83	0.40	L	6	587.	10.98	77.79
32	2.00	8.10	6.22	3.40	L	5	554.	16.40	60.46
33	2.00	17.10	14.51	5.40	L	3	536.	35.31	37.89
34	2.00	7.54	6.71	0.00	L	14	563.	15.13	69.08
35	2.00	7.10	5.98	4.40	L	5	564.	14.24	66.03
36	2.00	8.64	5.14	1.76	L	0	583.	16.99	55.47
37	2.00	12.14	9.09	5.90	L	0	587.	23.77	45.09
38	2.00	2.10	0.86	0.00	L	11	586.	4.13	164.6
39	2.00	17.64	13.33	1.90	L	0	570.	35.12	36.28
40	2.00	22.14	19.65	3.40	L	0	561.	44.49	31.93
41	2.00	1.56	0.46	6.90	L	0	547.	3.19	189.9
42	2.00	4.01	4.01	2.90	L	26	534.	8.29	117.6
43	2.00	9.64	7.78	1.40	L	0	594.	18.75	51.83

KA

G50% 200 11-25-02

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
44	2.00	6.64	5.59	3.40	L	0	530.	13.78	65.59
45	2.00	7.10	4.56	0.00	L	5	595.	13.81	66.03
46	2.00	17.66	16.21	5.90	L	3	555.	35.71	37.19
47	2.00	11.14	8.82	0.00	L	0	556.	22.50	47.47
48	2.00	7.60	6.14	1.40	L	5	507.	16.20	63.09
49	2.00	14.64	12.04	2.40	L	0	593.	28.52	40.39
50	2.00	9.82	7.90	3.90	L	0	564.	19.68	51.25
51	2.00	14.14	11.42	0.40	L	0	609.	27.12	41.22
52	2.00	18.07	16.13	2.40	L	5	590.	35.32	37.56
53	2.00	9.60	7.49	0.90	L	4	563.	19.27	54.11
54	2.00	6.60	5.57	1.90	L	6	584.	12.98	69.40

KA
11-25-02

02-TF-1810

G5106 200

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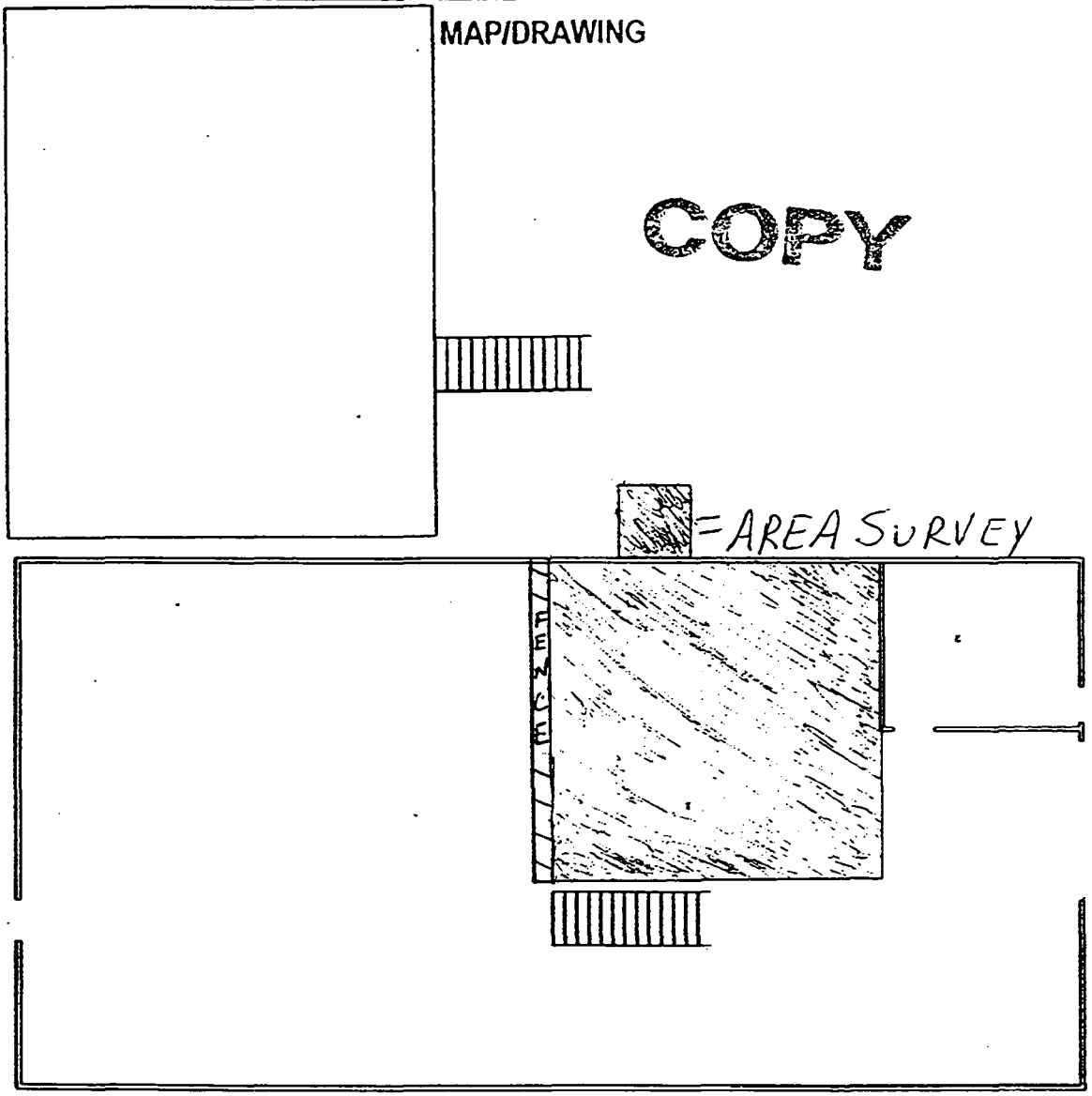
G520b 200

RADIOLOGICAL SURVEY DATA SHEET

1 of 8

LOCATION: (BLDG./AREA/ROOM) BLDG. 19/UPPER & LOWER LEVEL	SURVEY NO. 02-TF-1811
PURPOSE: CHARACTERIZATION ALPHA SCAN SURVEY IAW SURVEY PLAN 19-01	RWP NO. NA
	DATE: 11-20-02
	TIME: 1300

MAP/DRAWING



LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

= swipe number

= air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5676	8-13-03
2360	5755/5723	8-8-03
	N	
	A	

Completed by: (Signature) K. Abercrombie	HP # [redacted]	Date: 11-26
Completed by: (Print Name) K. Abercrombie D. J. HARVEY		
Counted by: (Signature) See	HP # -	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) RM Coblentz	HP # [redacted]	Date: 12-2-0
Reviewed/Approved by: (Print Name) RM Coblentz		

ML-0620 (2-88)

GS 3 of 200

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: Area posted "Controlled Area" "Fixed Contamination" – RMC

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 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.

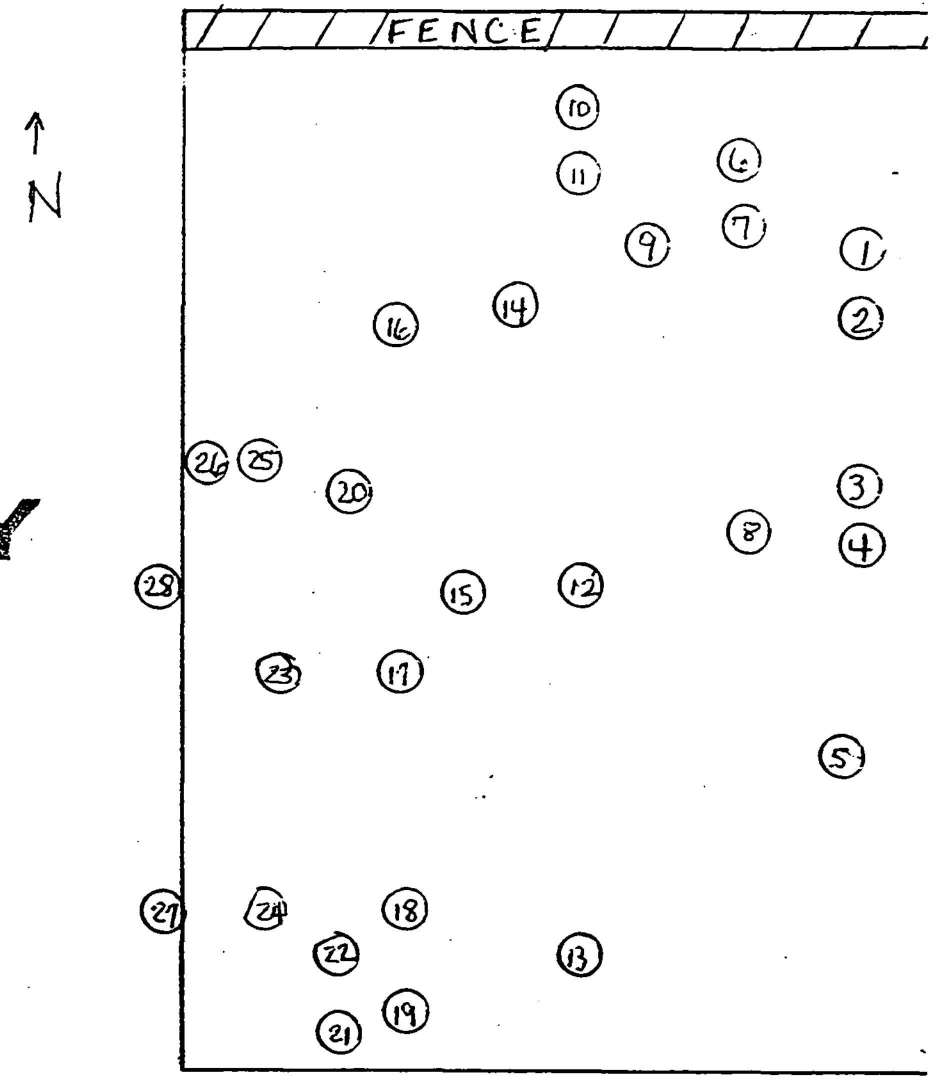
ML-9620A (4-98)

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 19 Lower Level FL.	SURVEY NO. 02-TF-1811
PURPOSE: CHARACTERIZATION	RWP NO. NA
	DATE:
	TIME:

MAP/DRAWING

COPY



LEGEND: # = mrem/hr (γ) whole body
[illegible]
(in triangle) = mrem/hr neutron
(in square) = air sample number
(in circle) = swipe number
#/α (in circle) or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
See	PAGE 1	
	N	A

Completed by: (Signature) N	HP # A	Date:
Completed by: (Print Name) SEE PAGE 1		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) N		
Reviewed/Approved by: (Signature) A	HP #	Date:
Reviewed/Approved by: (Print Name)		

ML-9620 (2-98) G5506 200

Survey No. 02-TF-1811

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: N/A

NOTES:
1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout sheets 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-0620A (4-98)

G5606 200

19 BUILDING CHARACTERIZATION APLHA SCAN SURVEY

RSDS# 02-TF-1811 RCT: KA RCT: DJH

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5676	3		11/20/02	7:54	35	300	11
SRC CHECK	5673		5676	3		11/20/02	8:04	2117	60	3420
SRC CHECK	5673		5676	3		11/20/02	8:08	2245	60	3627
SRC CHECK	5673		5676	3		11/20/02	8:09	2324	60	3754
SRC CHECK	5673		5676	3		11/20/02	8:11	2238	60	3615
SRC CHECK	5673		5676	3		11/20/02	8:14	2139	60	3455
SRC CHECK	5673		5676	3		11/20/02	8:15	2236	60	3612
FSCAN 01	5673		5676	3	1	11/20/02	12:23	13	30	42
FSCAN 02	5673		5676	3	2	11/20/02	12:24	7	30	23
FSCAN 03	5673		5676	3	3	11/20/02	12:27	9	30	29
FSCAN 04	5673		5676	3	4	11/20/02	12:29	13	30	42
FSCAN 05	5673		5676	3	5	11/20/02	12:33	10	30	32
FSCAN 06	5673		5676	3	6	11/20/02	12:42	8	30	26
FSCAN 07	5673		5676	3	7	11/20/02	12:43	7	30	23
FSCAN 08	5673		5676	3	8	11/20/02	12:46	9	30	29
FSCAN 09	5673		5676	3	9	11/20/02	12:54	4	30	13
FSCAN 10	5673		5676	3	10	11/20/02	13:01	9	30	29
FSCAN 11	5673		5676	3	11	11/20/02	13:03	13	30	42
FSCAN 12	5673		5676	3	12	11/20/02	13:07	10	30	32
FSCAN 13	5673		5676	3	13	11/20/02	13:10	15	30	48
FSCAN 14	5673		5676	3	14	11/20/02	13:13	8	30	26
FSCAN 15	5673		5676	3	15	11/20/02	13:19	4	30	13
FSCAN 16	5673		5676	3	16	11/20/02	13:24	10	30	32
FSCAN 17	5673		5676	3	17	11/20/02	13:26	10	30	32
FSCAN 18	5673		5676	3	18	11/20/02	13:27	6	30	19
FSCAN 19	5673		5676	3	19	11/20/02	13:29	17	30	55
FSCAN 20	5673		5676	3	20	11/20/02	13:31	7	30	23
FSCAN 21	5673		5676	3	21	11/20/02	13:35	9	30	29
FSCAN 22	5673		5676	3	22	11/20/02	13:36	6	30	19
FSCAN 23	5673		5676	3	23	11/20/02	13:44	6	30	19
FSCAN 24	5673		5676	3	24	11/20/02	13:47	4	30	13
FSCAN 25	5673		5676	3	25	11/20/02	13:50	13	30	42
FSCAN 26	5673		5676	3	26	11/20/02	13:55	7	30	23
FSCAN 27	5673		5676	3	27	11/20/02	13:59	9	30	29

6-5706200

19 BUILDING CHARACTERIZATION APLHA SCAN SURVEY

RSDS# 02-TF-1811 RCT: KT RCT: DJH

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
FSCAN 28	5673	[redacted]	5676	3	28	11/20/02	14:02	1223	30	3951

G-5806 200

1 of 8

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR004
Batch Ended: 11/20/02 15:49

Crosstalk correction performed.

Batch ID: ABERCROMBIE 02-TF-1811 (28) CYR

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

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.0	2.1		2.2	2.4	
A2	2	0.0	2.2		0.7	2.0	
A3	3	0.0	2.0		2.0	2.2	
A4	4	0.0	1.9		0.0	1.4	
B1	5	0.0	2.0		0.0	2.3	
B2	6	0.0	2.0		0.0	1.6	
B3	7	0.0	1.9		0.0	1.3	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.6	1.8	
C2	10	0.0	2.0		1.1	1.9	
C3	11	1.7	1.9		0.0	1.2	
C4	12	0.0	1.9		2.2	2.1	
D1	13	6.5	3.9		1.5	2.3	
D2	14	0.0	2.2		2.6	2.7	
D3	15	0.0	2.0		0.0	1.3	
D4	16	1.8	2.1		1.2	2.2	
A1	17	0.0	2.1		0.8	2.0	
A2	18	0.0	2.2		0.7	2.0	
A3	19	0.0	2.0		2.0	2.2	
A4	20	0.0	1.9		0.0	1.4	
B1	21	1.5	2.0		0.0	2.3	
B2	22	0.0	2.1		5.2	3.3	
B3	23	0.0	1.9		3.3	2.7	
B4	24	0.0	1.9		0.4	1.8	
C1	25	0.0	2.0		0.6	1.8	
C2	26	0.0	2.0		1.1	1.9	
C3	27	0.0	1.9		1.1	1.7	
C4	28	1.6	1.9		0.0	1.2	

KA 11-25-02

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Brenda Hislope 11-21-02

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KA 11-25-02

G-5906 200

768

8078

Protocol #: 6 Name:PW H3 #87267 20-Nov-2002 17:10
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 RIP = tSIE/AEC~~ ES Terminator = Count
ABERCROMBIE SUR #02-TF-1811 (I1-I28)/BH
Conventional DPM
Nuclide 1 = 843
Luminescence Correction On

T-419

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	7	B	4.40	4.30	4.80	690.		0.00
0	2.00	1		824.10	774.20	1.70	552.	1713.53	156.03
1	2.00	13		0.00	0.00	3.20	599.	0.00	0.00
2	2.00	34		0.00	0.00	1.70	572.	0.00	0.00
3	2.00	0		2.10	2.20	0.20	513.	4.56	8.35
4	2.00	27		0.00	0.00	0.00	587.	0.00	0.00
5	2.00	0		1.10	1.20	2.70	597.	2.19	7.10
6	2.00	20		0.00	0.00	1.20	604.	0.00	0.00
7	2.00	0		0.00	0.00	1.70	608.	0.00	0.00
8	2.00	0		0.00	0.00	2.20	615.	0.00	0.00
9	2.00	24		0.00	0.00	0.00	533.	0.00	0.00
10	2.00	0		0.00	0.00	1.70	537.	0.00	0.00
11	2.00	0		0.60	0.20	1.70	527.	1.28	7.33
12	2.00	0		2.60	2.20	1.20	645.	4.96	7.57
13	2.00	0		0.10	0.20	0.70	524.	0.21	7.03
14	2.00	20		0.00	0.00	0.20	592.	0.00	0.00
15	2.00	24		0.00	0.00	0.00	568.	0.00	0.00
16	2.00	13		0.00	0.00	3.70	556.	0.00	0.00
17	2.00	0		1.60	1.70	0.70	579.	3.24	7.50
18	2.00	0		0.00	0.00	1.70	551.	0.00	0.00
19	2.00	0		1.10	0.70	0.00	522.	2.37	7.68
20	2.00	9		1.60	1.70	0.00	614.	3.13	8.24
21	2.00	0		0.00	0.00	0.00	558.	0.00	0.00
22	2.00	0		0.00	0.00	0.20	578.	0.00	0.00
23	2.00	17		0.00	0.00	0.00	525.	0.00	0.00
24	2.00	0		0.10	0.00	1.70	566.	0.21	6.73
25	2.00	0		0.00	0.00	1.70	605.	0.00	0.00
26	2.00	9		0.00	0.00	2.20	601.	0.00	0.00
27	2.00	0		0.10	0.20	0.70	591.	0.20	6.55
28	2.00	0		0.00	0.00	0.00	537.	0.00	0.00

Brenda Hislope 11-21-02

KA
11-25-02

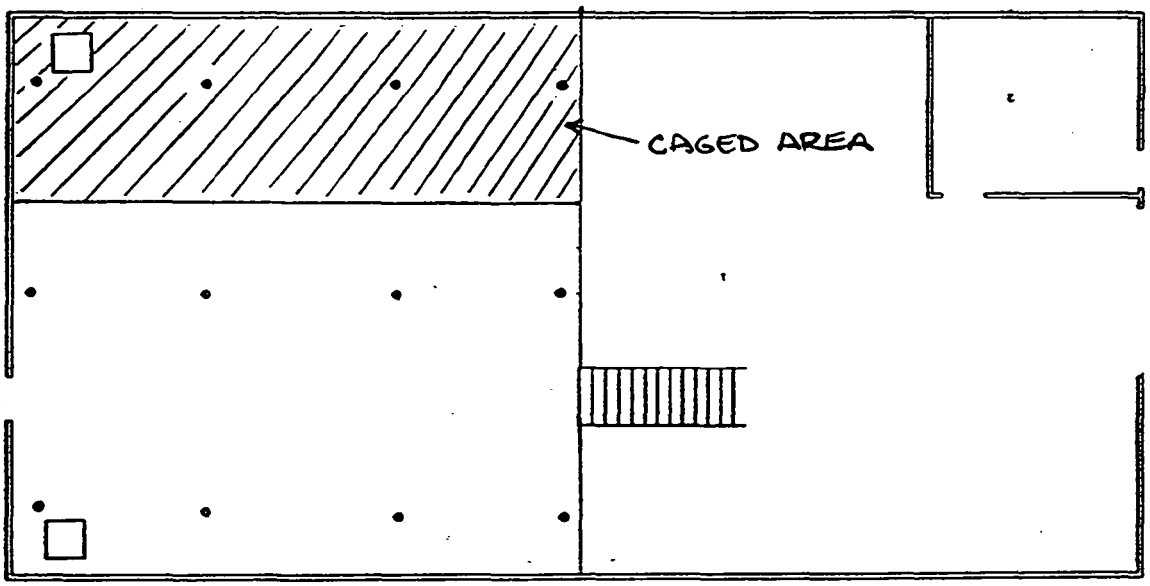
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLDG. 19/UPPER & LOWER LEVEL	SURVEY NO. 02-TF-1812
PURPOSE: CHARACTERIZATION	RWP NO. NA
	DATE: 11-25-02
	TIME: 1530

MAP/DRAWING

Building posted Controlled Area
Fixed Contamination

= AREA Survey



LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

= swipe number

= air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5706 5716	8-22-03
2350	5676 5673	8-13-03
	N A	

Completed by: (Signature) K. Abercrombie	HP # [redacted]	Date: 12-3-02
Completed by: (Print Name) K Abercrombie DANIEL J. HARVEY		
Counted by: (Signature) See	HP #	Date:
Counted by: (Print Name) Attached		
Reviewed/Approved by: (Signature) RM Coblentz	HP # [redacted]	Date: 12-6-02
Reviewed/Approved by: (Print Name) RM Coblentz		

ML-0620 (2-98)

Survey No.
02-TF-1812

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

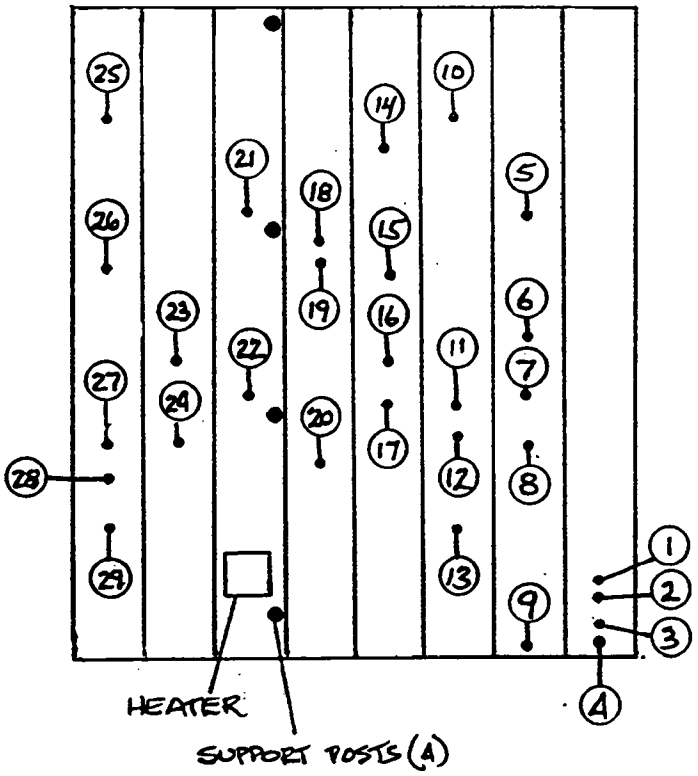
G6206 200

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 19 Lower Level 1	SURVEY NO. See PAGE 1
PURPOSE: CHARACTERIZATION	RWP NO.
	DATE:
	TIME:

MAP/DRAWING

CAGED AREA



COPY

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr (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
See PAGE 1		
N		A

ML-9620 (2-98)

GG306 200

Completed by: (Signature) See PAGE 1	HP # NA	Date: NA
Completed by: (Print Name)		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) N A		
Reviewed/Approved by: (Signature)	HP #	Date:
Reviewed/Approved by: (Print Name)		

19 BUILDING CHARACTERIZATION SCAN SURVEY

RSDS# 02-TF-1812 RCT: KA RCT: 4971

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5676	3		11/25/02	9:14	40	300	13
SRC CHECK	5673		5676	3		11/25/02	9:16	2014	60	3253
SRC CHECK	5673		5676	3		11/25/02	9:18	2191	60	3539
SRC CHECK	5673		5676	3		11/25/02	9:20	2237	60	3614
SRC CHECK	5673		5676	3		11/25/02	9:21	2253	60	3640
SRC CHECK	5673		5676	3		11/25/02	9:23	2090	60	3376
SRC CHECK	5673		5676	3		11/25/02	9:24	2266	60	3661
FSCAN 01	5673		5676	3	1	11/25/02	13:48	14	30	45
FSCAN 02	5673		5676	3	2	11/25/02	13:49	14	30	45
FSCAN 03	5673		5676	3	3	11/25/02	13:51	12	30	39
FSCAN 04	5673		5676	3	4	11/25/02	13:53	78	30	252
FSCAN 04	5673		5676	3	5	11/25/02	13:56	16	30	52
FSCAN 06	5673		5676	3	6	11/25/02	14:00	16	30	52
FSCAN 07	5673		5676	3	7	11/25/02	14:02	10	30	32
FSCAN 08	5673		5676	3	8	11/25/02	14:09	5	30	16
FSCAN 09	5673		5676	3	9	11/25/02	14:13	25	30	81
FSCAN 10	5673		5676	3	10	11/25/02	14:16	8	30	26
FSCAN 11	5673		5676	3	11	11/25/02	14:19	7	30	23
FSCAN 12	5673		5676	3	12	11/25/02	14:21	8	30	26
FSCAN 13	5673		5676	3	13	11/25/02	14:23	8	30	26
FSCAN 14	5673		5676	3	14	11/25/02	14:29	11	30	36
FSCAN 15	5673		5676	3	15	11/25/02	14:31	13	30	42
FSCAN 16	5673		5676	3	16	11/25/02	14:33	12	30	39
FSCAN 17	5673		5676	3	17	11/25/02	14:34	11	30	36
FSCAN 18	5673		5676	3	18	11/25/02	14:41	112	30	362
FSCAN 19	5673		5676	3	19	11/25/02	14:45	9	30	29
FSCAN 20	5673		5676	3	20	11/25/02	14:49	14	30	45
FSCAN 21	5673		5676	3	21	11/25/02	14:54	13	30	42
FSCAN 22	5673		5676	3	22	11/25/02	15:00	17	30	55
FSCAN 23	5673		5676	3	23	11/25/02	15:08	19	30	61
FSCAN 24	5673		5676	3	24	11/25/02	15:10	23	30	74
FSCAN 25	5673		5676	3	25	11/25/02	15:16	23	30	74
FSCAN 26	5673		5676	3	26	11/25/02	15:20	12	30	39
FSCAN 27	5673		5676	3	27	11/25/02	15:24	21	30	68

G-640-200

19 BUILDING CHARACTERIZATION SCAN SURVEY

RSDS# 02-TF-1812 RCT: [illegible] RCT: [illegible]

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
FSCAN 28	5673	[redacted]	5676	3	28	11/25/02	15:27	22	30	71
FSCAN 29	5673	[redacted]	5676	3	29	11/25/02	15:29	13	30	42

G6506 200

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR013
Batch Ended: 11/27/02 14:35

Crosstalk correction performed.

Batch ID: ABERCROMBIE 01-TF-1812 (29) CYR KA

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

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.1		0.0	1.4	
A2	2	0.0	2.2		0.7	2.0	
A3	3	0.0	2.0		0.0	1.4	
A4	4	0.0	2.0		0.2	1.8	
B1	5	0.0	2.0		2.4	2.9	
B2	6	0.0	2.0		0.0	1.6	
B3	7	0.0	1.9		0.0	1.7	
B4	8	0.0	1.9		3.9	2.7	
C1	9	0.0	2.1		1.8	2.2	
C2	10	0.0	2.0		0.0	1.4	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	2.0		3.4	2.4	
D1	13	0.0	2.3		2.0	2.3	
D2	14	0.0	2.1		0.0	1.5	
D3	15	1.7	2.0		0.0	1.3	
D4	16	0.0	2.1		2.6	2.5	
A1	17	0.0	2.1		0.8	2.0	
A2	18	0.0	2.2		0.0	1.5	
A3	19	0.0	2.0		0.0	1.4	
A4	20	1.7	2.0		0.1	1.8	
B1	21	1.5	2.0		1.0	2.7	
B2	22	0.0	2.1		5.2	3.3	
B3	23	0.0	1.9		0.0	1.3	
B4	24	0.0	1.9		0.4	1.8	
C1	25	0.0	2.0		0.6	1.8	
C2	26	0.0	2.0		1.1	1.9	
C3	27	0.0	1.9		0.0	1.2	
C4	28	0.0	1.9		2.2	2.1	
D1	29	0.0	2.3		2.0	2.3	

KA KA

Brenda Hislope 12-2-02

T-419

Protocol #: 2 Name:Pw H3 #401393 27-Nov-2002 15:44
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
ABERCROMBIE 02-TF-1812 (L1-L29) RGB
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	4	B	9.39	8.68	3.90	646.		20.64
0	2.00	9		11.71	12.57	75.33	279.	48.07	63.06
1	2.00	22		0.00	0.00	0.10	541.	0.00	0.00
2	2.00	18		0.00	0.00	2.60	621.	0.00	0.00
3	2.00	0		0.00	0.00	0.60	544.	0.00	0.00
4	2.00	54		0.00	0.00	1.10	565.	0.00	0.00
5	2.00	11		0.00	0.00	0.00	626.	0.00	0.00
6	2.00	18		0.00	0.00	0.10	624.	0.00	0.00
7	2.00	0		0.00	0.00	1.60	555.	0.00	0.00
8	2.00	22		0.00	0.00	0.60	489.	0.00	0.00
9	2.00	15		0.00	0.00	4.10	588.	0.00	0.00
10	2.00	0		0.00	0.00	1.10	529.	0.00	0.00
11	2.00	0		0.00	0.00	1.10	536.	0.00	0.00
12	2.00	0		0.00	0.00	3.92	428.	0.00	0.00
13	2.00	16		0.00	0.00	1.60	578.	0.00	0.00
14	2.00	47		0.00	0.00	1.10	530.	0.00	0.00
15	2.00	0		0.00	0.00	1.10	588.	0.00	0.00
16	2.00	11		0.00	0.00	0.60	521.	0.00	0.00
17	2.00	22		0.00	0.00	2.10	570.	0.00	0.00
18	2.00	0		0.00	0.00	4.60	532.	0.00	0.00
19	2.00	12		0.00	0.00	2.10	470.	0.00	0.00
20	2.00	36		0.00	0.00	2.10	472.	0.00	0.00
21	2.00	0		0.00	0.00	0.00	465.	0.00	0.00
22	2.00	18		0.00	0.00	0.60	542.	0.00	0.00
23	2.00	22		0.00	0.00	0.00	499.	0.00	0.00
24	2.00	36		0.00	0.00	0.60	519.	0.00	0.00
25	2.00	14		0.00	0.00	2.60	452.	0.00	0.00
26	2.00	31		0.00	0.00	4.10	567.	0.00	0.00
27	2.00	0		0.00	0.00	0.00	578.	0.00	0.00
28	2.00	0		0.00	0.00	0.60	465.	0.00	0.00
29	2.00	16		0.00	0.00	2.10	550.	0.00	0.00

KA

Brenda Hislope 12-2-02

G 6706 200

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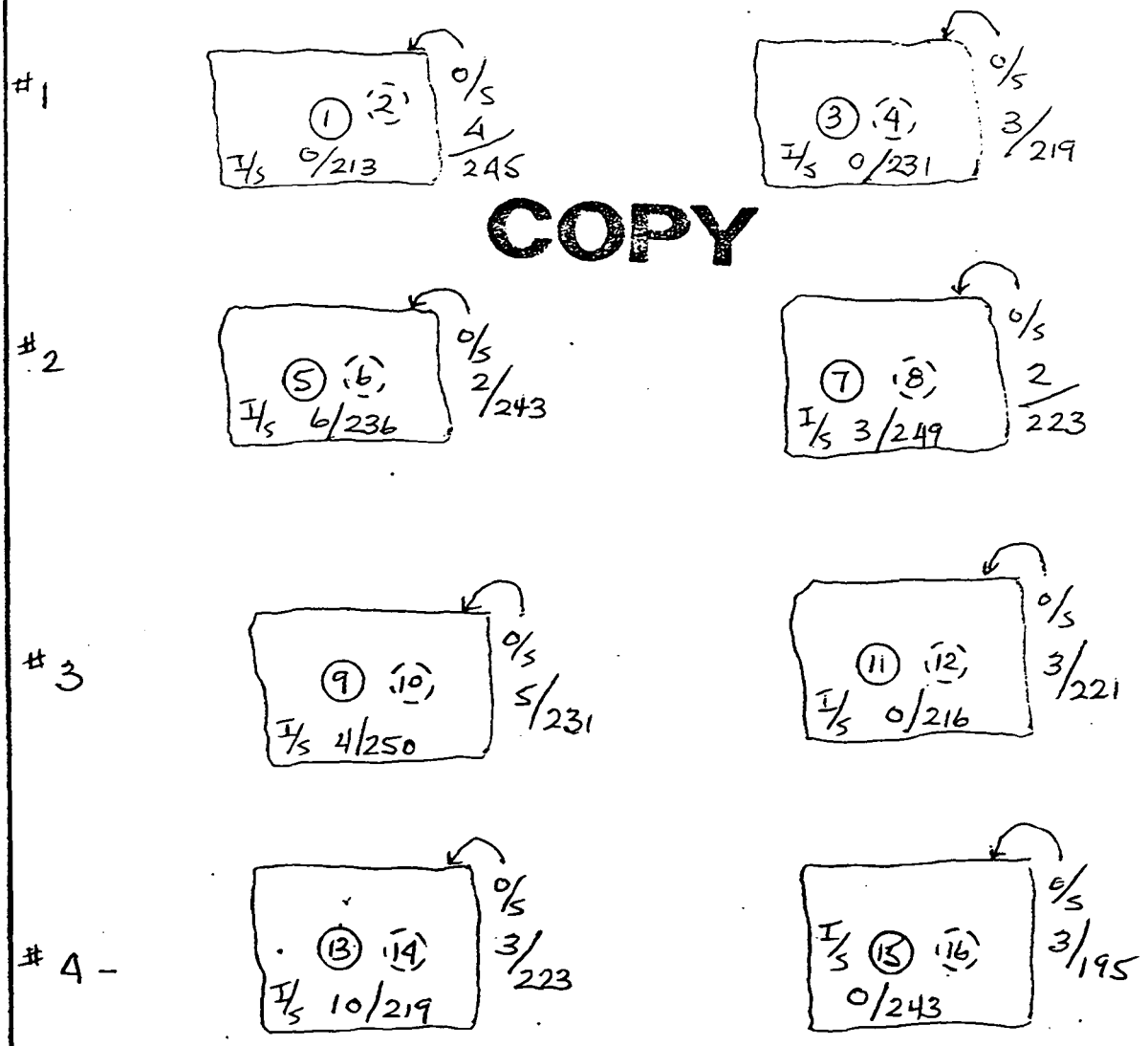
RADIOLOGICAL SURVEY DATA SHEET

Pg. 1 of 4

LOCATION: (BLDG./AREA/ROOM) 19 | I/S	SURVEY NO. 02-TF-1815
PURPOSE: SURVEY OF CORRUGATED SIDING REMOVED FROM I/S WALLS	RWP NO. N/A
	DATE: 12-5-02
	TIME: 1430

MAP/DRAWING



LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

(#) = swipe number

= air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5706/5716	8/22/03
	N	
	A	

ML-6620 (2-98) G6906 200

Completed by: (Signature) PG Radley / K. Abercrombie	HP # [redacted]	Date: 12-5-02
Completed by: (Print Name) PG RADLEY / K. ABERCROMBIE		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) [signature]	HP # [redacted]	Date: 01/06/03
Reviewed/Approved by: (Print Name) RM Goblentz		

Survey No. 02-TF-1815

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTA	CHED	CUTOUTS #1
2	↓	↓	↓	↓ ↓
3				
4				↓
5				#2
6				↓
7				
8				↓
9				#3
10				↓
11				
12				↓
13				#4
14				↓
15				
16	↓	↓	↓	↓ ↓
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)

G 70 of 200

Survey No.
02-TF-1815

RADIOLOGICAL SURVEY DATA SHEET (cont)

Ludlum 2360 Integrated Measurement Results						
	Alpha			Beta		
	Background	0.8	cpm	Background	186	cpm
	DL	0.4	Net cpm	DL	30	Net cpm
No.	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)
1	0	8	<DL	213	4	<DL
2	4	↓	25.6	245	↓	236
3	0		<DL	231		180
4	3		17.6	219		132
5	6		41.6	236		200
6	2		9.6	243		228
7	3		17.6	249		252
8	2		9.6	223		148
9	4		25.6	250		256
10	5		33.6	231		180
11	0		<DL	216		<DL
12	3		17.6	221		140
13	10		73.6	219		132
14	3		17.6	223		148
15	0		<DL	243		228
16	3	↓	17.6	195	↓	<DL
			N			
				A		

ML-9620C

G7606 200

Alpha/Beta Analysis

Unit Type: LB4100-W
Counting Unit ID: Green
Data file name: SMEAR002
Batch Ended: 12/6/2002 15:32
Recalibration Date: 7/8/2004
Serial Number: 64575

Batch ID: 02-TF-1815 RADLEY (16) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.0	2.0		0.0	1.4	
A2	2	0.0	2.0		0.9	1.9	
A3	3	0.0	1.9		0.6	1.8	
A4	4	0.0	1.9		0.0	1.3	
B1	5	0.0	2.1		0.0	1.4	
B2	6	0.0	2.2		0.0	1.5	
B3	7	0.0	1.9		1.3	2.2	
B4	8	0.0	2.0		0.0	1.3	
C1	9	0.0	2.0		0.0	1.4	
C2	10	0.0	2.0		1.9	2.2	
C3	11	0.0	1.9		4.4	2.6	
C4	12	0.0	1.8		0.0	1.3	
D1	13	4.0	3.0		0.7	1.9	
D2	14	0.0	2.1		2.6	2.3	
D3	15	1.8	2.0		0.0	1.3	
D4	16	3.8	2.9		3.2	2.4	

↘ PGR ↘ PGR

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4 of 4

RADIOLOGICAL SURVEY DATA SHEET

1 of 5

LOCATION: (BLDG./AREA/ROOM) 19/I/S WALL PANELS	SURVEY NO. 02-TF-2111
PURPOSE: CHARACTERIZATION SURVEY I.A.W. SURVEY PLAN 19-001 Rev 12-12-02	RWP NO. N/A
	DATE: 12-10-02
	TIME: 1500

MAP/DRAWING

COPY

SEE ATTACHED FOR RESULTS

PANEL

#1: 9α / 191 β

#2: 10α / 181 β

#3: 5α / 188 β

#4: 8α / 229 β

#5: 7α / 196 β

#6: 8α / 160 β

#7: 6α / 174 β

#8: 3α / 177 β

#9: 4α / 264 β

#10: 7α / 196 β

#11: 6α / 174 β

#12: 8α / 186 β

#13: 7α / 204 β

DIRECT

Highest α, β Readings ON EACH PANEL.

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

(#) = swipe number

= air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5706/5716	8/22/02
	N/A	

ML-0620 (2-98)

G7306200

Completed by: (Signature) K. Abercrombie HP [redacted] Date: 12-12-02

Completed by: (Print Name) PG KADLEY / K. ABERCROMBIE

Counted by: (Signature) SEE HP # Date:

Counted by: (Print Name) ATTACHED

Reviewed/Approved by: (Signature) RM Coblente HP [redacted] Date: 01/06/03

Reviewed/Approved by: (Print Name) RM Coblente

Survey No. 02-TF-2111

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE ATTACHED			I/S PANEL
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
		N/A		

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

COMMENTS: N/A

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout dates 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)

Survey No.
02-TF-2111

RADIOLOGICAL SURVEY DATA SHEET (cont)

Ludlum 2360 Integrated Measurement Results

		Alpha			Beta		
		BKGD	0.8	cpm	BKGD	201	cpm
		DL	0.4	Net cpm	DL	30	Net cpm
No.	Item/Location Description	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)
1	I/S PANEL	9	8	65.6	191	4	< DL
2		10		73.6	181		
3		5		33.6	188		
4		8		57.6	229		
5		7		49.6	196		
6		8		57.6	160		
7		6		41.6	174		
8		3		17.6	177		
9		4		25.6	264		252
10		7		49.6	196		< DL
11		6		41.6	174		
12		8		57.6	186		
13		7		49.6	204		

N
A

ML-9620C

G7506 200

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200212121443	**Count Date:**	12/12/200
Group:	F	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	02-TF-2111 ABERCROMBIE (13) 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	61	0.00	0.00	1.37	1.45
2	72	0.00	0.00	2.74	2.04
3	21	0.00	0.00	2.74	2.04
4	69	0.00	0.00	1.37	1.45
5	60	0.00	0.00	4.11	2.50
6	100	0.00	0.00	0.00	0.00
7	97	0.00	0.00	4.11	2.50
8	29	0.00	0.00	1.37	1.45
9	16	0.00	0.00	1.37	1.45
10	8	0.00	0.00	0.00	0.00
11	47	2.18	1.92	3.95	2.51
12	97	2.18	1.92	6.69	3.24
13	86	2.18	1.92	6.69	3.24

KA KA

~~Reviewed~~ KA 12-31-02

G766 200

KA 12-31-02

12 Dec 2002 16:46 ALPHA/BETA - 1.09 Page #1
Protocol #: 6 PW H3 #403727 User : [redacted]

Time: 2.00
Data Mode: DPM Nuclide: SMGLSO2 Quench Set: SMGLSO2
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5	18.6	0	0.0	5.63
Region B:	2.0	18.6	0	0.0	5.34
Region C:	40.0	2000	0	0.0	9.90

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
02-TF-2111 ABERCROMBIE (13) 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

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	5.63	5.34	9.90	701.40	3	B		0.00
0	2.00	718.46	693.62	0.00	544.38	0		1475.19	133.39
1	2.00	1.37	1.45	6.10	561.80	0		2.79	8.17
2	2.00	2.37	2.66	0.00	704.85	0		4.40	7.93
3	2.00	2.50	2.78	0.10	675.38	0		4.70	8.10
4	2.00	6.37	5.32	0.60	636.29	0		12.25	9.89
5	2.00	1.37	1.16	0.60	681.35	0		2.57	7.53
6	2.00	0.87	1.16	2.60	669.42	0		1.65	7.37
7	2.00	1.41	1.69	2.60	624.71	0		2.73	7.83
8	2.00	3.37	3.66	0.10	644.51	0		6.45	8.62
9	2.00	0.43	0.72	0.00	641.99	0		0.83	7.26
10	2.00	3.37	3.25	3.10	675.32	0		6.35	8.48
11	2.00	0.87	1.16	0.10	675.26	0		1.65	7.35
12	2.00	4.03	3.38	1.10	706.88	0		7.47	8.62
13	2.00	30.87	20.61	2.10	677.21	0		58.05	16.86

KA

B.J. Brown

G-7706 200

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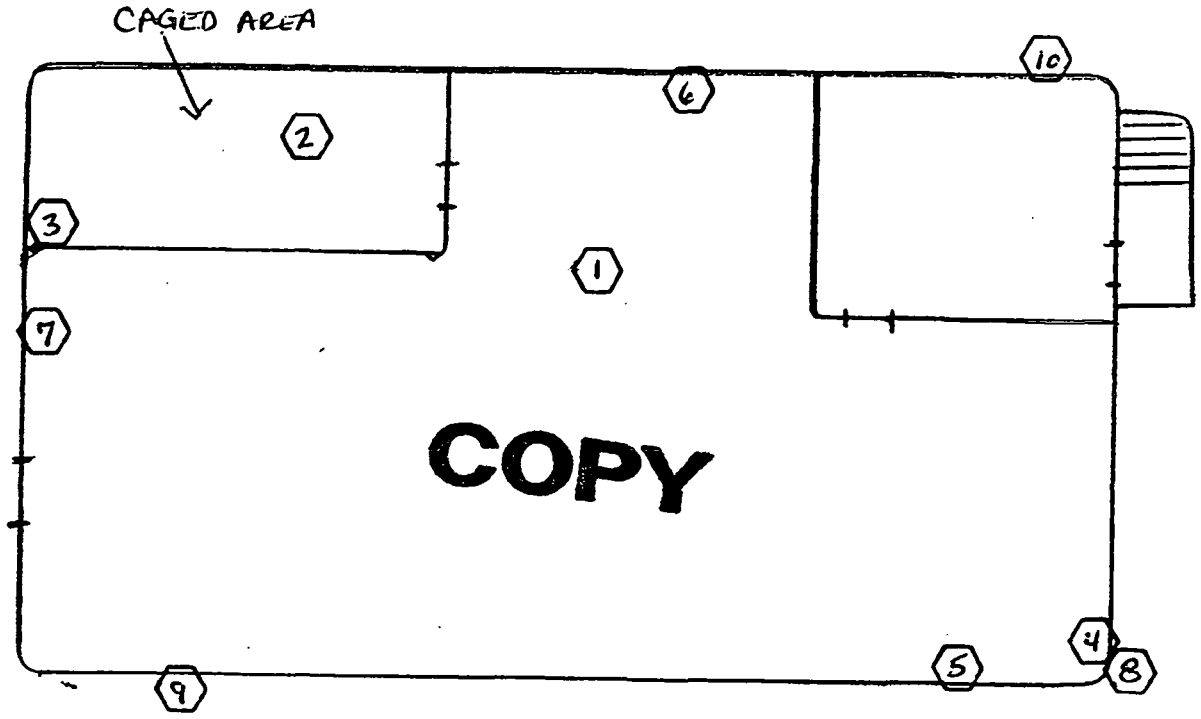
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 19 INSIDE AND OUTSIDE	SURVEY NO 03-TF-0009
PURPOSE: ACID ETCHES ON THE FLOOR AND WALLS INSIDE AND OUTSIDE	RWP NO. N/A
	DATE: ~~1-20-2003~~ 1-8-2003
	TIME 0815 MH

MAP / DRAWING

1-20-03



LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

(#) = LOCATION OF ACID ETCH

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm² 1-20-03 MH

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5704/5714	9-26-2003
	N/A	

Completed by: (Signature) D. Harvey K. Abercrombie	HP# [redacted]	Date: ~~12-7-2002~~ 1-20-03
Completed by: (Print Name) DANIEL HARVEY/KEITH ABERCROMBIE		
Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA
Counted by: (Print Name) NA		
Reviewed/Approved by: (Signature) RMCobleniz	HP# [redacted]	Date: 01/20/03
Reviewed/Approved by: (Print Name) RM Cobleniz		

G7906 2003

03-TF-0009

Survey Plan Form 19-01
Attachment 1

Sample Number	Sample Date	Sample Time	Sample Volume/ Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab: Date	Time	Initials	Rec'd By
19-01- ISF-01	1-8-03	0655		INSIDE FLOOR #28 ACID ETCH	LH	1-8-03	0725	DJH	HOP
19-01- ISF-02	1-8-03	0730		INSIDE FLOOR #18 INSIDE CAGED AREA ACID ETCH	LH	1-8-03	0750	DJH	HOP
19-01- ISF-03	1-8-03	0800		INSIDE FLOOR #4 INSIDE CAGED AREA ACID ETCH	LH	1-8-03	0820	KA	HOP
19-01- I/SW-04	1-8-03	1100		INSIDE WALL #2 ACID ETCH	LH	1-8-03	1030	KA	HOP
19-01- ISW-05	1-8-03	1100		INSIDE WALL #1 ACID ETCH	LH	1-8-03	1030	KA	HOP
19-01- CO-06	1-8-03	1100		CUT OUT #5 ACID ETCH	LH	1-8-03	1030	KA	HOP
19-01- CO-07	1-8-03	1100		CUT OUT #13 ACID ETCH	LH	1-8-03	1030	KA	HOP
19-01- OSW-08	1-8-03	1100		OUTSIDE WALL #17 ACID ETCH	LH	1-8-03	1030	KA	HOP
19-01- OSW-09	1-8-03	1030		OUTSIDE WALL #10 ACID ETCH	LH	1-8-03	1040	KA	HOP
19-01- OSW-10	1-8-03	1050		OUTSIDE WALL #5 ACID ETCH	LH	1-8-03	1100	KA	HOP
19-01-				NO FURTHER ENTRIES THIS PAGE					
19-01-									
19-01-				DJH					

see page 8 of 8

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
1-8-03	ACID ETCH	K. Abercrombie	10
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
M00404	K. Abercrombie 3163		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
		03-TF-0009	

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
03000289	ISF-01	28	
03000290	ISF 02	18	
03000291	ISF 03	4	
03000292	ISW 04	2	
03000293	ISW 05	1	
03000294	CO 06	5	
03000295	CO 07	13	
03000296	OSW 08	17	
03000297	OSW 09	10	
03000298	OSW 10	5	

COMMENTS:

ANALYZED BY: R. L. Hopkins

DATE: 1-16-03

ML-5222 (1-01)

G8 of 200

Laboratory ID#:	**0300289 - 0300298**
Project/function:	**M00404**
Submitted:	**Jan 8, 2003**
Submitted by:	**K. Abercrombie**
Point of Contact:	**K. Abercrombie x3163**
RSDS#:	**N/A** 03-TF-0009
Date:	**Jan 16, 2003**

Lab ID 0300289
Sample Location ISF-01 #28

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	4791.43	448.07	0.86
Pu-239/240	14.83	2.11	0.47
Th-232	1.27	0.50	0.49
Th-230	1.45	0.53	0.49
Th-228	<LDL	<LDL	1.08
Th-227	<LDL	<LDL	0.49
U-238	2.20	0.57	0.35
U-235	<LDL	<LDL	0.64
U-233/234	1.64	0.49	0.64
Po-210	6.47	1.66	1.82

Lab ID 0300290
Sample Location ISF-02 #18

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	234.61	22.14	0.92
Pu-239/240	0.63	0.32	0.42
Th-232	<LDL	<LDL	0.75
Th-230	<LDL	<LDL	0.75
Th-228	0.45	0.26	0.41
Th-227	<LDL	<LDL	0.75
U-238	<LDL	<LDL	0.78
U-235	<LDL	<LDL	0.43
U-233/234	0.47	0.28	0.43
Po-210	4.37	[illegible]	0.99

Lab ID 0300291
Sample Location ISF-03 #4

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	4.25	0.91	0.43
Pu-239/240	<LDL	<LDL	0.93
Th-232	<LDL	<LDL	0.51
Th-230	<LDL	<LDL	1.12
Th-228	<LDL	<LDL	0.51
Th-227	<LDL	<LDL	0.51
U-238	<LDL	<LDL	0.37
U-235	<LDL	<LDL	0.67
U-233/234	<LDL	<LDL	0.67
Po-210	[illegible]	[illegible]	[illegible]

A9H

G8 of 200

Lab ID	0300292	ISW-04	
Sample Location	ISF-04 #2		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.62
Pu-239/240	<LDL	<LDL	0.62
Th-232	<LDL	<LDL	0.74
Th-230	<LDL	<LDL	0.88
Th-228	<LDL	<LDL	0.74
Th-227	<LDL	<LDL	0.40
U-238	<LDL	<LDL	0.62
U-235	<LDL	<LDL	1.14
U-233/234	1.14	0.53	0.62
Po-210	4.85	1.34	1.87

Lab ID	0300293	ISW-05	
Sample Location	ISF-05 #1		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	1.89	0.74	0.73
Pu-239/240	<LDL	<LDL	0.73
Th-232	0.44	0.26	0.40
Th-230	0.44	0.26	0.40
Th-228	0.88	0.37	0.40
Th-227	<LDL	<LDL	0.40
U-238	<LDL	<LDL	0.65
U-235	<LDL	<LDL	1.19
U-233/234	<LDL	<LDL	0.65
Po-210	6.16	1.87	1.39

Lab ID	0300294	CO-06	
Sample Location	ISF-06 #5		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	2.39
Pu-239/240	<LDL	<LDL	1.82
Th-232	<LDL	<LDL	0.44
Th-230	0.64	0.33	0.44
Th-228	<LDL	<LDL	0.81
Th-227	<LDL	<LDL	0.44
U-238	<LDL	<LDL	10.90
U-235	<LDL	<LDL	10.90
U-233/234	<LDL	<LDL	20.01
Po-210	2.28	1.57	1.45

Lab ID	0300295	CO-07	
Sample Location	ISF-07 #13		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.50
Pu-239/240	<LDL	<LDL	1.09
Th-232	<LDL	<LDL	1.19
Th-230	0.95	0.49	0.64
Th-228	<LDL	<LDL	1.42
Th-227	<LDL	<LDL	0.64
U-238	<LDL	<LDL	7.78
U-235	<LDL	<LDL	7.78
U-233/234	<LDL	<LDL	7.78
Po-210	0.91	0.91	1.08

03-TF-0009

DJH

G8306 200

Lab ID	0300296		
Sample Location	ISF-08 #17	OSW-08	
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.79
Pu-239/240	<LDL	<LDL	0.79
Th-232	<LDL	<LDL	0.42
Th-230	<LDL	<LDL	0.77
Th-228	<LDL	<LDL	0.77
Th-227	<LDL	<LDL	0.77
U-238	<LDL	<LDL	1.19
U-235	<LDL	<LDL	2.92
U-233/234	<LDL	<LDL	2.19
Po-210	16.20	2.80	1.80

Lab ID	0300297		
Sample Location	ISF-09 #10	OSW-09	
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	1.30	0.50	0.84
Pu-239/240	<LDL	<LDL	0.46
Th-232	0.62	0.32	0.42
Th-230	2.13	0.62	0.78
Th-228	<LDL	<LDL	0.93
Th-227	<LDL	<LDL	0.42
U-238	<LDL	<LDL	1.04
U-235	<LDL	<LDL	1.90
U-233/234	<LDL	<LDL	1.04
Po-210	110.14	10.65	1.50

Lab ID	0300298		
Sample Location	ISF-10 #5	OSW-10	
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.58
Pu-239/240	<LDL	<LDL	0.58
Th-232	1.30	0.48	0.44
Th-230	2.32	0.67	0.97
Th-228	0.65	0.33	0.44
Th-227	<LDL	<LDL	0.81
U-238	<LDL	<LDL	16.41
U-235	<LDL	<LDL	30.13
U-233/234	<LDL	<LDL	30.13
Po-210	232.32	22.04	1.87

03-TF-0009

29 A

L. C. Hopkins [redacted] 1-16-03

Analyst HP # Date

[redacted] 1/16/03

Data Verification HP # Date

G8406 200

LOCATION: (BLDG./AREA/ROOM) 19	SURVEY NO. 03-1
PURPOSE: MARSSM SURVEY PLAN 19-01	RWP NO.
	DATE:
	TIME:

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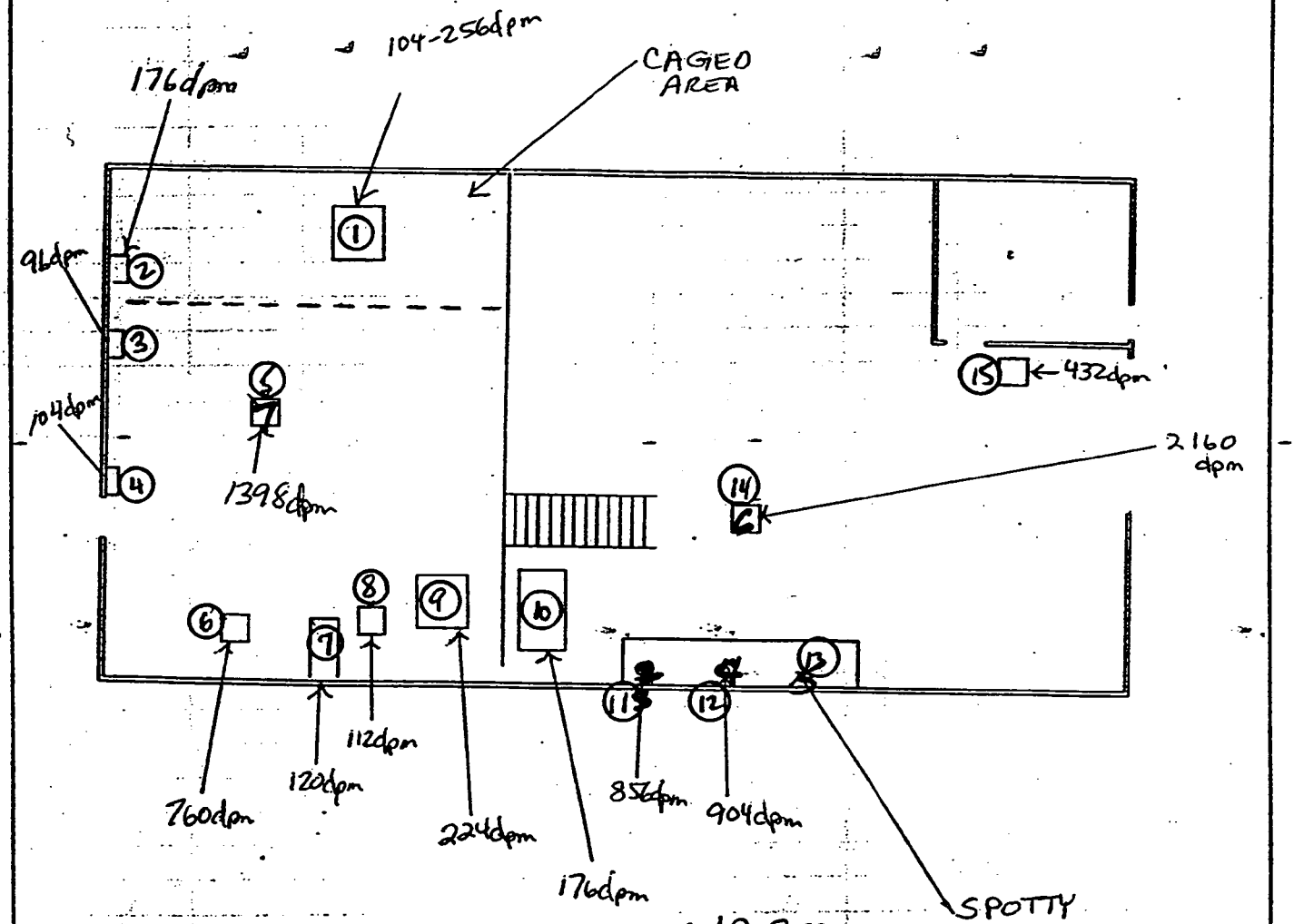
NO FURTHER ENTRIES THIS PAGE

MAP/DRAWING



2360 READING DIRECT AND SMEARS ~~ONLY~~

DJH 2-10-03

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

= air sample number

= swine number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5704/5714	9-26-03
2350	5673/5676	8-13-03
	N/A	

Completed by: (Signature)	HP # [redacted]	Date: 2-6-03
Completed by: (Print Name) DANIEL J. HARVEY / Sean P Kubena		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved By: (Signature) RM Coblentz	HP # [redacted]	Date: 02/10/03
Reviewed/Approved by: (Print Name) RM Coblentz		

ML-9620 (2-98)

G8 of 200

BWXT of Ohio, Inc.

COPY

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
2-11-03	Acid Itch	Hopkins	6
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
	D. Harvell 3163		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
M90409	2-11-03		

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0301530	19-01	F-02	
0301531	"	T-03	
0301532	"	F-04	
0301533	"	F-05	
0301534	"	F-06	
0301535	"	F-07	

COMMENTS:

ANALYZED BY: L. Clayton T. Ellis

DATE: 2-19-03

ML-5222 (1-01)

G-86-56 200

Laboratory ID#:	**0301530 - 0301535**
Project/function:	**TFV**
Submitted:	**Feb 11, 2003**
Submitted by:	**L. Hopkins**
Point of Contact:	**D. Harvey x3163**
RSDS#:	**N/A**
Date:	**Feb 19, 2003**

COPY

Lab ID	0301530		
Sample Location	Bldg 19-01 #F-02		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	2.51	0.41	0.47
Pu-239/240	0.15	0.09	0.14
Th-232	136.39	10.75	0.44
Th-230	13.73	1.38	0.16
Th-228	148.02	11.64	0.16
Th-227	0.48	0.19	0.44
U-238	9.95	1.03	0.38
U-235	0.72	0.20	0.14
U-233/234	8.25	0.90	0.38

Lab ID	0301531		
Sample Location	Bldg 19-01 #F-03		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	6.95	1.04	0.20
Pu-239/240	0.51	0.19	0.20
Th-232	87.60	13.46	1.08
Th-230	10.80	2.56	1.08
Th-228	92.40	14.13	1.08
Th-227	<LDL	<LDL	2.94

Lab ID	0301532		
Sample Location	Bldg 19-01 #F-04		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	336.66	28.78	0.38
Pu-239/240	11.69	0.82	0.14
Th-232	6.09	0.70	0.43
Th-230	1.16	0.26	0.43
Th-228	7.20	0.78	0.34
Th-227	0.19	0.09	0.13

Lab ID	0301533		
Sample Location	Bldg 19-01 #F-05		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	2.14	0.39	0.16
Pu-239/240	<LDL	<LDL	0.16

Lab ID	0301534		
Sample Location	Bldg 19-01 #F-06		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	6.77	0.73	0.16
Pu-239/240	0.15	0.09	0.16

G8706 200

COPY

Lab ID 0301535
Sample Location Bldg 19-01 #F-07

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	14978	1070	0.13
Pu-239/240	<LDL	<LDL	0.13

L. Clayton [redacted] 2-19-03
Analyst HP # Date

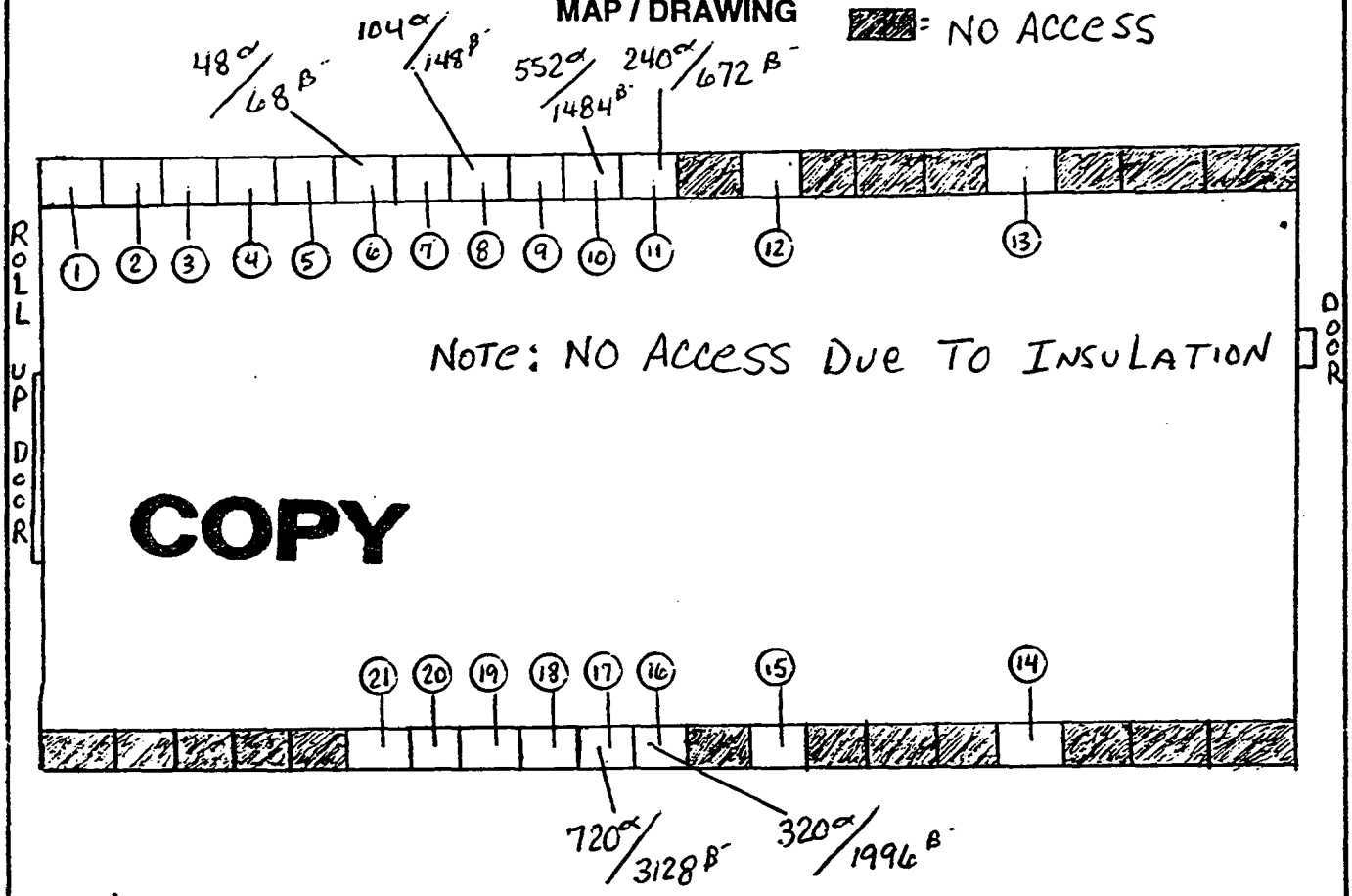
Denise Wes [redacted] 2/19/03
Data Verification HP # Date

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 19 TROUGH (INSIDE)	SURVEY 03-TF-0051
PURPOSE: CHARACTERIZATION	RWP NO. NA
	DATE: 2-25-03
	TIME 1600

MAP / DRAWING

▨ = NO ACCESS



- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED UNLESS NOTED:

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5704/5714	9-26-03
	NA	

Completed by: (Signature) K. Abercrombie	HP# [redacted]	Date: 2-25-03
Completed by: (Print Name) K. Abercrombie		
Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA
Counted by: (Print Name) NA		
Reviewed/Approved by: (Signature) RM Coblentz	HP# [redacted]	Date: 02/27/03
Reviewed/Approved by: (Print Name) RM Coblentz		

Survey No. 03-TF-0051

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: NONE

NOTES:

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

ML-9620 (4-98)

G906 200

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR013
Batch Ended: 2/26/03 10:33

Crosstalk correction performed.

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

Batch ID: ABERCROMBIE 03-TF-0051 (21) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
B1	1	0.0	2.0		6.2	3.7	
B2	2	1.6	2.0		1.2	2.4	
B3	3	0.0	1.9		1.0	2.1	
B4	4	1.6	1.9		0.3	1.8	
C1	5	1.8	2.1		1.6	2.2	
C2	6	0.0	2.0		0.0	1.4	
C3	7	0.0	1.9		0.0	1.2	
C4	8	0.0	1.9		0.0	1.2	
D1	9	0.0	2.3		0.0	1.4	
D2	10	0.0	2.1		0.0	1.5	
D3	11	0.0	2.0		0.0	1.3	
D4	12	1.8	2.0		0.0	1.9	
B1	13	1.5	2.0		2.3	2.9	
B2	14	0.0	2.0		1.4	2.4	
B3	15	0.0	1.9		3.3	2.7	
B4	16	1.6	1.9		3.8	2.7	
C1	17	0.0	2.1		3.0	2.5	
C2	18	0.0	2.1		3.7	2.6	
C3	19	0.0	1.9		2.2	2.1	
C4	20	0.0	1.9		2.2	2.1	
D1	21	0.0	2.3		0.0	1.4	

KA KA Carol Ann Robinson

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KA 2/26/03

~~Page 1 of 1~~

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Protocol# 6 - Smears.lsa User: [redacted]

ABERCROMBIE 03-TF-0051 (N1-N21)/BKB

Cycle 1 Results

S#	Count Time	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	A:2S%	MESSAGES
-1	10.00	3	3	5	6	660.55	0	35.6	B
0	2.00	778	714	0	0	509.09	1603	5.1	
1	2.00	0	0	3	0	523.11	0	0.0	
2	2.00	1	0	0	0	606.68	2	379.1	
3	2.00	1	1	0	0	619.22	3	239.4	
4	2.00	0	0	1	0	630.10	0	0.0	
5	2.00	0	0	0	0	598.01	1	849.5	
6	2.00	2	2	0	0	658.34	3	197.5	
7	2.00	1	1	3	0	641.19	2	239.4	
8	2.00	0	0	1	0	627.49	1	849.5	
9	2.00	0	0	0	0	612.35	1	849.5	
10	2.00	1	2	0	0	639.49	2	239.4	
11	2.00	0	0	0	0	634.36	0	0.0	
12	2.00	1	1	0	0	630.71	2	363.0	
13	2.00	1	1	0	0	643.00	2	239.4	
14	2.00	0	0	2	0	477.01	1	849.5	
15	2.00	0	0	0	0	499.08	0	0.0	
16	2.00	0	0	0	0	602.63	0	0.0	
17	2.00	2	1	2	0	584.80	4	182.6	
18	2.00	0	0	0	0	617.19	0	0.0	
19	2.00	0	0	0	0	615.81	1	849.5	
20	2.00	0	0	1	0	627.61	0	0.0	
21	2.00	1	1	0	0	572.40	3	239.4	

KA Carol G. Robinson

G926 200

Survey No.
03-TF-0051

RADIOLOGICAL SURVEY DATA SHEET (cont)

Ludlum 2360 Integrated Measurement Results

		Alpha			Beta		
		BKGD	4.2	cpm	BKGD	173	cpm
		DL	3	Net cpm	DL	20	Net cpm
No.	Item/Location Description	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)	Gross (cpm)	CF	Results (DPM/100 cm2 or Sample)
6	1/5 TROUGH	100	8	48	140	4	68
8		212	8	104	463	4	148
10		1108	8	552	3141	4	1484
11		484	8	240	1517	4	672
16		644	8	320	4165	4	1996
17	1/5 TROUGH	1444	8	720	6429	4	3128
		N		A			

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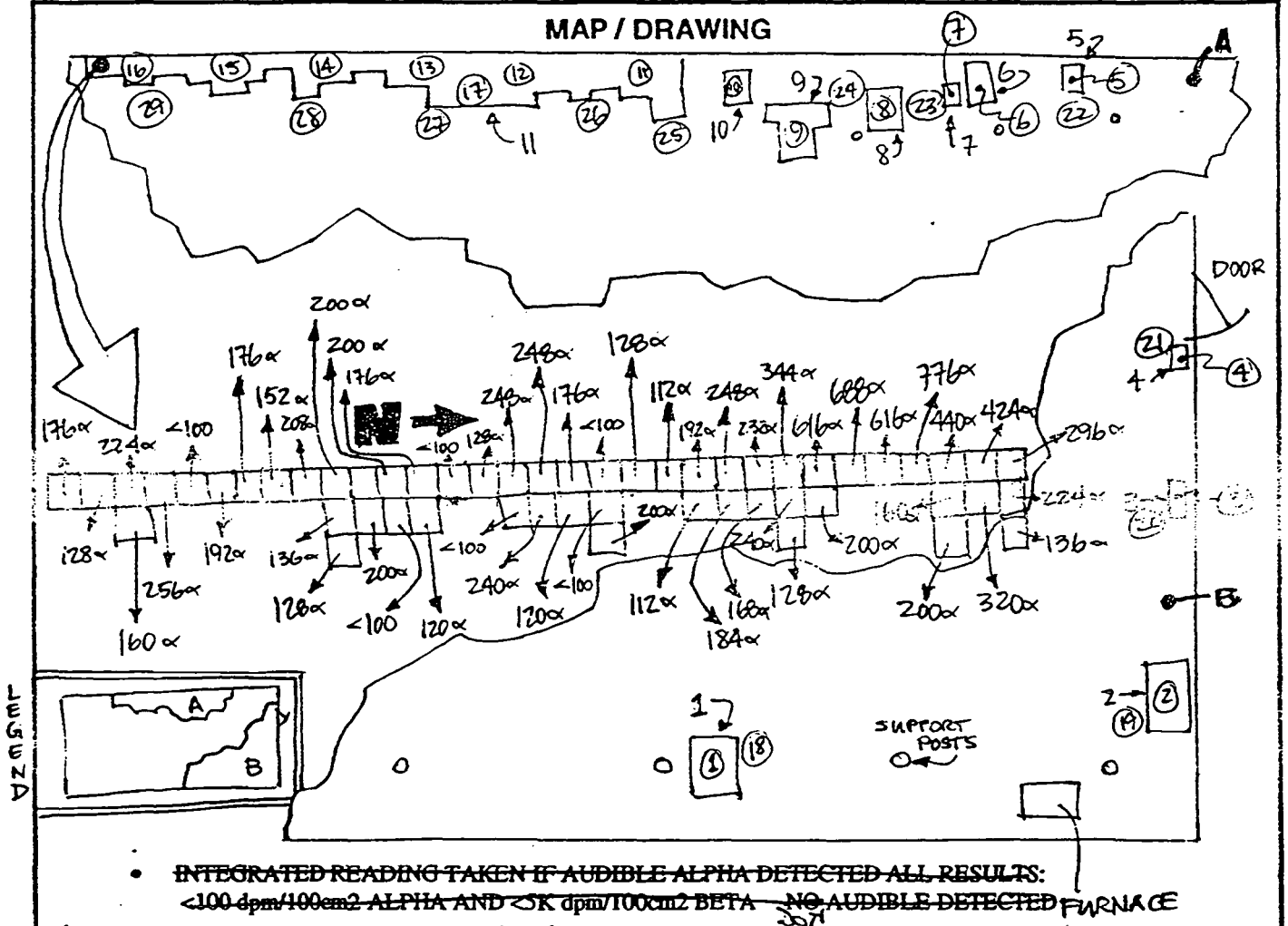
RADIOLOGICAL SURVEY DATA SHEET

Page 1 of 4

LOCATION: (BLDG./AREA/ROOM) BLDG. 19	SURVEY 03-TF-0060
PURPOSE: POST DECON/CHARACTERIZATION	RWP NO. N/A
	DATE: ~~3/12/03~~ 3/11/03 3/11/03
	TIME 1600

MAP / DRAWING



- ~~INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED~~

NOTE: ALL READING ARE IN dpm

3-12-03

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

COPY

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L 2360	5775/5720	9/25/03
	N/A	

Completed by: (Signature)	HP# [redacted]	Date: 3/12/03
Completed by: (Print Name) S.E. LEHRER DANIEL J. HARVEY		
Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA
Counted by: (Print Name) NA		
Reviewed/Approved by: (Signature)	[redacted]	Date: 03/17/03
Reviewed/Approved by: (Print Name) RMGoblentz		

ML-9620

G-950 200

(2-98)

2 of 4

Survey No. 03-TF-0060

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	see Att	see Att	N/A	see map
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
N/A	N/A	N/A	N/A	N/A

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

3014

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR028
Batch Ended: 3/11/03 14:22
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0060 HARVEY (29) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.05		0.00	1.28	
A2	2	0.00	1.99		4.01	2.69	
A3	3	3.79	3.02		0.15	1.75	
A4	4	0.00	2.04		3.88	2.65	
B1	5	1.56	2.03		0.13	1.77	
B2	6	1.31	2.03		1.32	2.06	
B3	7	0.00	2.09		0.00	1.29	
B4	8	1.45	2.01		0.03	1.64	
C1	9	0.00	2.12		3.01	2.50	
C2	10	0.00	1.87		1.68	2.00	
C3	11	0.00	2.12		3.16	2.50	
C4	12	0.00	2.07		0.00	2.16	
D1	13	1.39	1.98		2.66	2.47	
D2	14	1.57	2.09		0.00	1.22	
D3	15	1.62	2.16		1.48	2.22	
D4	16	0.00	2.10		0.36	1.69	
A1	17	7.55	4.10		0.00	1.81	
A2	18	1.58	1.99		3.86	2.69	
A3	19	0.00	2.14		0.44	1.75	
A4	20	1.47	2.00		0.00	1.18	
B1	21	0.00	2.02		0.00	1.26	
B2	22	1.31	2.04		2.51	2.39	
B3	23	1.79	2.12		1.20	2.22	
B4	24	0.00	2.01		0.17	1.64	
C1	25	0.00	2.09		0.51	1.77	
C2	26	1.21	1.87		1.52	2.00	
C3	27	0.00	2.13		4.40	2.79	

4 of 4

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR028
Batch Ended: 3/11/03 14:22
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0060 HARVEY (29) BSB

B. Brown

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
C4	28	0.00	2.08		1.09	2.44	
D1	29	0.00	1.96		1.60	2.14	

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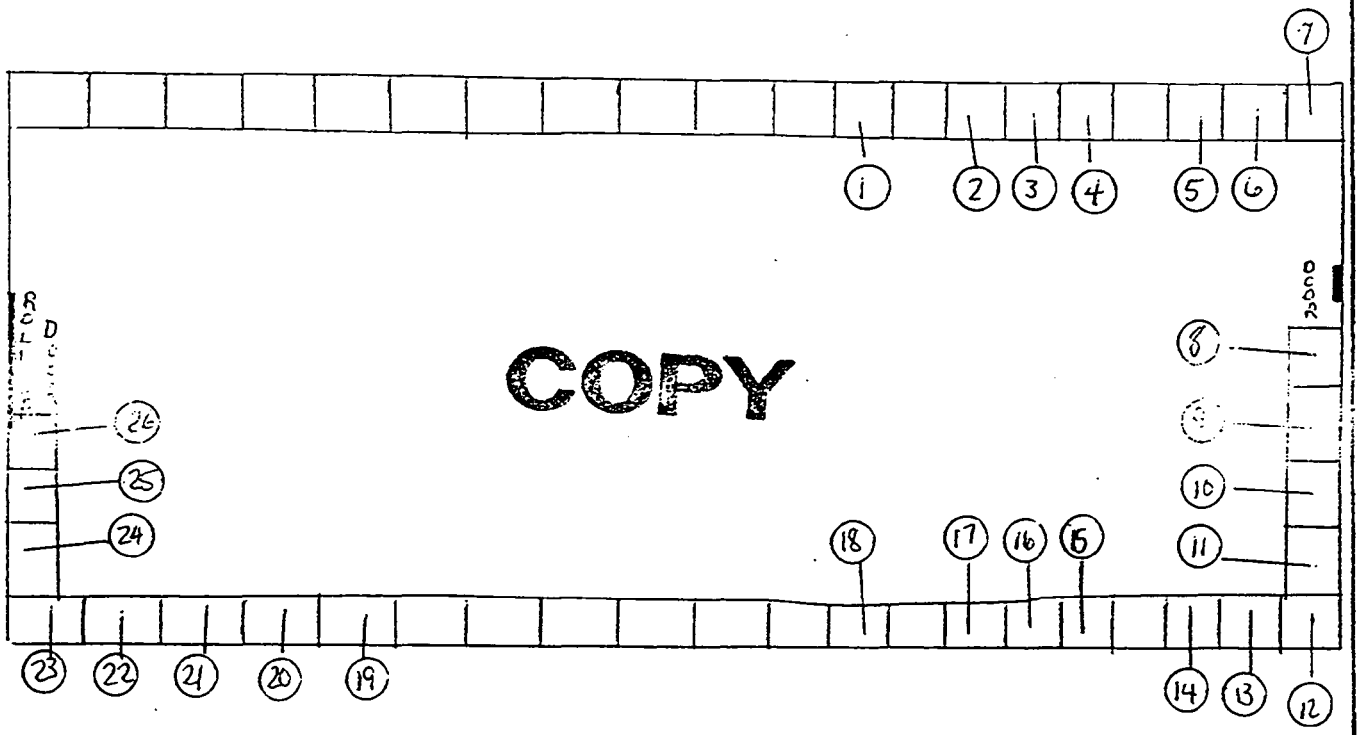
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Bldg 19 TROUGH (INSIDE)	SURVEY 03-TF-0063
PURPOSE: CHARACTERIZATION	RWP NO. NA
	DATE: 3-12-03
	TIME 1445

MAP / DRAWING



- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5775/5720	9-25-03
	NA	

Completed by: (Signature) K. Abercrombie	HPs [redacted]	Date: 3-17-03
Completed by: (Print Name) K. Abercrombie		
Counted by: (Signature) RECORD ON FILE	HPs NA	Date: NA
Counted by: (Print Name) NA		
Reviewed/Approved by: (Signature) [redacted]	HPs [redacted]	Date: 3-17-03
Reviewed/Approved by: (Print Name) DANIEL S. HARVEY		

ML-0620

G99 of 200

(2-00)

Survey No. 03-TF-0063

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			Is Trough
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26	See	Attached		Is Trough
		N	A	

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

COMMENTS: None

NOTES:
1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-88)

G-100 of 200

Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200303131607	**Count Date:**	3/13/2003
Group:	I	**Count Minutes:**	1.5
Serial Number:	78218-2 Abercrombie 3/17/03	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0063 ~~MARSHALL~~ 26 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	65	0.00	0.02	2.56	2.10
2	44	0.00	0.00	0.00	0.00
3	42	0.00	0.00	0.00	0.00
4	6	0.00	0.03	3.84	2.57
5	98	0.00	0.02	1.28	1.48
6	42	0.00	0.02	2.56	2.10
7	59	1.99	1.89	2.44	2.10
8	36	0.00	0.03	5.12	2.97
9	37	2.01	1.89	1.16	1.49
10	65	0.00	0.00	0.00	0.00
11	63	0.00	0.03	5.12	2.97
12	57	0.00	0.02	2.56	2.10
13	5	1.99	1.89	2.44	2.10
14	57	0.00	0.02	2.56	2.10
15	21	0.00	0.02	1.28	1.48
16	2	0.00	0.02	2.56	2.10
17	95	0.00	0.02	2.56	2.10
18	24	0.00	0.02	1.28	1.48
19	84	0.00	0.02	1.28	1.48
20	30	0.00	0.02	1.28	1.48
21	45	0.00	0.02	1.28	1.48
22	96	0.00	0.02	2.56	2.10
23	70	0.00	0.00	0.00	0.00
24	39	0.00	0.00	0.00	0.00
25	91	0.00	0.00	0.00	0.00
26	31	0.00	0.00	0.00	0.00

KA KA

L B Brown

KA 3-1

17 Mar 2003 07:51 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 3 PW 3 403727 User : [redacted]

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	7.13
Region B:	2.0 -	18.6	0	0.0	6.93
Region C:	40.0 -	2000	0	0.0	13.30

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0063 ABERCROMBIE-26 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT3.dat
Count Data Filename: C:\DATA\SDATA3.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.13	6.93	13.30	541.29	0	B		0.00
0	2.00	259.27	251.52	0.00	486.79	0		567.75	65.54
1	2.00	1.87	2.07	0.00	457.87	0		4.27	10.45
2	2.00	4.37	4.57	0.00	686.67	0		8.17	9.53
3	2.00	1.87	1.54	0.20	547.78	0		3.82	9.36
4	2.00	5.87	5.41	0.00	631.42	0		11.32	10.39
5	2.00	1.87	1.71	0.00	649.52	0		3.56	8.71
6	2.00	2.87	3.07	0.70	669.34	0		5.41	9.03
7	2.00	0.37	0.07	0.00	678.17	0		0.69	7.94
8	2.00	1.87	1.51	0.00	605.93	0		3.66	8.97
9	2.00	0.00	0.00	0.58	576.17	0		0.00	0.00
10	2.00	4.37	3.98	0.00	612.86	0		8.53	9.96
11	2.00	0.00	0.00	0.00	528.42	0		0.00	0.00
12	2.00	0.00	0.00	0.00	497.57	0		0.00	0.00
13	2.00	0.00	0.00	0.00	643.34	0		0.00	0.00
14	2.00	0.00	0.00	0.00	507.85	0		0.00	0.00
15	2.00	4.87	4.78	0.00	609.89	0		9.53	10.17
16	2.00	4.37	4.57	0.00	553.65	0		8.90	10.39
17	2.00	2.37	2.07	0.00	465.36	0		5.33	10.53
18	2.00	1.87	1.88	0.00	502.47	0		4.01	9.81
19	2.00	0.37	0.57	0.00	604.25	0		0.72	8.31
20	2.00	1.37	1.57	0.00	683.32	0		2.56	8.35
21	2.00	0.42	0.23	0.00	671.39	0		0.80	7.99
22	2.00	3.87	4.07	0.00	450.99	0		8.87	11.45
23	2.00	0.00	0.00	0.00	633.42	0		0.00	0.00
24	2.00	0.37	0.57	1.70	693.94	0		0.68	7.88
25	2.00	0.00	0.00	0.00	584.75	0		0.00	0.00
26	2.00	0.00	0.00	0.00	639.45	0		0.00	0.00

KA

RJBrown

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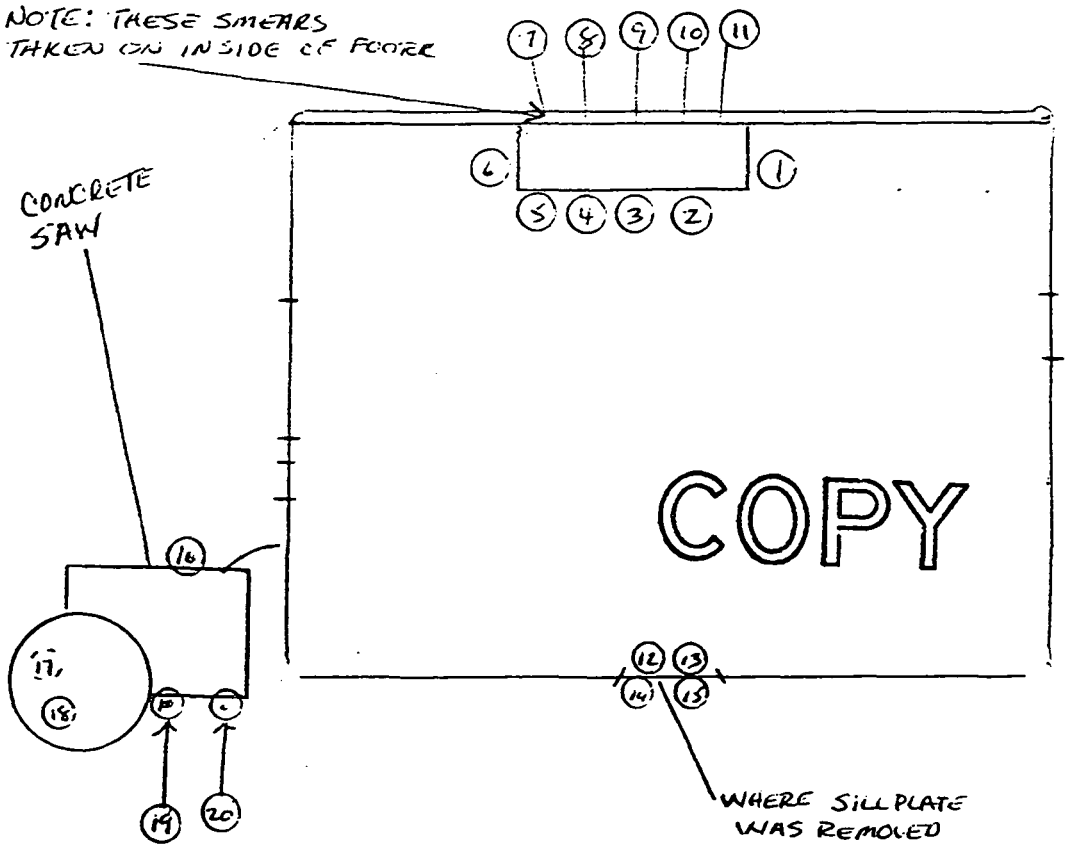
RADIOLOGICAL SURVEY DATA SHEET

Page 1 of 4

LOCATION: (BLDG./AREA/ROOM) 19 INSIDE-FLOOR	SURVEY NO 03-TF-0091
PURPOSE: POST SAW CUTTING OF FIXED CONTAMINATION	RWP NO. N/A
	DATE: 4-22-2003
	TIME 1530

MAP / DRAWING



- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

△# = mrem/hr neutron (#) = swipe number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5833/5847	3-13-2004
	N/A	

Completed by: (Signature) K Abercrombie	HP [redacted]	Date: 4-22-2003	
Completed by: (Print Name) DANIEL HARVEY/KEITH ABERCROMBIE			
Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA	
Counted by: (Print Name) NA			
Reviewed/Approved by: (Signature)	[redacted]	Date: 04-23-03	
Reviewed/Approved by: (Print Name) DANNY K RILEY			

ML-9620

G0306 200

(2-88)

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Survey No. 03-TF-0091

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-6	SEE	ATTACHED		FLOOR
7-11				INSIDE FOOTER
12-15				SILL PLATE AREA
16				SAW (TOP)
17-18				BLADE
19-20				WHEELS
		N/A		

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

COMMENTS: N/A

NOTES:

1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)

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Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200304221442	**Count Date:**	4/22/2003
Group:	D	**Count Minutes:**	1.5
Serial Number:	~~78218-1~~	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0091 HARVEY-20 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	93	2.19	1.92	0.00	0.16
2	91	0.00	0.00	6.85	3.23
3	67	2.19	1.92	1.21	1.45
4	90	0.00	0.00	1.37	1.45
5	23	0.00	0.00	2.74	2.04
6	41	0.00	0.00	6.85	3.23
7	62	0.00	0.00	2.74	2.04
8	53	0.00	0.00	1.37	1.45
9	5	0.00	0.00	0.00	0.00
10	25	0.00	0.00	2.74	2.04
11	51	2.18	1.92	3.95	2.51
12	54	0.00	0.00	2.74	2.04
13	23	2.19	1.92	0.00	0.16
14	18	0.00	0.00	5.48	2.89
15	33	0.00	0.00	1.37	1.45
16	55	0.00	0.00	1.37	1.45
17	52	2.18	1.92	3.95	2.51
18	31	0.00	0.00	4.11	2.50
19	64	0.00	0.00	0.00	0.00
20	100	4.37	2.72	1.06	1.46

DJH DJH

B J Brown

22 Apr 2003 14:42 TRI-CARB - 1.09
Protocol #: 1 PW H3 #407906 User : [redacted]

DJH 4-23-03

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5	18.6	0	0.0	7.49
Region B:	2.0	18.6	0	0.0	7.08
Region C:	40.0	2000	0	0.0	13.20

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0091 HARVEY-20 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	7.49	7.08	0	B	600.75		0.000	13.20
0	2.00	210.78	194.70	0		464.15	432.53	48.546	0.00
1	2.00	16.49	15.22	13		548.01	31.24	15.120	0.30
2	2.00	32.73	30.64	2		520.41	63.46	18.017	27.30
3	2.00	23.01	21.38	2		563.68	43.04	15.128	11.80
4	2.00	12.73	12.28	0		651.66	22.21	11.555	35.30
5	2.00	22.52	19.23	3		588.69	41.26	14.705	48.30
6	2.00	2.01	0.99	0		577.73	3.72	8.674	2.62
7	2.00	2.05	0.58	10		611.46	3.70	8.459	0.80
8	2.00	10.01	9.65	13		576.56	18.53	12.314	1.30
9	2.00	18.70	13.48	0		579.06	34.54	13.862	11.30
10	2.00	0.38	0.00	0		590.05	0.69	7.923	0.00
11	2.00	15.75	14.12	0		563.37	29.46	13.246	10.14
12	2.00	4.97	3.81	0		606.60	8.98	9.557	11.80
13	2.00	12.05	11.36	0		560.13	22.61	12.225	16.26
14	2.00	2.87	2.23	0		600.77	5.21	8.844	0.00
15	2.00	3.84	2.58	0		538.84	7.32	9.676	0.00
16	2.00	9.75	7.45	3		570.20	18.14	11.427	21.30
17	2.00	0.00	0.00	0		449.35	0.00	0.000	0.00
18	2.00	1.48	1.39	0		487.78	2.95	9.126	8.30
19	2.00	0.00	0.00	0		505.80	0.00	0.000	1.30
20	2.00	3.98	3.32	4		391.99	8.99	11.517	1.30

DJH

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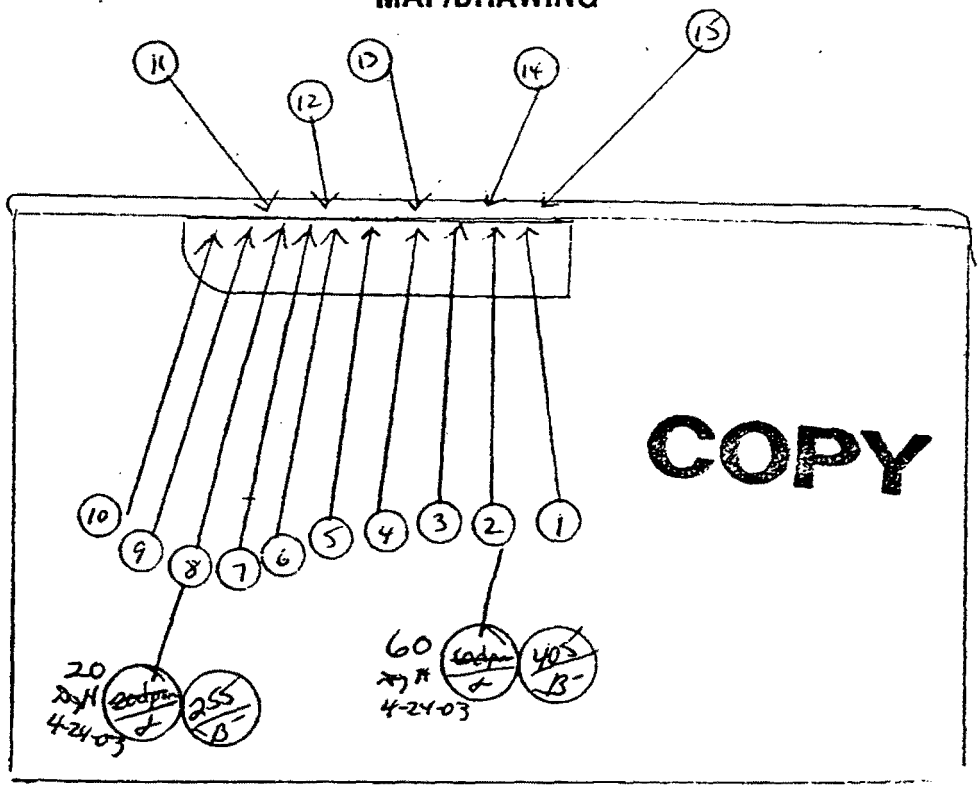
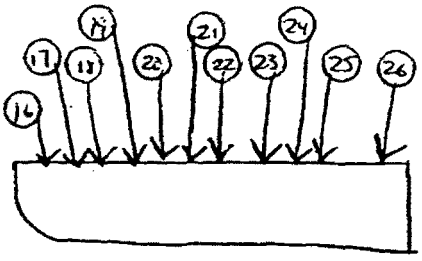
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 19 - FLOOR - INSIDE	SURVEY NO. 03-TF-0095
PURPOSE: REMOVAL OF FIXED CONTAMINATED CONCRETE	RWP NO. N/A
	DATE: 4-24-03
	TIME: 1030

MAP/DRAWING





* INTEGRATED COUNTS TAKEN WHERE AUDIBLE ALPHA DETECTED. ALL OTHER AREAS

<100 α

<5K β-

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	SB33/5847	3-13-04
	N/A	

Completed by: (Signature) K Abercrombie	HP [redacted]	Date: 4-24-03
Completed by: (Print Name) DANIEL J. HARLEY K. Abercrombie		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	[redacted]	Date: 04/24/03
Reviewed/Approved by: (Print Name) Judy C Riley		

ML-9620 (2-98)

G107.06 200

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Survey No. 03-TF-0095

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-10	SEE ATTACHED		N/A	INSIDE FOOTER
11-15	↓	↓	↓	TOP OF FOOTERS
16-26	↓	↓	↓	REMOVED CONCRETE
		N A		

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

COMMENTS: N/A

NOTES:

1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)

G108 of 200

Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200304241041	**Count Date:**	4/24/2003
Group:	E	**Count Minutes:**	1.5
Serial Number:	~~78218-2~~	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0095 HARVEY-26 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	24	0.00	0.04	6.40	3.32
2	1	0.00	0.02	1.28	1.48
3	19	0.00	0.03	5.12	2.97
4	33	0.00	0.02	2.56	2.10
5	2	2.02	1.89	0.00	0.14
6	91	0.00	0.00	0.00	0.00
7	92	0.00	0.02	2.56	2.10
8	11	1.97	1.89	3.72	2.58
9	50	2.01	1.89	1.16	1.49
10	98	0.00	0.02	1.28	1.48
11	37	0.00	0.02	1.28	1.48
12	59	1.96	1.89	5.00	2.97
13	42	0.00	0.02	2.56	2.10
14	69	0.00	0.02	1.28	1.48
15	57	0.00	0.03	3.84	2.57
16	76	0.00	0.02	2.56	2.10
17	81	0.00	0.02	1.28	1.48
18	31	0.00	0.02	1.28	1.48
19	81	0.00	0.02	2.56	2.10
20	62	1.99	1.89	2.44	2.10
21	87	0.00	0.02	1.28	1.48
22	32	0.00	0.02	2.56	2.10
23	17	0.00	0.02	2.56	2.10
24	82	1.99	1.89	2.44	2.10
25	15	0.00	0.02	1.28	1.48
26	49	0.00	0.02	1.28	1.48
~~27~~	~~49~~	~~0.00~~	~~0.02~~	~~1.28~~	~~1.48~~
~~28~~	~~49~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~
~~29~~	~~49~~	~~0.00~~	~~0.03~~	~~3.84~~	~~2.57~~
~~30~~	~~49~~	~~0.00~~	~~0.03~~	~~3.84~~	~~2.57~~
~~31~~	~~49~~	~~1.99~~	~~1.89~~	~~2.44~~	~~2.10~~
~~32~~	~~49~~	~~1.99~~	~~1.89~~	~~2.44~~	~~2.10~~
~~33~~	~~49~~	~~6.04~~	~~3.27~~	~~2.20~~	~~2.11~~
~~34~~	~~49~~	~~0.00~~	~~0.03~~	~~3.84~~	~~2.57~~
~~35~~	~~49~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~
~~36~~	~~49~~	~~2.01~~	~~1.89~~	~~1.16~~	~~1.49~~
~~37~~	~~49~~	~~0.00~~	~~0.03~~	~~5.12~~	~~2.97~~

Delete Duplicate 4/24/03 bab

G09 06 200

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AA 4-24-03

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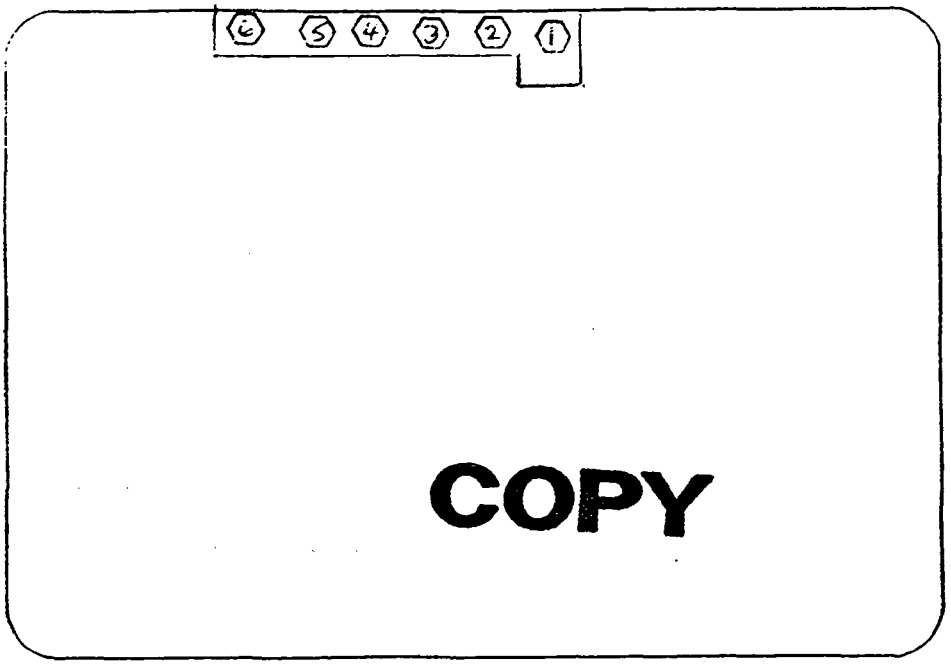
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 19 SOIL UNDER THE FCA	SURVEY NO 03-TF-0097
PURPOSE: SOIL SAMPLES FROM UNDER THE FCA	RWP NO. N/A
	DATE: 4-24-2003
	TIME 1530

MAP / DRAWING



- NOTE: BICRON FIDLER USED FOR INDICATION ONLY. RESULTS WERE NON-DETECTABLE.
- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

—·—·— = radiological boundary

⬡ : SOIL SAMPLE LOCATION

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5336/5848	3-12-2004
FIDLER	3716/3713	9-17-2003
	N/A	

Completed by: (Signature) [redacted]	HP [redacted]	Date: 5-7-2003
Completed by: (Print Name) DANIEL HARVEY		
Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA
Counted by: (Print Name) NA		
Reviewed/Approved by: (Signature) [redacted]	[redacted]	Date: 05-07-03
Reviewed/Approved by: (Print Name) David K. Riley		

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15395
File ID: MG102116.s0
Priority: Yes

Description\Location
Bldg19 Soil Under FCA Sample#1
Long Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.13	45.000
Cs-137	*	0.01	0.14	45,000
Pb-210	*	0.88	1.69	45,000
Ra-226	*	0.7	2.08	800
Ac-227 (D)		0.76	0.6	40
Th-230	*	12.89	17.34	800
Th-232 (D)		11.84	0.39	130
Pu-238	*	0	39.87	500
Am-241	*	0	0.2	500

Other Nuclides

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

Σ_{DOT} 0.07 nCi/g $\Sigma_{Respirator}$ 0.21

$\Sigma_{Respirator}$ <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:

29# 03-TF-0097

Date: 4/29/03 Counted By: 5288 Analyzed By: 7559 Initials

G112 of 200

2 of 7

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15396
File ID: MG301108.s0
Priority: No

Description\Location
Bldg19 Soil Under FCA Sample#2
Long Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.01	0.03	45,000
Cs-137	*	0.02	0.03	45,000
Pb-210		0.96	0.7	45,000
Ra-226		0.74	0.6	800
Ac-227 (D)	*	0	0.33	40
Th-230	*	0	6.79	800
Th-232 (D)		0.58	0.1	130
Pu-238	*	0	14.58	500
Am-241	*	0.04	0.07	500

Other Nuclides

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

Σ_{DOT} 0.02 nCi/g $\Sigma_{Respirator}$ 0.05

$\Sigma_{Respirator}$ <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:

DQA 03-TF-0097

Date: 4/29/03 Counted By: 7559 Analyzed By: 7559 Initials

G1306 200

3 of 7

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15397
File ID: MG500394.s0
Priority: No

Description\Location
Bldg19 Soil Under FCA Sample#3
Long Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60		0.02	0.02	45,000
Cs-137	*	0.01	0.02	45,000
Pb-210		0.99	0.58	45,000
Ra-226		1.41	0.49	800
Ac-227 (D)	*	0	0.29	40
Th-230	*	0	5.63	800
Th-232 (D)		0.35	0.07	130
Pu-238	*	0	16.08	500
Am-241	*	0	0.06	500

Other Nuclides

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

Σ_{DOT} 0.02 nCi/g $\Sigma_{Respirator}$ 0.05

$\Sigma_{Respirator}$ <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:

DyH 03-TF-0097

Date: 4/29/03 Counted By: 7559 Analyzed By: 7559 Initials

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15398
File ID: MG400535.s0
Priority: No

Description\Location
Bldg19 Soil Under FCA Sample#4
Long Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.01	0.02	45,000
Cs-137		0.04	0.02	45,000
Pb-210	*	0.23	0.58	45,000
Ra-226		1.49	0.47	800
Ac-227 (D)	*	0.11	0.25	40
Th-230	*	3.59	4.71	800
Th-232 (D)		0.4	0.07	130
Pu-238	*	0	32.94	500
Am-241	*	0	0.06	500

Other Nuclides

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

Σ_{DOT} 0.04 nCi/g $\Sigma_{Respirator}$ 0.08

$\Sigma_{Respirator}$ <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:

DOH 03-TF-0097

Date: 4/29/03 **Counted By:** 7559 **Analyzed By:** 7559 **Initials** SF

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15399
File ID: MG102117.s0
Priority: No

Description\Location
Bldg19 Soil Under FCA Sample#5
Long Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.08	45,000
Cs-137		0.05	0.04	45,000
Pb-210		0.73	0.62	45,000
Ra-226		0.99	0.7	800
Ac-227 (D)	*	0	0.25	40
Th-230	*	0	5.99	800
Th-232 (D)		0.47	0.15	130
Pu-238	*	0.95	12.82	500
Am-241	*	0	0.07	500

Other Nuclides

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

Σ_{DOT} 0.02 nCi/g $\Sigma_{Respirator}$ 0.04

$\Sigma_{Respirator}$ <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:

DgH 03-TF-0097

Date: 4/29/03 Counted By: 7559 Analyzed By: 7559 Initials DT

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15400
File ID: MG301109.s0
Priority: No

Description\Location
Bldg19 Soil Under FCA Sample#6
Long Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

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		0.97	0.96	45,000
Ra-226		1.25	0.82	800
Ac-227 (D)	*	0.09	0.44	40
Th-230	*	0	9.77	800
Th-232 (D)		1.15	0.12	130
Pu-238	*	0	20.86	500
Am-241	*	0.06	0.1	500

Other Nuclides

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

Σ_{DOT} 0.03 nCi/g $\Sigma_{Respirator}$ 0.08

$\Sigma_{Respirator}$ <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:

DJH 03-TF-0097

Date: 4/29/03 Counted By: 7559 Analyzed By: 7559 Initials

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SURVEY PLAN FORM

SP NUMBER	19-03	DATE OF REQUEST	March 5, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 19		
PURPOSE	Collect paint sample from structural components		
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

☐ SEDIMENT SAMPLE:

☐ Rubbelized Material:

☒ OTHER: Paint Scrape Sample

SURVEY TYPE

SURFACE SCAN	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L 2360	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Refer to MD-80036, Issue 29, Op. No. 30030, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-89 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	43-89		
SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
DOSE RATE MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
SPECIAL PRECAUTIONS AND LIMITATIONS	All surveys shall be performed and documented in accordance with Mound Radiological Control procedures. Use extreme caution when collecting scrape sample. Work gloves and face shield shall be worn while scraping paint.				

G11906 202

SP NUMBER	19-03	DATE OF REQUEST	March 5, 2003

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Identify Sample Locations

1. Select two (2) accessible locations on each of the 19 support arches.
2. One location should be selected from each of the arches accessible from the mezzanine.
3. The remaining locations should be between 1' and 6' from the floor.
4. Measure and mark a 3' section at each location.

Surface Scan (Alpha/Beta) Using a Ludlum 2360 with a 43-89 Probe

1. At each sample location, perform a surface scan of approximately 3'. Scan all surfaces keeping probe as close as possible to the surface.
2. Mark the location of the highest reading.
3. Resurvey each sample location after sample collection is complete.
4. Record location and results on RSDS map in accordance with Mound Rad Con procedures. Note: Record results in cpm units only.

Sampling Procedure

1. Using a sharp tool (e.g. chisel, paint scraper, etc.), remove as much paint as possible from a 1' section of support arch at each sample location.
2. Collect all of the paint material in an appropriate sample container.
3. Collect a smear sample at each location.
4. Composite the paint scrapings from each location into an EPA Dish.
5. Label sample container (EPA Dish) with sample number, date, time, and location in accordance with Mound procedures.
6. Document sample information and description of material on Attachment 1.
7. Show sample location on the RSDS map.
8. Submit sample to laboratory for Pb-210 and Po-210 analysis.
9. Submit smear samples for gross alpha/beta analysis.

APPROVAL SIGNATURES

MARISSM Engineer	R. Case	DATE	March 5, 2003
Technical Reviewer	R. Coblentz	DATE	March 5, 2003
Rad Con Manager	S. Collas	DATE	March 5, 2003

SP CLOSE-OUT SIGNATURES

MARISSM Engineer		DATE	May 14, 2003
Technical Reviewer	G. Tomlinson	DATE	5-14-03
Rad Con Manager	S. Collas	DATE	5-14-03

COMMENTS

G12006 200

Survey Plan Form 19-03
Attachment 1

Sample Number	Sample Date	Sample Time	Sample Volume/ Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									
19-03-									

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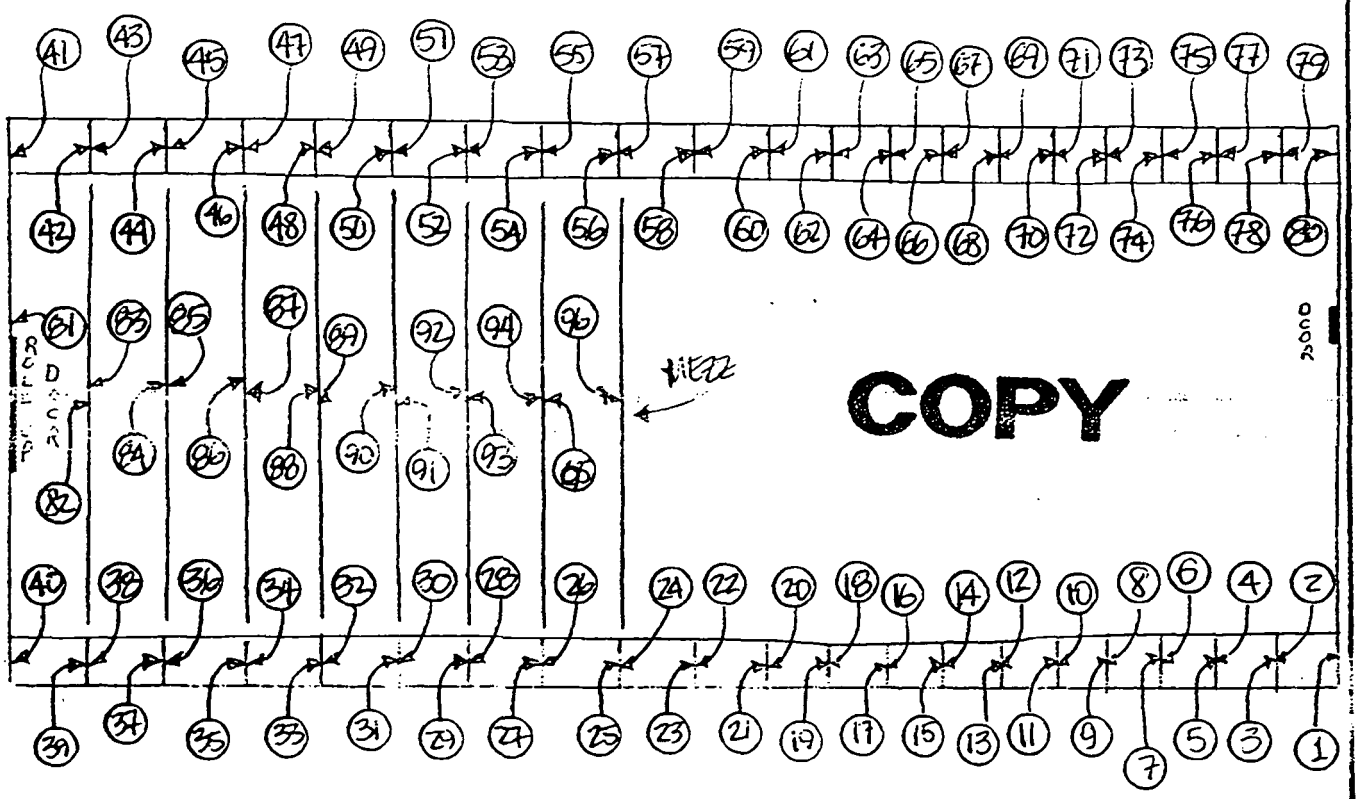
RADIOLOGICAL SURVEY DATA SHEET

Page 1 of 1820 3-19-

LOCATION: (BLDG./AREA/ROOM) BLDG. #19	SURVEY 03-TF-0059
PURPOSE: CHARACTERIZATION OF ARCHES	RWP NO. N/A
	DATE: 3/6/03
	TIME 1600

MAP / DRAWING



- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA ~~NO AUDIBLE DETECTED~~ DJH 3-13-03

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

△ # = mrem/hr neutron

(#) = swipe number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L 2360	5775/5720	9/25/03
	N/A	

Completed by: (Signature)		HP# [redacted]	Date: 3/6/03
Completed by: (Print Name)	S.E. LEHRER DANIEL HARVEY		3-11-03
Counted by: (Signature)	RECORD ON FILE	HP# NA	Date: NA
Counted by: (Print Name)	NA		
Reviewed/Approved by: (Signature)		HP# [redacted]	Date: 03/19/03
Reviewed/Approved by: (Print Name)	RM Coblentz		

ML-0620

G-2360 200

(2-06)

2 of 1820 DNF 3-19-03

Survey No. 03-TF-0059

Page ___ of ___

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-96	SEE	ATTACHED		ARCHES
				SEE PAGE 1
		N	A	

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

COMMENTS: N/A

NOTES:

1. See MD-60036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)

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19-BLDG CHARACTERIZATION OF ARCHES PRE-SCRAPING

RSDS#03-TF-0059 RCT: 29H RCT: [redacted]

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5775	[redacted]	5720	1	3/6/03	306	120	-20	16	120	32
2	5775		5720	2	3/6/03	284	120	-164	9	120	4
3	5775		5720	3	3/6/03	304	120	-124	21	120	52
4	5775		5720	4	3/6/03	365	120	2	12	120	16
5	5775		5720	5	3/6/03	338	120	-66	17	120	36
6	5775		5720	6	3/6/03	359	120	-24	24	120	64
7	5775		5720	7	3/6/03	335	120	-72	11	120	12
8	5775		5720	8	3/6/03	304	120	-124	11	120	12
9	5775		5720	9	3/6/03	315	120	-102	32	120	96
10	5775		5720	10	3/6/03	367	120	2	16	120	32
11	5775		5720	11	3/6/03	393	120	54	5	120	-12
12	5775		5720	12	3/6/03	319	120	-94	8	120	0
13	5775		5720	13	3/6/03	294	120	-144	9	120	4
14	5775		5720	14	3/6/03	337	120	-58	7	120	-4
15	5775		5720	15	3/6/03	358	120	-16	5	120	-12
16	5775		5720	16	3/6/03	278	120	-176	8	120	0
17	5775		5720	17	3/6/03	335	120	-62	25	120	68
18	5775		5720	18	3/6/03	319	120	-94	23	120	60
19	5775		5720	19	3/6/03	285	120	-162	10	120	8
20	5775		5720	20	3/6/03	299	120	-134	8	120	0
21	5775		5720	21	3/6/03	293	120	-146	12	120	16
22	5775		5720	22	3/6/03	335	120	-62	25	120	68
23	5775		5720	23	3/6/03	360	120	-12	13	120	20
24	5775		5720	24	3/6/03	280	120	-172	9	120	4
25	5775		5720	25	3/6/03	291	120	-150	10	120	8

Page 2 of 20 29H 3-19-03

19-BLDG CHARACTERIZATION OF AI CHES PRE-SCRAPING

RSDS#03-TF-0059 RCT: RCT:

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	BETA dpm/100cm2	gross count	CT TIME	ALPHA dpm/100cm2
26	5775	[redacted]	5720	26	3/6/03	335	120	-52	23	120	60
27	5775		5720	27	3/6/03	355	120	-22	10	120	8
28	5775		5720	28	3/6/03	303	120	-126	5	120	-12
29	5775		5720	29	3/6/03	278	120	-176	6	120	-8
30	5775		5720	30	3/6/03	312	120	-108	10	120	8
31	5775		5720	31	3/6/03	286	120	-160	6	120	-8
32	5775		5720	32	3/6/03	365	120	-2	5	120	-12
33	5775		5720	33	3/6/03	355	120	-22	8	120	0
34	5775		5720	34	3/6/03	291	120	-150	7	120	-4
35	5775		5720	35	3/6/03	281	120	-170	7	120	-4
36	5775		5720	36	3/6/03	354	120	-24	6	120	-8
37	5775		5720	37	3/6/03	334	120	-64	16	120	32
38	5775		5720	38	3/6/03	377	120	22	30	120	88
39	5775		5720	39	3/6/03	313	120	-106	14	120	24
40	5775		5720	40	3/6/03	265	120	-202	10	120	8
41	5775		5720	41	3/6/03	409	120	86	17	120	36
42	5775		5720	42	3/6/03	380	120	28	15	120	28
43	5775		5720	43	3/6/03	362	120	-8	11	120	12
44	5775		5720	44	3/6/03	294	120	-144	7	120	-4
45	5775		5720	45	3/6/03	330	120	-72	6	120	-8
46	5775		5720	46	3/6/03	333	120	-66	8	120	0
47	5775		5720	47	3/6/03	346	120	-40	17	120	36
48	5775		5720	48	3/6/03	354	120	-24	8	120	0
49	5775		5720	49	3/6/03	350	120	-32	5	120	-12
50	5775		5720	50	3/6/03	334	120	-64	17	120	36
51	5775		5720	51	3/6/03	278	120	-176	18	120	40

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19-BLDG CHARACTERIZATION OF ARCHES PRE-SCRAPING

RSDS# 03-TF-0059 RCT: ______ RCT: ______

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	BETA dpm/100cm2	gross count	CT TIME	ALPHA dpm/100cm2
52	5775	[redacted]	5720	52	3/6/03	346	120	-40	17	120	36
53	5775		5720	53	3/6/03	340	120	-52	15	120	28
54	5775		5720	54	3/6/03	391	120	50	6	120	-8
55	5775		5720	55	3/6/03	376	120	20	10	120	8
56	5775		5720	56	3/6/03	323	120	-86	12	120	16
57	5775		5720	57	3/6/03	357	120	-18	12	120	16
58	5775		5720	58	3/6/03	334	120	-64	16	120	32
59	5775		5720	59	3/6/03	351	120	-30	18	120	40
60	5775		5720	60	3/6/03	316	120	-100	11	120	12
61	5775		5720	61	3/6/03	417	120	102	31	120	92
62	5775		5720	62	3/6/03	344	120	-44	14	120	24
63	5775		5720	63	3/6/03	314	120	-104	28	120	80
64	5775		5720	64	3/6/03	303	120	-126	12	120	16
65	5775		5720	65	3/6/03	321	120	-90	6	120	-8
66	5775		5720	66	3/6/03	328	120	-76	16	120	32
67	5775		5720	67	3/6/03	358	120	-16	14	120	24
68	5775		5720	68	3/6/03	333	120	-66	9	120	4
69	5775		5720	69	3/6/03	333	120	-66	19	120	44
70	5775		5720	70	3/6/03	308	120	-116	9	120	4
71	5775		5720	71	3/6/03	341	120	-50	16	120	32
72	5775		5720	72	3/6/03	288	120	-156	18	120	40
73	5775		5720	73	3/6/03	262	120	-208	11	120	12
74	5775		5720	74	3/6/03	307	120	-118	21	120	52
75	5775		5720	75	3/6/03	264	120	-204	12	120	16
76	5775		5720	76	3/6/03	312	120	-108	13	120	20
77	5775		5720	77	3/6/03	334	120	-64	24	120	64

19-BLDG CHARACTERIZATION OF ARCHES PRE-SCRAPING

RSDS#03-TF-0059 RCT: [redacted] RCT: [redacted]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	BETA dpm/100cm2	gross count	CT TIME	ALPHA dpm/100cm2
78	5775	[redacted]	5720	78	3/6/03	343	120	-46	16	120	32
79	5775		5720	79	3/6/03	415	120	98	18	120	40
80	5775		5720	80	3/6/03	274	120	-184	22	120	56
81	5775		5720	81	3/6/03	355	120	-22	13	120	20
82	5775		5720	82	3/6/03	254	120	-224	6	120	-8
83	5775		5720	83	3/6/03	295	120	-142	9	120	4
84	5775		5720	84	3/6/03	312	120	-108	12	120	16
85	5775		5720	85	3/6/03	286	120	-160	12	120	16
86	5775		5720	86	3/6/03	249	120	-234	5	120	-12
87	5775		5720	87	3/6/03	254	120	-224	12	120	16
88	5775		5720	88	3/6/03	316	120	-100	6	120	-8
89	5775		5720	89	3/6/03	289	120	-154	13	120	20
90	5775		5720	90	3/6/03	334	120	-64	11	120	12
91	5775		5720	91	3/6/03	263	120	-206	6	120	-8
92	5775		5720	92	3/6/03	291	120	-150	8	120	0
93	5775		5720	93	3/6/03	280	120	-172	6	120	-8
94	5775		5720	94	3/6/03	262	120	-208	14	120	24
95	5775		5720	95	3/6/03	274	120	-184	10	120	8
96	5775		5720	96	3/6/03	261	120	-210	4	120	-16
BETA BACKGROUND FOR 3-6-2003 WAS---------->								133			
ALPHA BACKGROUND FOR 3-6-2003 WAS---------->								4			

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR021
Batch Ended: 3/10/03 15:46
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0059 HARVEY-96 BSB

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	5.51	3.55		1.03	2.21	
A2	2	5.43	3.37		1.16	2.08	
A3	3	0.00	2.15		1.67	2.15	
A4	4	0.00	2.02		1.52	2.05	
B1	5	1.56	2.04		1.38	2.17	
B2	6	1.31	2.00		0.00	1.20	
B3	7	0.00	2.13		2.65	2.57	
B4	8	0.00	2.01		0.17	1.64	
C1	9	0.00	2.09		0.51	1.77	
C2	10	1.31	1.89		2.67	2.32	
C3	11	0.00	2.08		0.00	1.25	
C4	12	0.98	2.05		0.00	1.47	
D1	13	0.00	1.98		2.84	2.48	
D2	14	0.00	2.09		0.00	1.21	
D3	15	0.00	2.20		5.48	3.15	
D4	16	0.00	2.10		0.36	1.69	
A1	17	0.00	2.06		0.21	1.81	
A2	18	3.51	2.74		0.00	1.20	
A3	19	3.79	3.02		0.15	1.75	
A4	20	0.00	2.03		2.70	2.36	
B1	21	1.56	2.02		0.00	1.25	
B2	22	0.00	2.00		0.00	1.20	
B3	23	0.00	2.12		1.37	2.22	
B4	24	0.00	2.03		2.49	2.33	
C1	25	1.56	2.09		0.36	1.77	
C2	26	1.32	1.84		0.00	1.16	
C3	27	0.00	2.08		0.00	1.25	

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3-19-03

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR021
Batch Ended: 3/10/03 15:46
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0059 HARVEY-96 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C4	28	0.00	2.05		0.00	1.47	
D1	29	0.00	1.96		1.60	2.14	
D2	30	3.64	2.96		0.03	1.72	
D3	31	0.00	2.16		1.64	2.22	
D4	32	1.48	2.11		1.40	2.07	
A1	33	1.44	2.08		2.61	2.56	
A2	34	1.58	2.00		5.05	2.95	
A3	35	0.00	2.13		0.00	1.24	
A4	36	0.00	2.02		1.52	2.05	
B1	37	0.00	2.02		0.00	1.25	
B2	38	0.00	2.01		0.29	1.69	
B3	39	0.00	2.13		2.65	2.57	
B4	40	0.00	2.01		0.17	1.64	
C1	41	0.00	2.08		0.00	1.25	
C2	42	0.00	1.87		1.68	2.00	
C3	43	0.00	2.16		6.89	3.31	
C4	44	0.00	2.06		0.00	1.85	
D1	45	0.00	1.99		4.07	2.77	
D2	46	1.57	2.09		0.00	1.22	
D3	47	1.62	2.16		1.48	2.22	
D4	48	3.56	2.96		0.07	1.69	
A1	49	0.00	2.06		0.21	1.81	
A2	50	1.58	1.95		0.26	1.70	
A3	51	0.00	2.16		2.91	2.48	
A4	52	0.00	2.00		0.00	1.18	
B1	53	1.56	2.04		1.38	2.17	
B2	54	3.29	2.83		0.00	1.69	
B3	55	1.59	2.11		0.00	1.81	
B4	56	1.45	2.03		2.35	2.33	
C1	57	1.56	2.09		0.36	1.77	

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR021
Batch Ended: 3/10/03 15:46
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0059 HARVEY-96 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C2	58	1.32	1.86		0.36	1.64	
C3	59	0.00	2.12		3.16	2.50	
C4	60	0.00	2.08		1.09	2.44	
D1	61	0.00	2.04		7.78	3.52	
D2	62	0.00	2.10		0.37	1.72	
D3	63	0.00	2.14		0.36	1.81	
D4	64	1.48	2.16		6.17	3.17	
A1	65	5.51	3.55		1.03	2.21	
A2	66	7.36	3.89		1.00	2.08	
A3	67	0.00	2.15		1.67	2.15	
A4	68	1.47	2.00		0.00	1.18	
B1	69	0.00	2.03		0.29	1.77	
B2	70	0.00	2.06		3.87	2.67	
B3	71	3.67	3.01		6.17	3.41	
B4	72	1.45	2.01		0.03	1.64	
C1	73	0.00	2.10		1.76	2.16	
C2	74	1.32	1.86		0.36	1.64	
C3	75	0.00	2.13		4.40	2.79	
C4	76	0.98	2.06		0.00	1.85	
D1	77	1.40	1.93		0.00	1.24	
D2	78	0.00	2.09		0.00	1.21	
D3	79	0.00	2.17		2.92	2.56	
D4	80	3.56	2.98		3.64	2.67	
A1	81	1.44	2.09		3.89	2.86	
A2	82	1.58	1.96		1.46	2.08	
A3	83	1.68	2.19		5.25	3.05	
A4	84	1.47	2.00		0.00	1.18	
B1	85	0.00	2.07		4.04	2.80	
B2	86	7.25	4.03		5.58	3.16	
B3	87	0.00	2.11		0.08	1.81	

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR021
Batch Ended: 3/10/03 15:46
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0059 HARVEY-96 BSB

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
B4	88	1.45	2.02		1.19	2.01	
C1	89	3.63	2.96		1.45	2.16	
C2	90	0.00	1.88		2.84	2.32	
C3	91	0.00	2.11		1.91	2.16	
C4	92	0.00	2.09		2.22	2.69	
D1	93	0.00	1.96		1.60	2.14	
D2	94	0.00	2.16		5.22	2.98	
D3	95	3.74	3.04		2.60	2.56	
D4	96	1.48	2.16		6.17	3.17	

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	7.32
Region B:	2.0 -	18.6	0	0.0	7.04
Region C:	40.0 -	2000	0	0.0	11.10

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0059 HARVEY (96) BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT1.DAT
Count Data Filename: c:\data\SDATA1.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	7.32	7.04	0	B	555.55		0.00	11.10
[illegible]	2.00	[illegible]	[illegible]	0		473.09	[illegible]	[illegible]	[illegible]
1	2.00	12.15	12.24	0		281.42	39.42	21.20	1.40
2	2.00	13.44	11.72	0		461.16	30.25	15.18	0.00
3	2.00	11.21	10.07	0		325.63	32.40	18.45	27.83
4	2.00	12.86	12.48	0		293.63	40.26	20.83	26.90
5	2.00	17.74	17.30	0		303.77	54.11	22.60	29.43
6	2.00	5.68	5.10	0		514.36	12.00	11.40	0.00
7	2.00	14.01	14.07	0		514.79	29.58	14.43	28.49
8	2.00	6.81	6.66	0		408.86	16.51	13.60	4.84
9	2.00	2.68	0.96	0		545.94	5.50	9.84	2.90
10	2.00	4.51	2.56	0		509.25	9.57	10.97	0.40
11	2.00	8.18	7.07	0		428.27	19.28	13.81	1.40
12	2.00	6.91	6.93	0		428.94	16.27	13.25	0.11
13	2.00	5.68	5.49	0		430.30	13.35	12.68	0.90
14	2.00	7.68	7.37	0		498.75	16.45	12.36	6.40
15	2.00	12.68	10.98	0		581.02	25.25	13.19	11.90
16	2.00	11.93	10.90	0		452.56	27.16	14.80	0.00
17	2.00	10.63	10.34	0		457.06	24.05	14.22	2.58
18	2.00	7.38	6.96	0		549.33	15.12	11.70	0.40
19	2.00	10.12	9.65	0		515.87	21.34	13.07	4.45
20	2.00	5.75	3.84	0		553.82	11.73	11.03	0.00
21	2.00	10.68	9.60	0		566.27	21.54	12.69	7.63
22	2.00	16.68	12.23	0		646.56	31.45	13.67	6.40
23	2.00	11.68	10.05	0		559.90	23.69	13.10	0.90
24	2.00	15.31	14.64	0		434.64	35.77	16.44	0.90
25	2.00	16.21	16.01	0		432.27	37.98	16.82	1.40
26	2.00	24.90	24.22	0		437.17	57.95	19.60	4.90
27	2.00	13.88	12.07	0		487.92	30.13	14.79	0.90
28	2.00	3.68	3.96	0		394.49	9.13	12.41	0.00
29	2.00	7.18	6.43	0		456.94	16.25	12.85	1.90
30	2.00	5.68	5.30	0		352.88	15.41	14.65	0.00
31	2.00	2.68	2.80	0		535.70	5.55	9.93	0.00
32	2.00	1.68	1.59	0		372.97	4.36	11.89	4.90
33	2.00	2.68	2.21	0		516.09	5.65	10.11	0.00
34	2.00	6.88	6.57	0		472.25	15.26	12.46	0.40

DJH

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Protocol #: 1 PW H3 405828 User : 5268

S#	TIME	CPMA	CPMB	LUM FLAG	tSIE	DPM1	2Sigma	CPMC
35	2.00	2.68	2.96	0	383.61	6.80	12.17	0.00
36	2.00	5.18	4.62	0	403.07	12.67	12.96	0.00
37	2.00	8.18	8.18	0	323.78	23.75	17.01	0.90
38	2.00	6.68	5.10	0	513.46	14.12	11.81	0.00
39	2.00	8.68	8.96	0	279.80	28.29	19.39	0.00
40	2.00	10.81	10.66	0	231.28	41.92	24.49	0.00
41	2.00	45.20	38.82	0	588.10	89.48	21.66	0.00
42	2.00	38.31	35.69	0	332.01	109.10	28.86	0.40
43	2.00	50.73	45.77	0	478.49	111.50	25.43	3.40
44	2.00	51.04	47.71	0	437.14	118.79	27.01	0.00
45	2.00	50.13	48.04	0	390.34	125.52	28.80	0.00
46	2.00	44.06	38.88	0	572.29	88.42	21.70	0.00
47	2.00	34.89	29.78	0	532.15	72.53	20.19	0.00
48	2.00	32.68	28.17	0	520.70	68.63	19.82	0.00
49	2.00	66.43	60.85	0	429.99	156.18	31.18	0.00
50	2.00	30.62	28.69	0	441.65	70.80	21.22	0.40
51	2.00	11.68	9.51	0	553.49	23.82	13.17	0.00
52	2.00	22.99	22.09	0	389.82	57.62	20.45	3.40
53	2.00	17.98	17.05	0	395.29	44.57	18.45	2.33
54	2.00	16.68	15.69	0	622.87	32.07	13.94	5.09
55	2.00	5.59	4.59	0	550.61	11.42	11.00	0.00
56	2.00	24.18	22.14	0	482.75	52.85	18.20	3.50
57	2.00	18.74	15.38	0	571.00	37.64	15.18	0.00
58	2.00	32.65	28.80	0	535.12	67.69	19.56	1.26
59	2.00	36.95	33.69	0	460.96	83.18	22.44	0.00
60	2.00	46.52	38.73	0	510.09	98.65	23.53	0.00
61	2.00	10.68	8.62	0	525.47	22.33	13.16	0.00
62	2.00	9.68	9.04	0	525.60	20.24	12.80	0.60
63	2.00	7.54	7.59	0	234.41	28.85	21.98	0.00
64	2.00	9.20	9.24	0	239.30	34.53	22.66	0.00
65	2.00	9.40	8.33	0	367.55	24.70	15.96	0.00
66	2.00	17.19	16.19	0	520.28	36.12	15.39	0.00
67	2.00	8.05	6.51	0	422.80	19.12	13.86	0.00
68	2.00	10.68	10.63	0	354.51	28.88	17.02	0.00
69	2.00	0.68	0.88	0	218.09	2.79	17.90	0.00
70	2.00	4.68	4.62	0	356.57	12.60	14.00	4.90
71	2.00	7.18	6.75	0	366.94	18.89	14.94	1.40
72	2.00	3.90	3.30	0	414.22	9.39	12.14	1.40
73	2.00	3.17	3.45	0	370.88	8.26	12.77	0.00
74	2.00	2.43	2.26	0	297.85	7.53	14.68	0.00
75	2.00	1.18	0.00	0	384.43	2.99	11.32	0.23
76	2.00	6.18	4.52	0	508.95	13.12	11.66	1.90
77	2.00	6.73	5.85	0	492.69	14.52	12.07	0.00
78	2.00	5.62	5.60	0	338.77	15.77	15.10	3.40
79	2.00	7.92	5.31	0	469.00	17.63	12.94	0.00
80	2.00	8.18	6.07	0	361.29	21.79	15.61	0.00
81	2.00	13.22	11.38	0	477.94	29.07	14.76	3.40
82	2.00	21.23	19.54	0	357.05	57.08	21.28	0.00
83	2.00	12.18	10.15	0	504.42	25.96	13.94	0.40
84	2.00	20.97	18.86	0	365.50	55.34	20.79	0.00
85	2.00	10.52	9.97	0	240.61	39.29	23.39	0.00
86	2.00	0.18	0.00	0	480.95	0.39	9.28	0.00
87	2.00	8.20	8.13	0	268.75	27.72	19.82	0.94
88	2.00	9.42	8.60	0	399.16	23.17	14.95	0.00
89	2.00	6.68	6.58	0	380.83	17.06	14.26	0.00
90	2.00	13.68	12.08	0	430.86	32.12	15.93	0.00

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S#	TIME	CPMA	CPMB	LUM FLAG	tSIE	DPM1	2Sigma	CPMC
91	2.00	6.74	5.11	0	479.26	14.80	12.29	2.40
92	2.00	9.73	7.61	0	478.76	21.38	13.47	0.00
93	2.00	17.54	16.35	0	274.97	58.10	24.44	0.00
94	2.00	8.18	6.82	0	536.07	16.94	12.13	0.00
95	2.00	19.72	19.10	0	255.66	69.73	27.22	3.41
96	2.00	15.38	12.03	0	510.46	32.60	14.94	1.40

DJ#

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DJ# 3-19-03

G13507200

19-BLDG CHARACTERIZATION OF ARCHES POST-SCRAPING

RSDS#03-TF-0059 RCT: [illegible] RCT: [illegible]

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5775	[redacted]	5720	1	3/10/03	304	120	-164	16	120	24
2	5775		5720	2	3/10/03	242	120	-268	4	120	-24
3	5775		5720	3	3/10/03	284	120	-204	8	120	-8
4	5775		5720	4	3/10/03	328	120	-116	8	120	-8
5	5775		5720	5	3/10/03	332	120	-108	14	120	16
6	5775		5720	6	3/10/03	329	120	-114	10	120	0
7	5775		5720	7	3/10/03	333	120	-106	12	120	8
8	5775		5720	8	3/10/03	278	120	-216	7	120	-12
9	5775		5720	9	3/10/03	294	120	-184	9	120	-4
10	5775		5720	10	3/10/03	317	120	-138	13	120	12
11	5775		5720	11	3/10/03	340	120	-92	13	120	12
12	5775		5720	12	3/10/03	296	120	-180	10	120	0
13	5775		5720	13	3/10/03	248	120	-276	6	120	-16
14	5775		5720	14	3/10/03	363	120	-46	12	120	8
15	5775		5720	15	3/10/03	305	120	-162	7	120	-12
16	5775		5720	16	3/10/03	260	120	-252	7	120	-12
17	5775		5720	17	3/10/03	276	120	-220	11	120	4
18	5775		5720	18	3/10/03	284	120	-204	7	120	-12
19	5775		5720	19	3/10/03	285	120	-202	6	120	-16
20	5775		5720	20	3/10/03	285	120	-202	10	120	0
21	5775		5720	21	3/10/03	287	120	-198	6	120	-16
22	5775		5720	22	3/10/03	316	120	-140	6	120	-16
23	5775		5720	23	3/10/03	315	120	-142	5	120	-20
24	5775		5720	24	3/10/03	289	120	-194	8	120	-8
25	5775		5720	25	3/10/03	281	120	-210	9	120	-4

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19-BLDG CHARACTERIZATION OF ARCHES POST-SCRAPING

RSDS#03-TF-0059 RCT: DJH RCT:

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	BETA dpm/100cm2	gross count	CT TIME	ALPHA dpm/100cm2
26	5775	[redacted]	5720	26	3/10/03	285	120	-202	8	120	-8
27	5775		5720	27	3/10/03	328	120	-116	4	120	-24
28	5775		5720	28	3/10/03	265	120	-242	4	120	-24
29	5775		5720	29	3/10/03	226	120	-320	9	120	-4
30	5775		5720	30	3/10/03	266	120	-240	7	120	-12
31	5775		5720	31	3/10/03	257	120	-258	1	120	-36
32	5775		5720	32	3/10/03	325	120	-122	5	120	-20
33	5775		5720	33	3/10/03	245	120	-282	7	120	-12
34	5775		5720	34	3/10/03	276	120	-220	9	120	-4
35	5775		5720	35	3/10/03	251	120	-270	10	120	0
36	5775		5720	36	3/10/03	333	120	-106	9	120	-4
37	5775		5720	37	3/10/03	336	120	-100	6	120	-16
38	5775		5720	38	3/10/03	297	120	-178	8	120	-8
39	5775		5720	39	3/10/03	281	120	-210	8	120	-8
40	5775		5720	40	3/10/03	347	120	-78	4	120	-24
41	5775		5720	41	3/11/03	384	120	-4	4	120	0
42	5775		5720	42	3/11/03	352	120	-68	7	120	12
43	5775		5720	43	3/11/03	350	120	-72	9	120	20
44	5775		5720	44	3/11/03	286	120	-200	13	120	36
45	5775		5720	45	3/11/03	316	120	-140	10	120	24
46	5775		5720	46	3/11/03	367	120	-38	12	120	32
47	5775		5720	47	3/11/03	328	120	-116	10	120	24
48	5775		5720	48	3/11/03	298	120	-176	15	120	44
49	5775		5720	49	3/11/03	333	120	-106	11	120	28
50	5775		5720	50	3/11/03	264	120	-244	13	120	36
51	5775		5720	51	3/11/03	255	120	-262	11	120	28

 DJH 3-19-03

19-BLDG CHARACTERIZATION OF ARCHES POST-SCRAPING

RSDS# 03-TF-0059 RCT: [illegible] RCT: [illegible]

								BETA			ALPHA
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
52	5775	[redacted]	5720	52	3/11/03	265	120	-242	5	120	4
53	5775		5720	53	3/11/03	280	120	-212	5	120	4
54	5775		5720	54	3/11/03	332	120	-108	2	120	-8
55	5775		5720	55	3/11/03	297	120	-178	6	120	8
56	5775		5720	56	3/11/03	326	120	-120	8	120	16
57	5775		5720	57	3/11/03	278	120	-216	7	120	12
58	5775		5720	58	3/11/03	312	120	-148	9	120	20
59	5775		5720	59	3/11/03	333	120	-106	4	120	0
60	5775		5720	60	3/11/03	351	120	-70	5	120	4
61	5775		5720	61	3/12/03	333	120	30	12	120	32
62	5775		5720	62	3/12/03	287	120	-62	4	120	0
63	5775		5720	63	3/12/03	251	120	-134	8	120	16
64	5775		5720	64	3/12/03	253	120	-130	7	120	12
65	5775		5720	65	3/12/03	297	120	-42	4	120	0
66	5775		5720	66	3/12/03	307	120	-22	3	120	-4
67	5775		5720	67	3/12/03	286	120	-64	5	120	4
68	5775		5720	68	3/12/03	349	120	62	8	120	16
69	5775		5720	69	3/12/03	303	120	-30	6	120	8
70	5775		5720	70	3/12/03	332	120	28	15	120	44
71	5775		5720	71	3/12/03	301	120	-34	6	120	8
72	5775		5720	72	3/12/03	288	120	-60	5	120	4
73	5775		5720	73	3/12/03	270	120	-96	4	120	0
74	5775		5720	74	3/12/03	277	120	-82	3	120	-4
75	5775		5720	75	3/12/03	239	120	-158	6	120	8
76	5775		5720	76	3/12/03	273	120	-90	3	120	-4
77	5775		5720	77	3/12/03	321	120	6	5	120	4

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19-BLDG CHARACTERIZATION OF ARCHES POST-SCRAPING

RSDS#03-TF-0059 RCT: [redacted] RCT: [redacted]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
78	5775		5720	78	3/12/03	336	120	36	4	120	0
79	5775		5720	79	3/12/03	255	120	-126	13	120	36
80	5775		5720	80	3/12/03	266	120	-104	8	120	16
81	5775		5720	81	3/11/03	326	120	-120	7	120	12
82	5775		5720	82	3/11/03	243	120	-286	9	120	20
83	5775		5720	83	3/11/03	262	120	-248	12	120	32
84	5775		5720	84	3/11/03	251	120	-270	4	120	0
85	5775		5720	85	3/11/03	267	120	-238	8	120	16
86	5775		5720	86	3/11/03	277	120	-218	10	120	24
87	5775		5720	87	3/11/03	283	120	-206	14	120	40
88	5775		5720	88	3/11/03	314	120	-144	12	120	32
89	5775		5720	89	3/11/03	334	120	-104	8	120	16
90	5775		5720	90	3/11/03	267	120	-238	10	120	24
91	5775		5720	91	3/11/03	285	120	-202	6	120	8
92	5775		5720	92	3/11/03	396	120	20	17	120	52
93	5775		5720	93	3/11/03	303	120	-166	12	120	32
94	5775		5720	94	3/11/03	257	120	-258	11	120	28
95	5775		5720	95	3/11/03	267	120	-238	4	120	0
96	5775		5720	96	3/11/03	262	120	-248	8	120	16
BETA BACKGROUND FOR 3-10-2003 WAS---------->								193			
ALPHA BACKGROUND FOR 3-10-2003 WAS---------->								5			
BETA BACKGROUND FOR 3-11-2003 WAS---------->								193			
ALPHA BACKGROUND FOR 3-11-2003 WAS---------->								2			
BETA BACKGROUND FOR 3-12-2003 WAS---------->								159			

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19-BLDG CHARACTERIZATION OF ARCHES POST-SCRAPING

RSDS#03-TF-0059 RCT: [illegible] RCT: [illegible]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
ALPHA BACKGROUND FOR 3-12-2003 WAS---------->								2			

Page 18 of 28 3-11-03

GAMMA ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15294
File ID: MC100112.s0
Priority: No

Description\Location
Bldg. 19 Scrapings from ribs

Collector: 7348
Date Received: 3/10/03
Date Collected: 3/10/03

Radionuclide	Activity (pCi/g)	MDA
Cs-137	0.42	0.05
Pb-210	1.57	0.34
Ra-226	1.01	0.67
Th-232	1.12	0.18

Comments Environmental Lab # 0302675

19 of 20

03-TF-0059 Dg H

Date: 3/13/03 Counted By: 7559 Analyzed By: 7559 Initials SP

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Laboratory ID#: 0302675
Project/function: SMPP/TFV
Submitted: Mar 11, 2003
Submitted by: HP 7348
Point of Contact:
RSDS#: DH 3-19-03 ~~N/A~~ 03-TF-0059
Date: Mar 18, 2003

Lab ID	0302673		
Sample Location	Bldg 19		
Isotope	dpm/g	Uncertainty +/-	LDL
Po-210	2.61	0.82	1.46

L. Clayton Hopkins [redacted] 3-18-03 DH
Analyst HP# Date

Bradley D Justice [redacted] 3/18/03 20 of 24
Data Verification HP# Date

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SURVEY PLAN FORM

SP NUMBER	19-04	**DATE OF REQUEST**	April 24, 2003
TYPE OF SP	☒ FSS ☐ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 19		
PURPOSE	Perform Final Status Survey		
SURVEY UNIT #1	Section 1 Floor *	**SURVEY UNIT #4**	Interior Walls to 6'
SURVEY UNIT #2	Section 2 Floor *	**SURVEY UNIT #5**	Upper Walls and Overhead
SURVEY UNIT #3	Section3 Floor *	**SURVEY UNIT #6**	Exterior

SAMPLE TYPE

☐ **SURFACE SOIL SAMPLE:**

☐ **SUB-SURFACE SOIL SAMPLE:**

☐ **SEDIMENT SAMPLE:**

☐ **Rubbelized Material:**

☐ **OTHER:**

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L 2350-1	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Scan surface at a rate of 1" per second at a distance of not more than ¼" from surface
		PROBE TYPE	43-37 Floor Monitor		
SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L2350-1	**SCAN RATE & DETECTOR DISTANCE FROM SURFACE**	Scan surface at a rate of 1" per second at a distance of not more than ¼" from surface
		PROBE TYPE	43-20		
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☒ ALPHA	**INST. TYPE**	L2350-1	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Perform 1 minute counts at specified locations not more than ¼" from surface
		PROBE TYPE	43-20		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☐ ALPHA	**INST. TYPE**	L 2360	**COUNT TIME & DETECTOR DISTANCE FROM SURFACE**	Refer to MD-80036, Issue 29, Op. No. 30031, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator*, Section 6.3
		PROBE TYPE	43-93		

SPECIAL PRECAUTIONS AND LIMITATIONS

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

On corrugated surfaces, the 43-20 probe must be oriented with the probe long dimension parallel to the corrugations with the probe centerline over the nearest corrugation peak.

Refer to Attachment 2 for guidance on converting measured cpm to dpm on corrugated surfaces.

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

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SP NUMBER	19-04	DATE OF REQUEST	April 24, 2003

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Data Point Location

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

Surface Scan (Alpha) Using a Ludlum 2350 with a 43-37 Floor Monitor or 43-20 Hand Probe

1. Set the Ludlum 2350-1 datalogger to alarm at 75dpm/100cm^2 in the ratemeter mode.
2. Scan 100% of the floor in Survey Units 1,2,and 3.
3. Scan 50% of the surface in Survey Unit 4.
4. Scan approximately 1m^2 around each data point in Survey Units 5 and 6.
5. Perform a 30 second integrated count at every location where an alarm is obtained.
6. Mark the location of each integrated count where activity is observed.
7. Record location and results of each integrated count on RSDS map in accordance with Mound Rad Con procedures (See attachment 2).

Static Measurements Using L 2350 With a 43-20 probe (alpha) and L 2360 with L43-93 probe (beta)

1. Perform a 1 minute integrated alpha and beta count at each data point in Survey Units 1, 2, 3, 4, 5, and 6.
2. Perform at least twenty (20) 1 minute integrated alpha and beta measurements on beams, supports, or other structural surfaces where, in the judgement of the surveyor, a potential exists for residual contamination.
3. Record location and results on RSDS map in accordance with Mound Rad Con procedures.
4. Document gross activity for each location (See Attachment 2). Record instrument background at survey location.

Quality Control

1. QC measurements will be performed by re-surveying 2 data points in each survey unit. Select the highest and lowest measurement in each survey unit for replicate survey.
2. Record location and results on RSDS in accordance with Mound Rad Con procedures.

APPROVAL SIGNATURES

MARISSM Engineer	R. Case	DATE	April 24, 2003
Technical Reviewer	G. Tomlinson	DATE	April 24, 2003
Rad Con Manager	S. Collas	DATE	April 24, 2003

SP CLOSE-OUT SIGNATURES

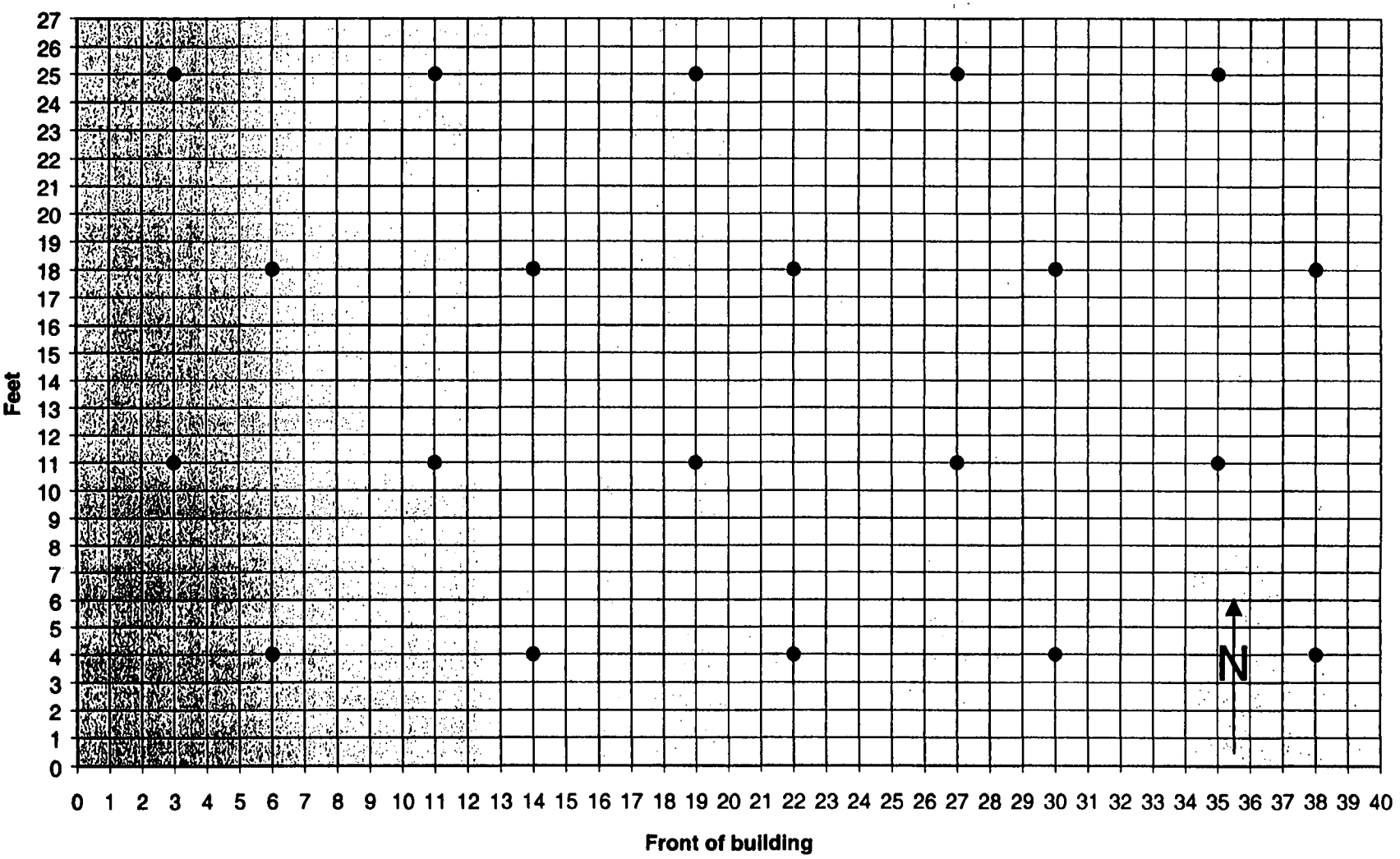
MARISSM Engineer	R. Case	DATE	May 14, 2003
Technical Reviewer	G. Tomlinson	DATE	5-14-03
Rad Con Manager	S. Collas	DATE	5-14-03

COMMENTS

* FLOOR IS DIVIDED INTO THREE SURVEY UNITS BEGINNING AT THE FRONT OF BUILDING (SOUTH END). SU #1 & #2 ARE 80'X24' AND SU #3 IS 80'X26'

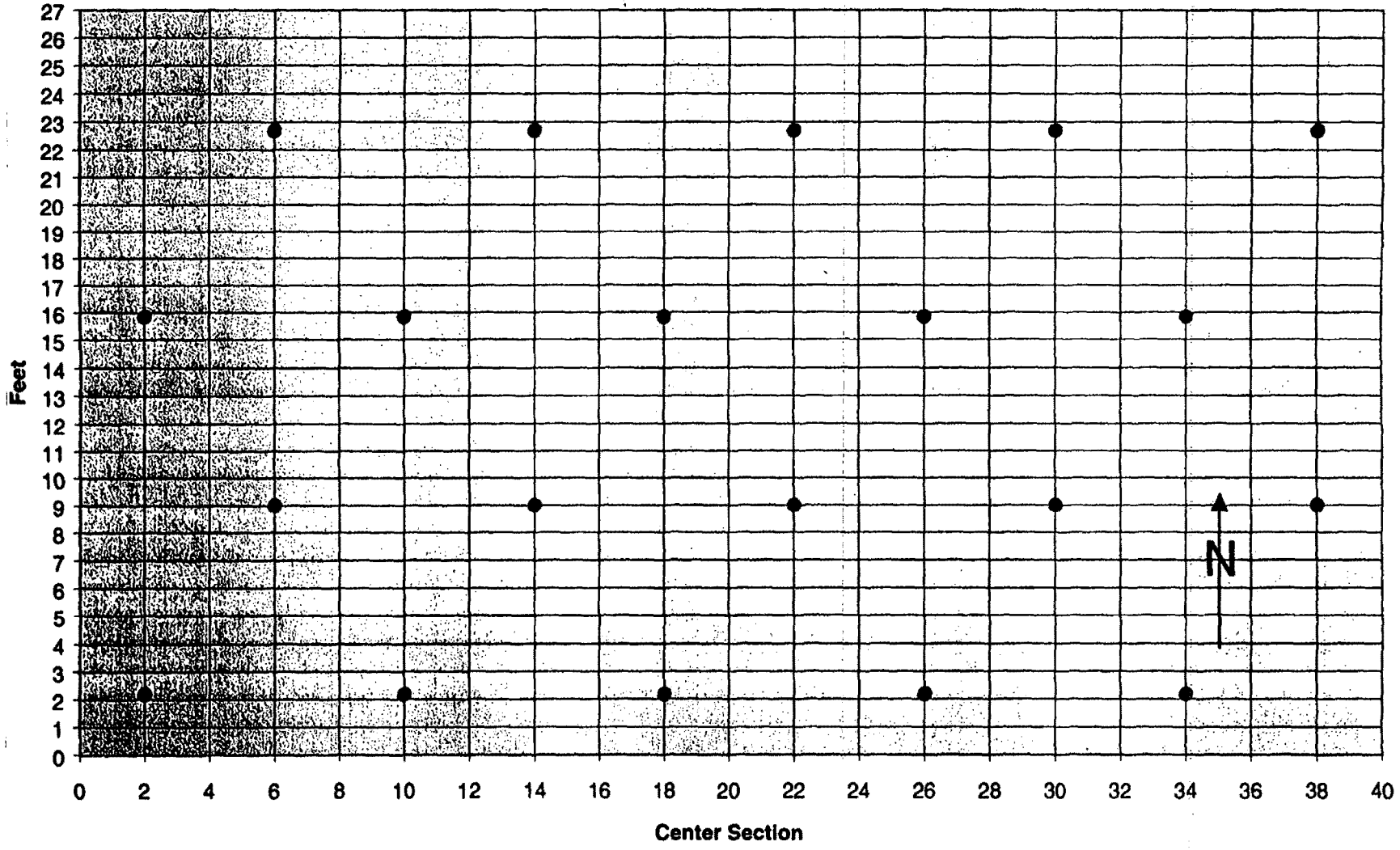
G1445 200

Survey Unit 1



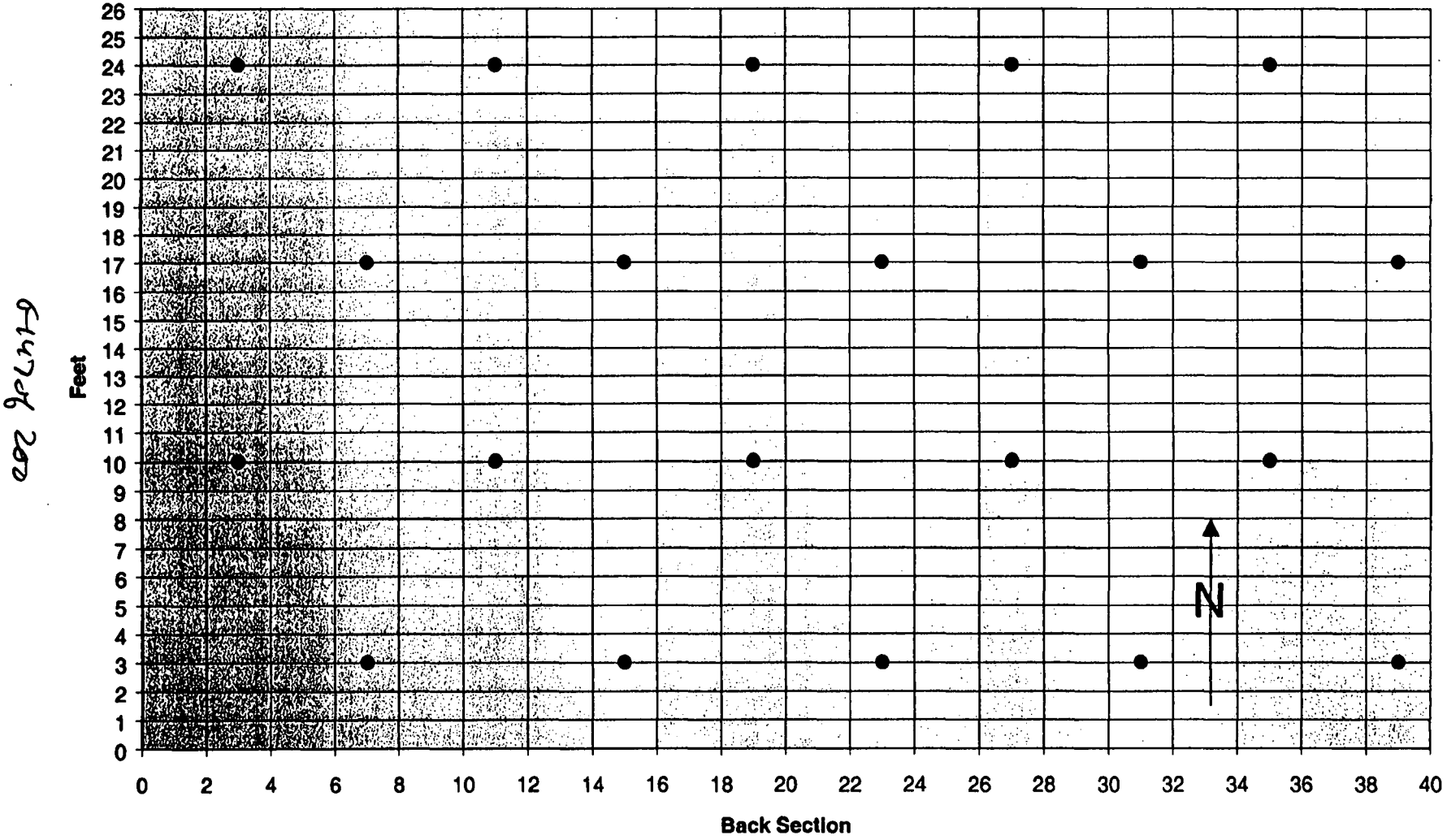
Not to Scale

Survey Unit 2



Not to Scale

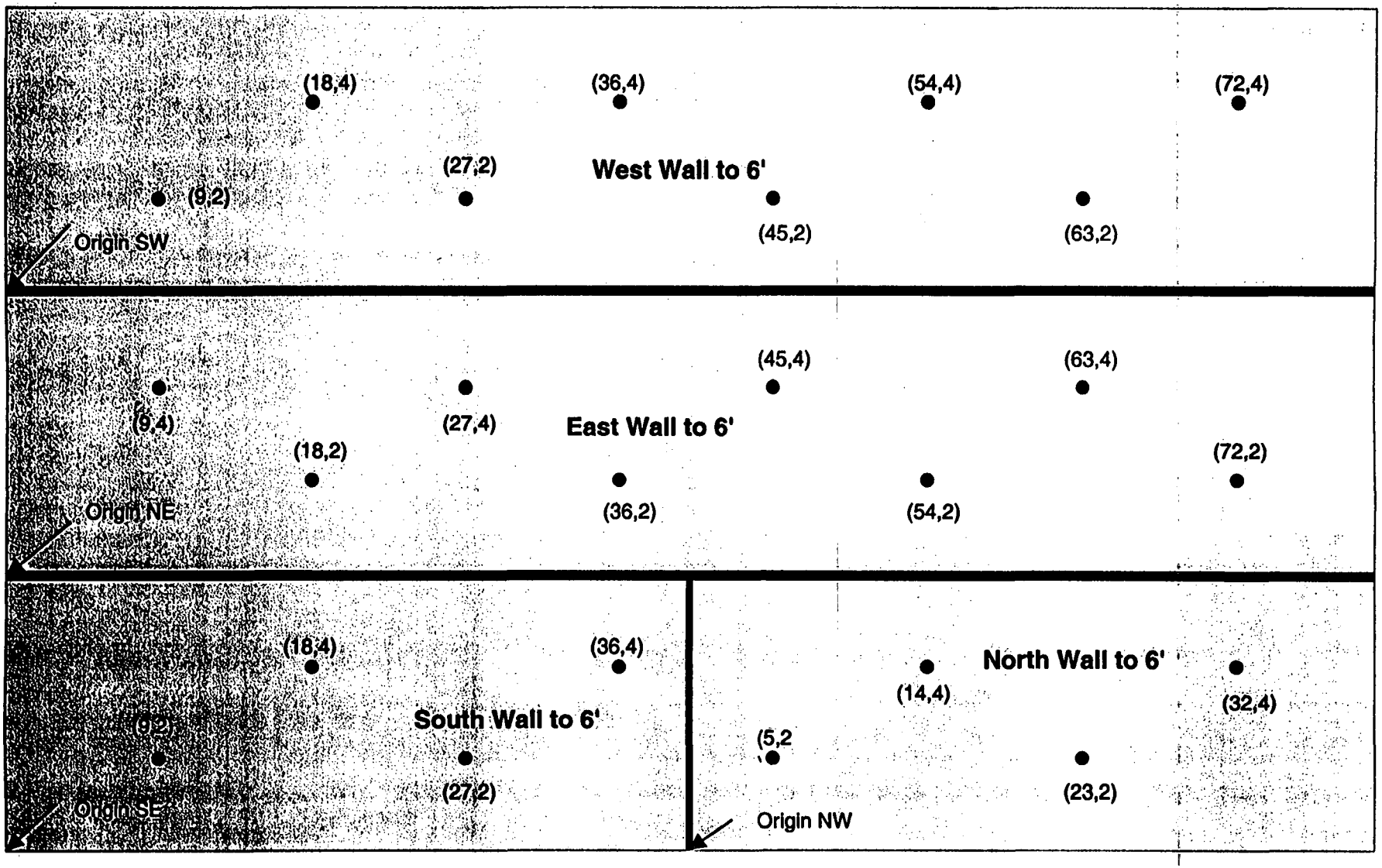
Survey Unit 3



Not to Scale

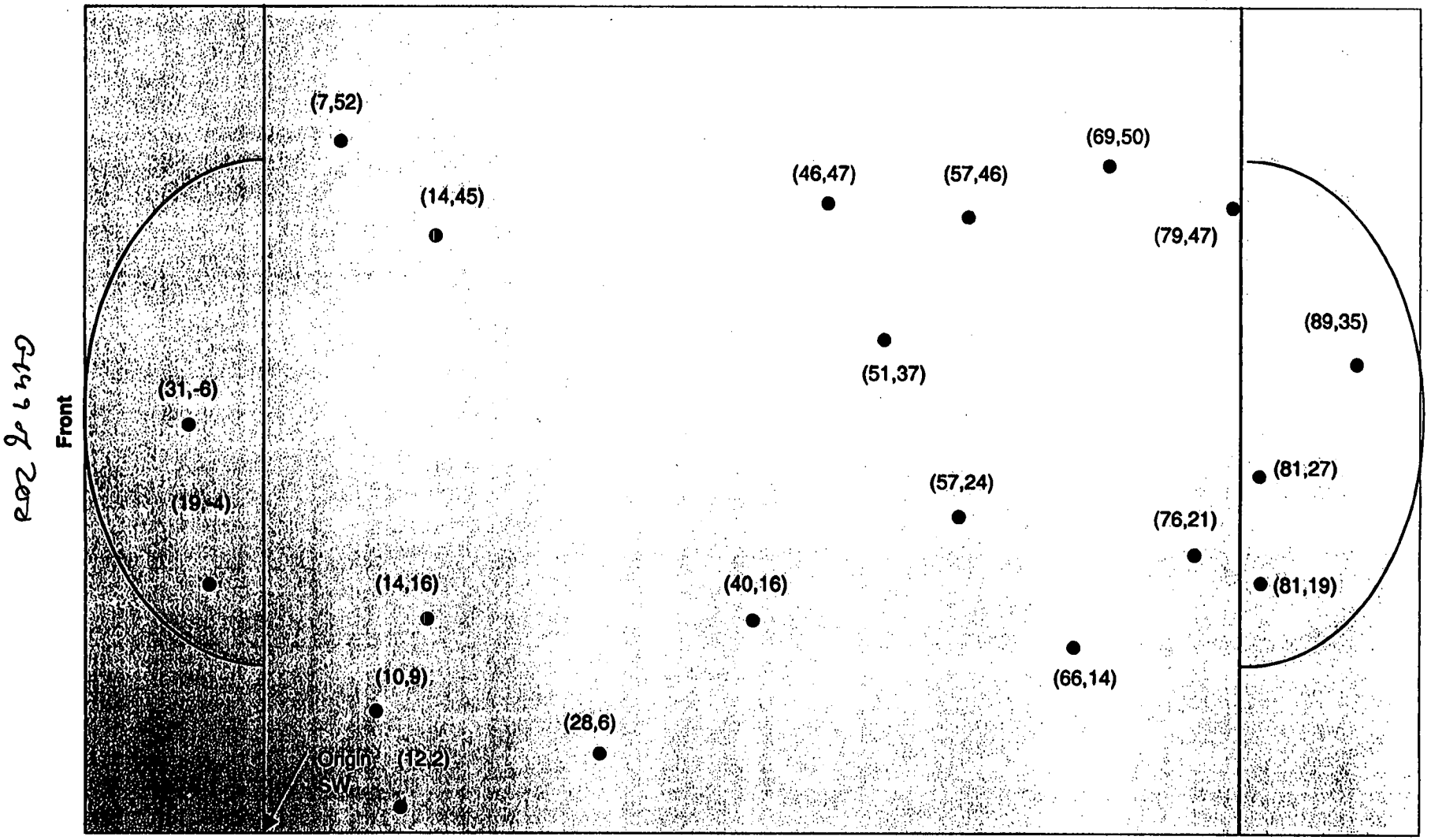
Survey Plan Form 19-04
Attachment 1

Survey Unit 4 Walls to 6'



Not to Scale

Survey Unit 5 and 6



Not to Scale

Building 19 Corrugated Siding Alpha Measurement Correction

$$C = \frac{R}{E_t \times CF \times A}$$

Equation 1

Where:

C = concentration of surface contamination in dpm/100cm^2

R = the measured or net count rate in cpm

E_t = total 4π efficiency ($E_i \times E_s$)

A = 112.3(effective probe area) / 100

For all measurements on corrugated surfaces, use Equation 1 to correct the alpha net CPM to dpm/100cm2. If using the L2350-1 download data sheet, enter the effective probe area (112.3cm^2) in the appropriate field on the data sheet. This will correct the reported results for the corrugated surface.

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RADIOLOGICAL SURVEY DATA SHEET COPY

LOCATION: (BLDG./AREA/ROOM) 19 FLOOR INSIDE	SURVEY NO 03-TF-0100
PURPOSE: FLOOR SCAN FOR MARISSM SURVEY PLAN 19-04 FINAL SURVEY STATUS	RWP NO. N/A
	DATE: 4-29-2003
	TIME 1430

MAP / DRAWING

SEE ATTACHED

* NOTE: THIS IS 100% SCAN OF FLOOR

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5676	8-13-2003
2350	5671/5675	9-11-2003
	N/A	

Completed by: (Signature) Daniel Harvey	HP# [redacted]	Date: 4-29-2003	
Completed by: (Print Name) DANIEL HARVEY			
Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA	
Counted by: (Print Name) NA			
Reviewed/Approved by: (Signature) Stanley K Riley	HP# [redacted]	Date: 05-08-03	
Reviewed/Approved by: (Print Name) Stanley K. Riley			

ML-9620

05/06 200

(2-98)

COPY

19 BUILDING CHARACTERIZATION ALPHA FLOOR SCAN UNIT 1

RSDS#03-TF-0100 RCT: DJH RCT: N/A

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5676	3		4/28/03	12:32	44	300	14
SRC CHECK	5673		5676	3		4/28/03	12:36	2055	60	3320
SRC CHECK	5673		5676	3		4/28/03	12:38	2054	60	3318
SRC CHECK	5673		5676	3		4/28/03	12:39	2195	60	3546
SRC CHECK	5673		5676	3		4/28/03	12:41	2111	60	3410
SRC CHECK	5673		5676	3		4/28/03	12:42	2117	60	3420
SRC CHECK	5673		5676	3		4/28/03	12:44	2200	60	3554
U-1FS 01	5673	[redacted]	5676	3	1	4/28/03	13:34	5	30	16
U-1FS 02	5673		5676	3	2	4/28/03	13:38	10	30	32

19 BUILDING CHARACTERIZATION ALPHA FLOOR SCAN UNIT 2

RSDS#03-TF-0100 RCT: DJH RCT: N/A

COPY

43-20 BKG:	0	EFF:	0.188	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.199	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	4

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5671	[redacted]	5675	4		4/29/03	7:56	25	300	9
SRC CHECK	5671		5675	4		4/29/03	7:59	2054	60	3535
SRC CHECK	5671		5675	4		4/29/03	8:01	2181	60	3753
SRC CHECK	5671		5675	4		4/29/03	8:03	2048	60	3524
SRC CHECK	5671		5675	4		4/29/03	8:04	2033	60	3499
SRC CHECK	5671		5675	4		4/29/03	8:06	1941	60	3340
SRC CHECK	5671		5675	4		4/29/03	8:07	1974	60	3397
U-2FS 01	5671	[redacted]	5675	4	1	4/29/03	8:25	8	30	28
U-2FS 02	5671		5675	4	2	4/29/03	9:10	9	30	31
U-2FS 03	5671		5675	4	3	4/29/03	9:24	9	30	31

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19 BUILDING CHARACTERIZATION ALPHA FLOOR SCAN UNIT 3

RSDS#03-TF-0100 RCT: D94 RCT: N/A

COPY

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5676	3		4/29/03	7:57	20	300	6
SRC CHECK	5673		5676	3		4/29/03	8:12	1927	60	3113
SRC CHECK	5673		5676	3		4/29/03	8:14	2127	60	3436
SRC CHECK	5673		5676	3		4/29/03	8:17	2054	60	3318
SRC CHECK	5673		5676	3		4/29/03	8:18	1997	60	3226
SRC CHECK	5673		5676	3		4/29/03	8:20	2079	60	3358
SRC CHECK	5673		5676	3		4/29/03	8:21	2035	60	3287
U-3FS 01	5673		5676	3	1	4/29/03	9:28	13	30	42
U-3FS 02	5673		5676	3	2	4/29/03	12:49	15	30	48
U-3FS 03	5673		5676	3	3	4/29/03	12:58	15	30	48

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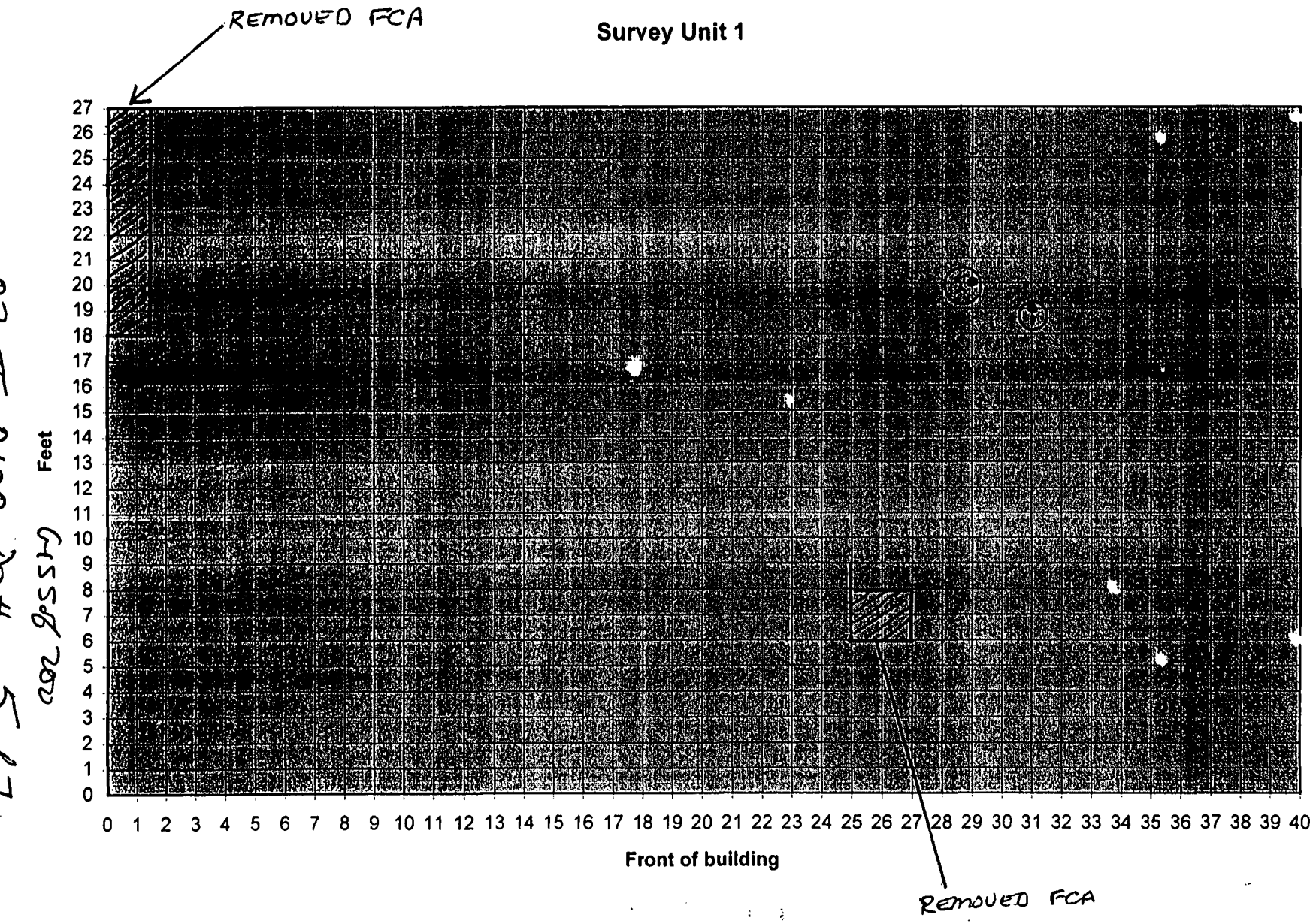

03-TF-0100 Sht 5 of 7

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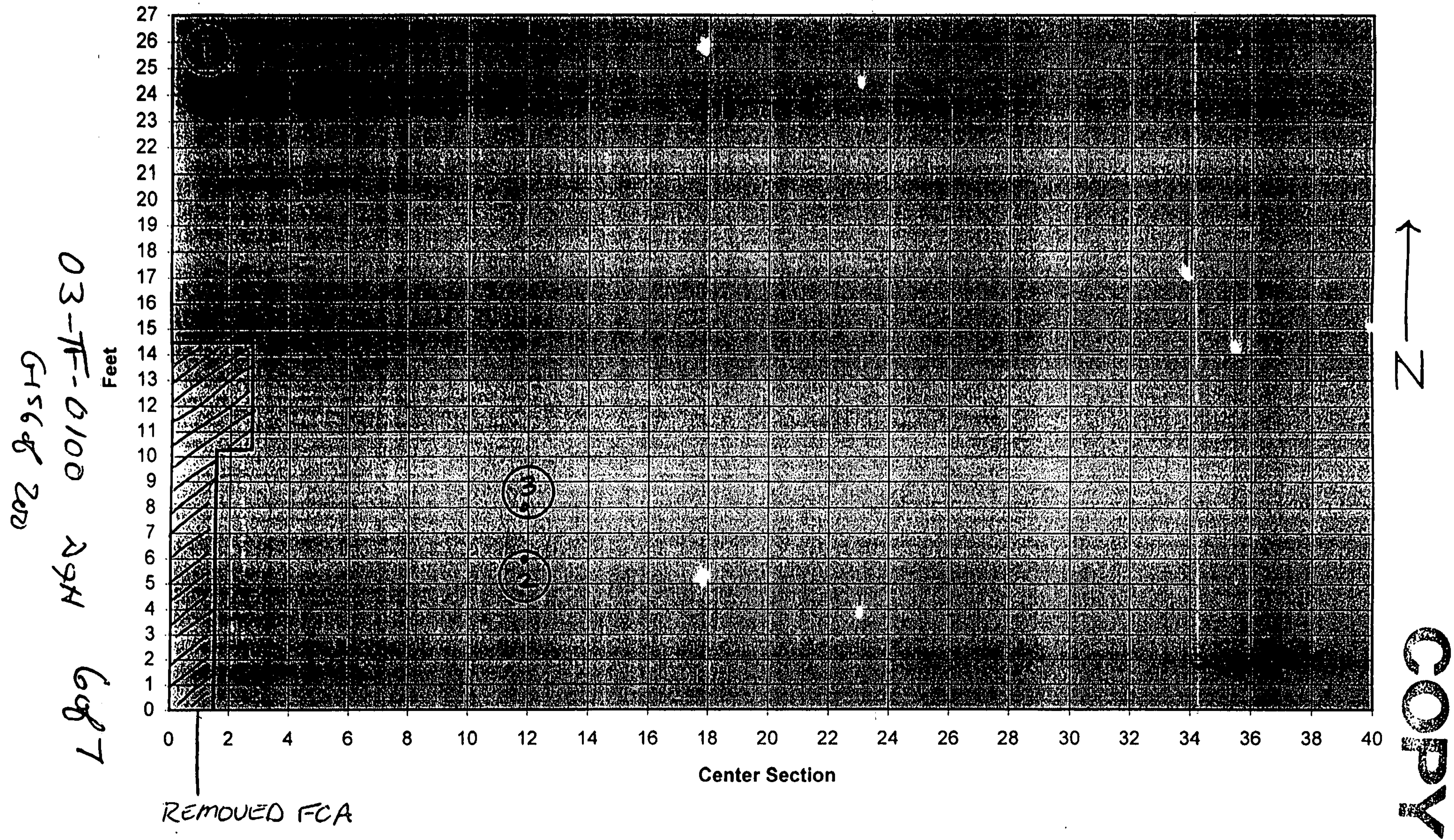
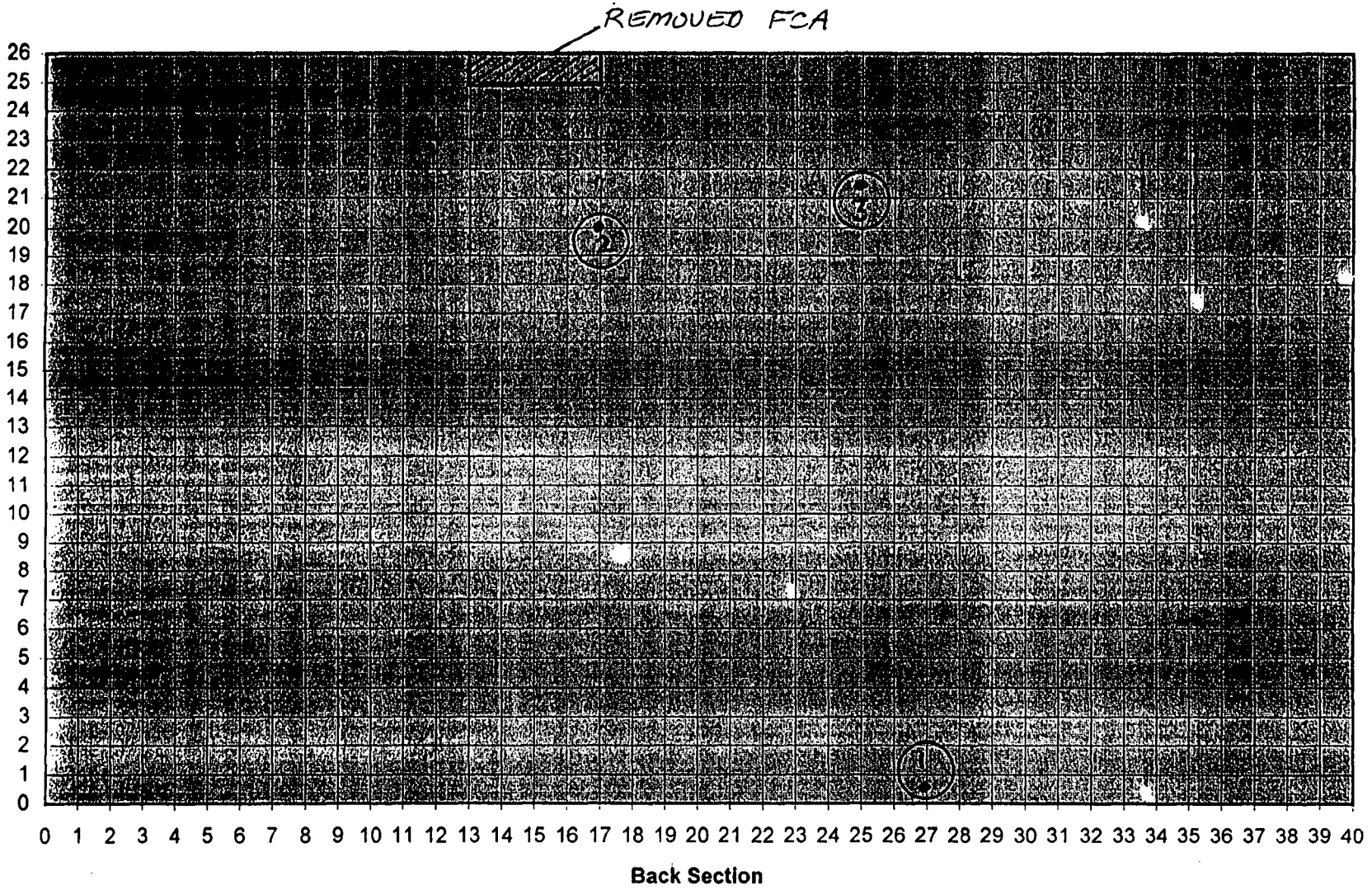
Survey Unit 2



Not to Scale

Survey Unit 3



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 19 WALLS INSIDE	SURVEY NO 03-TF-0101
PURPOSE: WALL SCAN FOR MARISSM SURVEY PLAN 19-04 FINAL SURVEY STATUS	RWP NO. N/A
	DATE: 4-30-2003 and 5-1-2003
	TIME 1030

MAP / DRAWING

COPY

SEE ATTACHED

* NOTE: THIS IS 50% SCAN OF WALLS UP TO 6 FOOT

LEGEND:

= mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5143	8-13-2003
	N/A	

Completed by: (Signature)	HP [redacted]	Date: 5-7-2003	
Completed by: (Print Name) DANIEL HARVEY/DANNY RILEY			
Counted by: (Signature) RECORD ON FILE	HP# NA	Date: NA	
Counted by: (Print Name) NA			
Reviewed/Approved by: (Signature)	HP [redacted]	Date: 6-8-03	
Reviewed/Approved by: (Print Name) R-CABA			

ML-9820

G1596 200

(2-88)

19 BUILDING CHARACTERIZATION ALPHA WALL SCAN UNIT 4

RSDS# 03-TF-0101 RCT: [redacted] RCT: [redacted]

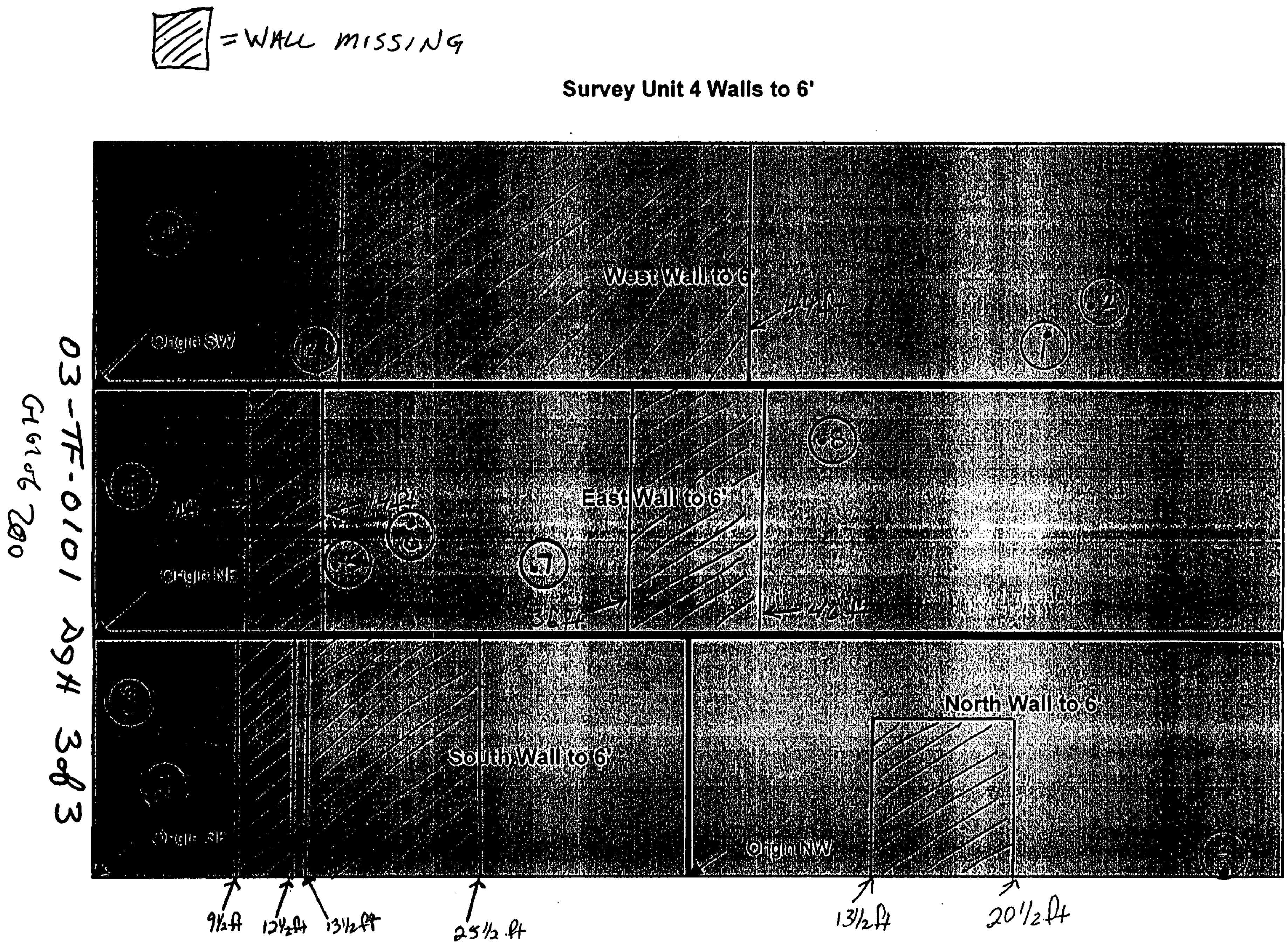
43-20 BKG:	0	EFF:	0.172	PROBE AREA:	112.3	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5143	2		4/30/03	7:30	11	300	14
SRC CHECK	5673		5143	2		4/30/03	8:00	2059	60	13228
SRC CHECK	5673		5143	2		4/30/03	8:02	2102	60	13504
SRC CHECK	5673		5143	2		4/30/03	8:03	2045	60	13138
SRC CHECK	5673		5143	2		4/30/03	8:05	2035	60	13073
U-4WS 01	5673		5143	2	1	4/30/03	9:17	1	30	21
U-4WS 02	5673		5143	2	2	4/30/03	9:20	0	30	0
U-4WS 03	5673		5143	2	3	4/30/03	13:16	0	30	0
U-4WS 04	5673		5143	2	4	4/30/03	13:25	2	30	41
U-4WS 05	5673		5143	2	5	4/30/03	13:37	2	30	41
U-4WS 06	5673		5143	2	6	4/30/03	13:40	0	30	0
U-4WS 07	5673		5143	2	7	4/30/03	13:58	3	30	62
U-4WS 08	5673		5143	2	8	4/30/03	14:35	0	30	0
SRC BKG	5673	[redacted]	5143	2		5/1/03	8:23	4	300	5
SRC CHECK	5673		5143	2		5/1/03	8:26	2188	60	14056
SRC CHECK	5673		5143	2		5/1/03	8:28	2125	60	13652
SRC CHECK	5673		5143	2		5/1/03	8:29	2082	60	13375
SRC CHECK	5673		5143	2		5/1/03	8:31	2044	60	13131
U-4WS 09	5673	[redacted]	5143	2	9	5/1/03	8:59	0	30	0
U-4WS 10	5673		5143	2	10	5/1/03	9:04	0	30	0
U-4WS 11	5673		5143	2	11	5/1/03	9:14	0	30	0
U-4WS 12	5673		5143	2	12	5/1/03	9:34	0	30	0

G1606 200

![=WALL MISSING legend]

Survey Unit 4 Walls to 6'



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 19	SURVEY NO. 03-TF-0102
PURPOSE: MARSSIM SURVEY PLAN 19-04 UNIT 4	RWP NO. N/A
	DATE: 05-05-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED DATA

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/43-93	5833/5847	3-13-04
2350/43-20	5673/5143	8-13-03
	NA	

Completed by: (Signature) D. Harvey, D. Riley	HP# [redacted]	Date: 05-12-03
Completed by: (Print Name) D. HARVEY, D. RILEY		
Counted by: (Signature)	HP#	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 5-12-03
Reviewed/Approved by: (Print Name) R. CASE		

ML-9620 (2-98)

G16306 200

Survey No. 03-TF-0102

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-19				UNIT 4

SEE ATTACHED RESULTS

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

COMMENTS: WALL PANELS REMOVED PRIOR TO SURVEY NOTED ON MAP

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of resu[lts] 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)

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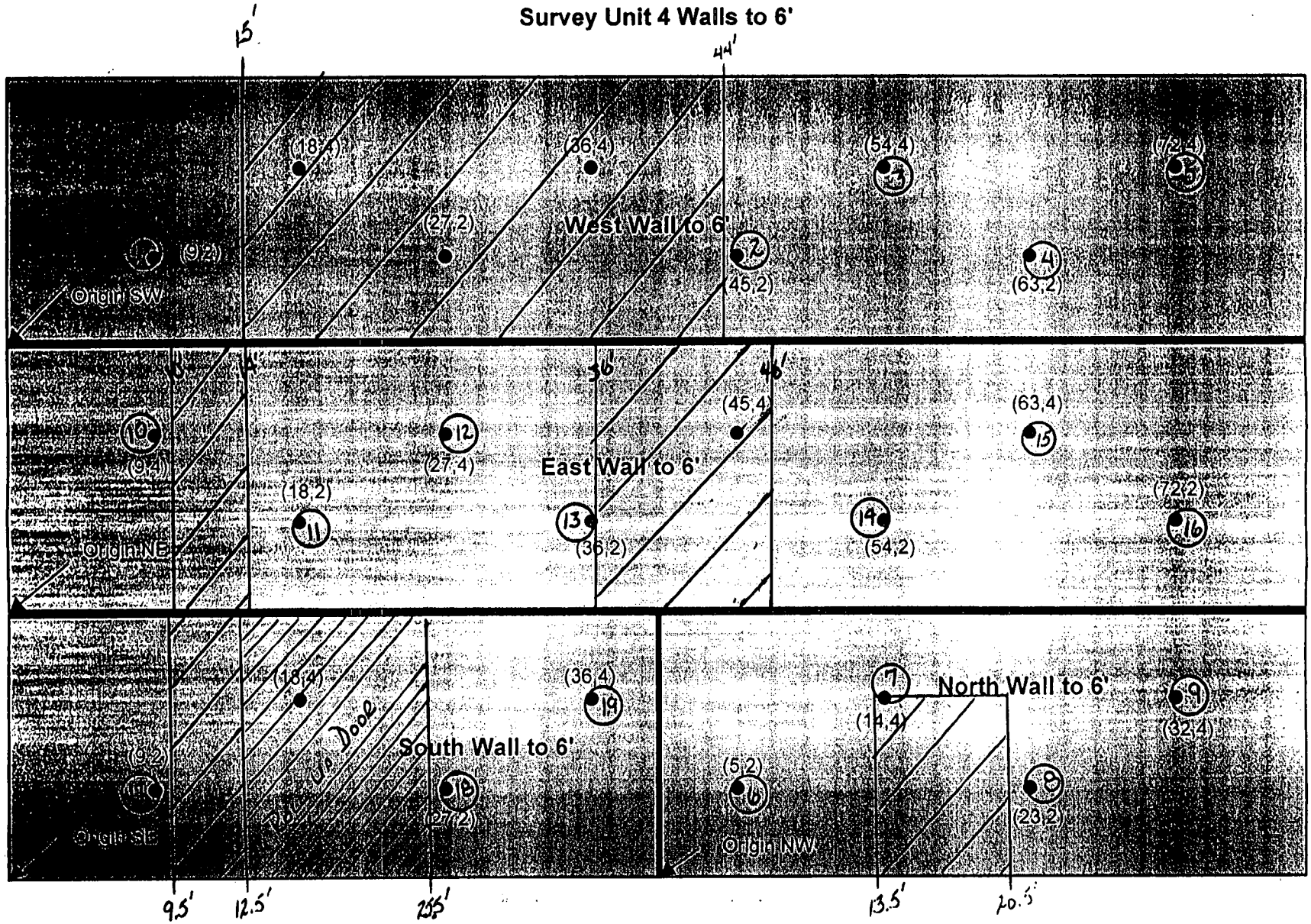
BUILDING 19



Not to Scale

= REMOVED WALL PANELS

RSDS-03-TF-0102

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19 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 4

RSDS# 03-TF-0102 RCT: DK RCT: DJH

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	112.3	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5143	2		5/5/03	8:22	9	300	12
SRC CHECK	5673		5143	2		5/5/03	8:26	2113	60	13574
SRC CHECK	5673		5143	2		5/5/03	8:27	2048	60	13157
SRC CHECK	5673		5143	2		5/5/03	8:30	1971	60	12662
SRC CHECK	5673		5143	2		5/5/03	8:32	2028	60	13028
U-4 01	5673		5143	2	1	5/5/03	12:36	1	60	10
U-4 02	5673		5143	2	2	5/5/03	12:40	2	60	21
U-4 03	5673		5143	2	3	5/5/03	12:42	0	60	0
U-4 04	5673		5143	2	4	5/5/03	12:43	1	60	10
U-4 05	5673		5143	2	5	5/5/03	12:45	1	60	10
U-4 06	5673		5143	2	6	5/5/03	12:46	4	60	41
U-4 07	5673		5143	2	7	5/5/03	12:49	4	60	41
U-4 08	5673		5143	2	8	5/5/03	12:52	3	60	31
U-4 09	5673		5143	2	9	5/5/03	12:53	3	60	31
U-4 10	5673		5143	2	10	5/5/03	12:55	3	60	31
U-4 11	5673		5143	2	11	5/5/03	12:57	1	60	10
U-4 12	5673		5143	2	12	5/5/03	12:59	0	60	0
U-4 13	5673		5143	2	13	5/5/03	14:12	3	60	31
U-4 14	5673		5143	2	14	5/5/03	14:13	2	60	21
U-4 15	5673		5143	2	15	5/5/03	14:14	3	60	31
U-4 16	5673		5143	2	16	5/5/03	14:19	2	60	21
U-4 17	5673		5143	2	17	5/5/03	14:22	4	60	41
U-4 18	5673		5143	2	18	5/5/03	14:24	2	60	21
U-4 19	5673		5143	2	19	5/5/03	14:25	4	60	41

G1666 200

19-BLDG CHARACTERIZATION BETA SURVEY UNIT 4

RSDS# 03-TF-0102 RCT: [redacted] RCT: DJH

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-4 01	5833	[redacted]	5847	1	5/5/03	119	60	-290
U-4 02	5833		5847	2	5/5/03	144	60	-165
U-4 03	5833		5847	3	5/5/03	146	60	-155
U-4 04	5833		5847	4	5/5/03	151	60	-130
U-4 05	5833		5847	5	5/5/03	163	60	-70
U-4 06	5833		5847	6	5/5/03	138	60	-195
U-4 07	5833		5847	7	5/5/03	153	60	-120
U-4 08	5833		5847	8	5/5/03	168	60	-45
U-4 09	5833		5847	9	5/5/03	167	60	-50
U-4 10	5833		5847	10	5/5/03	221	60	220
U-4 11	5833		5847	11	5/5/03	143	60	-170
U-4 12	5833		5847	12	5/5/03	152	60	-125
U-4 13	5833		5847	13	5/5/03	148	60	-145
U-4 14	5833		5847	14	5/5/03	149	60	-140
U-4 15	5833		5847	15	5/5/03	148	60	-145
U-4 16	5833		5847	16	5/5/03	134	60	-215
U-4 17	5833		5847	17	5/5/03	149	60	-140
U-4 18	5833		5847	18	5/5/03	145	60	-160
U-4 19	5833		5847	19	5/5/03	145	60	-160
BETA BACKGROUND FOR 4-16-2003 WAS---------->								177

6/6/03 200

Alpha/Beta Analysis

Batch ID:	Smear Unit 2 - 200305060831	**Count Date:**	5/6/2003
Group:	J	**Count Minutes:**	1.5
Serial Number:	78218-2	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0102 HARVEY-19 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	57	0.00	0.02	1.28	1.48
2	51	0.00	0.02	1.28	1.48
3	83	0.00	0.00	0.00	0.00
4	61	0.00	0.00	0.00	0.00
5	40	2.02	1.89	0.00	0.14
6	54	6.00	3.27	4.76	2.98
7	36	0.00	0.02	1.28	1.48
8	43	2.01	1.89	1.16	1.49
9	90	2.02	1.89	0.00	0.14
10	8	0.00	0.02	2.56	2.10
11	17	2.02	1.89	0.00	0.14
12	21	0.00	0.02	1.28	1.48
13	97	0.00	0.03	3.84	2.57
14	37	0.00	0.00	0.00	0.00
15	68	1.97	1.89	3.72	2.58
16	40	0.00	0.03	3.84	2.57
17	15	0.00	0.00	0.00	0.00
18	75	0.00	0.00	0.00	0.00
19	35	0.00	0.00	0.00	0.00

NAD NAD

06 May 2003 10:15 ALPHA/BETA - 1.09
Protocol #: 2 PW H3 #403727 User : 526[illegible]

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 - 18.6		0	0.0	8.11
Region B:	2.0 - 18.6		0	0.0	7.77
Region C:	40.0 - 2000		0	0.0	10.90

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0102 HARVEY-19 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT2.DAT
Count Data Filename: C:\DATA\SDATA2.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	8.11	7.77	10.90	610.60	2	B		0.00
0	2.00	372.84	360.32	1.10	513.96	0		789.39	82.27
1	2.00	5.39	4.73	10.60	585.09	0		10.75	10.99
2	2.00	2.62	2.46	1.10	622.42	0		5.09	9.65
3	2.00	2.03	1.75	3.10	616.95	0		3.95	9.45
4	2.00	0.00	0.00	1.60	473.79	0		0.00	0.00
5	2.00	0.00	0.00	0.10	667.68	0		0.00	0.00
6	2.00	0.00	0.23	6.73	569.16	0		0.00	0.00
7	2.00	0.00	0.00	3.60	546.95	0		0.00	0.00
8	2.00	7.15	7.49	32.70	542.11	0		14.71	12.00
9	2.00	0.00	0.00	3.60	469.06	0		0.00	0.00
10	2.00	0.00	0.00	0.00	608.34	0		0.00	0.00
11	2.00	0.00	0.00	0.00	592.75	0		0.00	0.00
12	2.00	0.00	0.00	3.10	643.17	0		0.00	0.00
13	2.00	0.00	0.00	0.00	646.97	0		0.00	0.00
14	2.00	0.39	0.73	5.87	606.85	0		0.77	8.83
15	2.00	0.00	0.00	2.60	573.63	0		0.00	0.00
16	2.00	5.18	5.30	8.10	566.13	0		10.46	11.06
17	2.00	0.00	0.00	8.62	475.27	0		0.00	0.00
18	2.00	0.00	0.00	0.00	612.28	0		0.00	0.00
19	2.00	0.00	0.00	4.57	449.10	0		0.00	0.00
~~20~~	2.00	0.89	1.23	0.78	677.99	0		1.68	8.66

Delete 5/6/03 [illegible]

29#

5/6/03 [illegible signature]

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 19	SURVEY NO. 03-TF-0103
PURPOSE: MARISSM SURVEY PLAN 19-04 UNITS 1, 2 AND 3	RWP NO. N/A
	DATE: 5-6-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED

COPY

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

INSTRUMENTS USED

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

Completed by: (Signature) D.K. Riley	HP# [redacted]	Date: 5-12-03
Completed by: (Print Name) DANIEL J. HARLEY		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 5-12-03
Reviewed/Approved by: (Print Name) R. CABE		

ML-9620 (2-98)

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03-TF-0103

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTACHED		UNIT ONE
21-40	↓	↓	↓	UNIT TWO
41-60	↓	↓	↓	UNIT THREE
		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 (4-88)

19 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2 and 3

RSDS# 03-TF-0103 RCT: DG RCT: DG H

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5143	2		5/6/03	8:35	10	300	13
SRC CHECK	5673		5143	2		5/6/03	8:37	2108	60	13542
SRC CHECK	5673		5143	2		5/6/03	8:39	2065	60	13266
SRC CHECK	5673		5143	2		5/6/03	8:40	1960	60	12592
SRC CHECK	5673		5143	2		5/6/03	8:42	1929	60	12392
U-1 01	5673		5143	2	1	5/6/03	12:46	8	60	51
U-1 02	5673		5143	2	2	5/6/03	12:47	0	60	0
U-1 03	5673		5143	2	3	5/6/03	12:48	3	60	19
U-1 04	5673		5143	2	4	5/6/03	12:50	8	60	51
U-1 05	5673		5143	2	5	5/6/03	12:51	7	60	45
U-1 06	5673		5143	2	6	5/6/03	12:53	0	60	0
U-1 07	5673		5143	2	7	5/6/03	12:54	2	60	13
U-1 08	5673		5143	2	8	5/6/03	12:57	5	60	32
U-1 09	5673		5143	2	9	5/6/03	12:58	1	60	6
U-1 10	5673		5143	2	10	5/6/03	12:59	1	60	6
U-1 11	5673		5143	2	11	5/6/03	13:01	4	60	26
U-1 12	5673		5143	2	12	5/6/03	13:02	10	60	64
U-1 13	5673		5143	2	13	5/6/03	13:03	3	60	19
U-1 14	5673		5143	2	14	5/6/03	13:05	1	60	6
U-1 15	5673		5143	2	15	5/6/03	13:06	4	60	26
U-1 16	5673		5143	2	16	5/6/03	13:07	7	60	45
U-1 17	5673		5143	2	17	5/6/03	13:09	3	60	19
U-1 18	5673		5143	2	18	5/6/03	13:10	2	60	13
U-1 19	5673		5143	2	19	5/6/03	13:11	3	60	19
U-1 20	5673		5143	2	20	5/6/03	13:13	2	60	13
U-2 01	5673		5143	2	21	5/6/03	13:15	7	60	45
U-2 02	5673		5143	2	22	5/6/03	13:17	11	60	71
U-2 03	5673		5143	2	23	5/6/03	13:19	4	60	26
U-2 04	5673		5143	2	24	5/6/03	13:20	3	60	19
U-2 05	5673		5143	2	25	5/6/03	13:21	5	60	32
U-2 06	5673		5143	2	26	5/6/03	13:23	7	60	45

19 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1,2 and 3

RSDS#03-TF-0103 RCT: SL RCT: DJH

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
U-2 07	5673	[redacted]	5143	2	27	5/6/03	13:24	5	60	32
U-2 08	5673		5143	2	28	5/6/03	13:26	2	60	13
U-2 09	5673		5143	2	29	5/6/03	13:27	6	60	39
U-2 10	5673		5143	2	30	5/6/03	13:28	1	60	6
U-2 11	5673		5143	2	31	5/6/03	13:30	5	60	32
U-2 12	5673		5143	2	32	5/6/03	13:31	4	60	26
U-2 13	5673		5143	2	33	5/6/03	13:33	2	60	13
U-2 14	5673		5143	2	34	5/6/03	13:34	3	60	19
U-2 15	5673		5143	2	35	5/6/03	13:35	5	60	32
U-2 16	5673		5143	2	36	5/6/03	13:37	6	60	39
U-2 17	5673		5143	2	37	5/6/03	13:38	3	60	19
U-2 18	5673		5143	2	38	5/6/03	13:40	3	60	19
U-2 19	5673		5143	2	39	5/6/03	13:41	2	60	13
U-2 20	5673		5143	2	40	5/6/03	13:43	3	60	19
U-3 01	5673	[redacted]	5143	2	41	5/6/03	13:45	4	60	26
U-3 02	5673		5143	2	42	5/6/03	13:46	4	60	26
U-3 03	5673		5143	2	43	5/6/03	13:47	4	60	26
U-3 04	5673		5143	2	44	5/6/03	13:49	9	60	58
U-3 05	5673		5143	2	45	5/6/03	13:50	2	60	13
U-3 06	5673		5143	2	46	5/6/03	13:52	4	60	26
U-3 07	5673		5143	2	47	5/6/03	13:53	2	60	13
U-3 08	5673		5143	2	48	5/6/03	13:55	1	60	6
U-3 09	5673		5143	2	49	5/6/03	13:56	4	60	26
U-3 10	5673		5143	2	50	5/6/03	13:57	2	60	13
U-3 11	5673		5143	2	51	5/6/03	13:59	7	60	45
U-3 12	5673		5143	2	52	5/6/03	14:00	2	60	13
U-3 13	5673		5143	2	53	5/6/03	14:02	6	60	39
U-3 14	5673		5143	2	54	5/6/03	14:03	5	60	32
U-3 15	5673		5143	2	55	5/6/03	14:05	1	60	6
U-3 16	5673		5143	2	56	5/6/03	14:06	6	60	39
U-3 17	5673		5143	2	57	5/6/03	14:07	3	60	19
U-3 18	5673		5143	2	58	5/6/03	14:09	6	60	39
U-3 19	5673		5143	2	59	5/6/03	14:10	6	60	39
U-3 20	5673		5143	2	60	5/6/03	14:12	4	60	26

19 -BLDG CHARACTERIZATION BETA SURVEY PLAN 19-04 UNIT 1

RSDS# 03-TF-0103 RCT: [redacted] RCT: [redacted]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-1 01	5833	[redacted]	5847	1	05/06/2003	249	60	385
U-1 02	5833		5847	2	05/06/2003	183	60	55
U-1 03	5833		5847	3	05/06/2003	283	60	555
U-1 04	5833		5847	4	05/06/2003	238	60	330
U-1 05	5833		5847	5	05/06/2003	266	60	470
U-1 06	5833		5847	6	05/06/2003	233	60	305
U-1 07	5833		5847	7	05/06/2003	261	60	445
U-1 08	5833		5847	8	05/06/2003	236	60	320
U-1 09	5833		5847	9	05/06/2003	253	60	405
U-1 10	5833		5847	10	05/06/2003	209	60	185
U-1 11	5833		5847	11	05/06/2003	238	60	330
U-1 12	5833		5847	12	05/06/2003	248	60	380
U-1 13	5833		5847	13	05/06/2003	243	60	355
U-1 14	5833		5847	14	05/06/2003	241	60	345
U-1 15	5833		5847	15	05/06/2003	250	60	390
U-1 16	5833		5847	16	05/06/2003	319	60	735
U-1 17	5833		5847	17	05/06/2003	220	60	240
U-1 18	5833		5847	18	05/06/2003	243	60	355
U-1 19	5833		5847	19	05/06/2003	254	60	410
U-1 20	5833		5847	20	05/06/2003	243	60	355
BETA BACKGROUND FOR 5-06-2003 WAS---------->								172

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19-BLDG CHARACTERIZATION BETA SURVEY PLAN 19-04 UNIT 2

RSDS# 03-TF-0103 RCT: [redacted] RCT: [redacted]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-2 01	5833	[redacted]	5847	21	05/06/2003	278	60	530
U-2 02	5833		5847	22	05/06/2003	237	60	325
U-2 03	5833		5847	23	05/06/2003	237	60	325
U-2 04	5833		5847	24	05/06/2003	262	60	450
U-2 05	5833		5847	25	05/06/2003	237	60	325
U-2 06	5833		5847	26	05/06/2003	269	60	485
U-2 07	5833		5847	27	05/06/2003	263	60	455
U-2 08	5833		5847	28	05/06/2003	240	60	340
U-2 09	5833		5847	29	05/06/2003	240	60	340
U-2 10	5833		5847	30	05/06/2003	246	60	370
U-2 11	5833		5847	31	05/06/2003	267	60	475
U-2 12	5833		5847	32	05/06/2003	287	60	575
U-2 13	5833		5847	33	05/06/2003	289	60	585
U-2 14	5833		5847	34	05/06/2003	249	60	385
U-2 15	5833		5847	35	05/06/2003	242	60	350
U-2 16	5833		5847	36	05/06/2003	265	60	465
U-2 17	5833		5847	37	05/06/2003	240	60	340
U-2 18	5833		5847	38	05/06/2003	265	60	465
U-2 19	5833		5847	39	05/06/2003	224	60	260
U-2 20	5833		5847	40	05/06/2003	253	60	405
BETA BACKGROUND FOR 5-06-2003 WAS---------->								172

G-17607 200

19 -BLDG CHARACTERIZATION BETA SURVEY PLAN 19-04 UNIT 3

RSDS# 03-TF-0103 RCT: [redacted] RCT: [redacted]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-3 01	5833	[redacted]	5847	41	05/06/2003	269	60	485
U-3 02	5833		5847	42	05/06/2003	228	60	280
U-3 03	5833		5847	43	05/06/2003	228	60	280
U-3 04	5833		5847	44	05/06/2003	233	60	305
U-3 05	5833		5847	45	05/06/2003	241	60	345
U-3 06	5833		5847	46	05/06/2003	230	60	290
U-3 07	5833		5847	47	05/06/2003	262	60	450
U-3 08	5833		5847	48	05/06/2003	215	60	215
U-3 09	5833		5847	49	05/06/2003	271	60	495
U-3 10	5833		5847	50	05/06/2003	232	60	300
U-3 11	5833		5847	51	05/06/2003	226	60	270
U-3 12	5833		5847	52	05/06/2003	280	60	540
U-3 13	5833		5847	53	05/06/2003	281	60	545
U-3 14	5833		5847	54	05/06/2003	273	60	505
U-3 15	5833		5847	55	05/06/2003	263	60	455
U-3 16	5833		5847	56	05/06/2003	240	60	340
U-3 17	5833		5847	57	05/06/2003	229	60	285
U-3 18	5833		5847	58	05/06/2003	241	60	345
U-3 19	5833		5847	59	05/06/2003	250	60	390
U-3 20	5833		5847	60	05/06/2003	251	60	395
BETA BACKGROUND FOR 5-06-2003 WAS---------->								172

19 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 1-4 QC CHECK

RSDS#03-TF-0103 RCT: [redacted] RCT: [redacted]

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5143	2		5/7/03	8:13	5	300	6
SRC CHECK	5673	[redacted]	5143	2		5/7/03	8:17	1940	60	12463
SRC CHECK	5673	[redacted]	5143	2		5/7/03	8:18	2039	60	13099
SRC CHECK	5673	[redacted]	5143	2		5/7/03	8:20	1882	60	12090
SRC CHECK	5673	[redacted]	5143	2		5/7/03	8:24	1942	60	12476
QCU-1 12	5673	[redacted]	5143	2		5/7/03	8:27	7	60	45
QCU-1 6	5673	[redacted]	5143	2		5/7/03	8:28	3	60	19
QCU-2 10	5673	[redacted]	5143	2		5/7/03	8:30	4	60	26
QCU-2 02	5673	[redacted]	5143	2		5/7/03	8:33	6	60	39
QCU-3 04	5673	[redacted]	5143	2		5/7/03	8:35	7	60	45
QCU-3 08	5673	[redacted]	5143	2		5/7/03	8:37	0	60	0
QCU-4 03	5673	[redacted]	5143	2		5/7/03	8:42	1	60	10
QCU-4 17	5673	[redacted]	5143	2		5/7/03	8:44	3	60	31

G1786 200

19-BLDG CHARACTERIZATION BETA SURVEY QC-CHECK UNITS 1-4

RSDS#03-TF-0103 RCT: [redacted] RCT: [redacted]

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2
U-1 06	5833	[redacted]	5847	1	5/7/03	243	60	375
U-1 12	5833		5847	2	5/7/03	244	60	380
U-2 02	5833	[redacted]	5847	3	5/7/03	267	60	495
U-2 10	5833		5847	4	5/7/03	233	60	325
U-3 08	5833	[redacted]	5847	5	5/7/03	259	60	455
U-3 04	5833		5847	6	5/7/03	244	60	380
U-4 03	5833	[redacted]	5847	7	5/7/03	141	60	-135
U-4 17	5833		5847	8	5/7/03	155	60	-65
BETA BACKGROUND FOR 5-07-2003 WAS---------->								168

G17906 208

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200305070832	**Count Date:**	5/7/2003
Group:	J	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0103 HARVEY-60 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	92	0.00	0.00	2.74	2.04
2	11	0.00	0.00	5.48	2.89
3	50	2.18	1.92	5.32	2.90
4	98	0.00	0.00	2.74	2.04
5	37	0.00	0.00	0.00	0.00
6	59	0.00	0.00	1.37	1.45
7	42	0.00	0.00	0.00	0.00
8	69	0.00	0.00	1.37	1.45
9	57	0.00	0.00	0.00	0.00
10	76	0.00	0.00	0.00	0.00
11	81	0.00	0.00	0.00	0.00
12	31	0.00	0.00	0.00	0.00
13	81	2.18	1.92	5.32	2.90
14	62	6.56	3.33	0.90	1.47
15	87	2.19	1.92	1.21	1.45
16	49	2.18	1.92	2.58	2.05
17	73	2.19	1.92	1.21	1.45
18	32	2.19	1.92	0.00	0.16
19	17	0.00	0.00	2.74	2.04
20	82	0.00	0.00	1.37	1.45
21	15	0.00	0.00	2.74	2.04
22	20	0.00	0.00	1.37	1.45
23	78	0.00	0.00	0.00	0.00
24	84	2.19	1.92	1.21	1.45
25	24	0.00	0.00	4.11	2.50
26	95	2.18	1.92	2.58	2.05
27	22	0.00	0.00	2.74	2.04
28	20	6.56	3.33	0.00	0.29
29	88	0.00	0.00	4.11	2.50
30	38	0.00	0.00	1.37	1.45
31	76	0.00	0.00	1.37	1.45
32	46	0.00	0.00	1.37	1.45
33	79	0.00	0.00	4.11	2.50
34	82	0.00	0.00	2.74	2.04
35	7	0.00	0.00	1.37	1.45
36	71	0.00	0.00	4.11	2.50
37	98	0.00	0.00	0.00	0.00

DJH 5-12-03 DJH

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Alpha/Beta Analysis

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
38	23	0.00	0.00	2.74	2.04
39	28	0.00	0.00	1.37	1.45
40	9	2.19	1.92	1.21	1.45
41	44	0.00	0.00	2.74	2.04
42	57	0.00	0.00	1.37	1.45
43	51	0.00	0.00	4.11	2.50
44	83	0.00	0.00	0.00	0.00
45	61	0.00	0.00	2.74	2.04
46	40	0.00	0.00	1.37	1.45
47	54	0.00	0.00	0.00	0.00
48	36	0.00	0.00	1.37	1.45
49	43	0.00	0.00	1.37	1.45
50	90	0.00	0.00	1.37	1.45
51	8	0.00	0.00	1.37	1.45
52	17	4.37	2.72	0.00	0.23
53	21	0.00	0.00	2.74	2.04
54	97	0.00	0.00	4.11	2.50
55	37	0.00	0.00	0.00	0.00
56	68	2.18	1.92	6.69	3.24
57	35	0.00	0.00	0.00	0.00
58	75	0.00	0.00	0.00	0.00
59	15	0.00	0.00	0.00	0.00
60	40	0.00	0.00	1.37	1.45

DJH DJH

Batch ID: 03-TF-0103 HARVEY-60 BSB

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DJH 5-12-03

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07 May 2003 12:07 ALPHA/BETA - 1.09
Protocol #: 1 PW H3 #403727
User : 526E

DJH 5-12

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	7.24
Region B:	2.0	18.6	0	0.0	7.09
Region C:	40.0	2000	0	0.0	11.85

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0103 HARVEY-60 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT1.DAT
Count Data Filename: C:\DATA\SDATA1.DAT

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
-1	10.00	7.24	7.09	11.85	593.45	3	B		0.00
0	2.00	91.14	88.79	3.15	512.03	1		193.41	33.16
1	2.00	0.00	0.00	5.48	549.74	0		0.00	0.00
2	2.00	0.00	0.00	0.00	655.57	0		0.00	0.00
3	2.00	0.00	0.00	1.47	329.56	0		0.00	0.00
4	2.00	0.76	0.91	0.65	614.78	0		1.49	8.48
5	2.00	3.26	3.41	20.88	390.19	0		8.28	12.43
6	2.00	4.47	4.62	10.65	442.91	0		10.36	11.92
7	2.00	0.86	0.77	0.65	585.26	0		1.72	8.71
8	2.00	5.76	5.39	7.43	454.36	0		13.16	12.31
9	2.00	1.89	2.05	2.15	467.93	0		4.25	10.32
10	2.00	0.00	0.00	0.00	386.68	0		0.00	0.00
11	2.00	0.26	0.01	0.65	393.61	0		0.66	10.67
12	2.00	0.00	0.00	0.00	416.55	0		0.00	0.00
13	2.00	0.00	0.00	0.00	607.74	0		0.00	0.00
14	2.00	0.76	0.91	1.65	474.34	0		1.69	9.67
15	2.00	1.72	1.87	1.15	427.91	0		4.06	10.79
16	2.00	0.00	0.00	0.00	485.25	0		0.00	0.00
17	2.00	0.70	0.50	1.15	545.57	0		1.43	8.89
18	2.00	0.00	0.00	0.00	473.49	0		0.00	0.00
19	2.00	4.26	4.41	0.00	459.67	0		9.66	11.56
20	2.00	2.26	2.41	0.00	625.33	0		4.38	9.07
21	2.00	0.00	0.00	0.00	487.30	0		0.00	0.00
22	2.00	0.00	0.00	0.00	528.39	0		0.00	0.00
23	2.00	0.00	0.00	1.65	395.58	0		0.00	0.00
24	2.00	0.26	0.41	0.97	508.27	0		0.56	9.02
25	2.00	0.00	0.00	2.79	527.27	0		0.00	0.00
26	2.00	0.00	0.00	0.00	452.40	0		0.00	0.00
27	2.00	0.00	0.00	0.00	603.95	0		0.00	0.00
28	2.00	0.00	0.00	0.00	638.62	0		0.00	0.00
29	2.00	0.00	0.00	0.65	569.60	0		0.00	0.00
30	2.00	0.00	0.00	0.00	464.37	0		0.00	0.00
31	2.00	0.00	0.00	0.00	454.34	0		0.00	0.00
32	2.00	0.00	0.00	0.61	532.32	0		0.00	0.00
33	2.00	0.00	0.00	0.15	525.69	0		0.00	0.00
34	2.00	0.00	0.00	0.00	455.11	0		0.00	0.00
35	2.00	0.76	0.00	0.00	564.04	0		1.54	8.80

DJH

G18206 200

07 May 2003 12:48 ALPHA/BETA - 1.09 ~~Page #2~~

Protocol #: 1 PW H3 #403727 User : 5268

S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM FLAG	DPM1	2SIGMA
36	2.00	0.00	0.00	0.00	510.19	0	0.00	0.00
37	2.00	0.49	0.64	1.15	473.80	0	1.10	9.54
38	2.00	0.67	0.81	0.00	454.66	0	1.53	9.87
39	2.00	1.48	1.14	0.00	443.48	0	3.43	10.45
40	2.00	0.00	0.00	0.00	545.59	0	0.00	0.00
41	2.00	0.00	0.00	0.00	511.18	0	0.00	0.00
42	2.00	0.00	0.00	0.00	606.71	0	0.00	0.00
43	2.00	0.00	0.16	0.00	623.26	0	0.01	8.09
44	2.00	0.00	0.00	0.00	566.63	0	0.00	0.00
45	2.00	0.00	0.00	1.65	459.74	0	0.00	0.00
46	2.00	0.00	0.00	0.00	601.97	0	0.00	0.00
47	2.00	0.00	0.00	0.00	402.79	0	0.00	0.00
48	2.00	0.00	0.00	3.42	495.86	0	0.00	0.00
49	2.00	0.00	0.00	0.00	501.48	0	0.00	0.00
50	2.00	0.00	0.00	0.00	497.48	0	0.00	0.00
51	2.00	0.26	0.00	0.65	617.57	7	0.51	8.24
52	2.00	0.00	0.00	2.15	420.20	0	0.00	0.00
53	2.00	0.26	0.41	0.00	618.35	0	0.51	8.24
54	2.00	1.26	0.64	0.00	597.71	0	2.49	8.81
55	2.00	0.00	0.00	0.00	503.36	0	0.00	0.00
56	2.00	0.76	0.91	0.65	414.72	0	1.84	10.52
57	2.00	0.00	0.00	0.00	433.09	0	0.00	0.00
58	2.00	0.63	0.45	0.00	630.47	0	1.21	8.33
59	2.00	0.00	0.00	1.15	529.39	0	0.00	0.00
60	2.00	1.55	1.70	0.00	536.66	0	3.20	9.35

DQA

03-TF-0103

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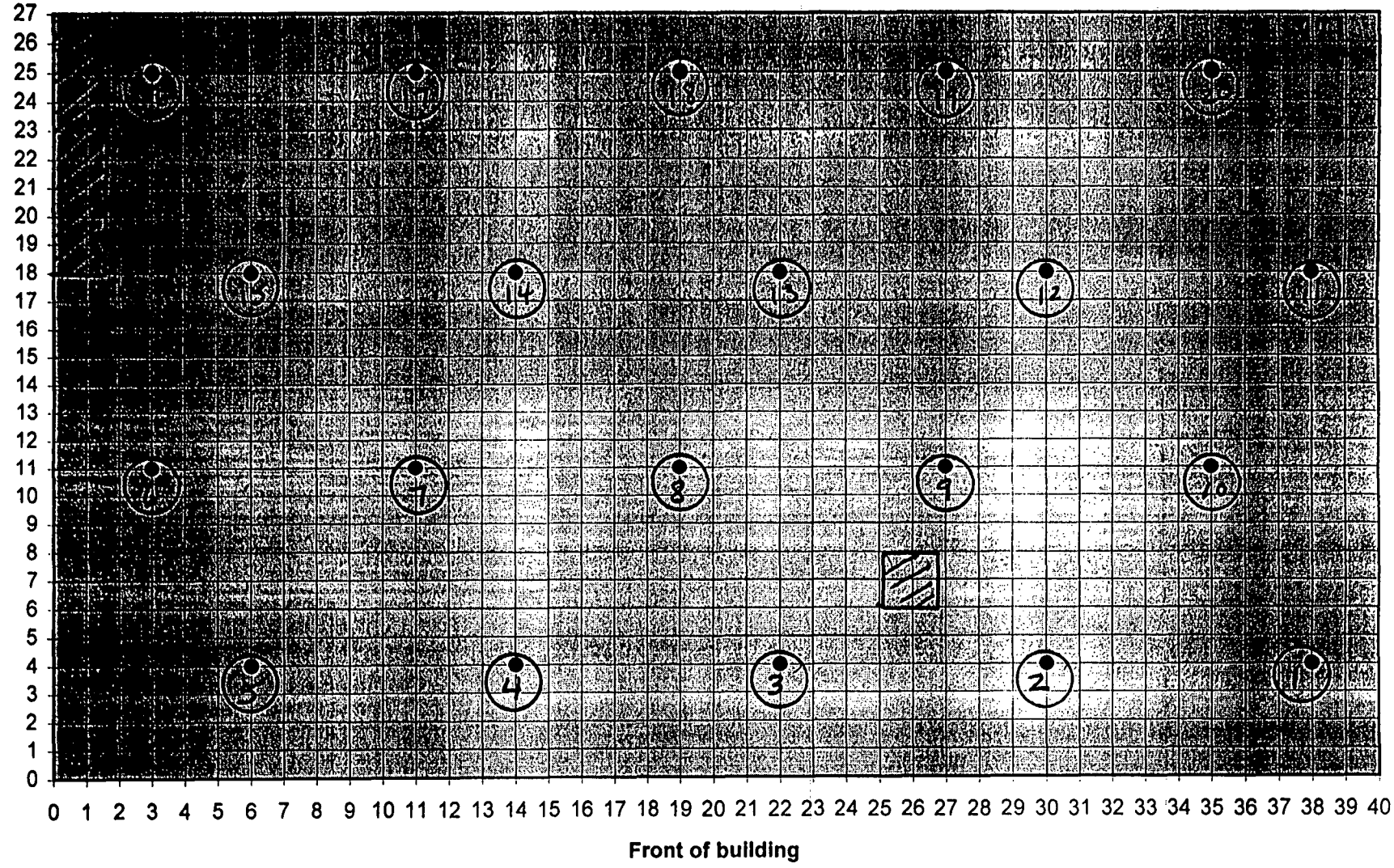
= REMOVED FCA

Survey Unit 1

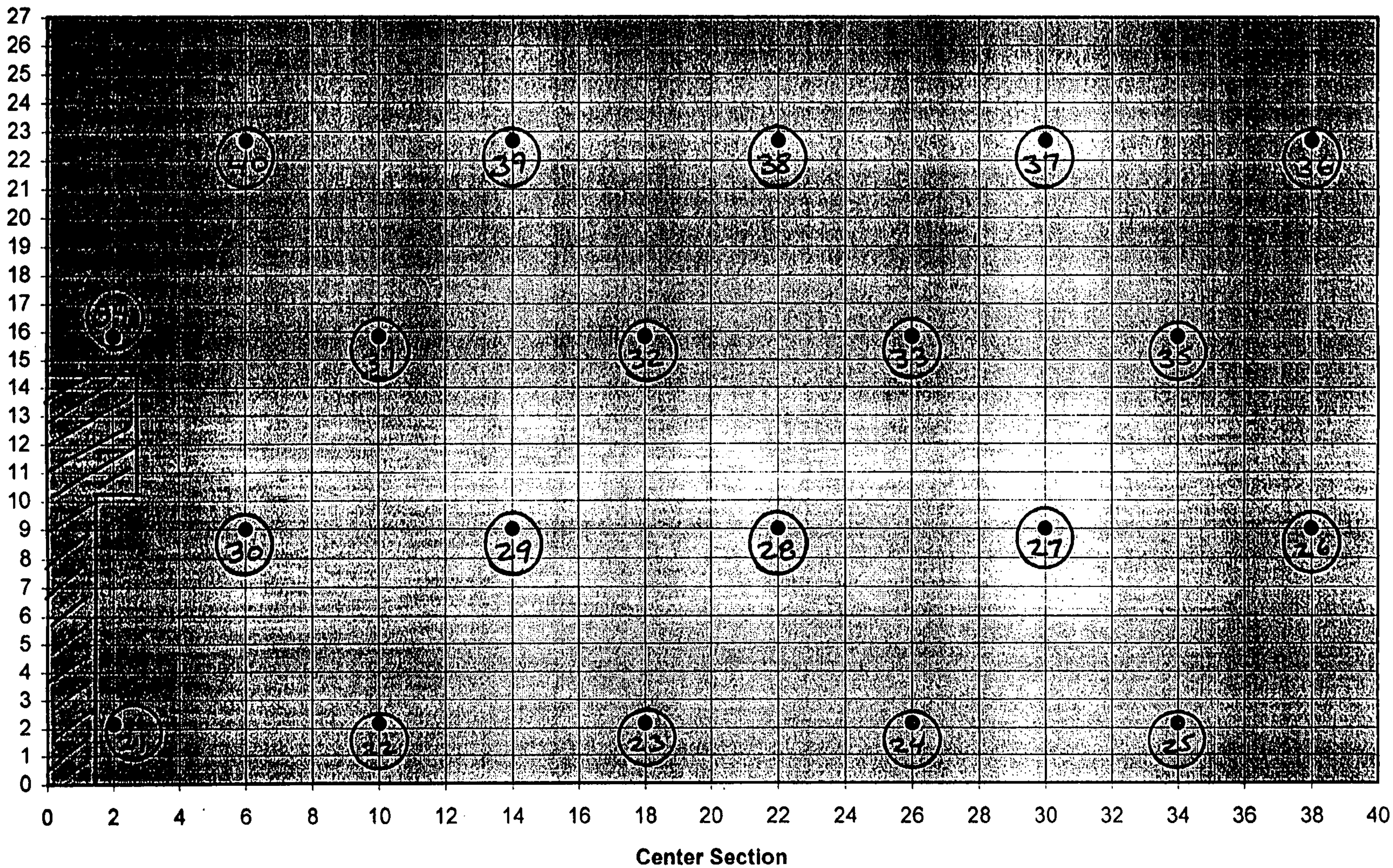


Not to Scale

G184 of 200
03-TF-0103
14 of 16 pgs
5-12-03

Survey Unit 2

▨ = REMOVED FCA

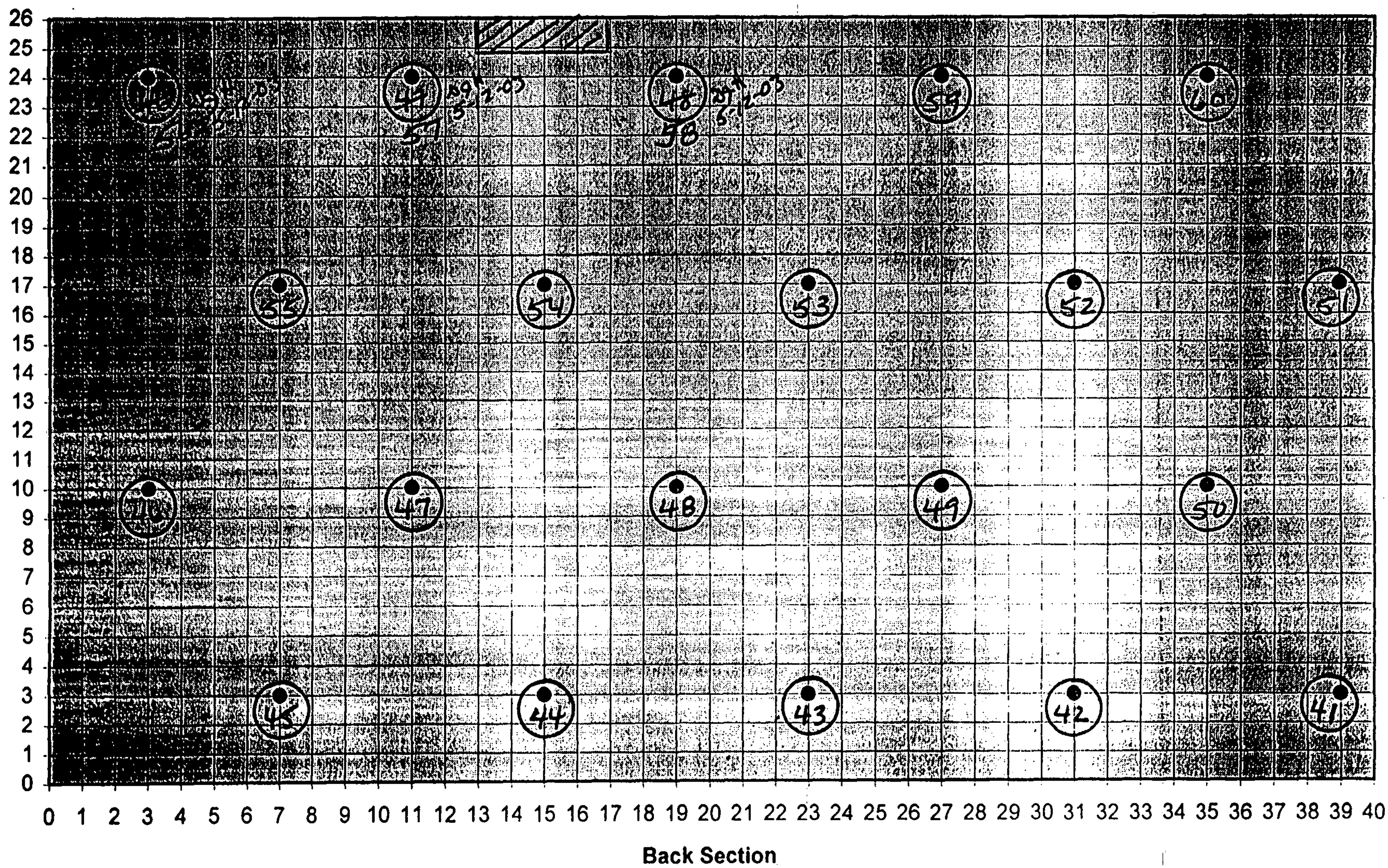


Not to Scale

03-F-0103 RGH 15 of 16

= REMOVED FCA

Survey Unit 3



03-TF-0103

Not to Scale

RADIOLOGICAL SURVEY DATA SHEET

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LOCATION: (BLDG./AREA/ROOM) 19	SURVEY NO. 03-TF-0107
PURPOSE: MARISSM SURVEY PLAN 19-04 UNIT 5	RWP NO. N/A
	DATE: 5-8-03
	TIME: 1200

MAP/DRAWING

SEE ATTACHED

COPY

* NOTE: SCANNED APPROX. ONE SQUARE METER AROUND EVERY LOCATION ON MAP PAGE 1

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5673/5143	8-13-03
2360	5833/5841	3-13-04
	N/A	

ML-9620 (2-98)

G1870 200

Completed by: (Signature) J. K. Harvey	HP [redacted]	Date: 5-12-03
Completed by: (Print Name) DANIEL J. HARVEY		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) [redacted]	HP# [redacted]	Date: 5-12-03
Reviewed/Approved by: (Print Name) R. CASEY		

Survey No. 03-TF-0107

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

19 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 5

RSDS# 03-TF-0107 RCT: JH RCT: DK

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	112.3	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRC BKG	5673	[redacted]	5143	2		5/8/03	8:09	6	300	8
SRC CHECK	5673		5143	2		5/8/03	8:12	2087	60	13407
SRC CHECK	5673		5143	2		5/8/03	8:13	2002	60	12861
SRC CHECK	5673		5143	2		5/8/03	8:15	2166	60	13915
SRC CHECK	5673		5143	2		5/8/03	8:16	1909	60	12264
U-5CS 01	5673		5143	2		5/8/03	8:30	1	30	21
U-5CS 02	5673		5143	2		5/8/03	8:55	0	30	0
U-5CS 03	5673		5143	2		5/8/03	9:04	0	30	0
U-5 01	5673		5143	2	1	5/8/03	9:08	1	60	10
U-5 02	5673		5143	2	2	5/8/03	9:10	4	60	41
U-5 03	5673		5143	2	3	5/8/03	9:12	3	60	31
U-5 04	5673		5143	2	4	5/8/03	9:13	1	60	10
U-5 05	5673		5143	2	5	5/8/03	9:15	1	60	10
U-5 06	5673		5143	2	6	5/8/03	9:16	1	60	10
U-5 07	5673		5143	2	7	5/8/03	9:17	1	60	10
U-5 08	5673		5143	2	8	5/8/03	9:19	2	60	21
U-5 09	5673		5143	2	9	5/8/03	9:20	0	60	0
U-5 10	5673		5143	2	10	5/8/03	9:22	4	60	41
U-5 11	5673		5143	2	11	5/8/03	9:23	4	60	41
U-5 12	5673		5143	2	12	5/8/03	9:25	0	60	0
U-5 13	5673		5143	2	13	5/8/03	9:26	4	60	41
U-5 14	5673		5143	2	14	5/8/03	9:27	0	60	0
U-5 15	5673		5143	2	15	5/8/03	9:29	5	60	52
U-5 16	5673		5143	2	16	5/8/03	9:30	1	60	10
U-5 17	5673		5143	2	17	5/8/03	9:31	4	60	41
U-5 18	5673		5143	2	18	5/8/03	9:33	3	60	31
U-5 19	5673		5143	2	19	5/8/03	9:34	0	60	0
U-5 20	5673		5143	2	20	5/8/03	9:36	2	60	21
U-5QC 14	5673		5143	2		5/8/03	9:39	2	60	21
U-5QC 15	5673		5143	2		5/8/03	9:43	5	60	52

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19-BLDG CHARACTERIZATION ALPHA/BETA SURVEY UNIT 5

RSDS# 03-TF-0107 RCT: DKR RCT: DJH

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U5-1	5833	[redacted]	5847	1	5/8/03	231	60	320	2	60	8
U5-2	5833		5847	2	5/8/03	196	60	145	4	60	24
U5-3	5833		5847	3	5/8/03	210	60	215	3	60	16
U5-4	5833		5847	4	5/8/03	193	60	130	1	60	0
U5-5	5833		5847	5	5/8/03	175	60	40	1	60	0
U5-6	5833		5847	6	5/8/03	197	60	150	1	60	0
U5-7	5833		5847	7	5/8/03	180	60	65	1	60	0
U5-8	5833		5847	8	5/8/03	195	60	140	2	60	8
U5-9	5833		5847	9	5/8/03	205	60	190	0	60	-8
U5-10	5833		5847	10	5/8/03	192	60	125	4	60	24
U5-11	5833		5847	11	5/8/03	178	60	55	4	60	24
U5-12	5833		5847	12	5/8/03	202	60	175	0	60	-8
U5-13	5833		5847	13	5/8/03	185	60	90	4	60	24
U5-14	5833		5847	14	5/8/03	191	60	120	0	60	-8
U5-15	5833		5847	15	5/8/03	197	60	150	5	60	32
U5-16	5833		5847	16	5/8/03	204	60	185	1	60	0
U5-17	5833		5847	17	5/8/03	200	60	165	4	60	24
U5-18	5833		5847	18	5/8/03	208	60	205	3	60	16
U5-19	5833		5847	19	5/8/03	229	60	310	0	60	-8
U5-20	5833		5847	20	5/8/03	174	60	35	2	60	8
QC U5-14	5833	[redacted]	5847	20	5/8/03	209	60	210	2	60	8
QC U5-15	5833		5847	20	5/8/03	197	60	150	5	60	32
BETA BACKGROUND FOR 5-08-2003 WAS---------->								167			
ALPHA BACKGROUND FOR 5-08-2003 WAS---------->								1			

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR016
Batch Ended: 5/8/03 11:42
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 03-TF-0107 HARVEY-20 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.49	2.10		1.09	2.29	
A2	2	1.58	1.95		3.89	2.94	
A3	3	0.00	2.26		2.28	2.62	
A4	4	0.00	2.00		1.08	2.14	
B1	5	5.75	3.35		0.00	1.45	
B2	6	5.09	3.55		4.16	3.05	
B3	7	1.15	2.20		2.54	2.39	
B4	8	0.50	2.16		2.65	2.52	
C1	9	1.06	2.00		0.00	1.31	
C2	10	1.51	1.81		0.00	1.26	
C3	11	0.00	2.12		0.00	1.90	
C4	12	3.31	2.84		3.57	2.91	
D1	13	0.00	2.09		2.14	3.28	
D2	14	0.00	2.18		0.00	1.29	
D3	15	0.84	2.26		3.00	2.69	
D4	16	0.00	2.25		0.00	1.38	
A1	17	0.00	2.07		0.00	1.45	
A2	18	0.00	1.90		0.00	1.37	
A3	19	0.00	2.23		0.00	1.46	
A4	20	3.60	2.78		0.00	1.35	

DJH DJH

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DJH

B J Brown

Time: 2.00
Data Mode: DPM Nuclide: SM6LS02 Quench Set: SM6LS02
Background Subtract: 1st Vial

	LL	UL	LCR	2SX	BKG
Region A:	0.5	18.6	0	0.0	6.40
Region B:	2.0	18.6	0	0.0	6.37
Region C:	40.0	2000	0	0.0	13.17

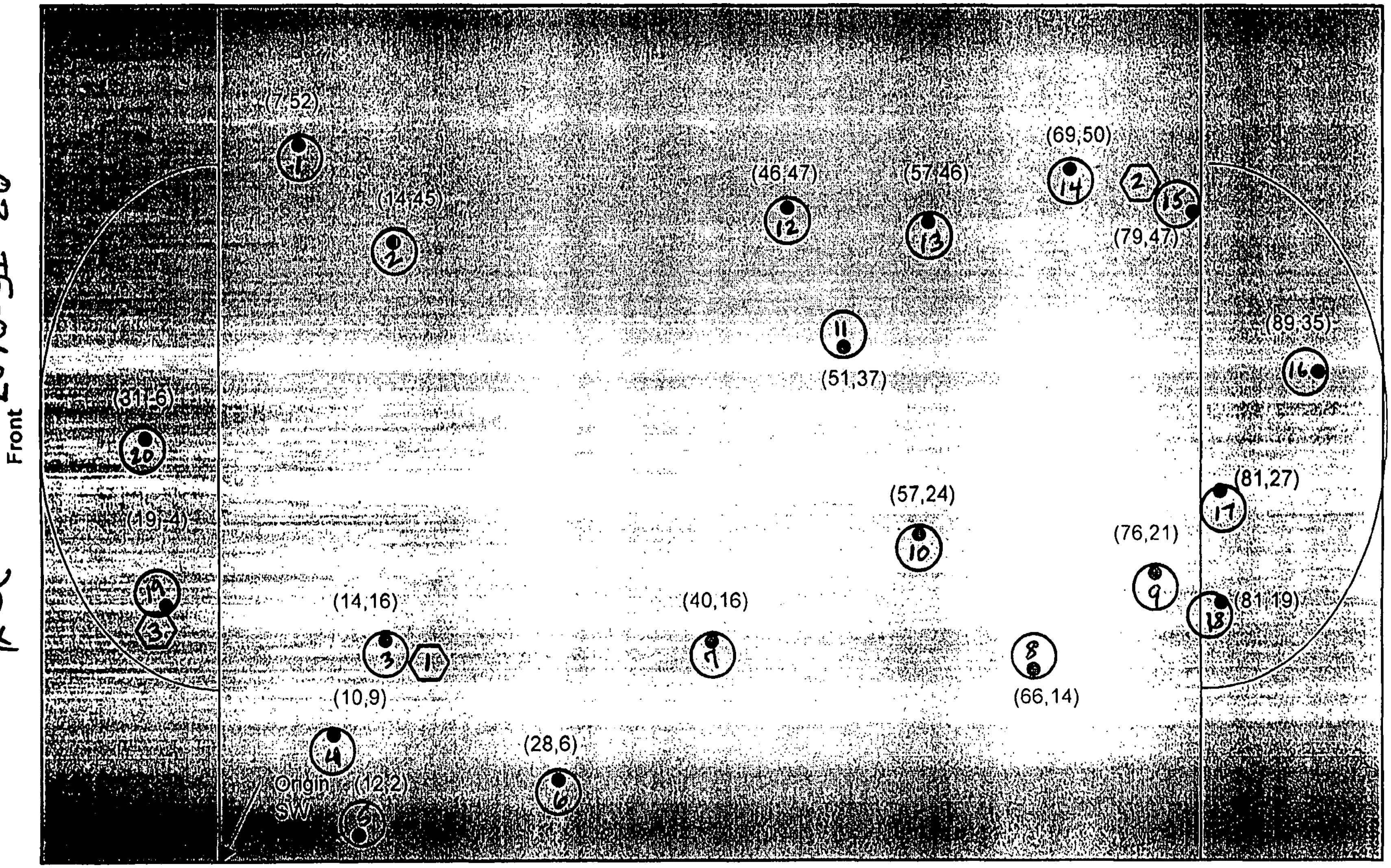
Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
03-TF-0107 HARVEY-20 BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT2.DAT
Count Data Filename: c:\data\SDATA2.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.40	6.37	0	B	479.87		0.00	13.17
0	2.00	601.56	570.36	0		467.46	1342.15	128.34	1.33
1	2.00	9.10	8.55	0		556.69	18.51	11.87	11.91
2	2.00	5.10	4.39	0		653.37	9.56	9.51	0.00
3	2.00	13.01	11.26	0		603.73	25.42	12.71	8.10
4	2.00	2.43	1.69	0		598.78	4.76	8.83	0.00
5	2.00	7.83	7.36	0		651.98	14.70	10.51	3.83
6	2.00	8.27	7.31	0		584.14	16.42	11.29	1.01
7	2.00	11.10	10.32	0		621.16	21.37	11.91	1.83
8	2.00	6.51	4.90	0		606.18	12.68	10.43	0.33
9	2.00	3.05	2.85	0		576.05	6.09	9.28	1.33
10	2.00	2.88	2.92	0		625.74	5.53	8.83	1.33
11	2.00	0.00	0.00	0		634.99	0.00	0.00	0.00
12	2.00	5.10	4.79	0		638.28	9.67	9.62	1.83
13	2.00	0.00	0.00	0		616.16	0.00	0.00	0.00
14	2.00	4.80	4.42	0		567.97	9.66	10.09	1.00
15	2.00	0.60	0.41	0		574.11	1.20	8.15	0.00
16	2.00	4.67	4.20	0		642.62	8.83	9.43	0.00
17	2.00	1.60	1.63	0		641.88	3.03	8.16	0.00
18	2.00	2.60	2.13	0		562.58	5.26	9.18	0.00
19	2.00	1.10	0.63	0		545.68	2.26	8.61	0.00
20	2.00	2.10	1.88	0		587.95	4.16	8.76	0.00

39 H

⬡ = INTEGRATED COUNT DURING SCANNING

Survey Unit 5



03-TF-0107
G1937 200
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Not to Scale

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 19	SURVEY NO. 03-TF-0108
PURPOSE: MARSSM SURVEY PLAN 19-04/ UNIT 6	RWP NO. N/A
	DATE: 05-08-03
	TIME: 1530

MAP/DRAWING

SEE ATTACHED DATA

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-43-93	5833-5947	3-13-04
2350-43-20	5673-5143	8-13-03
	NA	

Completed by: (Signature) D.K Riley	HP [redacted]	Date: 5-12-03
Completed by: (Print Name) D. HARVEY, D. RILEY		
Counted by: (Signature)	HP#	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Approved by: (Signature)	HP# [redacted]	Date: 5-12-03
Reviewed/Approved by: (Print Name) R. CASE		

ML-9620 (2-98)

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

SEE ATTACHED RESULTS

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

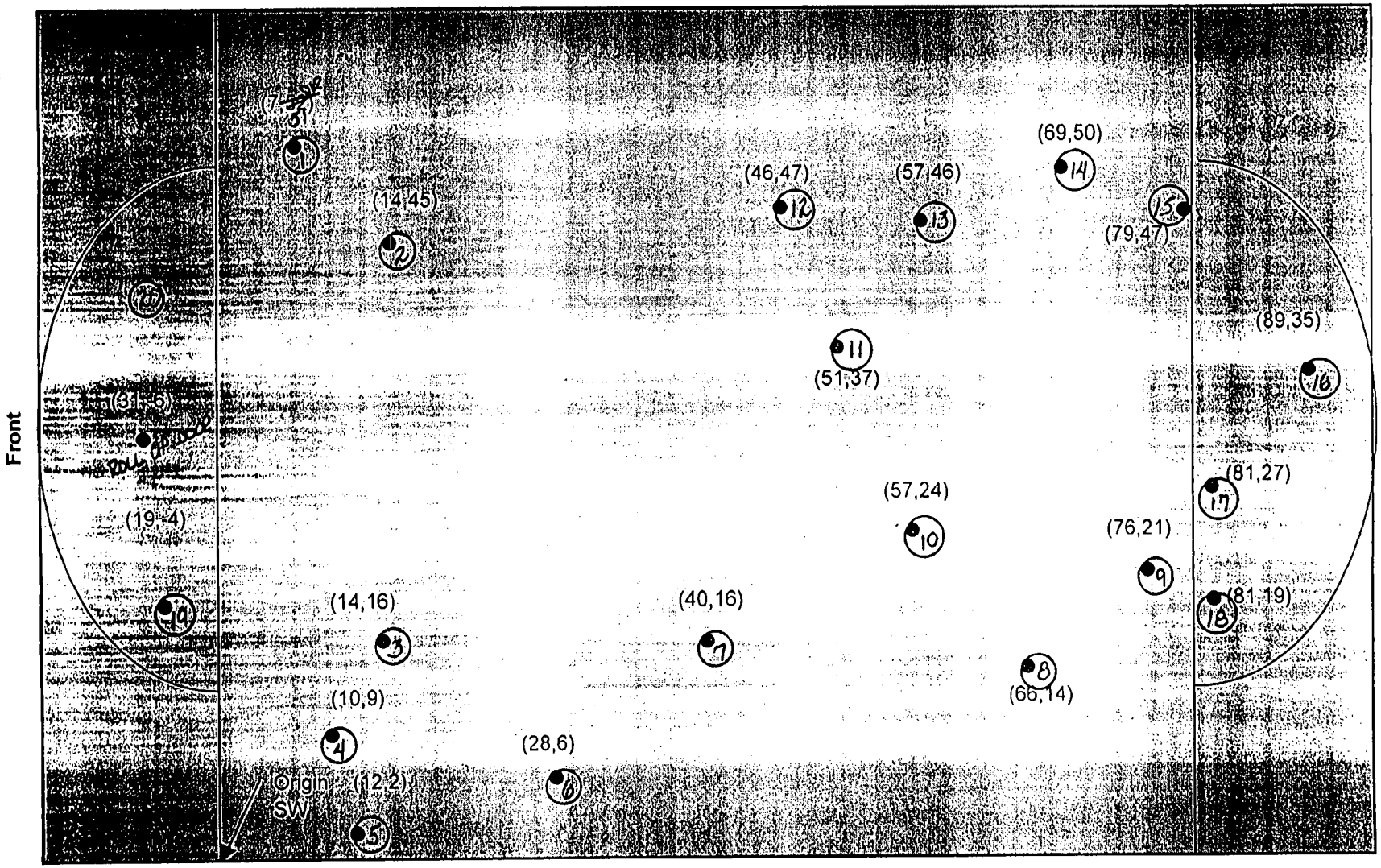
COMMENTS:

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 resu[lts] 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)

Building 19

Survey Unit 6



Not to Scale

RDS 03-TF-0108

19 BUILDING CHARACTERIZATION ALPHA SURVEY UNIT 6

RSDS#03-TF-0108 RCT: DJA RCT: SK

43-20 BKG:	0	EFF:	0.172	PROBE AREA:	112.3	cm2	Surface Eff:		0.5	Detector # :	2
43-37 BKG:	0	EFF:	0.212	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	3
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRC BKG	5673	[redacted]	5143	2		5/8/03	8:09	6	300	8	
SRC CHECK	5673		5143	2		5/8/03	8:12	2087	60	13407	
SRC CHECK	5673		5143	2		5/8/03	8:13	2002	60	12861	
SRC CHECK	5673		5143	2		5/8/03	8:15	2166	60	13915	
SRC CHECK	5673		5143	2		5/8/03	8:16	1909	60	12264	
U-6 01	5673		5143	2	1	5/8/03	13:38	9	60	93	
U-6 02	5673		5143	2	2	5/8/03	13:41	40	60	414	
U-6 03	5673		5143	2	3	5/8/03	13:44	21	60	217	
U-6 04	5673		5143	2	4	5/8/03	13:46	37	60	383	
U-6 05	5673		5143	2	5	5/8/03	13:48	36	60	373	
U-6 06	5673		5143	2	6	5/8/03	13:50	26	60	269	
U-6 07	5673		5143	2	7	5/8/03	13:52	20	60	207	
U-6 08	5673		5143	2	8	5/8/03	13:54	15	60	155	
U-6 09	5673		5143	2	9	5/8/03	13:56	29	60	300	
U-6 10	5673		5143	2	10	5/8/03	13:58	24	60	249	
U-6 11	5673		5143	2	11	5/8/03	14:01	13	60	135	
U-6 12	5673		5143	2	12	5/8/03	14:03	7	60	72	
U-6 13	5673		5143	2	13	5/8/03	14:05	9	60	93	
U-6 14	5673		5143	2	14	5/8/03	14:07	15	60	155	
U-6 15	5673		5143	2	15	5/8/03	14:09	20	60	207	
U-6 16	5673		5143	2	16	5/8/03	14:12	2	60	21	
U-6 17	5673		5143	2	17	5/8/03	14:14	3	60	31	
U-6 18	5673		5143	2	18	5/8/03	14:16	5	60	52	
U-6 19	5673		5143	2	19	5/8/03	14:19	4	60	41	
U-6 20	5673		5143	2	20	5/8/03	14:21	6	60	62	
U-6QC 02	5673		5143	2		5/8/03	14:23	12	60	124	
U-6QC 16	5673		5143	2		5/8/03	14:26	5	60	52	

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19-BLDG CHARACTERIZATION ALPHA/BETA SURVEY UNIT 6

RSDS# 03-TF-0108 RCT: [illegible] RCT: [illegible]

						BETA			ALPHA		
LOCATION	**2360**	**RCT ID**	**PROBE**	**ITEM #**	**DATE**	**gross count**	**CT TIME**	**dpm/100cm2**	**gross count**	**CT TIME**	**dpm/100cm2**
U6-1	5833	[redacted]	5847	1	5/8/03	315	60	740	9	60	64
U6-2	5833	[redacted]	5847	2	5/8/03	335	60	840	40	60	312
U6-3	5833	[redacted]	5847	3	5/8/03	309	60	710	21	60	160
U6-4	5833	[redacted]	5847	4	5/8/03	322	60	775	37	60	288
U6-5	5833	[redacted]	5847	5	5/8/03	250	60	415	36	60	280
U6-6	5833	[redacted]	5847	6	5/8/03	279	60	560	26	60	200
U6-7	5833	[redacted]	5847	7	5/8/03	352	60	925	20	60	152
U6-8	5833	[redacted]	5847	8	5/8/03	445	60	1390	15	60	112
U6-9	5833	[redacted]	5847	9	5/8/03	380	60	1065	29	60	224
U6-10	5833	[redacted]	5847	10	5/8/03	365	60	990	24	60	184
U6-11	5833	[redacted]	5847	11	5/8/03	296	60	645	13	60	96
U6-12	5833	[redacted]	5847	12	5/8/03	685	60	2590	7	60	48
U6-13	5833	[redacted]	5847	13	5/8/03	280	60	565	9	60	64
U6-14	5833	[redacted]	5847	14	5/8/03	229	60	310	15	60	112
U6-15	5833	[redacted]	5847	15	5/8/03	369	60	1010	20	60	152
U6-16	5833	[redacted]	5847	16	5/8/03	685	60	2590	2	60	8
U6-17	5833	[redacted]	5847	17	5/8/03	484	60	1585	3	60	16
U6-18	5833	[redacted]	5847	18	5/8/03	433	60	1330	5	60	32
U6-19	5833	[redacted]	5847	19	5/8/03	378	60	1055	4	60	24
U6-20	5833	[redacted]	5847	20	5/8/03	415	60	1240	6	60	40
QC U6-2	5833	[redacted]	5847	20	5/8/03	460	60	1465	12	60	88
QC U6-16	5833	[redacted]	5847	20	5/8/03	415	60	1240	5	60	32
BETA BACKGROUND FOR 5-08-2003 WAS----------------------->								167			
ALPHA BACKGROUND FOR 5-08-2003 WAS----------------------->								1			

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200305081139	**Count Date:**	5/8/2003
Group:	J	**Count Minutes:**	1.5
Serial Number:	78218-1	**Count Mode:**	Simultaneous
Batch ID:	03-TF-0108 HARVEY-20 BSB	**Operating Volts:**	1440
Selected Geometry:	Swipe/Smear	**Cal Due Dates:**	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	66	2.18	1.92	2.58	2.05
2	56	0.00	0.00	2.74	2.04
3	69	0.00	0.00	0.00	0.00
4	12	0.00	0.00	1.37	1.45
5	36	0.00	0.00	2.74	2.04
6	45	4.37	2.72	3.80	2.51
7	48	0.00	0.00	2.74	2.04
8	27	0.00	0.00	0.00	0.00
9	45	0.00	0.00	4.11	2.50
10	8	6.55	3.33	6.38	3.24
11	25	0.00	0.00	4.11	2.50
12	51	0.00	0.00	4.11	2.50
13	17	0.00	0.00	2.74	2.04
14	21	0.00	0.00	1.37	1.45
15	97	0.00	0.00	2.74	2.04
16	37	2.18	1.92	3.95	2.51
17	15	0.00	0.00	1.37	1.45
18	75	0.00	0.00	4.11	2.50
19	35	0.00	0.00	6.85	3.23
20	68	2.18	1.92	5.32	2.90

Appendix H

Radon Information

UNC Geotech

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

April 12, 1990

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

Dear Mr. Murphy:

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

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

Sincerely yours,

Mark D. Pearson

Mark D. Pearson
Project Manager
UNC Geotech

cc: DOE Points of Contact

Bldg	Bldg Description	Room	pCi/l	pCi/l	Rsmld	Dupld	Collected Date	Received Date	Comments
21		ABOVE AIR SAMPLER	161.1	125.8	1670855	1666782	12/14/88	2/16/89	MET - OLD THORIUM STORAGE
21		ABOVE AIR SAMPLERS	116.7		1668548		12/14/88	2/16/89	MET - OLD THORIUM STORAGE
	SH	19 MID EAST WALL	4.0		1661547		12/12/88	2/19/89	HISTORY OF ELEVATED READING
48		114 B CLOSET ON SPRINKLER PIPE	3.2		1671292		12/12/88	2/19/89	
19		ROOM 1	2.6		1670851		12/13/88	2/19/89	
	OLD SD BLDG	BASEMENT RIGHT CABINET	2.4		1661555		12/14/88	2/19/89	
55		1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/19/88	2/19/89	
57		ROOM 1	1.8		1661565		12/12/88	2/19/89	
87		143	1.5		1661563		12/13/88	2/19/89	
998	FIRE STATION	ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654460		12/12/88	2/19/89	
24		ROOM 1 PLANT NORTH WALL	1.3		1672087		12/12/88	2/19/89	
	PAINT SHOP	PS 4	1.2		1661516		12/12/88	2/16/89	
30		ROOM 3 EAST	1.1		1671262		12/12/88	2/16/89	
100		103 MIDDLE OF NORTH WALL	1.0		1670860		12/12/88	2/19/89	
37		6 NORTH WALL	1.0		1670846		12/12/88	2/19/89	
34		34 A WEST WALL	.9	.6	1672062	1672042	12/12/88	2/19/89	MET
102		123	.9		1661577		12/14/88	2/19/89	
61		RM 221 MIDDLE OF NORTH WALL	.9		1661585		12/13/88	2/19/89	
67		101 N	.9		1670821		12/12/88	2/19/89	
G-13	LOG	G-514 WEST WALL	.8		1661544		12/12/88	2/16/89	
	T	CORRIDOR 26	.8		1670831		1/15/89	2/19/89	
	T	153	.8		1670867		1/15/89	2/19/89	
	T	78	.8		1670877		1/15/89	2/19/89	
	T	38	.8		1661546		1/15/89	2/19/89	
105	PARTS MACHINING BUILDING	STAIRWELL NEXT TO ROOM 127	.8		1661564		12/12/88	2/19/89	
25	ARAC	3 ON BOOK CASE MIDDLE	.8		1671314		12/15/88	2/19/89	
60		1 ON DOOR TO ROOM 3	.8		1670849		12/12/88	2/19/89	
	A	153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/88	2/16/89	
	C BUILDING OLD CAFETERIA	NORTHEAST SECTION INTERNAL WALL 002	.8		1672052		12/12/88	2/16/89	
	R BUILDING	68 NORTH WALL	.8		1670868		12/12/88	2/16/89	
	SH	8 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/88	2/16/89	
	WD BLDG	WD 8	.8		1670845		12/10/88	2/16/89	
87		124	.8		1670832		12/12/88	2/19/89	
88		ROOM 116 ON NORTH WALL RIGHT OF CEN	.7	.5	1661524	1661535	12/12/88	2/19/89	
81		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666783	1666522	12/15/88	2/19/89	
22		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1670870		12/12/88	2/19/89	
56	FIRE PUMP HOUSE	ROOM 1 THERE IS ONLY 1 ROOM	.7		1670866		12/12/88	2/19/89	
	E ANNEX	E 225 EAST WALL	.7		1661552		12/19/88	2/16/89	
	POWER HOUSE PH-1	REPAIR SHOP NORTH EAST CORNER	.7		1670840		12/12/88	2/19/89	
	N BLDG	N-135	.7		1661553		12/12/88	2/16/89	
26		ROOM 84 SOUTH WEST WALL	.6	.8	1672048	1667158	12/13/88	2/16/89	
69		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/88	2/19/89	
26		ROOM 84 SOUTH WEST WALL	.6		1671270		12/12/88	2/16/89	
35		RM 7	.6		1654458		12/14/88	2/19/89	
38	PP BLDG	PP CORR 136	.6		1670816		12/14/88	2/19/89	
72		ON OVERHEAD DOOR BEAM	.6		1672069		1/03/89	2/19/89	
93		HALLWAY 107 (HIGHAY)	.6		1661629		12/13/88	2/20/89	
98	FIRE STATION	ROOM 114 DORM	.6		1661507		12/12/88	2/19/89	
	COS	RM STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/88	2/19/89	
	OSH	120 C	.6		1661573		12/12/88	2/16/89	
	SH	150 WEST END GAS BOX	.6		1670843		12/11/88	2/16/89	
	A	34 EAST WALL	.5	.7	1672075	1672051	12/14/88	2/16/89	
47		102 MIDDLE OF EAST WALL	.5	.5	1650110	1666819	12/12/88	2/16/89	

Radon Monitor Results for 88 Round Facility

Area	Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	45		WORK STATION AREA	.4		1681568		12/14/88	2/18/89	
	46		81 EAST HALL	.4		1672070		12/12/88	2/18/89	
	49		HALL OUTSIDE RM 125	.4		1678020		12/14/88	2/18/89	
	51		107 TOP OF FUME HOOD	.4		1681575		12/12/88	2/18/89	
	63		ROOM 134	.4		1672059		12/13/88	2/20/89	
	63N		RM 4	.4		1678078		12/14/88	2/18/89	
	65		ROOM 18 CONFERANCE ROOM	.4		1671284		12/14/88	2/18/89	
	66		OFFICE AREA	.4		1681554		12/12/88	2/18/89	
	68		EAST HALL CENTER BEAM	.4		1681555		12/14/88	2/18/89	
	69		RM 18A	.4		1681576		12/12/88	2/18/89	
	70		170 MEETING ROOM CENTER HALL	.4		1678041		12/12/88	2/18/89	
	88		ROOM 116	.4		1671295		12/12/88	2/18/89	
	95	SK/PP	95- BLD-ROOM81	.4		1661531		12/12/88	2/20/89	
		GS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/13/88	2/18/89	
		I	I HALLWAY	.4		1667184		12/12/88	2/18/89	
		M BUILDING	M 21 WEST HALL	.4		1678057		12/15/88	2/20/89	
		POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1678035		12/12/88	2/18/89	
		R BUILDING	12 SOUTH HALL	.4		1681546		12/13/88	2/18/89	
	34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
	61		RM 151			1681567		12/13/88		MISSING

Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	R BUILDING	143 NEXT TO NORTH WALL	.5	.5	1668533	1668818	12/13/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671208		12/12/89	2/19/90	
	"B" 175	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
		ELECTRICAL PANEL BX IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
46		100	.5		1654480		12/13/89	2/16/90	
48		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
43		ON BULLETIN BOARD	.5		1678047		12/12/89	2/16/90	
44		102 MIDDLE OF EAST WALL	.5		1678058		12/12/89	2/16/90	
47		CELL 113	.5		1681582		12/13/89	2/19/90	
50		CENTRAL HALLWAY WEST OF DOOR TO RMT	.5		1681605		12/18/89	2/16/90	
79		101 NEAR BACK CORNER BY ROOF DRAIN	.5		1678079		12/15/89	2/19/90	
89		1ST FLOOR	.5		1661525		12/15/89	2/16/90	
91		2ND FLOOR OUTSIDE RM215	.5		1681593		12/15/89	2/16/90	
91		HALLWAY RIGHT OFF ROOM 8	.5		1681589		12/12/89	2/19/90	
92		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
94		215 WEST WALL	.5		1681572		12/14/89	2/16/90	
	A	1040 WEST WALL	.5		1681580		12/14/89	2/16/90	
	A	119 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	119 WALL CABINET TO RIGHT OF SINK	.5		1681590		12/12/89	2/19/90	
	COS	150 WEST WALL	.6		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.6		1678072		12/14/89	2/16/90	
	E BUILDING	E 212 NORTH WALL	.5		1681587		12/18/89	2/16/90	
	E ANNEX	ROOM 2	.5		1678065		12/12/89	2/16/90	
	GH BUILDING	1A MIDDLE OF WEST WALL	.5		1678054		12/12/89	2/19/90	
	GP 81	ROOM 127	.5		1681571		12/12/89	2/16/90	
	H BLDG	RM-6	.5		1671268		12/18/89	2/19/90	
	HH	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	I BUILDING	R 108	.5		1678056		12/15/89	2/19/90	
	M BUILDING	CORRIDOR 437	.5		1661536		12/15/89	2/16/90	
	OSE	CORRIDOR 301 ACROSS FROM WATER FOUN	.5		1672084		12/15/89	2/16/90	
	OSE	4HT FLOOR	.5		1678028		12/12/89	2/16/90	
	OSH	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSE	318	.5		1678069		12/13/89	2/16/90	
	OSH	2ND FLOOR	.5		1681611		12/12/89	2/16/90	
	POWER HOUSE PH-1	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	R BUILDING	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	SH/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 116	.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		1661514		12/13/89	2/19/90	
	GP 81	1A MIDDLE OF WEST WALL	.4	.5	1672135	1661542	12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
27		CELL 8 - WALL	.4		1681583		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	101	.4		1672061		12/12/89	2/19/90	
29		HALLWAY	.4		1672105		12/14/89	2/19/90	
	TEST FIRE BUILDING 3	3-315	.4		1672036		12/12/89	2/19/90	
38	PP BLDG	PP CORR 16/BAY 2 WALL	.4		1681578		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: 10/31/02 12:14PM
Subject: Building 19

Val -

I performed a walk-through survey of Building 19 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 19. The paint coatings in a few areas within the building exhibited some damage due to water or impact damage. Representative samples of the damaged paint were analyzed in the field using a Niton Model XL-309 XRF lead detector. The sampled paints were found not to contain any amount of lead within the instrument's limit of detection. 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

An asbestos survey was conducted in accordance with EPA NESHAP requirements prior to demolition. Three materials were found to contain asbestos, two of which will have to be removed prior to demolition. A copy of the survey report will be forwarded for your use.

Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Koehmstedt, Lee

BWXT of Ohio, Inc.

Interoffice Correspondence

Date: October 31, 2002

From: Christopher Ahlquist
Industrial Hygienist, SMPP/TFV

To: Lee Koehmstedt
Engineer, SMPP/TFV

Re: Building 19: Asbestos-Containing Materials

During the month of October 2002, Mr. Christopher A. Ahlquist, an Industrial Hygienist with BWXT of Ohio, Inc. (BWXTO), conducted a survey of Building 19 at the Mound site in Miamisburg, Ohio for purpose of identifying asbestos-containing materials contained therein. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by Ohio Department of Health regulations. During the course of the survey, Mr. Ahlquist reviewed previous survey reports and sampling data and collected additional bulk samples of materials found within Building 19 as necessary in order to determine the asbestos content of said materials. A room-by-room inspection of all accessible spaces was then conducted in order to prepare an inventory of the location and approximate quantities of identified asbestos-containing materials. Three (3) of the suspect materials within Building 19 were found to contain greater than one percent (>1%) asbestos content which defines a material as asbestos-containing by EPA and OSHA regulations. These materials included transite panels behind wall heaters in the building office, a no-drip type of insulating material packed in around the office outside door frame, and a roof mastic type of sealant.

Sample Method

During BWXTO's survey, bulk samples were collected utilizing sampling methods and protocol specified in the EPA's Asbestos Hazard Emergency Response Act (AHERA). Each sample was collected and placed in a clean, sealable hard-shell container and labeled with a unique sample identification number. Pertinent information was recorded on a Bulk Sample Data Sheet including sample identification number, date of inspection, name of inspector, building name, a brief description and location of the sample, and the type of material sampled (e.g., preformed-block pipe insulation, aircell-paper pipe insulation, etc.).

Analysis of Samples

The samples were submitted to DataChem Laboratories of Cincinnati, Ohio and analyzed for asbestos content by PLM and dispersion staining (Method Reference: 40 CFR Part 763, Volume 47, No. 103, May 27, 1982 pg. 23376). This analytical method, which the

EPA currently recommends for the determination of asbestos in bulk samples of suspect materials, can be used for qualitative identification of six morphologically different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos. The method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percentage) within the range of 0 to 100. The result of the bulk sample analysis is reported in a standard written laboratory report. This report includes the client name, the project number, the laboratory identification number, the sample number assigned to the bulk sample upon receipt at the laboratory, and the field number assigned to the bulk sample upon collection at the site. If the bulk sample contains more than one distinct layer of material, each layer is analyzed separately. The composition of the bulk sample is reported in percentages of asbestos (i.e., cellulose, fiberglass, or other) components. The results of the sample analyses can be found on the laboratory reports.

DataChem Laboratories is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP Lab Code #101917-0). NVLAP is the agency sponsored by the National Institute of Standards and Technology providing EPA accreditation of laboratories analyzing bulk samples for asbestos content.

Conclusions

Twelve (12) square feet of "Transite" asbestos cement board was located behind the wall heaters in the office (Room 2), and eighteen (18) linear feet of an asbestos-containing no-drip type of packing material was located around the office (Room 2) outside door frame. These materials will have to be removed from the building prior to demolishing the structure.

In addition, the building contains approximately two-hundred and fifty (250) linear feet of roofing-type mastic sealant which is nonfriable (Category I). This nonfriable material does not have to be removed prior to demolition so long as it remains nonfriable prior to that point. Since the building is scheduled for demolition, the EPA will have to be notified in writing on the proper forms before demolition can occur, and these quantities of nonfriable materials must be specified.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 10/31/02 12:14PM
Subject: Building 19

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I performed a walk-through survey of Building 19 for lead paint and asbestos concerns. The following is provided for your use:

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Asbestos

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Let me know if I can be of further assistance.

Chris Ahlquist
SMPP/TFV Safety & Health

CC: Koehmstedt, Lee

J 1 of 2

Serial #XL309-U1059NR1794 Site: Mound Building 19 Date: 10/2/2002

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	24	19	CAA	Ground	Office	2	Wall - E	Drywall	Impact	Damage	Creme		80.4	10/2/2002 16:59:45	1 of 1	2.3	NEG	0.01 ± 0.03	-0.32 ± 0.25	0.01 ± 0.03
2	25	19	CAA	Ground	Office	2	Wall - W	Drywall	Impact	Damage	Creme		61.6	10/2/2002 17:03:39	1 of 1	1.0	NEG	0.00 ± 0.01	-0.18 ± 0.29	0.00 ± 0.01
3	26	19	CAA	Ground	Open Bay	1	Wall - SE	Wood		Peeling	Green		61.1	10/2/2002 17:07:04	1 of 1	1.0	NEG	0.03 ± 0.01	-0.38 ± 0.25	0.03 ± 0.01
4	27	19	CAA	Ground	Open Bay	1	Wall - SE	Wood		Peeling	Red		44.4	10/2/2002 17:10:23	1 of 1	1.0	NEG	0.01 ± 0.01	0.19 ± 0.33	0.01 ± 0.01
5	28	19	CAA	Ground	Below	Mezzanine	Ceiling - E	Wood		Peeling	White		19.2	10/2/2002 17:24:30	1 of 1	1.0	NEG	0.00 ± 0.00	-0.16 ± 0.51	0.00 ± 0.00
6	29	19	CAA	Ground	Below	Mezzanine	Ceiling - W	Wood		Peeling	White		21.5	10/2/2002 17:26:00	1 of 1	1.0	NEG	0.00 ± 0.00	0.39 ± 0.47	0.00 ± 0.00
7	30	19	CAA	2nd		Mezzanine	Floor - Middle	Wood		Peeling	Green		19.2	10/2/2002 17:27:52	1 of 1	1.0	NEG	0.00 ± 0.00	-0.24 ± 0.51	0.00 ± 0.00
8	31	19	CAA	2nd		Mezzanine	Floor - Middle	Wood		Peeling	Green		21.5	10/2/2002 17:28:54	1 of 1	1.0	NEG	0.00 ± 0.00	-0.20 ± 0.48	0.00 ± 0.00

Appendix K

Chemical Information

Chemicals previously used or hazardous waste previoulsy stored in Building 19

Adhesive
Antimony Powder
Antimony, Beryllium Powder Mixture
Beryllium Pellets
Beryllium Powder
Beryllium Rods
Bismuth Chloride Residues
Bismuth Chunk
Boron Powder
Bransonic Ultrasonic Cleaner
Calcium Sulfate
Eppert Oil Disolver 200
Henry Latex Liquid Additive
Mercury Instruments
Mercury Thermometer
Methanol
Paint
PL500 Adhesive
Propane
Spartan SC-200
SYN-Cide NR
Tantalum Wire
Thorium
Zip Cleaner

All remaining chemicals and hazardous waste were removed from Building 19 in January 2003

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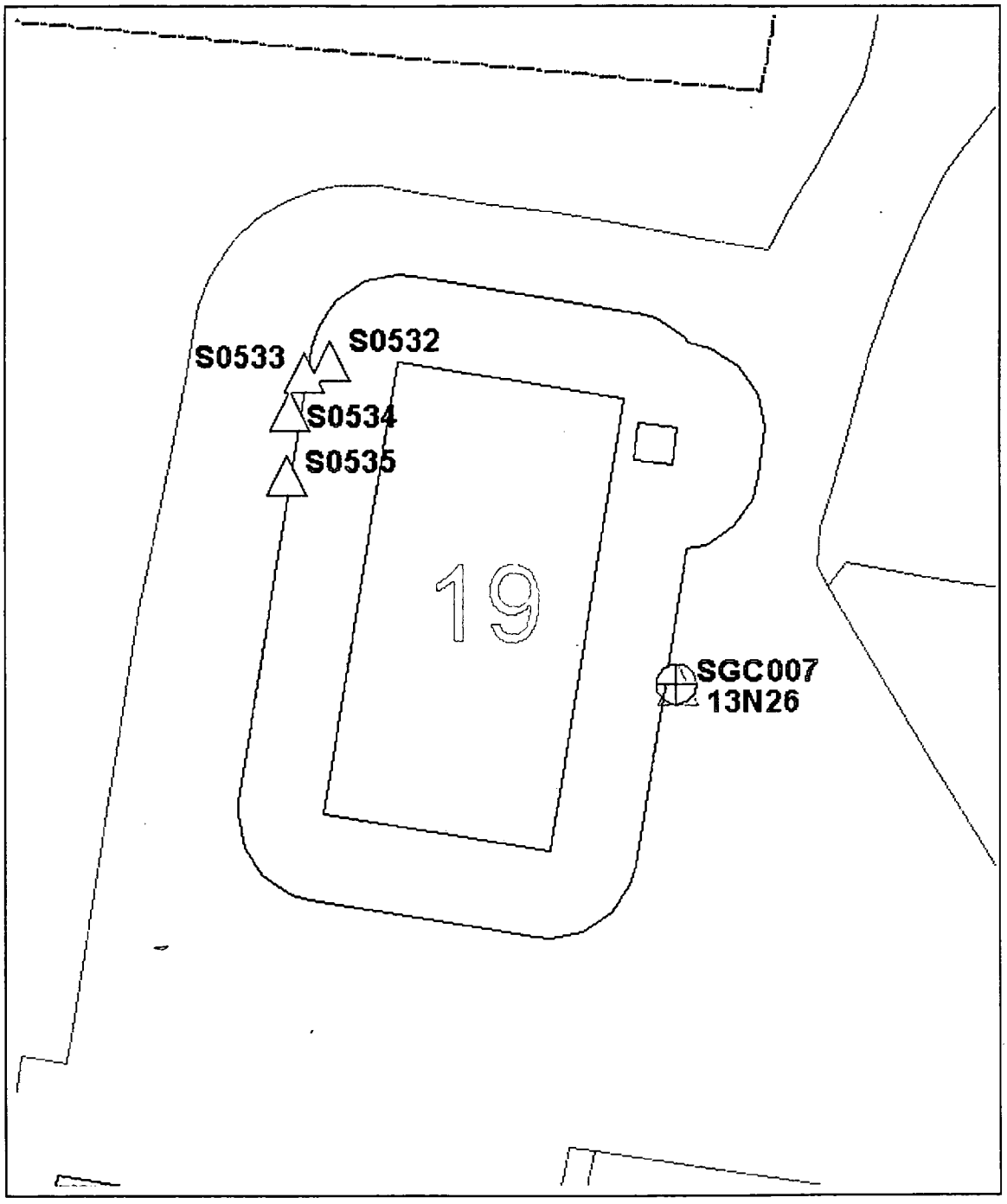
Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 feet of Building 19



Sample Detect
Sample Nondetect

10 0 10 20 30 40 50 Feet

N
W E
S

MOUND

11/25/02

Building 19 Detects

Location_name	Sample_id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab	Data_	Project_code	Media	Comments
SGC007	NAC007	19960220	Acetone	22.0000	UG/KG		ORVOA	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Aluminum	10200.0000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Arsenic	1.9000	MG/KG		INORG	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Barium	26.2000	MG/KG		INORG	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Beryllium	0.2800	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Cadmium	0.3300	MG/KG		INORG	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Calcium	83900.0000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Chromium	14.3000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Cobalt	11.0000	MG/KG		INORG	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Copper	16.2000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Dichloromethane (Methylene Chloride)	13.0000	UG/KG		ORVOA	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Iron	23000.0000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Lead	7.2000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Lithium	3.2000	MG/KG		INORG	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Magnesium	21600.0000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Manganese	493.0000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Molybdenum	0.6300	MG/KG		INORG	0.0	1.5	B		SGCSP	Soil	
SGC007	NAC007	19960220	Nickel	22.6000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Nitrate/Nitrite	1.6000	MG/KG	0.2400	ANION	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Percent Solids	83.9000	%	0.1000	GENERA	0.0	1.5			SGCSP	Soil	
S0533	10496	19850801	Plutonium-238	1.8400	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0534	10495	19850801	Plutonium-238	1.1300	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
SGC007	NAC007	19960220	Plutonium-238	0.5370	PCI/G	0.0065	RAD	0.0	1.5			SGCSP	Soil	2
S0535	10494	19850801	Plutonium-238	0.5100	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0532	10498	19850801	Plutonium-238	0.4800	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
SGC007	NAC007	19960220	Potassium	1590.0000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Potassium-40	10.8000	PCI/G	0.0000	RAD	0.0	1.5			SGCSP	Soil	1
SGC007	NAC007	19960220	Radium-226	0.5370	PCI/G	0.4210	RAD	0.0	1.5			SGCSP	Soil	1
SGC007	NAC007	19960220	Sodium	246.0000	MG/KG		INORG	0.0	1.5	B		SGCSP	Soil	2
SGC007	NAC007	19960220	Thorium-228	0.4310	PCI/G	0.0211	RAD	0.0	1.5			SGCSP	Soil	1
SGC007	NAC007	19960220	Thorium-230	0.5820	PCI/G	0.0187	RAD	0.0	1.5			SGCSP	Soil	1

Location_name	Sample_id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab	Data_	Project_code	Media	Comments
SGC007	NAC007	19960220	Thorium-232	0.3280	PCI/G	0.0187	RAD	0.0	1.5			SGCSP	Soil	1
13N26	13N26	19941004	Total Aromatic Hydrocarbons	7570760.0000	IC		GENERA	0.0	1.5			2680	Soil	
13N26	13N26	19941004	Total C5 TO C11 Petroleum Hydrocarbons	30786838.0000	IC		GENERA	0.0	1.5			2680	Soil	
13N26	13N26	19941004	Total Semivolatile Hydrocarbons	1200505.0000	IC		GENERA	0.0	1.5			2680	Soil	
SGC007	NAC007	19960220	Trichloroethylene (TCE)	7.0000	UG/KG		ORVOA	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Uranium-234	0.5510	PCI/G	0.0265	RAD	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Uranium-238	0.5740	PCI/G	0.0233	RAD	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Vanadium	14.2000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	
SGC007	NAC007	19960220	Zinc	53.8000	MG/KG		INORG	0.0	1.5			SGCSP	Soil	

*Comments

1 Exceeds the 10-6 Risk-Based Guide Value
2 Exceeds the OU9 Soil Background Value
3 Exceeds screening level
5 Exceeds MCL
6 Exceeds the Guide Value based on the hazard index

Building 19 Non-Detects

Location_name	Sample_Id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab_	Data_	Project_code	Media
SGC007	NAC007	19960220	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,2,4-Trichlorobenzene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,2-Dichlorobenzene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,3,5-Trinitrobenzene	220.0000	UG/KG	220.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,3-Dichlorobenzene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,3-Dinitrobenzene	218.0000	UG/KG	218.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1,4-Dichlorobenzene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	1-chloro-4-phenoxybenzene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,2'-oxybis(1-chloropropane)	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4,5-Trichlorophenol	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4,6-Trichlorophenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4,6-Trinitrotoluene	220.0000	UG/KG	220.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4-Dichlorophenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4-Dimethylphenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4-Dinitrophenol	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4-Dinitrotoluene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,4-Dinitrotoluene	218.0000	UG/KG	218.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,6-Dinitrotoluene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2,6-Dinitrotoluene	227.0000	UG/KG	227.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2-Butanone	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2-Chloronaphthalene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2-Chlorophenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2-Hexanone	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2-Methylnaphthalene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2-Methylphenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	2-Nitroaniline	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil

Location_name	Sample_Id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab	Data_	Project_code	Media
SGC007	NAC007	19960220	2-Nitrophenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	3,3'-Dichlorobenzidine	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	3-Nitroaniline	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4,4'-DDD	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4,4'-DDE	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4,4'-DDT	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4,6-Dinitro-o-Cresol	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Amino-2,6-Dinitrotoluene	437.0000	UG/KG	437.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Bromophenyl-phenyl Ether	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Chloro-3-methylphenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Chloroaniline	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Methyl-2-pentanone	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Methylphenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Nitroaniline	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	4-Nitrophenol	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Acenaphthene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Acenaphthylene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aldrin	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Alpha Chlordane	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Alpha-BHC	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Americium-241	0.2980	PCI/G	0.2980	RAD	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Anthracene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Antimony	0.2100	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aroclor-1016	40.0000	UG/KG	40.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aroclor-1221	80.0000	UG/KG	80.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aroclor-1232	40.0000	UG/KG	40.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aroclor-1242	40.0000	UG/KG	40.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aroclor-1248	40.0000	UG/KG	40.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aroclor-1254	40.0000	UG/KG	40.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Aroclor-1260	40.0000	UG/KG	40.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Benzene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Benzo(a)anthracene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Benzo(a)pyrene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Benzo(b)fluoranthene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Benzo(g,h,i)perylene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Benzo(k)fluoranthene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Beta-BHC	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil

Location_name	Sample_id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab	Data_	Project_code	Media
SGC007	NAC007	19960220	Bis(2-chloroethoxy)methane	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bis(2-chloroethyl)ether	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bis(2-ethylhexyl)phthalate	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bismuth	1.1000	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bismuth-207	0.0983	PCI/G	0.0983	RAD	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bismuth-210	0.1280	PCI/G	0.1280	RAD	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bromoform	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Bromomethane	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Butyl Benzyl Phthalate	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Carbazole	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Cesium-137	0.1320	PCI/G	0.1320	RAD	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Chlorobenzene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Chloroethane	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Chloroform	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Chloromethane	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Chrysene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Cobalt-60	0.1316	PCI/G	0.1320	RAD	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Cyanide	0.6000	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Delta-BHC	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Dibenz(a,h)anthracene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Dibenzofuran	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Dieldrin	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Diethyl Phthalate	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Dimethyl Phthalate	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Di-n-butyl Phthalate	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Di-n-octyl Phthalate	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Endosulfan I	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Endosulfan II	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Endosulfan Sulfate	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Endrin	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Endrin Aldehyde	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Endrin Ketone	4.0000	UG/KG	4.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Ethylbenzene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil

Location_name	Sample_Id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab	Data_	Project_code	Media
SGC007	NAC007	19960220	Fluoranthene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Fluorene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Gamma Chlordane	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Gamma-BHC (Lindane)	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Heptachlor	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Heptachlor Epoxide	2.0000	UG/KG	2.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Hexachlorobenzene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Hexachlorobutadiene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Hexachlorocyclopentadiene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Hexachloroethane	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	HMX	1920.0000	UG/KG	1920.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Indeno(1,2,3-cd)pyrene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Isophorone	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Mercury	0.0600	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Methoxychlor	20.0000	UG/KG	20.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Naphthalene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Nitrobenzene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Nitrobenzene	227.0000	UG/KG	227.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	N-Nitroso-di-n-propylamine	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	N-Nitrosodiphenylamine	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Pentachlorophenol	1000.0000	UG/KG	1000.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	PETN	873.0000	UG/KG	873.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Phenanthrene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Phenol	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Plutonium-239/240	0.0054	PCI/G	0.0054	RAD	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Pyrene	400.0000	UG/KG	400.0000	ORSVO	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	RDX	873.0000	UG/KG	873.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Selenium	0.4500	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Silver	0.1900	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Styrene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Tetryl	655.0000	UG/KG	655.0000	OREXP	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Thallium	0.2100	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
S0533	10496	19850801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0532	10498	19850801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0535	10494	19850801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0534	10495	19850801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil

Location_name	Sample_id	Collection_date	Value_name	Measured_value	Value_units	Detection_limit	Chem_class	Start_depth	End_depth	Lab	Data_	Project_code	Media
SGC007	NAC007	19960220	Tin	0.8800	MG/KG		INORG	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Toluene	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Toxaphene	200.0000	UG/KG	200.0000	ORPPB	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Uranium-235	0.0310	PCI/G	0.0310	RAD	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Vinyl Acetate	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Vinyl Chloride	11.0000	UG/KG	11.0000	ORVOA	0.0	1.5	U		SGCSP	Soil
SGC007	NAC007	19960220	Xylenes, Total	6.0000	UG/KG	6.0000	ORVOA	0.0	1.5	U		SGCSP	Soil

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LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

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DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

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

SUB-QUALIFIER CODES

ORGANICS

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

INORGANICS

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

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

The above data was extracted from the OU9 Site Wide Quality Assurance Project Plan, pages 9-16 and Appendix H page 3-1. It was updated from the Methods Compendium.

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 (or trichloroethylene)	5.09E+00 MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	1.10E-02 MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	1.40E-03 MG/L
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

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PU239/240	Plutonium-240	6.10E+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
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

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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

	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
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

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7440-22-4	Silver	1.10E+03	MG/KG
127-18-4	Tetrachloroethene	2.10E+03	MG/KG
7440-28-0	Thallium	17	MG/KG
7440-31-5	Tin	130000	MG/KG
108-88-3	Toluene	2.50E+02	MG/KG
75-69-4	Trichlorofluoromethane	7.30E+02	MG/KG
7440-62-2	Vanadium	1.50E+03	MG/KG
1330-20-7	Xylenes, Total	4.30E+05	MG/KG
7440-66-6	Zinc	6.40E+04	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	2.90E-01	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	2.50E-01	MG/L
71-55-6	1,1,1-Trichloroethane	1.80E+00	MG/L
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	2.50E+03	MG/L
7429-90-5	Aluminum	100	MG/L
7440-42-8	Boron	9.00E+00	MG/L
18540-29-9	Chromium-VI	3.00E-01	MG/L
7440-48-4	Cobalt	6	MG/L
7440-50-8	Copper	4.00E+00	MG/L
7439-98-7	Molybdenum	0.5	MG/L
7782-49-2	Selenium	0.5	MG/L
7440-28-0	Thallium	0.008	MG/L
7440-31-5	Tin	60	MG/L
2691-41-0	HMX	1.10E+04	UG/KG
121-82-4	RDX	6.40E+04	UG/KG

Appendix M

Occurrence Reports

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

- radioactive contamination found outside of a radiological control area (4), (copies provided in Appendix M),
- fire suppression system actuation (4), and
- measurement machine and gaging system damaged during movement.

ALO-DA-EGGM-EGGMAT01-1991-0004 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: Coco, L. M.
Title: Mgr, Radiological & Industrial Sfty **Telephone No.:** (513) 865-3928
(Originator/Transmitter)

Name: **Date:**
(Authorized Classifier (AC))

1. **Occurrence Report Number:** ALO-DA-EGGM-EGGMAT01-1991-0004

Tritium contaminated excess equipment outside of radiation control area. Group 2, Subgroup C, page G2-5, Off-Normal.

2. **Report Type and Date:** Final

	Date	Time
Notification:	02/08/1991	
Initial Update:	02/21/1991	
Latest Update:	02/21/1991	
Final:	03/22/1991	

3. **Occurrence Category:** Off-Normal

4. **Number of Occurrences:** 1 **Original OR:**

5. **Division or Project:** EG&G Mound

6. **Secretarial Office:** DP - Defense Programs

7. **System, Bldg., or Equipment:** Excess Eqpmt Bldg 19

8. **UCNI?:** No

9. **Plant Area:** Test Fire

10. **Date and Time Discovered:** 02/07/1991 15:00 (ETZ)

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11. Date and Time Categorized: 02/07/1991 16:15 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
02/08/1991	13:35 (ETZ)		

13. Other Notifications:

14. Subject or Title of Occurrence:

Tritium contaminated excess equipment outside of radiation control area. Group 2, Subgroup C, page G2-5, Off-Normal.

15. Nature of Occurrence:

16. Description of Occurrence:

During a routine check of excess equipment at Building 19, an electric pump motor and gear drive were found to be tritium contaminated. Liquid scintillation counting indicated 26,600 DPM per 100 square centimeters on the motor and 4,200 DPM per 100 square centimeters on the gear drive. This excess equipment has been in storage for approximately 10 years.

17. Operating Conditions of Facility at Time of Occurrence:

Normal

18. Activity Category:

- Unknown

19. Immediate Actions Taken and Results:

The items have been triple bagged and marked as contaminated. They have been secured pending an investigation.

20. Direct Cause:

2) Procedure Problem
~. Procedure Problems Reported Prior to 04/01/91

21. Contributing Cause(s):

22. Root Cause:

2) Procedure Problem
~. Procedure Problems Reported Prior to 04/01/91

23. Description of Cause:

Because of the length of time this pump has been stored, the documentation history is not clear. There is no positive

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evidence that the pump was ever used in a tritium control area. There is the possibility that the pump was contaminated secondarily by touching with contaminated hands. In any case, proper care in taking wipes was not taken.

24. Evaluation (by Facility Manager/Designee):

Having the proper procedures in place along with heightened ES&H awareness precludes a similar incident from occurring in the future. The present system in place prevents the shipping of contaminated equipment off site.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1. A copy of this report will be sent to all tritium managers to further heighten awareness of the need to follow wipe procedures and to discuss the need to follow procedures with their staffs.

Target Completion Date: 03/20/1991	***Completion Date:** 03/26/1991

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

30. Lessons Learned:

While such an incident is highly unlikely today, we must continue to increase our ES&H awareness in these matters as well as continually reviewing procedures and discussing these matters with the appropriate staffs. A copy of this report will be sent to all tritium managers by 1991/04/01.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

M 3 of 18

Approved by: Woltermann, H. A., Facility Manager/Designee
Date: 03/20/1991
Telephone No.: (513) 865-3415

Approved by: Gartrell, G. R., Facility Representative/Designee
Date: 03/20/1991
Telephone No.:

Approved by: Illegible, Program Manager/Designee
Date: 03/22/1991
Telephone No.:

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ALO-DA-EGGM-EGGMAT02-1991-1003 Final Report

Occurrence Report

Nuclear Energy Facilities

(Name of Facility)

Plutonium Processing and Handling

(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: L. M. Coco
Title: Manager, Radiological & Ind. Safety **Telephone No.:** (513) 865-3928

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT02-1991-1003

Discovery of fixed alpha contamination on vacuum gage being surveyed for release for unrestricted use.

2. Report Type and Date: Final

	Date	Time
Notification:	06/05/1991	15:49 (MTZ)
Initial Update:	06/19/1991	13:15 (MTZ)
Latest Update:	06/19/1991	13:15 (MTZ)
Final:	05/15/1992	11:45 (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 19

8. UCNI?: No

9. Plant Area: TEST FIRE

10. Date and Time Discovered: 04/15/1991 08:00 (ETZ)

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11. Date and Time Categorized: 06/05/1991 09:00 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
06/05/1991	12:00 (ETZ)	I. H. Schmidt	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Discovery of fixed alpha contamination on vacuum gage being surveyed for release for unrestricted use.

15. Nature of Occurrence:

02) Environmental
C. Hazardous Material Contamination

16. Description of Occurrence:

On April 15, 1991, a large vacuum gage transferred from Building 36, a non-radiologically controlled facility, to Building 19, also a non-radiologically controlled facility, was discovered to have fixed only alpha contamination present on the external case. The contamination was discovered during a routine survey of excess equipment scheduled for lot sale. A small area on the side of the gauge read approximately 15,000 dpm/100 cm2 fixed alpha contamination. Decontamination attempts were unsuccessful in removing the source of the reading. The item was transferred to the Environmental Laboratory for alpha pulse height analysis. The large size of the unit (18 inches in diameter) required the construction of a special vacuum chamber and modification of alpha spectrometry equipment. The contamination has been determined to be Pu-238. The cause of the contamination is unknown. An investigation was conducted to determine the origin of the gauge. Its origin prior to its use in Building 36, could not be determined. The gauge was secured in the

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health physics office in Building 30 pending further decontamination and release.

Group 2C; Off-Normal; page G2-5.

This occurrence report was reviewed by an authorized derivative classifier (J. F. Lemming) and contains no classified nor UCNI information.

17. Operating Conditions of Facility at Time of Occurrence:

Building 19 is a warehouse for storage of excess equipment.

18. Activity Category:

01 - Construction

19. Immediate Actions Taken and Results:

Upon discovery of the fixed contamination, the item was isolated, subsequently transferred to the Analytical Laboratory, and remained secured in the Health Physics Laboratory. An investigation was conducted to determine the origin of contamination. The origin of the gauge prior to its use in Building 36 could not be determined.

20. Direct Cause:

3) Personnel Error
D. Other Human Error

21. Contributing Cause(s):

3) Personnel Error
D. Other Human Error

22. Root Cause:

3) Personnel Error
A. Inattention to Detail

23. Description of Cause:

Because of the length of time this gage has been stored, the documentation history is not clear. There is no positive evidence that

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the gage was ever used in a radiation control area. In any case, proper care in monitoring this gage was not taken.

24. Evaluation (by Facility Manager/Designee):

The discovery of the fixed contamination on an item improperly released for unrestricted use on site several years before the current planned release, is evidence of our improved health physics monitoring program. The current procedures in place along with heightened environment, safety and health awareness precludes a similar incident from occurring in the future. The present system in place prevents the shipping of contaminated equipment off site.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1. 1. This incident was discussed with all Health Physics personnel within two weeks after the incident. A copy of this final report will be sent to all managers with responsibility for equipment in radiation control areas to further heighten awareness of the need to follow wipe procedures and to discuss the need to follow procedures with their staffs.

Target Completion Date: 03/19/1992	Completion Date: 03/10/1992

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

30. Lessons Learned:

Current Health Physics survey practices are adequate to assure that materials released for unrestricted use from the Mound Plant site are acceptable for release.

31. Similar Occurrence Report Numbers:

1. ALO-DA-EGGM-EGGMAT-OF-91-01 and
2. ALO-DA-EGGM-EGGMAT-TR-91-04

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32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Woltermann, H. Anthony, Facility Manager/Designee
Date: 03/18/1992
Telephone No.: (513) 865-3415

Approved by: GARTRELL, GEORGE R., Facility Representative/Designee
Date: 04/28/1992
Telephone No.:

Approved by: HAGAN, RALPH A., Program Manager/Designee
Date: 05/15/1992
Telephone No.:

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ALO-DA-EGGM-EGGMAT02-1992-0010 Final Report

Occurrence Report

Nuclear Energy Facilities

(Name of Facility)

Plutonium Processing and Handling

(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: Wayne R. Amos
Title: Programs Manager **Telephone No.:** (513) 865-3058

(Originator/Transmitter)

Name: H. F. Anderson **Date:** 06/22/1993

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT02-1992-0010

Contaminated Shipment

2. Report Type and Date: Final

	Date	Time
Notification:	10/08/1992	16:54 (MTZ)
Initial Update:	10/22/1992	09:12 (MTZ)
Latest Update:	10/22/1992	10:53 (MTZ)
Final:	06/29/1993	05:12 (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: saw

8. UCNI?: No

9. Plant Area: Off-Site

10. Date and Time Discovered: 09/24/1992 12:00 (ETZ)

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11. Date and Time Categorized: 10/08/1992 15:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
09/24/1992	16:00 (ETZ)	Paul Matthews	DOE/DAO

13. Other Notifications:

Date	Time	Person Notified	Organization
10/08/1992	15:00 (ETZ)	Paul Matthews (update)	DOE/DAO

14. Subject or Title of Occurrence:

Contaminated Shipment

15. Nature of Occurrence:

06) Transportation

16. Description of Occurrence:

On September 24, 1992, a Health Physics technician surveyed an equipment lot which was sent off-site to be sold at auction. This material was transported in a vendor vehicle but not released to the public. One of the items, a metallographic saw, was found to wipe 126 dpm per 100 centimeters squared based on 3 wipes of the top of the saw surface. (This saw was previously wiped at Mound and found to be free of contamination). The saw was placed in a plastic bag and returned to Mound. The wipe taken on the saw was initially subjected to gamma ray spectroscopy. Based on the spectroscopic results and the history of the saw, the contamination was reported to be U-238. U-238 has a contamination control level of 1000 dpm/100 centimeters squared. This incident originally was thought not to be reportable, but a decision was made to investigate it from a "lessons learned" perspective. As part of the investigation, a gross alpha pulse height analysis indicated that the contamination on the saw could be Pu-238, rather than U-238. More detailed analysis completed on 10/8/92 confirmed that Pu-238 was the single contaminant. The 126 dpm/100 centimeters squared, for Pu-238 is below the Department of Transportation regulation of 220 dpm/100 centimeters squared, but above the Mound administrative control limit of 20 dpm/100 centimeters squared.

This occurrence report was reviewed by an Authorized Derivative Classifier (H. F. Anderson) on 06/22/93 at 1530 hours and contains no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Operating Conditions

18. Activity Category:

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08 - Transportation

19. Immediate Actions Taken and Results:

After the initial discovery of contamination, the saw was bagged and returned to Mound. The area where the saw was originally located was surveyed and found to be free of contamination as well as the Building 19 storage area and the vendor truck used to transport the saw. An investigation team was formed to review the adequacy of the procedural controls for release of equipment and materials from the Mound Plant for use by the general public.

20. Direct Cause:

3) Personnel Error
A. Inattention to Detail

21. Contributing Cause(s):

2) Procedure Problem
A. Defective or Inadequate Procedure

4) Design Problem
C. Error in Equipment or Material Selection

22. Root Cause:

2) Procedure Problem
A. Defective or Inadequate Procedure

23. Description of Cause:

A careful investigation indicated that the contamination on the saw was from a small area located near the edge of brown masking tape which was left on the saw. The masking tape was used as a label to mark the equipment for excess. When the saw was surveyed at Mound with a portable alpha counter, the tape blocked detection of the contamination. The saw was carefully surveyed off site with a FIDLER which detected the contamination. The direct cause was that all masking tape was not removed from the object before surveying. A contributing cause was that a careful scan of the item with a FIDLER instrument was not done at Mound prior to shipment. A survey using this instrument may have detected the contamination despite the presence of the tape. Both direct and contributing causes were in turn caused by a lack of an adequate documented procedure for transferring materials off site. The root cause was thus determined to be lack of an adequate documented procedure.

24. Evaluation (by Facility Manager/Designee):

The importance of controlling radioactive contamination at both the radiation control area boundary and at the site boundary cannot be over emphasized. Carefully written procedures and adherence to these procedures are essential. Resources should be applied to prevent contamination from leaving the site. Off site surveys should only be required

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for unusual situations or for auditing purposes.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1. Procedures to control transfer of materials off site will be finalized and will include details on removing foreign materials such as tape before surveying, the use of FIDLER units in surveying and the use of official material transfer tags instead of tape to mark excess equipment.

*Target Completion Date: 12/15/1993	*Completion Date: 01/12/1995

2. Material transfer personnel and Health Physics personnel will be trained in this procedure.

*Target Completion Date: 08/15/1995	*Completion Date: 08/25/1995

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

The need for well documented adequate procedures cannot be over emphasized. Informal practices must be replaced by strict conduct of operations.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

m 13 of 18

Approved by: Woltermann, H. Anthony, Facility Manager/Designee
Date: 06/22/1993
Telephone No.: (513) 865-3415

Approved by: MATTHEWS, PAUL O., Facility Representative/Designee
Date: 06/24/1993
Telephone No.:

Approved by: KUMAR, RAMENDRA, Program Manager/Designee
Date: 06/29/1993
Telephone No.: (301) 903-2865

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OH-MB-BWO-BWO01-1999-0013 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: BUILDING MGR SW/R TRITIUM COMPLEX **Telephone No.:** (513) 865-4533
(Facility Manager/Designee)

Name: ALLISON, JERRY L
Title: BUILDING MGR SW/R TRITIUM COMPLEX **Telephone No.:** (513) 865-4533
(Originator/Transmitter)

Name: Allison, Jerry L. **Date:** 08/09/1999
(Authorized Classifier (AC))

1. **Occurrence Report Number:** OH-MB-BWO-BWO01-1999-0013

   Discovery of Radioactive Contamination Outside a Radiological Area

2. **Report Type and Date:** Final

	Date	Time
Notification:	06/24/1999	15:16 (MTZ)
Initial Update:	08/09/1999	04:28 (MTZ)
Latest Update:	08/09/1999	04:28 (MTZ)
Final:	09/27/1999	13:19 (MTZ)

3. **Occurrence Category:** Off-Normal

4. **Number of Occurrences:** 1 **Original OR:**

5. **Division or Project:** Babcock and Wilcox of Ohio, Inc.

6. **Secretarial Office:** EM - Environmental Management

7. **System, Bldg., or Equipment:** R Building, Room 7

8. **UCNI?:** No

9. **Plant Area:** Main Hill Area

10. **Date and Time Discovered:** 06/24/1999 09:30 (ETZ)

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11. Date and Time Categorized: 06/24/1999 09:45 (ETZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
06/24/1999	10:00 (ETZ)	Fred Holbrook	DOE/MEMP

14. Subject or Title of Occurrence:

Discovery of Radioactive Contamination Outside a Radiological 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 1730 hours (ETZ) on June 23, 1999, a Radiological Control Technician (RCT) performing release surveys on equipment, discovered radioactive contamination (in the form of a gray powder) in a desk in Research (R) Building, Room 7. The gray/black powder residue was within normally inaccessible interior of the desk behind a rolled edge where the formed metal of the desk provides a flush surface for the drawer fronts. The initial readings of the swipe taken on the material using a NE Electra Alpha/Beta Meter were 2500 dpm alpha and 52,000 dpm beta. A scan of the immediate contamination area with the meter showed direct readings of 350,000 dpm beta. The swipe sample was sent to Gamma Spectroscopy to identify the isotope. The isotopes were identified on June 24, at 0930 hours (ETZ) as Thorium 232 and all of its daughter decay products. The Gamma Spectroscopy reading for Thorium 232 was 23,100 dpm. The readings for thorium and the daughter products were in equilibrium. Therefore, the amount of contamination exceeded the 10 CFR 835 Appendix D limit by greater than 10 times.

The investigation into the occurrence revealed that the desk was obtained on or about April, 1981 from the excess equipment storage area in Building 19. The first occupant who obtained the desk also noted that the desk was refurbished sometime in the 1980's when it was painted and had a new top installed. He had never had thorium in the desk during his tenure from 1981 until 1995. Subsequent occupants in R-7 from 1996 until March, 1999 were two RCTs. In the course of conducting their daily tasks, meters were performance checked in the office an no extraneous readings were ever seen. As well, source checks of R Building including offices were completed about 1995 and again in 1997. Nothing indicated the presence of thorium in R-7 at that time. Thorium was however found in R-23/24/25 and in Building 68; thus indicating that the instrument sensitivity would have found the thorium in the desk had it been present. Previous surveys of office equipment moved for the RCTs when they left R-7 had not resulted in any found contamination. The office has been an unoccupied shutdown area for approximately three months.

17. Operating Conditions of Facility at Time of Occurrence:

Does not apply.

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

The area was posted as a Contamination Area. Swipe samples were sent to Gamma Spectroscopy to identify the isotope. The swipe samples were then sent to Alpha Spectroscopy to get confirming activity levels. Bioassay samples for the former occupants of the room will be requested as needed.

20. Direct Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

21. Contributing Cause(s):

22. Root Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

23. Description of Cause:

The direct and root causes of this occurrence could only be attributed to legacy contamination. The investigation into the origin of the thorium was that it was in the desk over 18 years when it was obtained from the Building 19 storage area.

24. Evaluation (by Facility Manager/Designee):

Form the critique meeting and talks with the occupants of R-7 over the years, it is believed that the only explanation for the thorium contamination is that it was inside the desk when it was obtained from Building 19.

The radiological controls required and in place at this time would have prevented the desk from being released from a contamination area some 18 years ago. This was demonstrated by the identification of the thorium during the release surveys to remove the desk from the Radiological Material Management Area.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.	Perform additional surveys of R-7	
	Target Completion Date: 07/08/1999	**Completion Date:** 07/08/1999
2.	Size reduce and remove desk as LSA trash	
	Target Completion Date: 11/01/1999	***Completion Date:** 10/13/1999

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

As the Mound Exit Project continues, there are likely to be times when contamination is found on equipment and office furniture inside Radiological Control Areas but outside identified contamination areas.

31. Similar Occurrence Report Numbers:

17 of 18

1. 0H-MB-BWO-BWO01-1999-0004

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: 08/09/1999
Telephone No.: (513) 865-4533

Approved by: DEV, MADAN, Facility Representative/Designee
Date: 09/27/1999
Telephone No.: (513) 865-4714

Approved by: Approval delegated to FR
Date: 09/27/1999
Telephone No.:

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Appendix N

PRS Information

Recommendation pages are not generated for PRSs that require Further Assessment (FA) or that have been unbinned. Accordingly, there are no recommendation pages included for PRSs 60, 61, 62, and 417.

MIAMISBURG CLOSURE PROJECT
PRS 41

RECOMMENDATION:

Potential Release Site (PRS) 41 is located on the western portion of the site (Figure 1) and was binned Further Assessment by the Core Team on 2 October 1996. PRS 41 was identified based on potential impacts from historic thorium staging and re-drumming operations. Based on elevated historic soil sample results for plutonium-238, a portion of a small drainage feature within PRS 41 (41 Ditch) was also assessed. Further Assessment was performed and confirmed that thorium-232 (at PRS 41) and plutonium-238 (at 41 Ditch) exceed the cleanup objectives of 2.1 pCi/g and 55 pCi/g respectively. The cleanup objective is the 10^{-5} RBGV plus background.

Therefore, the Core Team recommends a **Removal Action** for PRS 41 and 41 Ditch.

This Removal Action will be performed under a specific Action Memorandum or under the Action Memorandum for Contingent Removal Actions. Successful completion of the Removal Action will be documented via an On-Scene Coordinator (OSC) Report signed by the Core Team, which will be placed in the Public Reading Room.

CONCURRENCE:

DOE/MCP: _____ 2/19/03
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____ 2/19/03
David P. Seely, Remedial Project Manager (date)

OEPA: _____ 2/19/03
Brian K. Nickel, Project Manager (date)

MOUND PLANT
PRS 63
Soil Contamination – Building 29

RECOMMENDATION:

This site became a PRS because of potential Cobalt-60 and Cesium-137 contamination. On May 31, 1984, a drainpipe, contaminated with these radionuclides, was removed from T Building and placed in a salvage area near Building 19. Contamination from the pipe was spread over a two square foot area of pavement outside Building 19. The pavement was decontaminated the following day.

In October 1996, a FIDLER detector indicated elevated gamma ray emissions. Subsequent measurements using a germanium detector confirmed these elevated readings, but could not confirm which isotopes were present.

The Core Team originally recommended Further Assessment for PRS 63. Subsequently, the cost of further investigation versus the cost of removing the potentially contaminated soils was evaluated. Cost estimates indicate that the cost of removal is not significantly greater than the cost of further assessment at PRS 63. Additionally Further Assessment findings may indicate the need for a Response (removal) Action, resulting in costs associated with both Further Assessment and Response Action. Therefore, the Core Team recommends a RESPONSE ACTION as a more cost-effective course of action for PRS 63.

CONCURRENCE:

DOE/MEMP: Arthur W Kleinrath 8/13/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fisher 8/18/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 8/13/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 9/15/97 to 10/15/97

☐ No comments were received during the comment period.

☒ Comment responses can be found on page 1, 2 of this package.

N2of3

MIAMISBURG CLOSURE PROJECT
PRS 64

RECOMMENDATION:

Potential Release Site (PRS) 64 is located on the western portion of the site (Figure 1) and was binned Further Assessment (FA) by the Core Team on 2 October 1996. PRS 64 is the location of an underground storage tank that was reportedly removed but soil sampling results could not be found. Further Assessment was performed and confirmed that all sample results were below screening levels for BTEX and TPH.

Therefore, the Core Team recommends **No Further Assessment** for PRS 64.

A PRS Package with an NFA recommendation signed by the Core Team will be placed in the Public Reading Room for a 30-day review period. Upon closure of the public review comments, if any, the PRS Package will be issued as a final document and made available in the Public Reading Room.

CONCURRENCE:

DOE/MCP: _____ 2/19/03
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____ 2/19/03
David P. Seely, Remedial Project Manager (date)

OEPA: _____ 2/19/03
Brian K. Nickel, Project Manager (date)

Appendix O

Work Plan

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

☐~ Office Master Copy (Original Approval Signatures) ☐ ~ Field Working Copy (Original Field Sign -Offs) ☐ ~ Review Copy ☐ ~ Other Copy [Note: Mark this section in color]

The Project Engineer is responsible for completing Sections 1 through 10. On subcontractor projects, the subcontractor shall complete sections 6, 9, and 10.

1. **WORK PACKAGE TITLE: Building 19 Demolition**

2. **WORK PACKAGE NUMBER.** ***SMPP/TFV- 30046-00*** | **REQUESTOR: Lee Koehmstedt X 3659**

8. **WORK PACKAGE SCOPE:**

The purpose of this effort is to demolish Building 19, see Figure 1.0. Using heavy equipment to demolish the facility, remove and dispose of the debris, provide site restoration grading and provide erosion/restoration protection with gravel. Safe shutdown activities will have already been completed prior to demolition.

Allow access to the trailers behind building 19.

4. **WORK PACKAGE PHASES:**

1. **Perform pre-demolition activities**
2. **Demolish structure.**
3. **Demolish slab and foundation.**
4. **Locate and note final condition of capped and plugged piping.**
5. **Restore area for erosion protection and drainage.**

Insert the proper sequence of Work Package phases for the job. A phase is a separately definable portion of the project.

5. **WORK LOCATION:**

Building #: **19**

Room #: **N/A**

Other: **Spoils Area**

6. **SPECIAL MATERIALS AND EQUIPMENT:**

1. **Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment.**
2. **Rubber tired and tracked front-end loaders.**
3. **Transport equipment for debris as required.**
4. **Other equipment as needed.**

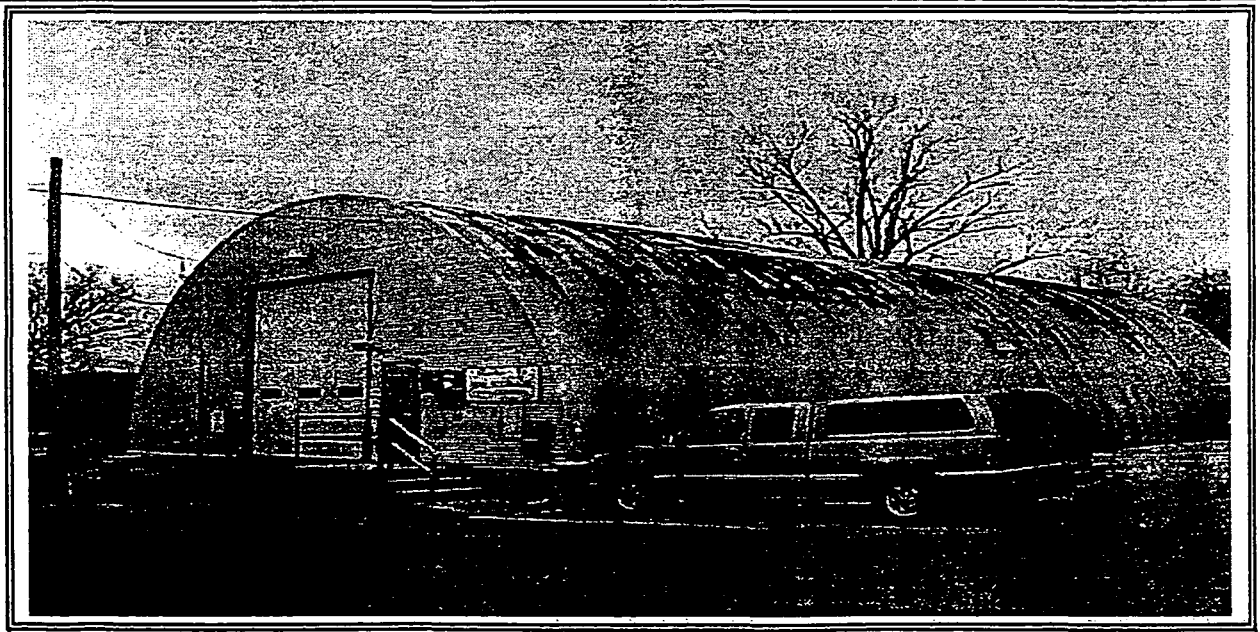

Figure 1.0 Building 19

7. DETAILED WORK STEPS: See the attached Job Specific Work Plan (JSWP)

Insert the activities to be performed during the job. Describe the specific methods of accomplishing these activities. Activities listed must be grouped under the Work Package phases listed in item 4.

8. *Note: Comments, to identify activities/hazards that are common to multiple phases of the project. Identification of these items will facilitate the option of addressing the items once in the pre-job briefing, as opposed to redundantly listing them in the JSHAs for different phases.*

COMMENTS:

Enter any review comment or issues in this section and/or information generated as a result of completing detailed work steps.

9. REVIEW SIGNATURES:

Written by: _____ Date: 2/18/03 Phone: 3659

Job Foreman: _____ Date: / / Phone: _____

Superintendent/ Constr. Mgr: _____ Date: / / Phone: _____

Project Eng. Mgr: _____ Date: 2/18/03 Phone: 4220

Industrial Safety & Hygiene: _____ Date: 2/18/03 Phone: 4096 /3737

Rad. Controls: _____ Date: 02/19/03 Phone: 4235

ES&C: _____ Date: / / Phone:

Waste Mgmt: _____ Date: 2/19/03 Phone: x 3822

Bldg. Mgr: _____ Date: / / Phone:

Craft Review: _____ Trade _____ Date: / / Phone:

Craft Review: _____ Trade _____ Date: / / Phone:

Craft Review: _____ Trade _____ Date: / / Phone:

Craft Review: _____ Trade _____ Date: / / Phone:

If more sign-off lines are needed see attached pages.

10. USQ SCREEN / DETERMINATION REQUIRED? ☐YES ☐NO

Brief Explaination _____

USQ Trained Person: _____ Date: / / Phone:

10. AUTHORIZATION SIGNATURE:

Project Manager: _____ Date: / / Phone:

11. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: / / Phone:

Project Manager: _____ Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

PRELIMINARY HAZARD ANALYSIS (PHA)
FOR WORK PACKAGE ACTIVITIES

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE INDUSTRIAL SAFETY AND HEALTH REPRESENTATIVE
Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Hazard Analyses. Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards, that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Blockage of exits or means of egress	YES	2,3	[EGRESS] Weston trailers, bldg 72
Blockages/obstructions (Identify)	YES	2,3	Weston trailers, bldg 72
Burning, welding, hot-work (Fire Watch)	YES	Demolition of slab and foundation	[BURN] Possible use of cutting torch during demolition. Administrative Controls, Permit required. Keep fire extinguisher near by during cutting.
Chemical compatibility of corrosives/flammables	NO	N/A	
Chemical process safety	NO	N/A	
Compressed gas cylinders	NO	N/A	
Confined space entry	NO	N/A	[CONFINE]
Crane operations, overhead or mobile	NO	N/A	
Critical lifts (heavy or high value loads)	NO	N/A	[CLIFT]
Electrical hazards	NO	N/A	[LIVEL] Electrical Isolation of facility was accomplished during safe shutdown activities.
Elevated work/fall protection	NO	N/A	[ELEV]
Emergency eyewash/shower available	NO	N/A	[EWASH]
Emergency alarms or evacuation plans required	YES	All	[EMERG] Plant Public Address system will be used to announce any plant emergency over the plant radio channel. cell phones will be used also, no specific added hazards exist in the demolition of this building.
Explosive/flammable atmosphere	NO	N/A	
Explosives	NO	N/A	
Fire protection system/equipment outage	YES	Structural Demolition	[FIRE/EFIRE] Fire Alarm System isolation prior to start of structural demolition.
Fire Hazards Analysis Required of Demolition	NO	N/A	[FHA/ADJA]
Flammable liquids/gases	YES	Structural Demolition	[FLAM] Possible use of cutting torch during demolition. Administrative Controls, Permit required. Keep fire extinguisher near by during cutting.
Forklifts, aerial lifts or material handling equipment	NO	N/A	
Grounding of electrical equipment	YES	Structural Demolition	Temp. power to portable equipment. All hand held electrical tools must be equipped with GFCI.
Hazards due to condition of facility or terrain (Identify)	NO	N/A	
Hoisting and rigging	NO	N/A	[HOIST]
Lighting/illumination/adequacy	NO	N/A	[MLITE]
Excavation and Soil disturbance	YES	Slab and Foundation Demolition	An excavation and soil disturbing permit is required.

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE SAFETY AND HEALTH REPRESENTATIVE

Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Job Safety and Health Analysis(JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout of hazardous sources:	NO	N/A	[LOTO/ISO] Electrical/Mechanical Isolation of facility was accomplished during safe shutdown activities.
• Electrical	NO	N/A	See Above
• Mechanical (steam, hydraulic, pneumatic)	NO	N/A	See Above
• Interlocks	NO	N/A	[ILOCK]
• Chemical	NO	N/A	
• Radiological	NO	N/A	
Machine guards	NO	N/A	
Modification to Fire Wall/Door	NO	N/A	[FIREWAL]
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	NO	N/A	
Off-shift work	NO	N/A	
Outages of the plant public announcement (PA) system or the emergency notification system	YES	Demolition	[OUTAGE] The plant radio system transmits public announcements, which will be use to monitor for emergencies.
Overhead or underground utilities (Identify)	NO	N/A	[UITL] Electrical/Mechanical Isolation of facility was accomplished during safe shutdown activities.
Penetrations into walls, floors, etc.	NO	N/A	[PENETR]
Plastic sheeting or wood framing/enclosures	NO	N/A	
Powder-actuated tools	NO	N/A	
Plant utilities (Identify)	NO	N/A	[WATER] Electrical/Mechanical Isolation of facility was accomplished during safe shutdown activities.
Repetitive work	NO	N/A	[ERGO]
Structural Modification	YES	Demolition	[STRUCT] Building is being demolished.
Special Fire Protection Equipment Required	NO	N/A	[FIREQU]
Trenching/Shoring	NO	N/A	[DIG]
Temporary heating facilities	NO	N/A	
Temporary/portable buildings or structures	NO	N/A	[FACIL]
Temporary service hook-ups (Identify)	YES	Demolition	Temp. electrical and water service (for dust control).
Traffic control/flagman	NO	N/A	[TRAFIC]
Work in attics, ceilings, chases, or crawlspaces	NO	N/A	
Work impacting adjacent normally occupied areas	NO	N/A	[ADJAC/BMAPP/SIGNS/NOTIF]
Work Requiring Scaffolding, construction and inspection	NO	N/A	[SCAFF]
Other (Specify)	N/A	N/A	

SECTION B, INDUSTRIAL HYGIENE - TO BE COMPLETED BY INDUSTRIAL HYGIENE REPRESENTATIVE

Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Job Safety and Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Abrasive blast (☐ MSDS available)*	NO	N/A	
Asbestos	NO	N/A	[ASBEST
Beryllium	NO	N/A	
Blood-borne pathogens*	NO	N/A	
Cadmium	NO	N/A	
Carcinogens (☐ MSDS available)*	NO	N/A	[CARC]
Chemicals/solvents (☐ MSDS available)*	NO	N/A	[CHEM/MSDS]
Chlorofluorocarbon (CFC)	NO	N/A	[CFC]
Coal, tar or asphalt products	NO	N/A	
Coating/painting (☐ MSDS available)*	NO	N/A	
Corrosives/acids/caustics (☐ MSDS available)*	NO	N/A	
Dusty operations	YES	demolition	[POWDER] Potential dust generation controlled via water misting.
Hazardous Waste Operations (HAZWOPER)*	NO	N/A	
High Pressure systems	NO	N/A	[HIPRES]
Insulation/man-made mineral fibers (☐ MSDS available)*	NO	N/A	
Lasers	NO	N/A	
Lead	YES	demolition	Paint may contain lead, do not torch cut painted surfaces.
Foam in Place Operations	NO	N/A	
Mercury	NO	demolition	
Noise in excess of 85 dBA	YES	demolition	[NOISE] Hearing protection will be used.
Polychlorinated biphenyls (PCBs)	NO	N/A	
Removal of ceiling tiles*	NO	N/A	
Spraying/generation of mists*	YES	demolition	Demolition dust control via water mist.
Temperature extremes (heat or cold stress)	YES	ALL	[CRYRO/COLD/HEAT] Provide heating or cooling for personnel.
Ventilation or Air Monitoring requirements	YES	demolition	[VENTIL/IH] Air monitoring for potential silica during demolition activities will be performed, as needed basis.
Welding, brazing, or thermal cutting operations	YES	demolition	[BURN] Cutting of rebar and etc. will require a permit.
Other (specify)	N/A	N/A	

***NOTE:** Requires a description of the materials involved which present a hazard. Identify the physical location of the MSDS.

SECTION C, RADIOLOGICAL PROTECTION - TO BE COMPLETED BY RADIOLOGICAL CONTROLS REPRESENTATIVE

Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. RWP, ALARA Plan, etc.). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section D if additional space is needed.)

Item		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Location:	Controlled Area	NO	N/A	
	Contamination Area	NO	N/A	[STP]
	High Contamination Area	NO	N/A	[STP]
	Radioactive Materials Storage Area	NO	N/A	
	Airborne Radioactivity Area (STP or OBT)	NO	N/A	
	Radiation Area	NO	N/A	
	High Radiation Area	NO	N/A	
	Very High Radiation Area	NO	N/A	
	Other (Specify)	NO	N/A	
Activities:	Criticality Safety Concerns	NO	N/A	
	Digging/Soil Removal	YES	Demolition/slab and foundation	[DIG] Water mist to control potential dust. Air monitoring during demolition.
	Surface destruction of radioactively contaminated materials or equipment?	NO	N/A	[SURFAC]
	Welding, burning, or grinding?	YES	demolition	[SURFAC] Possible use of cutting torches
	Hammering, chipping or scraping?	NO	N/A	[SURFAC]
	Abrasive blasting?	NO	N/A	[SURFAC]
	Dust-collecting equipment or systems?	NO	N/A	
	Decontamination and clean-up?	NO	N/A	
	Rad Waste Storage and Disposal Required	NO	N/A	[RWSTOR/WASTE/CHAR]
	Other (Specify)	N/A		
Sources:	X-Ray machine/generator	NO	N/A	[XRAY]
	Sealed radioactive sources	NO	N/A	
	Unsealed radioactive sources	NO	N/A	
Controls:	Radiological Work Permit	NO	N/A	[RWP/RWP=JS/RWP=N/R/RPGEN]
	ALARA Plan	NO	N/A	[ALARA]
	Air Flow Studies	NO	N/A	[AIRFLOW/CAM]
	Urinalysis program	NO	N/A	
	Preliminary or in-process characterization	NO	N/A	[SURVPS/SURVIP]
	Anti-contamination clothing	NO	N/A	
	Respiratory protection	NO	N/A	[RESP]
	Needs Analysis Evaluation	NO	N/A	
	Hazards Analysis	NO	N/A	
	Engineering Controls	YES	ALL	Dust control via misting.
	Administrative Controls	YES	N/A	Barricades of construction zone
	Supplemental dosimetry	NO	N/A	
	Shielding	NO	N/A	
	Personnel monitoring (frisking)	NO	N/A	

SECTION D - OTHER CONDITIONS, CONCERNS, OR SUPPLEMENTAL INFORMATION FROM SECTIONS A THROUGH C

Identify Assembly Points: Assembly area is south of building 19 on the north side of the building 72. ***Be aware of threatening weather and take shelter when life-threatening storms are imminent.*** Take shelter area is in building 104, -See Appendix E

Work Package Revision Form

Work Package Revision Form			
Work Package No.SMPP/TFV-30046-00		Revision No.	
Revision Description: (attach page revisions to form)			
	Name	Signature	Date
PREPARED BY:			
Revision Preparer:			
REVIEWED BY:			
Project Engr. Manager:			
Project Foreman:			
Project Superintendent/ Constr. Mgr.:			
Industrial Safety & Hygiene P o C:			
Radiological Point of Contact:			
Environmental Safeguards & Compliance P o C:			
Waste Management PoC:			
Building Manager:			
Other:			
Other:			
USQ Trained Person			
USQ SCREEN / DETERMINATION REQUIRED? ☐YES ☐NO Brief Explaination_____			
APPROVED BY:			
Project Manager:			

Work Package Revision History Form

WORK PACKAGE REVISION HISTORY FORM			
REV. NO.	REASON	SIGNATURE	DATE

Job Specific Work Plan
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Job Specific Work Plan

1. WORK SCOPE

1.1 Introduction

This Job Specific Work Package (JSWP) follows the outline of PP-1059A, Integrated Work Control Program at the Mound Site, Miamisburg, Ohio. Included are a Preliminary Hazard Analysis (PHA) and a Job Safety & Hazard Analysis (JSHA). A Pre-Job Briefing Form (ML-9657) and the Project Manager's Authorization to Commence Work signature will be completed to document that the workers were briefed on the activities covered in this JSWP before work begins.

1.2 Work Package Scope

The purpose of this effort is to demolish the superstructure, slab, and foundation, to 3 foot beneath grade of Building 19, remove the debris, and to provide site restoration, grading area with gravel to prevent erosion. This will be accomplished by confirming that all utilities have been isolated during safe shutdown activities, maintaining a safe work zone, and the demolition of the building using heavy-duty equipment, and removing of debris as directed by Waste Management.

1.3 Site Information

Building 19 at its current location is used as a storage facility for various items and supplies. Until recently, it was utilized as a central location to disposition excess items and equipment. The building currently has no radiological postings and no radioactive material is stored in or near the building. There is evidence that drums of LSA material were stored inside and outside Building 19 and some of these may have been leaking. According to the Building 19 White Paper, there is a considerable "rad" history associated with this building.

1.4 Current Uses of Building 19

Building 19 is currently vacant and inactive. Safe shutdown is in process.

1.5 Past Uses of Building 19

Building 19 (Quonset Hut) has been used for many purposes during its history at three different locations. It was first used at the Dayton Unit III site to support Manhattan Project objectives and then moved to Mound where it served primarily as a storage facility at two different locations on site.

1.6 Summary of Environmental Concerns and Findings – Building 19

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data was found. Paint coatings in a few areas within the building exhibited some damage due to water or impact damage. Representative samples of the damaged paint were analyzed using a Niton Model XL-309 XRF (x-ray fluorescence) lead detector. The sampled paints were found to not contain any amount of lead within the instrument's detection limit.	Lead-based paint would not impact the demolition or disposal of the facility. Close worker disturbance of paint coatings (sanding, grinding, scraping, torching) will be avoided during demolition. If close disturbance is necessary, point of contact will be tested for lead and appropriate controls and personal protective equipment (PPE) used for disturbance as required.
Chemicals	A list of chemicals known to have been in the building is provided in Appendix K of the building data package.	Chemicals will be removed prior to demolition.
Fluorescent Lamps and PCBs	N/A	N/A
Air Emissions	There are no active sources of air emissions.	N/A
Asbestos	A complete asbestos survey was performed. The survey identified asbestos materials.	Some asbestos-containing material (ACM) will be removed prior to building demolition. The roofing-type mastic sealant which is non friable does not have to be removed prior to demolition so long as it remains non friable up to that point.
Drainage Sumps	There are no drainage sumps.	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Any contamination will be removed under a separate package prior to this demolition package.	The building will be demolished with free release of debris.
Septic System	N/A	N/A
Wastewater	No sanitary system.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	A propane storage tank is located near the building.	Tank will be removed prior to demolition.
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Radon	Within acceptable limits.	N/A
HVAC	Window air conditioner will be removed.	No further action required.
Energetic Material	N/A	N/A

N/A: Not applicable

2. DRAWINGS AND REFERENCES

PP-1059A, Issue 9, "Integrated Work Control Program"

MD-50000, Issue 11, "Maintenance Work Order and Material Processing"

3. INITIAL CONDITIONS AND PREREQUISITES

3.1 Lessons Learned

A search of the Lessons Learned Database found the following relevant item:

- 480-Volt Underground Electrical Conduit Broken During Hand Excavation

See Appendix F for the full report. The result of the Lessons Learned is the trace of an underground conduit should be accurately defined by electronic or other means prior to any excavation activities in the vicinity of the buried conduit. Hand drawn location maps may not be accurate enough to preclude the breach of the conduit.

3.2 Industrial Safety and Health Requirements

3.2.1 A Job Specific Hazards Analysis (JSHA) is required. The construction zone, as defined in Appendix E, identifies evacuation routes, the take shelter area, and the assembly area. Debris will be cleared from the immediate construction zone as required to promote safe equipment activity.

3.2.2 Prior to beginning any field demolition activities, verify underground utilities have been identified and field located and disconnected during safe shutdown. Lock-out-tag-out procedures will be followed and electrical energy detection will be performed prior to any electrical demolition activities.

3.2.3 An excavation/soil disturbance permit will be required prior to slab and foundation demolition activities.

3.2.4 Monitoring for fugitive dust will be performed periodically as determined by previous monitoring results and site Safety and Health. Site Safety and Health will be notified before the demolition of concrete begins.

3.2.5 Whole body vibration will be administratively controlled and by reviewing topic at pre-job meeting.

3.2.6 A Hot Work Permit will be required if a torch is used for cutting. Coordinate with site Safety and Health.

3.2.7 Monitoring of noise levels will be performed as determined by previous monitoring results and site Safety and Health. Earplugs (or other hearing protection) will be worn, as appropriate.

4. RADIATION PROTECTION REQUIREMENTS

Any contamination will be removed under a separate package prior to this demolition package. .

5. ENVIRONMENTAL PROTECTION REQUIREMENTS

5.1 CERCLA

5.1.1 General/Historical CERCLA Information

Demolition work for this facility will be handled as a non-CERCLA deconstruction . There is no history of spills or releases from this building.

5.1.2 Specific Record Sources for Building 19

5.1.2.1 Occurrence Reports

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

- radioactive contamination found outside of a radiological control area (4)
- fire suppression system actuation (4), and
- measurement machine and gauging system damaged during movement.

5.1.2.2 Spills and Releases

- None

5.1.2.3 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 CH2MHILL have tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440

PRSs, seven are at or near Building 19. PRSs in the vicinity of Building 19 are identified in Table 3. Additional information is included in Appendix N.

Table 2: PRSs in Proximity to Building 19

PRS	CERCLA or Bldg. Related	Binning Status	Comments
41	CERCLA	Removal Action (RA)*	**Area 3, Thorium Drum Storage and Redrumming Area.**
60	Building	Unbinned, to be Dispositioned with Building 72	**Hazardous Waste Storage Area (Building 72).**
61	Building		**Building 72 Outdoor Hazardous Waste Storage Area.**
62	Building		**Building 72 Empty Drum Storage Area.**
63	CERCLA	RA	**Building 19 Soils.****
64	CERCLA	No Further Assessment (NFA)	**Building 19 Historic Gasoline Tank (Tank 238).**
417	CERCLA	FA	**Soil Contamination-High Soil Gas near Well 0312.**

* *Soil contamination prompting the PRS 41 RA is located outside of the 15-foot perimeter around Building 19. Since building demolition activities will not disturb areas outside of the 15-foot perimeter, potential exposure to RA levels of thorium-232 related to PRS 41 is not expected to be a concern during demolition. If areas outside of the 15-foot perimeter are to be disturbed, additional soil analytical results in those areas will be evaluated prior to commencement of those activities to confirm potential exposure to elevated contamination is not present.*

** *PRS 63 is a former pipe storage area measuring approximately 2 feet by 2 feet. Because it is believed to have radiological contamination, the PRS was binned as an RA based on historical use. In this instance, removal of the contaminated soil is a more cost-effective solution than FA sampling, and therefore no soil sampling at the PRS location has been performed. The Environmental Restoration (ER) group will handle the RA separate form the Building 19 demolition.*

5.2 National Emissions Standards for Hazardous Air Pollutants (NESHAPs)

Per Environmental Practice 2.2, if buildings to be demolished have a surface area less than 72 million square feet, direct readings below MDA, and wipe results below applicable action levels, additional dose calculations are not necessary. Since Building 19's surface area is significantly less then 72 million square feet, additional calculations are not necessary.

5.3 Notification

A Notification of Demolition and Renovation form must be filed with the Regional Air Pollution Control Agency (RAPCA) at least 10 business days before planned building demolition.

HOLD POINT:

_____ _____

Environmental Compliance –Ron Paulick Date

5.4 Restriction of emission of fugitive dust (OAC 3745-17-08)

Site goal is no visible fugitive dust emissions. Reasonably available control measures must be employed to prevent fugitive dust from becoming airborne during building 19 demolition.

Appropriate control measures would include:

Water misting, or other suitable dust suppression, will be used to minimize fugitive dust resulting from demolition activities and during hauling.

Periodic application of water, or other suitable dust suppression, to adjacent roadways and parking lots will be used to prevent dust from becoming airborne.

5.5 Clean Water Act & Storm Water Pollution Prevention

All inlets to the sanitary and storm systems will be plugged to prevent accidental discharges to the wastewater treatment plant or the environment.

The Site's National Pollutant Discharge Elimination System (NPDES) Permit No. 1IO00005*HD requires the use of control measures to ensure the quality of storm water leaving the site. These control measures and practices are outlined in the site's Storm Water Pollution Prevention Plan OPA980099. Appropriate activities would include, Redirect flow patterns around the project site to prevent storm water run-on. Provide inlet protection to the storm sewer system by covering catch basins immediately adjacent to the project site and plugging roof drains at ground level until which time the underground pipes can be appropriately abandoned. Exercise good housekeeping techniques by segregating materials in a timely manner, including the prompt disposal of wastes, and sweeping debris from the streets to prevent storm water pollution. Water that has collected in an open excavation or in sumps, must be monitored prior to discharging to the sanitary or storm sewer systems. Contact Environmental Monitoring at extension 3208 for monitoring and review of these non-routine discharges.

5.6 National Historic Preservation Act (NHPA)

Building 19 is not listed as a historic structure with the Ohio Historic Preservation Office (OHPO). No mitigative documentation package is required. However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at extension 3691. Work will be temporarily suspended until which time the items or artifacts have been recovered.

5.7 Safe Drinking Water Act

There is not potable water supply to Building 19, therefore this section doesn't apply to this building.

5.8 Emergency Spill Response

Building 19 has been disconnected from all utility services and the lines drained. There should be no regulated component that will be encountered. In the event of a major spill of any regulated substances, or the rupture of a non-isolated utility line (fire, domestic water, ethylene glycol) call 911 if using an onsite phone or 937-865-4040 if using a cell or other outside phone to report it, also see Emergency Preparedness section. All spills must be contained onsite and should be prevented from entering the storm drains if possible. If spills enter the storm drains, all effluent must be retained onsite at the overflow pond.

6. CHEMICAL AND WASTE MANAGEMENT REQUIREMENTS

All waste will be managed in accordance with the Waste Management Plan for the Mound Exit Project, MD-10499. The Waste Coordinator will ensure that this is accomplished and summarize in a Job Specific Waste Management Plan See. Appendix G.

7. EMERGENCY PREPAREDNESS

7.1 Site Notification Procedures

Use **911** for all emergency services onsite. This is the first response for any emergency, spill, or release. If using a cell phone, dial **865-4040**. This number will ring into the plant 911 system.

Any injury, no matter how minor, shall be reported immediately to the Medical Department for evaluation and treatment. The injured employee shall report any injury to the supervisor in charge or designee.

Employees will be notified of emergency or abnormal conditions by the plant paging system or project two-way radios. Additionally, unique sheltering and evacuation signals are available should site-wide protective actions be necessary.

7.2 Evacuation Route/Assembly Areas

Assembly area is south of building 19 on the north side of the building 72.

CAUTION

Be aware of threatening weather and take shelter when life-threatening storms are imminent.

Take shelter area is in building 104, -See Appendix E

8. PRE-DEMOLITION SEQUENCE OF WORK

8.1 Site Preparation

8.1.1. Site Access Control

The demolition area will be identified during safe shutdown activities utilizing construction fencing around the building, or at the discretion of the project construction manager/foreman, marked off with barricade tape/fencing.

8.1.2. Temporary Utilities

Temporary utilities that may be required are water and electricity. Coordinate with site Safety and Health. Water will be used to control dust emissions.

8.1.3. Temporary Facilities

This project will use the existing SMPP/TFV project new trailer complex located in the existing Mound "C" parking lot.

8.1.4. Temporary Communications

Temporary communications are required (cell phone, radios) due to the difficulty of hearing plant announcements and emergency notifications. At the job site, plant announcements and emergency notifications can be heard on the Plant radio channel.

8.1.5. Staging Areas

The project site is of sufficient size to also be used as a staging area.

8.2 Preliminary Activities

Verify domestic water, firewater, electrical, fire alarm system and communications lines have been disconnected under separate safe shutdown MSR. 30045. An excavation/soil disturbance permit for slab and footing removal will be required prior to excavation activities.

Verify all mercury-containing switches have been removed during safe shutdown. If found, dispose through Waste Management.

Confirm all Freon has been previously removed and recycled from HVAC units inside and outside of the building.

HAZARD	MITIGATION
Fall hazard	Follow requirements of MD-10286 M-14

9. BUILDING DEMOLITION SEQUENCE OF WORK

9.1 Establish Work Zone

Proper signage will be placed at all access points to the site. This zone is not to be entered by anyone not directly involved with the demolition unless they have contacted the Project Manager/Foreman first. Do not begin any demolition activities until the following items are completed.

All new workers assigned to this project have received a pre-job briefing prior to performing work and a walk down of the project area. The following must be completed prior to starting work.

Review of the *Preliminary Hazard Analysis* for work package activities must be complete.

9.1.1 The Pre-Job Briefing Record must be completed and signed.

9.1.2 The Job Specific Hazards Analysis (JSHA) must be reviewed.

NOTE: All workers have Stop Work Authority. Situations where stop work authority is to be exercised are:

- **To stop unsafe work.**
- **To stop unauthorized work, for example, work outside the scope of this work package.**

9.1.3 Verify Safe Shutdown activities have isolated all the connections to Building 19, including the following systems: electric/communication/fire alarm systems, propane gas heat and potable water systems.

9.1.4 Verify that all pre-demolition notifications have been made and permits are in place.

9.1.5 Install sediment/storm water control fence around designated construction area as necessary. Exercise extreme care as to not create an upset condition.

9.1.6 Prepare water distribution system for the control of dust.

9.1.7 Final building/structure walk down to ensure all exit signs, fire extinguishers and noted removal items from safe shutdown and demolition have been removed.

9.1.8 Remove temporary lighting and final electrical isolation check.

CAUTION

9.1.9 Mark the boundaries of PRS 63 on asphalt and direct workers not to disturb or excavate area. See figure 2 in appendix E for coordinates.

9.2 Structural Demolition

9.2.1 Structure Demolition

Demolish the steel corrugated siding and structural frame using heavy equipment. Use the existing slab for load out surface for loading debris and placing into appropriate hauling containers or trucks.

Note: The progression of the building demolition will ultimately be determined in the field. Exact sequence of demolition will be left up to the skill of the craft.

HAZARD	MITIGATION
Contact overhead power lines with heavy-duty equipment.	If an part of heavy-duty equipment has the potential to come within 10' of overhead powers, perform LOTO.
Struck by flying debris Struck by moving equipment	Establish construction boundary. Wear hardhat safety glasses, safety shoes, and reflective vest inside construction area. Maintain the following distances from operating equipment: Shear – 75 feet Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet
Noise Hazard	Wear hearing protection while running heavy-duty equipment. Follow the requirements of MD-10286 D9.
Burns from torch cutting	Obtain and follow Hot Work permit per MD-10286 O2
Heat/Cold Stress	Follow the requirements of MD-10286 D13/D16

9.2.2 Slab and Foundation Demolition

Using heavy equipment, break apart the concrete slab, foundation, and footers in order to eliminate the occurrence structural concrete to 3-feet below grade, torch cut the rebar if required (Hot Work Permit is required if used) to support demolition and downsizing. During the concrete demolition, use heavy equipment to assist radiological control personnel to perform radiological

screening of all concrete surfaces. Based on radiological screening results, transport to Mound's spoils area, offsite disposal, or rail spur as directed by Waste Management.

HAZARD	MITIGATION
Burns/fire	Burn permit, fire protection, and PPE.
Strike underground utilities	Obtain Excavation permit and follow its requirements per MD-10286.05

9.2.3 Organize area for future soil remediation

The last step will be to restore the area by grading with gravel to drain. Remove any unnecessary remaining sediment/storm water control fences. Scan equipment for radiological contamination. If contamination is detected or found during radiological surveys only then the equipment will be decontaminate prior to leaving area. Remove dust control water distribution system, temporary power, fencing and any traffic control.

Appendix A
JSHA/HASP

Project/Activity: Building 19 Demolition
Name: Lee Koehmstedt

JSHA CRITERIA CHECKLIST	YES	NO	N/A
1. Work performed with a 6 ft. or greater fall hazard, excluding portable ladders. See Item 9 for further requirements.		X	
2. Roof work requiring the use of fall protection (within 6 ft of an unprotected edge) or special fall protection procedures.		X	
3. Potential hazardous chemical exposure above action levels or permissible exposure limits (PELs), or ACGIH Threshold Limit Values (TLVs).		X	
4. Work activity in an immediately dangerous to life or health (IDLH) breathing hazard environment.		X	
5. Fire or explosion hazards. Are fire hazards beyond a Hot Work Permit? (Reference O2, MD-10286)		X	
6. Work within close proximity of live electrical greater than 50 volts, conductors, and/or work that requires multiple locks, multiple hazard sources, or complicated lockout/tagout circumstances. (Reference MD-10444, *Lockout/Tagout Procedure Manual*, for multiple energy lockout/tagout.)		X	
7. Any maintenance or repair of equipment under pressure where the pressure cannot be shut off and de-energized.		X	
8. Work with high or extreme exposure to ionizing or nonionizing radiation (reference MD-80036, Op 10002), noise, or heat or cold stress (reference D9, D13 & D16, MD-10286).	X		
9. Determined by an appropriate core team, building manager, member of general or executive management, or the IS&H manager to require a JSHA.	X		
10. Any onsite construction or service project directed to have JSHAs based on this procedure and/or instruction from project personnel or IS&H staff.	X		
11. Near-miss event with the potential for loss of life or limb or disabling injury/illness if repeated.		X	
12. Excessive trauma/motion/vibration work situations or manual lifting involving heavy, large, and/or awkward-to-handle objects (reference MD-10407, *Ergonomics Program*.		X	
13. Unguarded, unmarked close clearance, pinch point, exposed moving machinery parts.		X	
14. Known potential falling object hazards (e.g., employees working above other employees, potential for dropping tools, falling equipment or material) or working in areas with the potential for flying objects (flying chips, sandblasting, etc.), exposure to sharp or protruding objects (e.g., working inside plenums, air mover ducts, etc.).	X		

MANDATORY JSHA REQUIRED TO ADDRESS ANY/ALL (YES) RESPONSES

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV – 30046-0

SIGNATURES

DATE: 2/18/2003	_X_ NEW ___ REV	**BUILDING:** 19	**JOB:** Demolish Building 19
DEPARTMENT/COMPANY: SMPP/TFV			**SECTION:** N/A
OCCUPATIONS: : Heavy Duty Operators, Demo Tech's, Constr. Crafts, Pipefitter/Welders, Electricians, Fab. Mechanics. Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety			

ORIGINATOR: Lee Koehmstedt

REVIEW/REV: Jared Willis/Chris Ahlquist

REVIEW/REV: Bill Wahler/ Jim Harvey

REVIEW/REV: Gary Weidenbach

APPROVED: Kurt Kehler

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:	**MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:**
Hard Hat, Safety Glasses with side shields, safety shoes, safety vest	Insecticide

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
1) Establish work zone	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	1) Be cognizant of your own safe work practices as well as those of your co-workers 2) Review any related safety procedures of which you are unsure 3) Utilize STOP WORK Authority as necessary
1a) Pre-job meeting with involved personnel to discuss the work plan and safety requirements.	NA	This project engages in Enhanced Work Planning(EWP), a ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed.
1b) Area preparation	Standard construction hazards.	A) Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project *supervision and/or project health and safety personnel.* B) Once the work area is defined, only authorized personnel are permitted in the construction perimeter. C) Unescorted, Non-project and Non-emergency personnel, must have acceptance of the SMPP/TFV Project Manager for entry.
1c) Utility protection	Running into PIV's, etc. or grates over field drains.	A) Post indicators to be removed and valves to be left intact. B) Cover field grates with steel sheeting to protect.
1d) Emergency egress/access	Blocked access	A) Emergency access to the work zone will be maintained.

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
1e) Utility isolation	Electrical shock or electrocution	A) Utilities to the building including electrical have been disconnected by project electricians at a point away from the building. B) Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment.
2/3) Demolition of building and slab	Personnel in proximity with heavy duty equipment	Heavy duty equipment will be used to provide an additional margin of safety vs. putting workers in harms way. – stay clear of operating equipment.
Operation of heavy equipment near electric overhead lines	Electrocution	LOTO all electrical overhead lines.
Demolish building, and slab using excavator mounted shear, hoe ram, grapple, loader, and bobcat	Struck by flying debris Struck by moving equipment Noise Hazard	Establish construction boundary. Wear hard hat safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. Maintain the following distances from operating equipment: Shear – 75 feet Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet Make sure equipment is in safe working order. Use spotter if operator vision is obstructed. Install traffic control. Wear hearing protection while running heavy duty equipment Follow the requirements of MD-10286 D9
Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. Test for lead paint; do not torch cut lead paint.
Working in excessive heat/cold	Heat Stress/Cold Stress	Follow the requirements of MD-10286 D13/D16
Working outside.	Adverse weather conditions	Be aware of adverse weather conditions, assembly and take shelter areas.
Slab removal	Strike underground utilities Silica exposure	Obtain Excavation permit and follow its requirements per MD-10286 O5 Monitor for silica, keep area wet for fugitive dust suppression.
4) Restore area	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	1) Be cognizant of your own safe work practices as well as those of your co-workers 2) Review any related safety procedures of which you are unsure

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		3) Utilize STOP WORK Authority as necessary
4a) Rough grading	Equipment/ personnel mixture	Ground personnel stay clear and in sight of the equipment operator.
4b) Covering ground	Slip – Trip – Fall Lifting /twisting strain	Uneven walking and/or working surfaces –use extra caution. Follow accepted practices
4c) Protecting / filtering field drains	Lifting /twisting strain	2 man rule follow standard practice lifting grates.
4d) Dismantling fence	Slip trips and falls Cuts and abrasions Lifting /twisting strain	1) Be cognizant of your own safe work practices as well as those of your co-workers 2) Review any related safety procedures of which you are unsure 3) Utilize STOP WORK Authority as necessary

SIGN-OFF SHEET

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

SIGNATURE	**Date**	**Department**

Appendix B

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Appendix C
PRE-JOB BRIEFING

JOB SPECIFIC WORK PLAN
PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

A.	Time, Date and Location of PJB:
B.	Applicable Procedure Number:
C.	Job Description:
D.	Personnel Attending:

HP#	SIGNATURE	HP#	SIGNATURE

JOB SUPERVISOR – This is a reminder checklist for the update. The supervisor need only discuss and note changes from the previous day's briefing or update. (Use NC for No Change).

1.	Any changes/revisions to safety envelope for work: a. New/added assignments and responsibilities of any individual b. Changes in facility conditions, tagouts, valve lineups c. New or changed precautions/hazards d. Valid RWP or other required work permits still in effect
2.	Adequate supply of PPE
3.	New training, any training coming up on expiration
4.	New changes to relevant Category "A" or Category "B" procedures.
5.	Equipment and tools calibrations in effect
6.	Relevant lessons learned, critique reports
7.	RWP revisions: a. Changes to radiological conditions of the workplace, particularly with respect to postings. b. Change in scope, especially if it is a reduction in scope or Stop Work Levels.
8.	Changes to radiological and/or health monitoring.
9.	Open the floor to questions.

The above minimum requirements have been met; this PJB has been conducted in sufficient detail to maximize continued safe conduct of the job, and all personnel have been through a previous Pre-Job Brief.

Job Supervisor/Foreman _____ Date _____

NOTE: Completed pre-job update sheet must be retained with the work package or maintained in your record file.

JOB SPECIFIC WORK PLAN

Daily Toolbox Safety Meeting

Project:	**Date:**
Safety Topic of Meeting:	
Work Description of Meeting:	

Review the following to determine if conditions have changed since the last Pre-Job Meeting
If this is the 1st meeting with a subcontractor, has Safe Work Authorization been done?
Check off each item that applies or mark N/A if it doesn't apply.

Hot Work Permit (torch cutting, spark producing grinding, open flame heaters, welding)		Signage and Barricades (construction area, hazard notification, rad postings, etc).	
Penetration Permit (penetrating walls, ceilings, or floors in a building)		Air Monitoring (as required by Environmental Compliance and/or Industrial Hygiene)	
Excavation Permit (digging in soil)		Dust Suppression (misting, etc.)	
Trench Plan (shoring, soil layback, etc. if over 4 feet below grade)		Water Runoff Prevention (silt fence, straw bales, collection pond, etc.)	
Confined Space Entry Permit (manhole, tank, or other confined space entry)		Radiation Work Permit (as required by Rad Controls)	
Fall Protection (person's feet over 6 feet above ground)		TLDs (as required by RWP and rad postings)	
Lockout/Tagout (all energy sources to equipment being worked on)		Waste Containers (rolloffs, sealands, dumpsters, LSA boxes, drums, etc.)	
PPE (respirators, Tyveks, safety shoes, safety glasses, hard hats, gloves, reflective vests, etc.)		Utility review especially for asbestos abatement contractor (label live utilities e.g. FAS, phone, electric)	
Personnel Training up-to-date for assigned work (Radworker II, Asbestos, Lead, etc.)		Hoisting and Rigging Review	

JOB SPECIFIC WORK PLAN
PRE-JOB UPDATE

Continuation Sheet for _____/_____/_____

HP#	SIGNATURE	HP#	SIGNATURE

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JOB SPECIFIC WORK PLAN

PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

A.	Time, Date and Location of PJB:
B.	Applicable Procedure Number:
C.	Job Description:
D.	Personnel Attending:

HP#	SIGNATURE	HP#	SIGNATURE

JOB SUPERVISOR – This is a reminder checklist for the update. The supervisor need only discuss and note changes from the previous day's briefing or update. (Use NC for No Change).

2.	Any changes/revisions to safety envelop for work: e. New/added assignments and responsibilities of any individual f. Changes in facility conditions, tagouts, valve lineups g. New or changed precautions/hazards h. Valid RWP or other required work permits still in effect
2.	Adequate supply of PPE
3.	New training, any training coming up on expiration
4.	New changes to relevant Category "A" or Category "B" procedures.
5.	Equipment and tools calibrations in effect
6.	Relevant lessons learned, critique reports
8.	RWP revisions: c. Changes to radiological conditions of the workplace, particularly with respect to postings. d. Change in scope, especially if it is a reduction in scope or Stop Work Levels.
8.	Changes to radiological and/or health monitoring.
9.	Open the floor to questions.

The above minimum requirements have been met; this PJB has been conducted in sufficient detail to maximize continued safe conduct of the job, and all personnel have been through a previous Pre-Job Brief.

_____

Job Supervisor/Foreman Date

Appendix D

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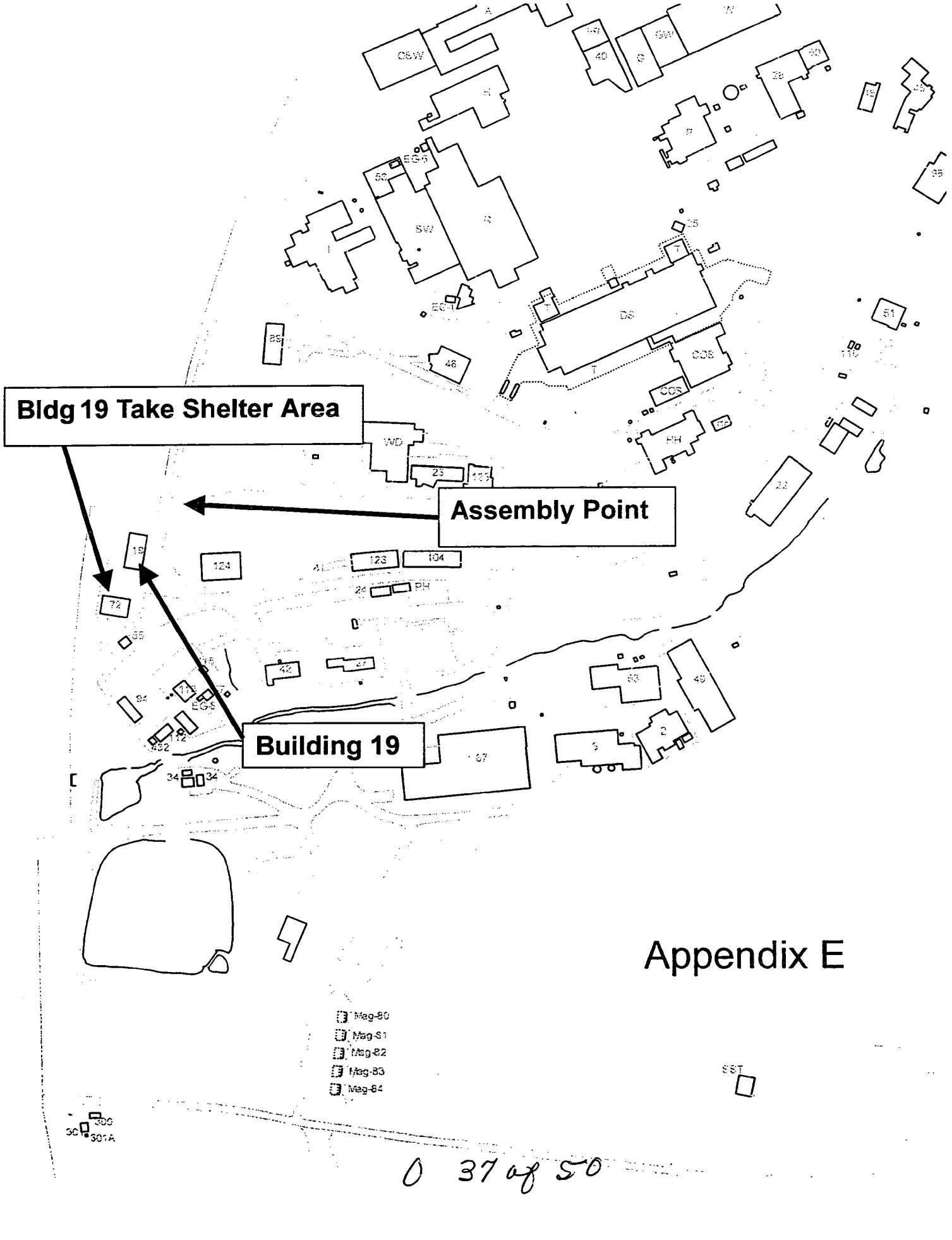
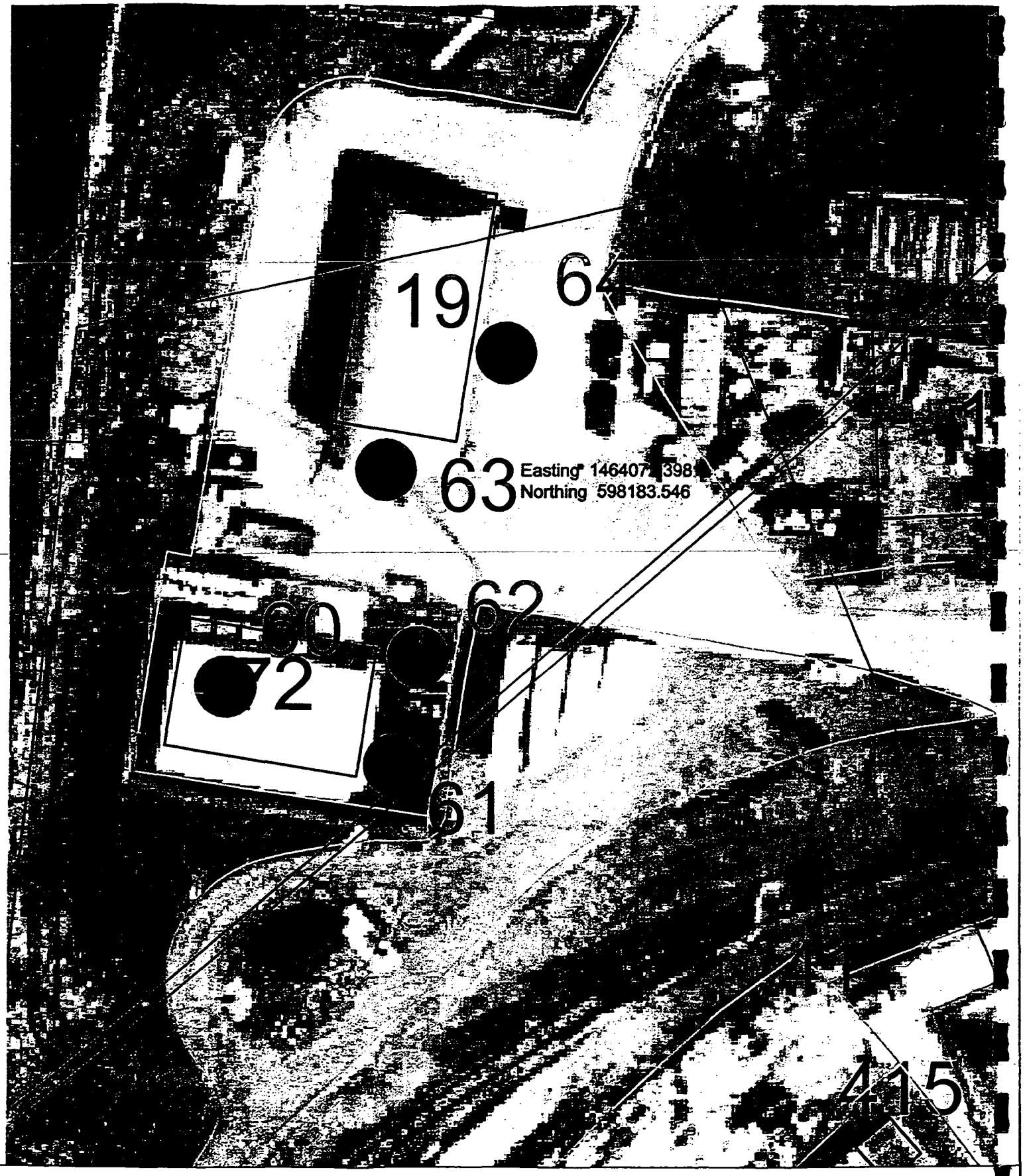
Appendix E
DRAWINGS/SKETCHES


Bldg 19 Take Shelter Area
Assembly Point
Building 19
Appendix E



Legend

- 46 Structures
- PRS Point
- PRS Area
- PRS Line

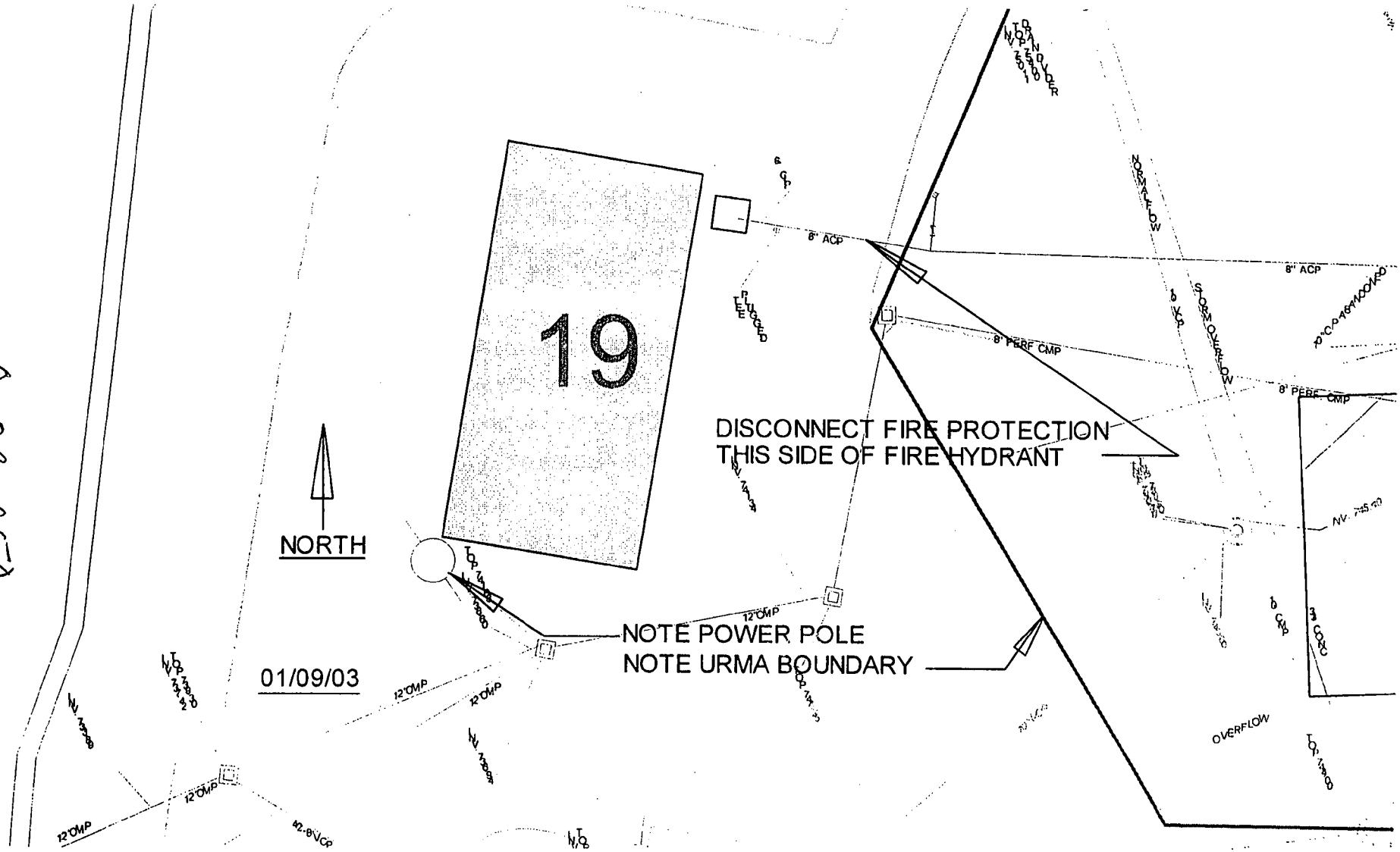
MOUND

Environmental Restoration Geographic Information System

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

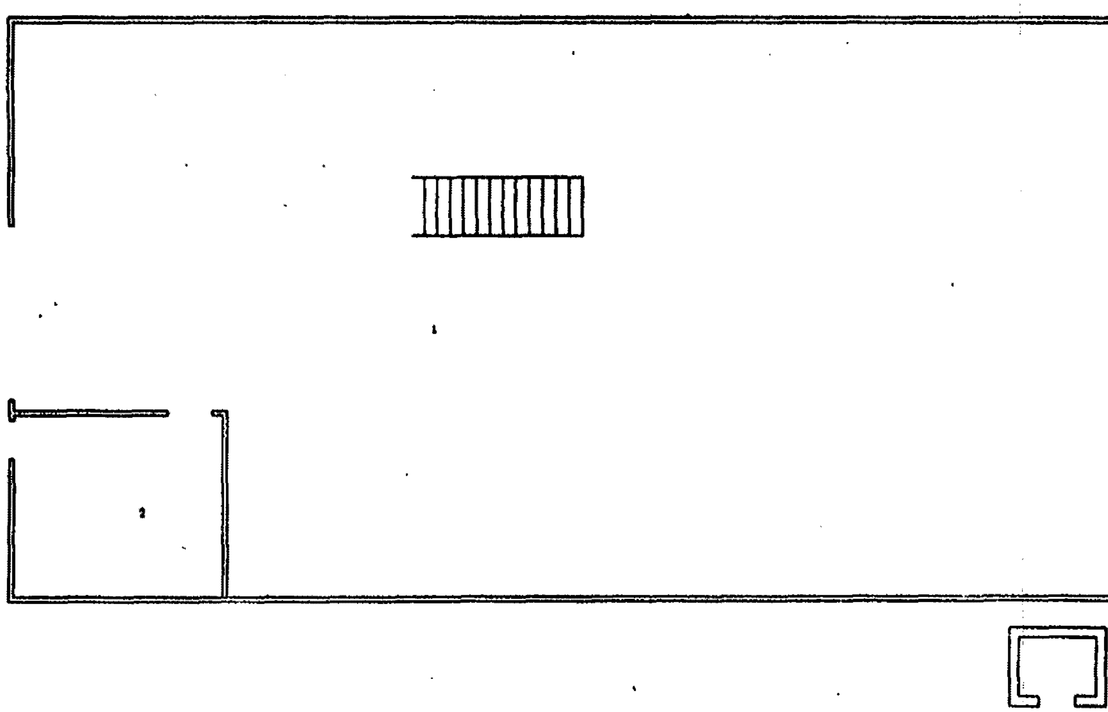
SHEET 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
ISSUE
SHEET 1 2 3 4 5 6
ISSUE o
PART CLASSIFICATION
DRAWING CLASSIFICATION: UNCLASSIFIED
SIZE | DRAWING NUMBER: MAPS.DWG | JOB NUMBER
DWG TYPE STE | PRMG ER-GIS | CADEC | SCALE | SHEET 1 O
STATUS MD-REL-**/**/** | ORIGIN AUTOCAD

Figure 2
Building 19— and Vicinity



BUILDING 19 MECHANICAL DISCONNECTS.
FIELD VERIFY VISTA MAP SKETCH.

ISS	DATE	REVISION	BY	CHKR	ENG	LPBEX	APVD
0	12/12/91	ASBUILT ISSUE	DC0				DVD



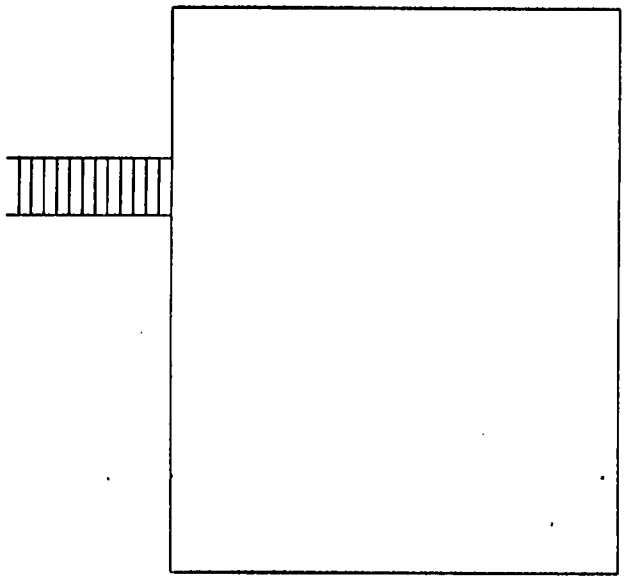
0 3' 6' 10' 20'

BLDG #18
FIRST FLOOR
BLDG CODE:3018

N

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED:
__ NONE __ TRUESEC __ TEXOC __ EXOC

SHEET	1 2 3 4 5 6	TITLE	(U) TITLE CLASSIFICATION
ISSUE	0 0	BLDG #19 FLOOR PLANS	
DRAWING CLASSIFICATION	UNCLASSIFIED	SIZE C	DRAWING NUMBER FSC911232	JOB NUMBER 12335
DWG TYPE SFP	FROM BLDG #19	CAGE 14865	SCALE AS NOTED	SHEET 1 OF 2
STATUS MD-REL-12/12/91		ORIGIN MD-883-V3.0	



BLDG #19
MEZZANINE
BLDG CODE:3019

DRAWING NUMBER: FSC911232	JOB NUMBER: 12335
DRAWING CLASSIFICATION: UNCLASSIFIED	
SIZE: C	CAGE: 14865 / SCALE: AS NOTED
ISSUE: B	SHEET: 2
STATUS: MD-REL-12/12/91	

Appendix F
REFERENCES/ LESSONS LEARNED

Derivative Classifier: N/A

UCNI Reviewing Official: N/A

References: ORPS ID-BNFL-AMWTP-2002-0008, NTS ID-BNFL-AMWTF-2002-0008

Back to Lessons Learned

Appendix G
MISCELLANEOUS
(USQ, RWP, Permits, etc.)

INTER OFFICE MEMO CH2MHILL MOUND, INC.

Date: January 30, 2003 cc. L. Koehmstedt

From: W. L. Johanan – OSW-430

Subject: Structural Survey of Building 19, RE: 29 CFR 1926.850 (a)

To: Kurt Kehler-Project Manager

Please be advised that we have performed a structural review and walk down of the subject building and found them to be satisfactory based on the demolition process and work plan.

Please call me if you have any further questions.

W. L. Johanan P.E.
Site Structural Engineer

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No USQs or RWPs are required at this time. An excavation permit will be required for the slab removal and a burn permit will be required for torch cutting rebar.

CH2MHILL

SMPP/TFV PROJECT
Waste Disposition Plan
Building 19 Demolition

The purpose of this waste disposition plan is to identify waste streams that will be generated during the demolition of building 19. Characterization of waste streams will be summarized and disposal options specified.

The plan will outline types of waste/waste quantities expected. Information will be provided on the schedule for waste generation, RCRA characterization, radiological characterization, packaging requirements/mode of disposal, and any specific waste acceptance criteria that must be met for disposal.

Waste types and estimates are based on a physical examination of the room conducted on Jan. 9, 2003 and review of the processes that were performed in the building. These areas are not considered to be contamination areas. The majority of the waste that will be generated in the demolition process of the building will be disposed of as demolition debris/solid waste. The waste will include all associated removable piping located inside/outside Bld. 19.
Sealed pressure vessels will need to be at < 1.5 atmospheres. Wastes are listed in expected order of generation.

Waste Type	Demolition debris/solid waste: Concrete, Steel and Copper Piping, Sheet Metal, Elect. Wiring, FG Installation,
Quantity expected	31,933 cu ft **100% Solid Waste**
Asbestos	In-house Asbestos abatement will be performed with an expected quantity of 2 cu ft.
Schedule for waste generation	April- May, 2003
RCRA characterization	Non-hazardous
Radiological characterization	Radiological surveys of the building /equipment indicate no elevated radioactivity levels. Building was non-impacted from site Radiological Operations.
Packaging requirements	30 Cu Yd. Roll-Off will be use for disposal
Mode of disposal	Offsite disposal via Waste Management Operations
*** NOTE: Sealed pressure vessels will need to be at < 1.5 atmosphere if present**	

Any unusual or unexpected items not addressed in this plan should be set aside for examination and evaluation by the project engineer and waste coordinator.

Prepared by Willis Daniel
Waste Programs Date: 02/19/03

Appendix H
POST-JOB CONFERENCE

Title:	
Work Package No. (JSWP or MSR)	

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

Title:	
Work Package No. (JSWP or MSR)	

LESSONS LEARNED INPUT FORM

What Happened? (Describe in as little or as much detail as necessary the situation and what occurred. Do not mention any names, only job functions and activities)

What did you learned? (Describe how the job could have been done better, how a hazard could have been eliminated, etc.)

Submitted by: _____ **Date:** _____

OPTIONAL

Mail to: Lessons Learned Program Manager, W-219 or appropriate Project or Functional Manager

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