OVERSIZE PAGES

LOCATED AT

END OF

DOCUMENT

Public Reading Room + Admin. Record

BWX Technologies, Inc.
Babcock & Wilcox, a McDermott company

3005-9909210007

Babcock & Wilcox of Ohio, Inc.
1 Mound Road
P.O. Box 3030
Miamisburg, Ohio 45343-3030
(937) 865-4020

ESC-153/99
September 13, 1999

99-TC/09-13

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

ATTENTION: Dewain Eckman

SUBJECT: Contract No. DE-AC24-97OH20044
BUILDING 67: RELEASE OF BUILDING DATA PACKAGE FOR REGULATOR REVIEW

REFERENCE: Statement of Work Requirement C 7.1e -- Regulator Reports

Dear Mr. Provencher:

The attached Building Data Package for Building 67 has been authorized for release to USEPA, OEPA, and ODH by Ron Church of MEMP. In review of 40CFR300.415(b)(2), the demolition of this building has been determined to be a non-CERCLA event. Also attached is a copy of the newspaper ad announcing the availability of this Building Data Package at the Public Reading Room. BWO will distribute copies of this Building Data Package to the Public Reading Room and MMCIC before September 16, 1999.

Please advise if additional copies are required for distribution within DOE. If you require further information, please contact Dave Rakel at extension 4203.

Sincerely,

Linda R. Bauer, Ph.D.
Manager, Environmental Safeguards & Compliance

LRB/nmg

Enclosures as stated

cc: Tim Fischer, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandergrift, ODH, (1) w/attachments
Terrence Tracy, USEPA, (1) w/attachments
Art Kleinrath, MEMP, (1) w/attachments
Joe Bartee, BWO, (1) w/attachments
Larry Lamsa, BWO (1) w/attachments
Dann Bird, MMCIC, (1) w/attachments
Public Reading Room, (5) w/attachments
Administrative Record, (2) w/attachments
DCC

MOUND PLANT
BUILDING DATA PACKAGE

Information Notice

Building 67 will soon be dismantled. A Building Data Package describing Building 67 and its dismantlement is available in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio

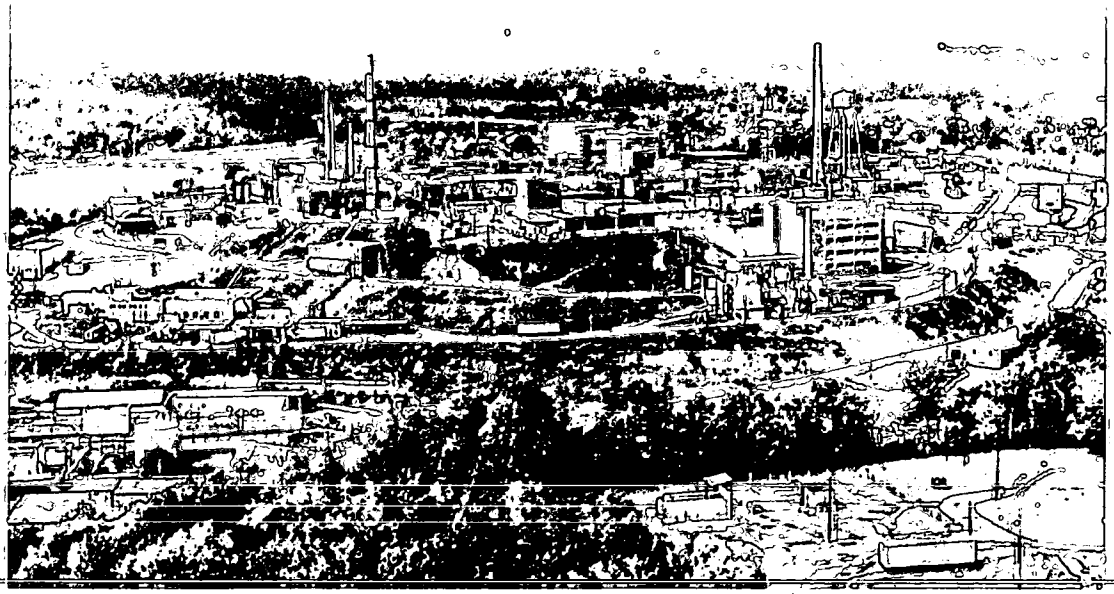
Questions can be referred to DOE, Paul Lucas at (937) 865-4578

3005-9909210007

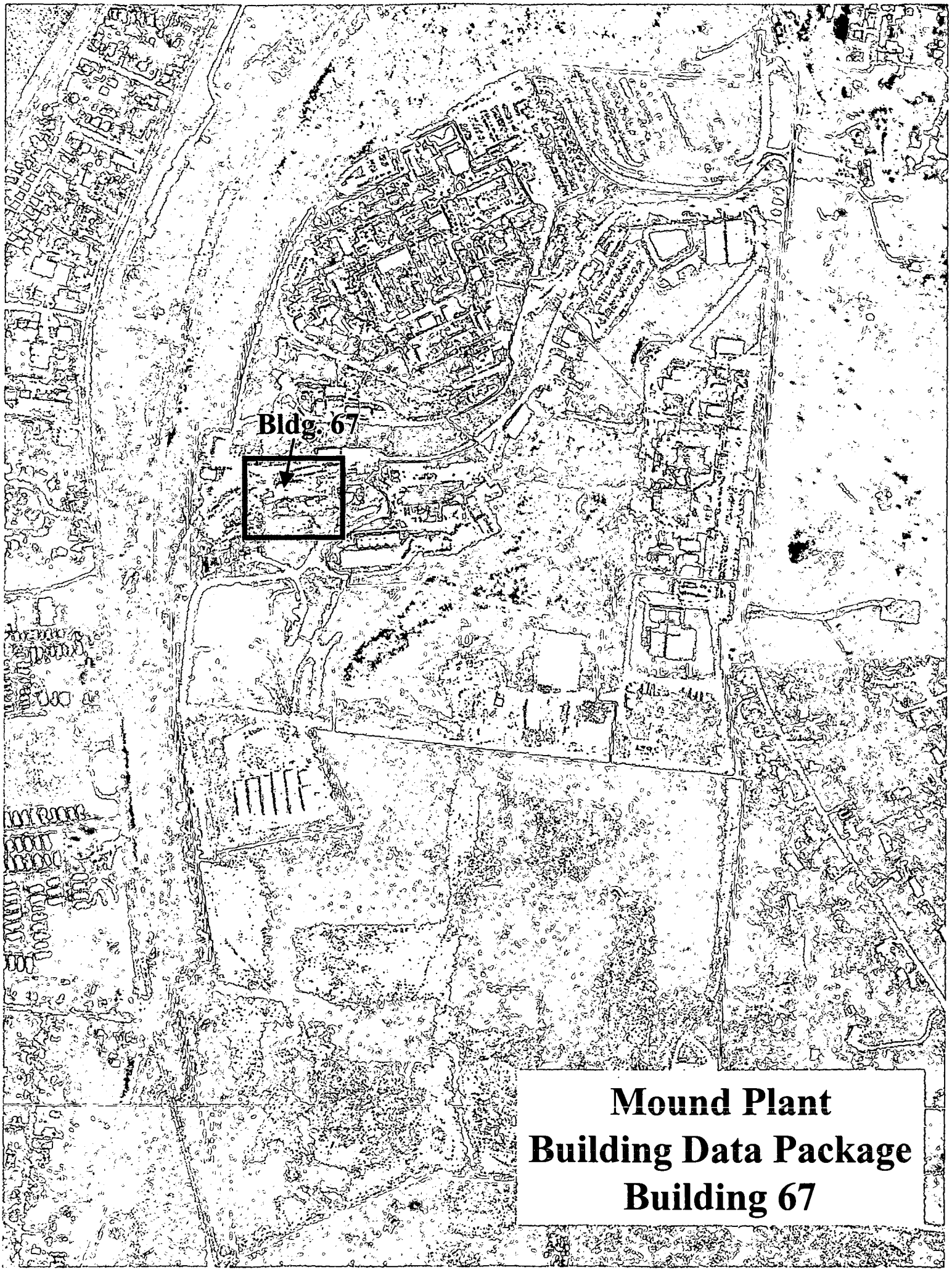
MOUND

Environmental Restoration Program

MOUND PLANT
Building Data Package
Building 67



REV	DESCRIPTION	DATE
WORKING DRAFT		**Aug. 25, 1999**
DRAFT	DOE comments/responses incorporated.	**Sept. 9, 1999**
DRAFT PROPOSED FINAL		**Sept. 9, 1999**
PUBLIC REVIEW DRAFT		**Sept. 9, 1999**
FINAL		**Sept. 9, 1999**

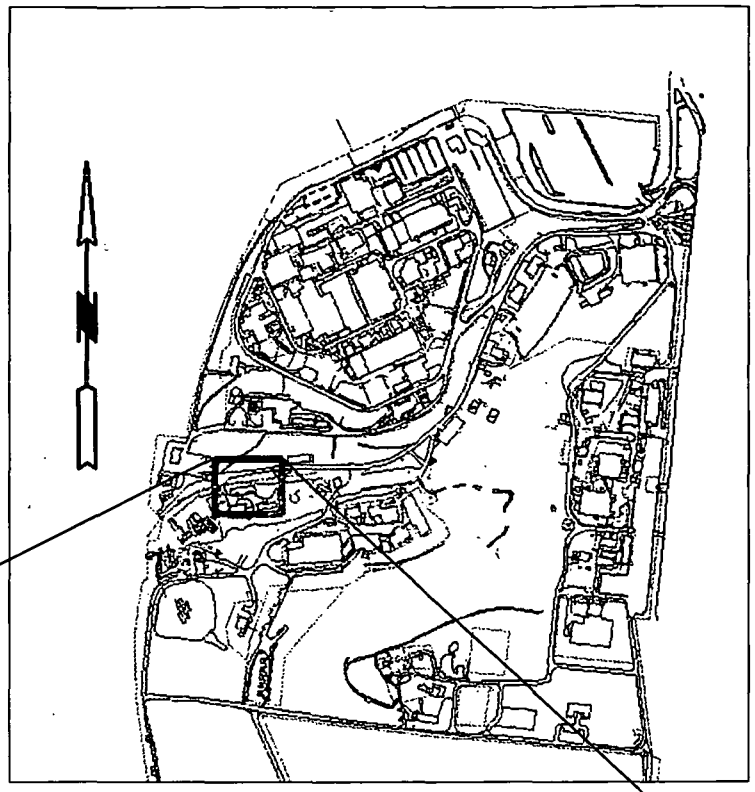


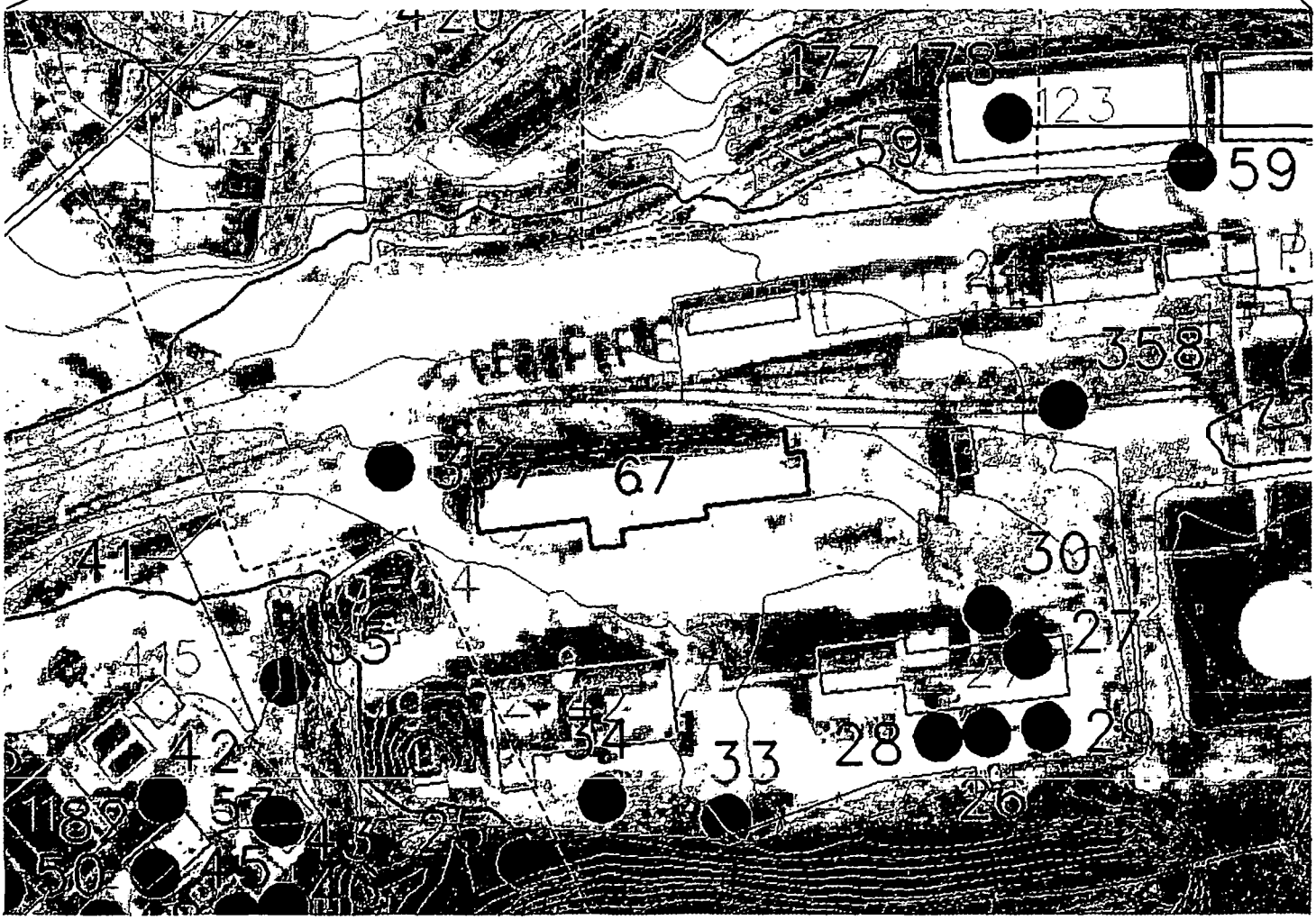
Mound Plant
Building Data Package
Building 67

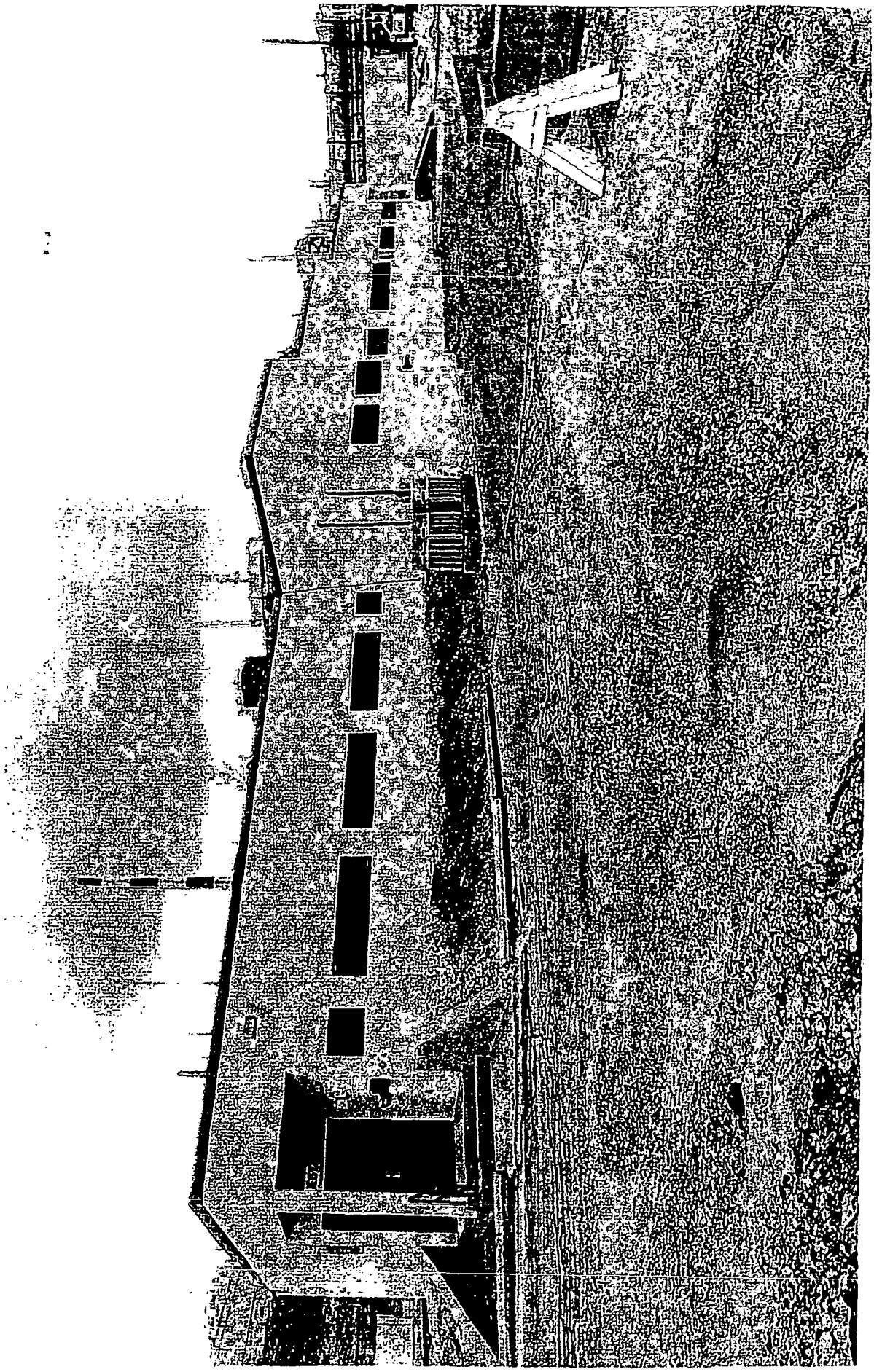
Mound Plant

Building 67
Office Building
Parcel 8

On the map below:
- Building number and location shown in black
- PRS locations and numbers shown in blue
- Surrounding buildings shown in tan
- Fencing shown in red
- Elevation contours shown in brown







Mound Plant Building 67

9.84-69

BUILDING DATA PACKAGE (BDP)

Building 67

(Non-CERCLA Demolition)

DOE MOUND PLANT

MIAMISBURG, OHIO 45343

TABLE OF CONTENTS

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

2.0 Building Specific Overview 3
- 2.1 Current Uses of Building 67 3
- 2.2 Past Uses of Building 67 3
- 2.3 Summary of Environmental Concerns and Findings 4
- 2.4 Radiological Characterization Summary For Building 67 5
- 2.5 Associated PRS Table for Building 67 5

3.0 Site Description 6
- 3.1 Site/Vicinity Location and Characteristics 6
- 3.2 Description of Structures, Roads, Other Improvements Related to Building 67 6
- 3.3 Current and Past Uses of Buildings Adjacent To Building 67 7

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

Appendix A General Listing of Acronyms
Appendix B Map of Montgomery County
Appendix C Site Plan
Appendix D Building Drawings
Appendix E Aerial Photographs
Appendix F Environmental Appraisal Report of the Mound Plant (Extract)
Appendix G Radiological Summary/Information
Appendix H Radon Summary/Information
Appendix I Asbestos Summary/Information
Appendix J Lead Summary/Information
Appendix K Chemical Summary/Information (There is no Chemical Summary/Information)
Appendix L Noted Soil Sampling, Vicinity
Appendix M Occurrence Reports (There are no Occurrence Reports)
Appendix N PRS Information
Appendix O Work Plan

1.0 General Overview

1.1 Introduction

The purpose of this Building Data Package is to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property.

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, ground water, or surface water near the building.

1.2 Scope

This document has been prepared in accordance with agreements and requirements as specified in the Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach. It is a Building Data Package of Building 67 located at the DOE Mound Plant in Miamisburg, Ohio. This investigation was performed to support procedures as 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 the building, the soil beneath, and a 15-foot wide perimeter border around the building. Soil sampling results are noted in Appendix L. This perimeter includes roadways, sidewalks, pavement, and grass covered areas. The investigation of Building 67 included the following.

1) A building and perimeter inspection.
2) An examination of historical aerial photographs and maps.
3) A review of federal and state regulatory agency records.
4) Personnel interviews.
5) A review of Mound Plant records for:

    A) History of spills and releases
    B) Past sampling data
        - Radiological survey
        - Lead paint
        - Asbestos
        - Radon

Building investigations were conducted by BWO personnel on 7/22/99.

This report used a variety of previous assessments accomplished by BWO or previous site contractors and/or their subcontractors. The reports used were as follows:

- Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes, August 1990
- OU-9 Site Scoping Report, Volumes 1-12
- Mound Facility Physical Characterization, December 1992
- Active Underground Storage Tank Plan, November 1994
- OU-9 Hydrological Investigation, Bedrock Report, January 1994
- OU-9 Hydrological Investigation, Buried Valley Aquifer Report, March 1994
- Environmental Appraisal Report of the Mound Plant, March 1996
- Title Search
- Lease Information
- EDR Report - Radius Map
- Building Prints
- PRS Information
- MD-222153, Mound Site Radionuclides By Location, July 1995 Contaminant Surveys

2.0 Building Specific Overview

Mound Plant is located in the southern portion of the corporation limits of Miamisburg, Ohio. The entire Mound Plant facility is situated on approximately 300 acres of land and contains approximately 130 buildings. The subject property consists of Mound Plant Building 67, the soil beneath, and a 15-foot wide perimeter around the Building. Building 67 contains 3787 square feet. It was constructed in 1983. No waste was stored in Building 67.

2.1 Current Uses of Building 67

Building 67 is currently inactive.

2.2 Past Uses of Building 67

Building 67 was used as office space for energetic materials support staff personnel. See Appendix F.

2.3 Summary of Environmental Concerns and Findings

DESCRIPTION	COMMENT*	RESOLUTION
Lead Paint	N/A	
Chemicals	N/A	
Fluorescent Lamps and PCBs	Fluorescent lamps were utilized in the building. Ballasts may contain PCBs.	All fluorescent lamps will be removed prior to demolition.
Asbestos	N/A	
Drainage Sumps	N/A	
Lead	Water cooler may have lead.	Water cooler will be removed, checked for lead, and dispositioned.
HVAC	N/A	
Mercury	N/A	
Radiological	N/A	
Septic Systems	N/A	
Waste Water	N/A	
Stains & Corrosion	N/A	
Space	N/A	
Storage Tanks	N/A	
Solid Waste Disposal	N/A	
Migratory Hazards	N/A	
Radon	N/A	
Excavated Material	Possible(Classified) Material	Was excavated and removed.

*NA denotes: Not a contaminant of concern.

2.4 Radiological Characterization Summary For Building 67

See Appendix G.

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm2)	Surface Contamination Guidelines (dpm/100 cm2) (Note 2)	COMMENTS
Highest Alpha Smearable Activity	98-TF-1160	Vent	6	20	No Action Necessary
Highest Alpha Fixed Activity	98-TF-1161	All	<100	100	No Action Necessary
Highest Beta Smearable Activity	98-TF-1160	Floor (South Side)	8	1,000	No Action Necessary
Highest Beta Fixed Activity	98-TF-1161	All	<5,000	5,000	No Action Necessary
Highest Tritium Smearable Activity	98-TF-1161	Wall (North)	122	10,000	No Action Necessary

Note 1: All RSDS associated with the confirmatory survey were 100 dpm/100 cm^2, and <5,000 dpm/100 cm^2 beta.
Note 2: Core Team determined values.
Note 3: Data sheet that provides radiological monitoring survey results.

2.5 Associated PRS Table for Building 67

See Appendix N and Paragraph 4.2.3. Also note Mound Plant graphical depiction located in introduction to this Building Data Package.

PRS #	CERCLA or BLDG. RELATED	BINNING STATUS	COMMENTS
PRS 41	CERCLA	FA (Hold) 10/2/96	Related by proximity.
PRS 357	CERCLA	NFA 11/20/96	Related by proximity.

3.0 Site Description

3.1 Site/Vicinity Location and Characteristics

Building 67 is located at the U.S. Department of Energy Facility known as Mound Plant. Mound is situated in the city of Miamisburg, Miami Township, Montgomery County, state of Ohio.

The Mound facility is situated on approximately 300 acres of land and contains approximately 130 buildings with a total of approximately 1.4 million square feet of floor space (the number of buildings is constantly diminishing as buildings are decommissioned and either sold or demolished). The original 182-acre site, purchased by the Manhattan Engineer District in 1946, consists of two hills and an intervening valley that runs approximately east and west. Building 67 is located in the lower valley of the Mound site. The 124-acre tract acquired in 1981 is 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 on-site.

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

3.2 Description of Structures, Roads, Other Improvements Related to Building 67

The subject property consists of the Mound Plant Building 67 footprint, the soil beneath, and a 15-foot wide perimeter around the building. Building 67 is a one story, 3787 square foot structure. Built slab on grade, it is a concrete-covered, polystyrene foam building with a metal roof. It was constructed in 1983.

There are no other structures, roads, or improvements that would impact the environmental condition of the building. The document, Environmental Appraisal Report of the Mound Plant, alludes to past soil contamination excavated at the building location. See Appendix F. The material was removed because of security classification concerns, and not because it was a threat to human health and the environment.

3.3 Current and Past Uses of Buildings Adjacent To Building 67

See Mound Plant graphical depictions and aerial photograph located in introduction to this Building Data Package. Also note Appendix E.

Proximity to Building 67	Building Area (Sq. Ft.)	Current Use	Past Use	Direction From Building
Building 42	2892	Not in use.	Explosives Production	S
Building 27	5285	Not in use.	Explosives Processing	SE
Magazines 52/64	1450	Demolished	Explosives Storage	SW

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), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. Mound Plant is currently operating a hazardous waste storage facility under a RCRA Part B permit dated October 18, 1996. Mound Plant also maintains a NPDES surface water discharge permit with Facility I.D. number OH 009857. Permits for the open burning of wastes involving explosives and other fuels have been issued by the Regional Air Pollution Control Agency (RAPCA). Other operations that produce particulate or vaporous emissions are registered with RAPCA and OEPA. Mound Plant also submits annual Emergency and Hazardous Chemical Inventory forms to the OEPA, pursuant to SARA, Title III, the Emergency Planning and Community Right-to-Know Act. The 1998 version of this report indicated that no chemicals are stored in Building 67.

The Mound Plant was identified as a contaminated site on the National priority List under CERCLA (Superfund) in 1989. The Mound Plant was originally listed as a consequence of VOC contamination in the western end of the lower valley area. The clean-up of the Mound Site was originally to be accomplished under the CERCLA mandated procedures for regulating Superfund Sites using the Operable Unit (OU) system to define and characterize clean-up areas. As the clean-up effort went forward, it became apparent that the Mound Site did not fit the profile for a clean-up strategy based on the Operable Units. The Department of Energy (DOE), the United States Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA) designed a new decision making process for the clean-up of Mound. 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 Mound into 19 Release Blocks containing over 400 Potential Release Sites (PRSs) with approximately 200 concerned with potentially contaminated soils, and the balance with potential contamination in buildings or associated primarily with building operations. 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

4.2.1 Occurrence Reports

None.

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 FFA/DOE ER program, DOE and BWO have tabulated all the Potential Release Sites (PRSs) identified under the various regulatory programs in effect at the site. Of these 420 PRSs, PRS 41 and PRS 357 are related to Building 67 by proximity of location. See Appendix N.

4.3 Review of Building Prints

Building prints were reviewed and are included in Appendix D.

4.4 Aerial Photographs

Aerial photographs from 1994, 1983, 1973, 1968, 1965, 1959, and 1949 were reviewed and copies are found in Appendix E.

4.5 Interviews

Past Building Manager, Robert Ward, was interviewed using a building manager questionnaire. See Appendix F. The current Building Manager is Jeff Boston.

Appendix A

General Listing of Acronyms

AEA	Atomic Energy Act of 1954
AEC	Atomic Energy Commission
ACM	Asbestos Containing Materials
AL	Action Level
ASTM	American Society for Testing and Materials
BDP	Building Data Package
BUSTR	Bureau of Underground Storage Tank Regulations
BWO	Babcock and Wilcox of Ohio
CAA	Clean Air Act
CEG	Conditionally Exempt Generator
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
COD	Chemical Oxygen Demand
CWA	Clean Water Act
D&D	Decontamination and Decommissioning
DOE	U.S. Department of Energy
DPM	Disintegrations Per Minute
EMF	Electromagnetic Field
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration (Program)
ERDA	Energy Research and Development Administration
ERNS	Emergency Response Notification System
FFA	Federal Facility Agreement
FINDS	Facility Index System
FS	Feasibility Study

GSA	General Services Administration
HEPA	High Efficiency Particulate Air
LQG	Large Quantity Generator
LUST	Leaking Underground Storage Tank
M&O	Maintenance and Operations
MAT	Mound Applied Technologies
MCC	Monsanto Chemical Company
MEMP	Mound Environmental Management Project
MMCIC	Miamisburg Mound Community Improvement Corporation
MRC	Monsanto Research Corporation
NPDES	National Pollutant Discharge Elimination System
OEPA	Ohio Environmental Protection Agency
ORPS	Occurrence Reporting and Processing System
OU	Operable Unit
PADS	PCB Activity Database
PCB	Polychlorinated Biphenyls
PRS	Potential Release Site
RAPCA	Regional Air Pollution Control Agency
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RI	Remedial Investigation
RSDS	Radiological Survey Data Sheet

SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SQG	Small Quantity Generator
SWMU	Solid Waste Management Unit
TRIS	Toxic Chemical Release Inventory System
TSD	Treatment, Storage, & Disposal Facility
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

Appendix B

Map of Montgomery County

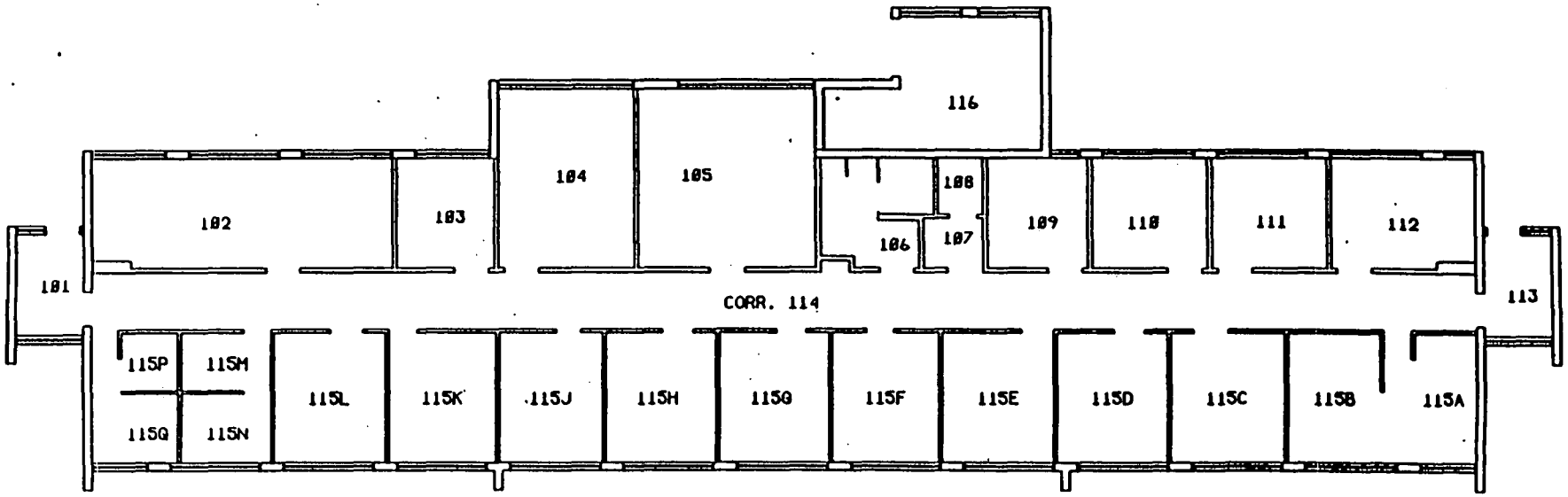
Appendix C

Site Plan

Appendix D

Building Drawings

ISS	DATE	REVISIONS	BY	CHKD	ENG	LPRED	APVD	R
0	12/12/91	ASBUILT ISSUE	DCW				DVD	



DERIVATIVE CLASSIFIER

Sr. Class. Anal. 2/20/96

(Title) (Date)

0 3' 6' 10' 20'

BLDG #87
FIRST FLOOR
BLDG CODE:3067

NOT FOR PUBLIC DISSEMINATION

MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION SUBJECT TO SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 USC 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

APPROVALS: DATE:
SAFETY COMMITTEE REMARKS:
___ HOME ___ TRUEDOC ___ TEDOC ___ CHDOC
TECH. REVIEW.
GR. MGR.
TRUEDOC
TEDOC
CHDOC

SHEET	1	2	3	4	5	6
ISSUE	0					

PART CLASSIFICATION

DRAWING CLASSIFICATION UCNI

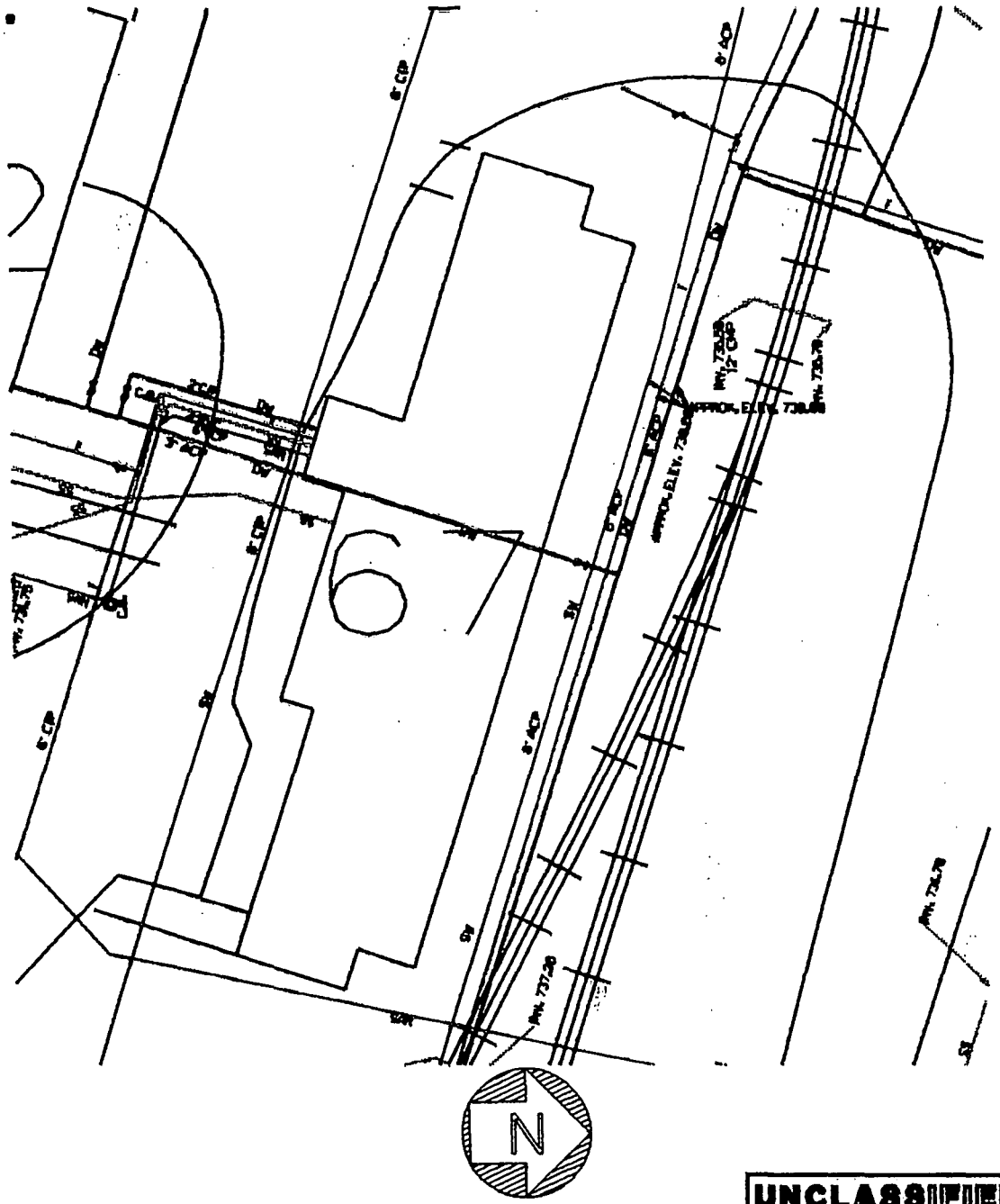
TITLE (U) TITLE CLASSIFICATION
BLDG #67
FLOOR PLANS

SIZE C | DRAWING NUMBER FSC911272 | JOB NUMBER 12335

DWG TYPE SFP | FROM BLDG 067 | CAMEK 14865 | SCALE IS NOTED | SHEET 1 OF 1

STATUS MD-REL-12/12/91 | CREATOR MD-BR3-V3.0

9.84-61



FIRE
POTABLE
RAW
SANITARY
STORM
RADIOLOGICAL

UNCLASSIFIED

E.G. & G. - MOUND

UNDERGROUND WATER & WASTE LINES
BLDG. 67

DATE: 2/29/96

9.84-65

Appendix E

Aerial Photographs

Appendix F

Environmental Appraisal Report of the Mound Plant (Extract)

9.84 BUILDING 67

9.84.1 Scope of Building 67 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 67 on the morning of February 7, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.84.6.1). The appraisers were accompanied by the building manager. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.84.6.2).

9.84.2 Description of Building 67

Building 67 is a one-story, 3,787-square-foot structure. Built slab-on-grade, it is a concrete-covered, polystyrene foam building with a metal roof. Its location is shown in Attachment 3 (Section 9.84.6.3). The building, located on a wedge parcel of land, is bordered by the Mound railroad spur, a grassed area, and a hardstand gravel parking area. Opposite the parking area, to the south, are Buildings 27, 42, 52 and 64.

The building previously served as office space for energetic materials support staff. Floor plans are presented as Attachment 4 (Section 9.84.6.4). The building contains open office space with relocatable partitions, a lavatory, storage closets for office supplies and records, and a mechanical room with exterior entrance. There is interstitial space between the ceiling and the roof for utility duct work. The building is serviced by central steam for heat and chilled water, and electrical service of 240V (*Mound Facility Physical Characterization*, 12-1-93).

Building 67 was constructed in 1983 (MD-10391, *Asbestos Program Manual*, 9-14-95). Mound personnel familiar with its construction indicated that approximately 15 feet of the site was removed and replaced with select fill prior to construction because of possible contamination involving a classified hazardous material. Records were not available to indicate whether or not all of the contamination had been removed. The building has been used for the same purpose since construction.

The building is not contaminated with any radioactive, energetic, or asbestos-containing building materials.

The building is undergoing Safe Shutdown and is no longer occupied. Relocatable office partitions have been disassembled and all office materials and equipment removed.

9.84.3 Summary of Findings

Building 67 appears in fair condition and is listed as such in the *Capital Assets Management Process, Camp Report, FY 1996*. There were no issues of environmental concern identified during the walk-through or during review of reference materials. The building manager and a member of the appraisal team familiar with the building's construction were familiar with a condition which required soil to be replaced prior to the construction.

9.84.4 Observations

9.84.4.1 Air Emissions

There are no fumehoods or fuel-burning units in the building. There is no evidence of fugitive dust or other fugitive materials caused by the Safe Shutdown process. No air emission permit applications have been submitted to the Regional Air Protection Control Agency (RAPCA) for activities in the building.

9.84.4.2 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.

9.84.4.2.1 Sanitary Wastewater

The building has sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.84.6.5), the building is serviced by a sanitary line. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort; therefore, neither dye tests nor smoke tests were conducted.

Sanitary effluent is conveyed to the onsite tertiary wastewater treatment facility, and subsequently discharged to the Great Miami River. There is no monitoring of building effluent. Based on operations data, supplied by the process owner, effluent from Building 67 does not deviate from that expected by the sanitary treatment plant manager.

9.84.4.2.2 Storm Wastewater

The building is serviced by a storm drain according to Attachment 5 (Section 9.84.6.5). Interior floor drains are limited to one each in the lavatory and one in the mechanical room. Inspection showed no sign of odors, colored discharges, or scarring which would indicate that any hazardous material entered the storm water system. Storm water runoff from the building is absorbed in the ground or enters the storm drainage system at the end of the parking area.

9.84.4.2.3 Chemicals

If chemicals for office equipment and cleaning had been stored in the building, there is no physical evidence and none currently exist. None were listed in the Chemical Inventory, 1994. There was no evidence of chemicals within the mechanical room. There is no evidence that chemicals entered the sanitary drains. There have been no reported spills from Building 67.

9.84.4.3 Potable and Service Water

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross connection in the mechanical room. The fountain which supplies drinking water has not been tested for lead. According to Environmental Protection Agency (EPA) protocol, annual sampling criteria do not require testing of the fountain. There is service water supplied to the building; it is not distributed within the building except within the fire sprinkler system.

9.84.4.4 Chemical Storage and Hazardous Materials

Records indicate that chemicals were not used in the building, however, it is assumed that janitorial cleaning materials were stored in the janitor closet.

The building is equipped with appropriate charged fire extinguishers. Each extinguisher is bar-coded. The inspection date database is maintained within the Fire Station, Building 98. There is an emergency evacuation plan, and signs were posted within the administrative office spaces.

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

The building was tested and does not contain asbestos-containing building material (MD-10391, *Asbestos Program Manual*, 9-14-95).

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).

9.84.4.5 Solid, Hazardous, and Radioactive Wastes

Solid wastes previously generated were 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 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 during the Safe Shutdown process.

9.84.4.6 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.

As part of the Safe Shutdown process, equipment and supplies were evaluated for reuse. They were handled in several ways: reused at Mound; sent to other DOE facilities; claimed by the City of Miamisburg; sold at auction; sold to recycle; or disposed of.

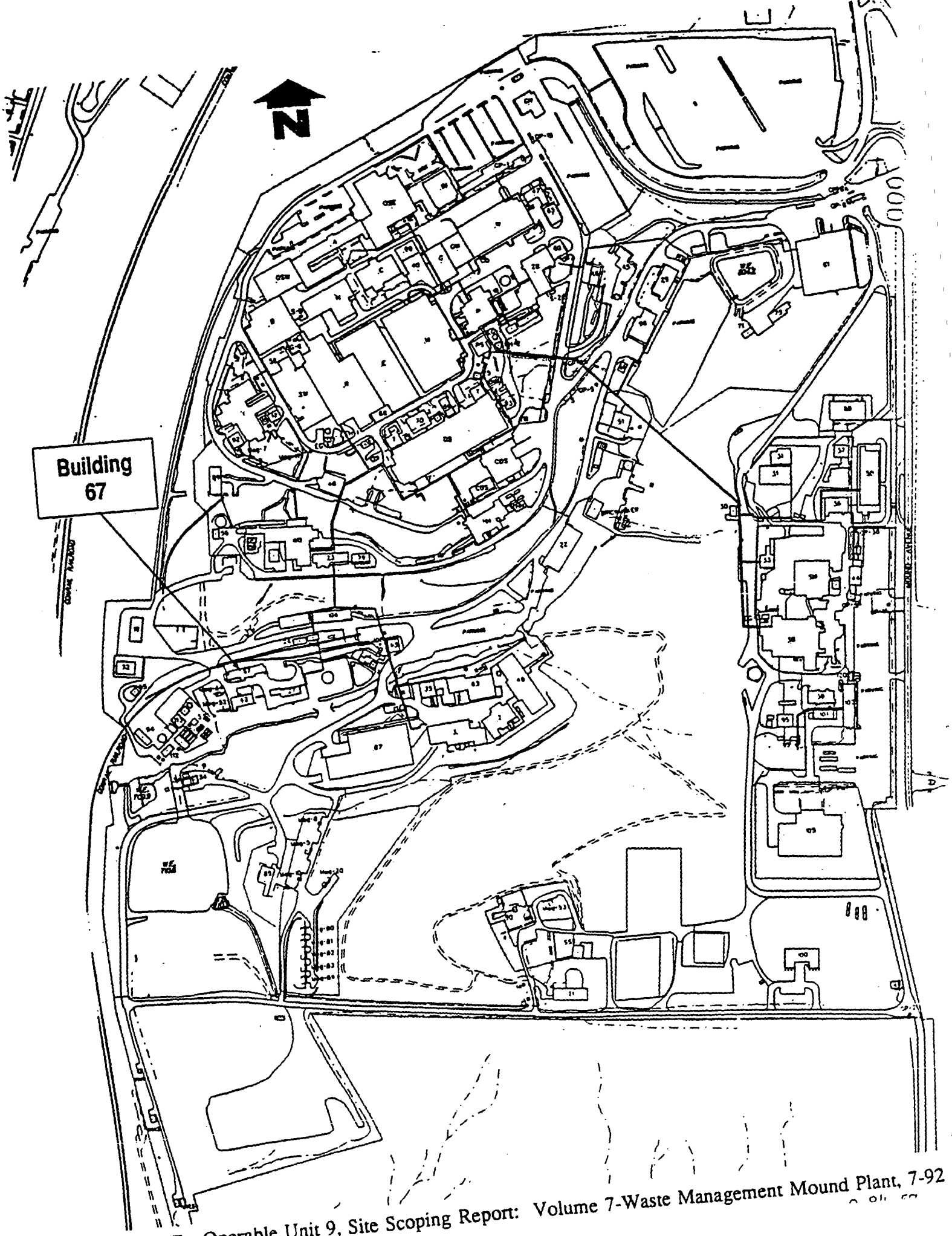
9.84.5 Findings and Recommendations

Photographs were taken to document environmental appraisal activities. They are included as Attachment 6 (Section 9.84.6.6).

The environmental appraisal of Building 67 indicates that the following action items should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

67-1 Since records are not available to indicate the extent or type of contamination which required removal of soil before the building was constructed, prior to the sale or disposal of Building 67, an investigation should be conducted to determine whether or not soil under and around the building has hazardous substances remaining.

9.84.6.3 Location of Building 67



SOURCE: Operable Unit 9, Site Scoping Report: Volume 7-Waste Management Mound Plant, 7-92

9.84.6.1 Environmental Appraisal Checklist

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 67 ADMINISTRATIVE OFFICES (ENERGETIC MATERIALS)

Appraisers:
TEAM D H

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

Building Manager: Bob Ward (4-3831)

Process Manager: Brady Barnhart (Sage Shutdown)

Date: 7 February 1996

ENVIRONMENTAL APPRAISAL CHECKLIST

Table of Contents

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

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

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	no chemicals
	Is the building in operation? What are the processes and where do they discharge to?	Y / (N) _____ _____	
	Do the floor drains, sinks & toilets appear to be draining properly?	(Y) / N	
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	(Sanitary) Storm	
	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	

9.84-9

Fire Deluge Systems

9.84-10

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

Clean Air Act (CAA) Screening Checklist

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

CAA Checklist

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

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

CAA Checklist

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

TABLE A

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

Source:_____

9.84-11

9.84-12

Environmental Appraisal Checklist

Building Name: L7 Appraisers: Team #4 Date: 2-7-96

Hazardous Materials (HM) Screening Checklist

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

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.1200(b,f)	All containers of hazardous chemicals shall be labeled as to the identity of the chemical and the appropriate hazard warnings.	Y / N	
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	Y / N	
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	Blank
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	Y / N	
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	Y / N	
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	

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

HM Checklist

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

9.84-13

9.84-14

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

HM Checklist

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

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

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

Source: _____

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

Safe Drinking Water Act (SDWA) Screening Checklist

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

SDWA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 95-02 (A)	Do actual or potential cross-connections exist between potable (light green) and service water (dark green)?	Y / (N)	
OAC 3745 95-04 (B)(C)	Are backflow prevention devices installed where cross connections (hoses connected to faucets, hot water tank vented directly to a drain) exist?	Y / N	none required -
	Are sources of service water (janitorial and laboratory faucets, or outdoor spigots) posted as non-potable water sources?	Y / N	Potable Water
	Does the facility contain any water coolers or fountains that are not lead free? Complete Table C.	(Y) (N)	FOUNTAIN IS LEAD FREE MAKE & YR MANUFACTURED

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
67	OUTSIDE RM 10 6	UNKNOWN	MAKE OKAY

Source: VISUAL / EPA PROTOCOL

9.84-15

9.84-16

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

RCRA Screening Checklist

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

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 52-11	Has any material generated been characterized RCRA hazardous? Was charactarization by analysis or by process knowledge? Are lab results or documentation of process knowledge readily available? Note any uncharacterized material in comment section. Is it waste? If yes, proceed with next section.	Y / N analysis / process Y / N Y / N	Blank
OAC 3745 52-11	Are any of the materials noted RCRA hazardous waste? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed with the appropriate section below.	Y / N	

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

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	Blank
OAC 3475-52-34 (C)	Has any of the RCRA hazardous waste in this building been managed in Satellite Accumulation Areas? If no, proceed to the next section. If yes, answer the following.	Y / N	
	Are the containers marked with the words hazardous waste, or other words denoting the hazard?	Y / N	
	Are the containers in good condition?	Y / N	
	Are the waste compatible with the containers?	Y / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the plant site boundary?	Y / N	
	Are containers kept closed and locked except during filling?	Y / N	
	Are containers moved within 3 days of being filled?	Y / N	

9.84-17

9.84-18

Environmental Appraisal Checklist

Building Name: 47 Appraisers: Team #4 Date: 2-7-96

RCRA Checklist

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

Environmental Appraisal Checklist

Building Name: 47 Appraisers: Team # 4 Date: 2-7-96

RCRA Checklist

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

9.84-19

9.84-20

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

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	

General Comments:

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

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	
	Is there any evidence of friable asbestos?	Y / N	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N	NONE 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	

* BMQ indicates survey, NONE IDENTIFIED BUT ASSUMED.
VISUAL INSPECTION INDICATES NONE INSIDE BUILDING.
TO MECHANICAL ROOM. [illegible]

9.84-21

9.84-22

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

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) (ix)	Are any PCB transformers in use, or stored for possible reuse, that contain PCB's at concentrations of 500 ppm or greater?	Y / N	
	Are they visually inspected quarterly? If yes, are auditable records maintained?	Y / N	

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

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	

9.84-23

9.84-24

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

TSCA Checklist

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

GENERAL COMMENTS:

Environmental Appraisal Checklist

Building Name: 47 Appraisers: Team # 4 Date: 2-7-96

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	Blue
DOE Order 5820.2A Chapter III.	Are any of the materials noted by inspection LLW? If no, The audit would stop here, because there are no LLW. If yes, note the location of the management unit, and the method of management, and proceed with the section below.	Y / N	
DOE Order 5820.2A Chapter III, 3.a.	Have the storage configurations in use in this area been taken into account for keeping external exposures to the general public below 25 mrem/yr?	Y / N	
	Is the waste stored in a configuration that protects ground-water resources?	Y / N	
DOE Order 5820.2A Chapter III, 3.b.	Has monitoring been conducted in this area in accordance with DOE Order 5820.2A in order to evaluate the area against the performance standard?	Y / N	
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N	

Prior Ground condition according To Building Manager & Employees occupying Trailers during Building Construction. Approx 10 feet of Soil removed & Replaced with Select Fill, Possible prior contamination, Records. Not available To indicate possible contaminant.

9.84-25

9.84-26

Environmental Appraisal Checklist

Building Name: 47 Appraisers: Team #4 Date: 2-7-96

Low-Level Waste and Transuranic Waste Checklist

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

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

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	Blank
	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	

9.84-27

9.84-28

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

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	

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

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	

GENERAL COMMENTS:

9.84-29

9.84-30

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #1 Date: 2-7-96

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

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

Waste Minimization/Pollution Prevention Activities Checklist

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

Blank

9.84-31

9.84-32

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team # 4 Date: 2-7-96

Waste Minimization/Pollution Prevention Activities Checklist

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

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

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	Blank
	Does a waste hauler collect solvent waste for recycling or treatment?	Y / N	
OILS			
	What kind of oils are used?		
	Hydraulic oil?	Y / N	
	Transformer oil?	Y / N	
	Metal working fluids?	Y / N	
	Spent lubricating oils?	Y / N	
	Can the process be modified or changed to use water-based fluids?	Y / N	
	Are these good housekeeping and operation practices used to minimize oil waste production?		
	Use oils not contaminated with other liquids?	Y / N	
	Oil spills prevented?	Y / N	
	Drip pans installed?	Y / N	
	Oil soaked rags laundered?	Y / N	
	Rags and absorbants used to their limit?	Y / N	

9.84-33

9.84-34

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

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	Blank
	Centrifugation?	Y / N	
	Filtration?	Y / N	
SOLVENT WASTES			
	Has there been an attempt to reduce volume or toxicity by:		
	Eliminating solvents?	Y / N	
	Reducing the use of solvents?	Y / N	
	Reducing the loss of solvents?	Y / N	
	Increasing recyclability?	Y / N	
	Are solvents segregated?	Y / N	
	Are waste solvents free from water and garbage?	Y / N	
	Are recycled solvent containers labeled as such?	Y / N	
	Are containers kept closed?	Y / N	
	Free and sheltered from the elements?	Y / N	
	Are solvent tanks kept as free from contaminations as possible so that the waste can be recycled?	Y / N	
	Is a method used to minimize the use of new materials such as a countercurrent process?	Y / N	

Environmental Appraisal Checklist

Building Name: 67 Appraisers: Team #4 Date: 2-7-96

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?	_____ _____	

9.84-35

9.84.6.2 Building Manager's Questionnaire

Building Manager's Questionnaire

Building Name: 67 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 concrete-covered, polystyrene foam building with a metal roof. Total area is 3,787 ft^2. The building is not contaminated with any radioactive, energetic, or asbestos materials. However, the ground under the building may have been contaminated from prior activities.

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

5. Provide a drawing of the building.

Attached.

6. What is the current building use?

Building consists of operational support offices for Building 27 and Building 42.

Source: Mound Buildings, 5-9-95

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

None

Source: Mound Buildings, 5-9-95

9.84-39

Building Manager's Questionnaire

Building Name: 67 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: Offices

How Wastes Are Generated:

No hazardous wastes are generated in this building.

Contact:
Phone #:

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

9.84-40

Building Manager's Questionnaire

Building Name: 67 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)

Safe Shutdown

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

9.84-41

Building Manager's Questionnaire

Building Name: 67 Building Manager: R.A. Ward Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

Source: Air Permits 2/4/95

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

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

Source: Air Permits 2/4/95

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

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

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

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

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

9.84-42

Building Manager's Questionnaire

Building Name: 67 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

9.84-43

Building Manager's Questionnaire

Building Name: 67 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?

NONE

23. Where do excess janitorial supplies go?

NONE

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

9.84-44

Building Manager's Questionnaire

Building Name: 67 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

27. 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 Overflows
Y / N			Y / N	Y / N

Source: _____

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

Materials	Amount

Source: _____

9.84-45

Building Manager's Questionnaire

Building Name: 67 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: _____

9.84-46

Building Manager's Questionnaire

Building Name: 67 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: _____

9.84-47

Building Manager's Questionnaire

Building Name: 67 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.

9.84-48

Building Manager's Questionnaire

Building Name: 67 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)

9.84-49

TRANSITION PROGRAMS - EM AREA SAFE SHUTDOWN

BUILDING 67 LOW VALUE PROPERTY INVENTORY
1/4/98

9.84-51

67 ROOM ID	TRANSITION INVENTORY NUMBER	PROPERTY DESCRIPTION	TRANSFER TAG NUMBER	DISPOSITION	CONDITION CODE
115	4200	BIN, WALL HUNG OFFICE BINDER	24879	Excess	4 - Used, good
115	4201	BIN, WALL HUNG OFFICE BINDER	24820	Excess	4 - Used, good
115	4202	BIN, WALL HUNG OFFICE BINDER	24821	Excess	4 - Used, good
115	4203	BIN, WALL HUNG OFFICE BINDER	24816	Excess	4 - Used, good
115	4204	BIN, WALL HUNG OFFICE BINDER	24858	Excess	4 - Used, good
115	4205	BIN, WALL HUNG OFFICE BINDER	24857	Excess	4 - Used, good
115	4206	BIN, WALL HUNG OFFICE BINDER	24855	Excess	4 - Used, good
115	4207	BIN, WALL HUNG OFFICE BINDER	24856	Excess	4 - Used, good
115	4208	BIN, WALL HUNG OFFICE BINDER	24875	Excess	4 - Used, good
115	4209	SHELF, WALL HUNG OFFICE BOOK	24859	Excess	4 - Used, good
115	4210	SHELF, WALL HUNG OFFICE BOOK	24822	Excess	4 - Used, good
115	4211	SHELF, WALL HUNG OFFICE BOOK	24823	Excess	4 - Used, good
115	4212	SHELF, WALL HUNG OFFICE BOOK	24874	Excess	4 - Used, good
115	4213	SHELF, WALL HUNG OFFICE BOOK	24873	Excess	4 - Used, good
115	4214	SHELF, WALL HUNG OFFICE BOOK	24880	Excess	4 - Used, good
115	4215	SHELF, WALL HUNG OFFICE BOOK	24827	Excess	4 - Used, good
115	4216	SHELF, WALL HUNG OFFICE BOOK	24817	Excess	4 - Used, good
115	4217	SHELF, WALL HUNG OFFICE BOOK	24860	Excess	4 - Used, good
115	4218	SHELF, WALL HUNG OFFICE BOOK	24861	Excess	4 - Used, good
115	4219	SHELF, WALL HUNG OFFICE BOOK	24862	Excess	4 - Used, good
115	4220	BOOKCASE, 60-INCH	24836	Excess	4 - Used, good
115	4221	BOOKCASE, 60-INCH	24841	Excess	4 - Used, good
115	4222	BOOKCASE, 60-INCH	24866	Excess	4 - Used, good
115	4223	BOOKCASE, 38-INCH	24881	Excess	4 - Used, good
115	4224	BOOKCASE, 42-INCH	24840	Excess	4 - Used, good
115	4225	BOOKCASE, 38-INCH	4867	Excess	4 - Used, good
115	4226	BOOKCASE, STACKABLE	24829	Excess	4 - Used, good
115	4227	DESK, 5 DRAWER	24838	Excess	4 - Used, good
115	4228	DESK, 5 DRAWER	24846	Excess	4 - Used, good
115	4229	DESK, 5 DRAWER	24845	Excess	4 - Used, good
115	4230	CABINET, 5-DRAWER FILE	24831	Excess	4 - Used, good
115	4231	CABINET, 4-DRAWER FILE	24864	Excess	4 - Used, good
115	4232	CABINET, 2-DRAWER FILE	24868	Excess	4 - Used, good
115	4233	CABINET, 2-DRAWER LATERAL FILE	24863	Excess	4 - Used, good
115	4234	SAFE, 4-DRAWER	24872	Excess	4 - Used, good
115	4235	DESK, DRAFTING	24869	Excess	4 - Used, good
115	4236	STAND, PRINTER	24852	Excess	4 - Used, good
115	4237	STAND, PRINTER	24871	Excess	4 - Used, good
115	4238	DESK, 3-DRAWER	24870	Excess	4 - Used, good
115	4239	CHAIR, STACKABLE	28252	Excess	4 - Used, good
115	4240	CHAIR, STACKABLE	28251	Excess	4 - Used, good
115	4241	CHAIR, STACKABLE	28248	Excess	4 - Used, good

TRANSITION PROGRAMS - EM AREA SAFE SHUTDOWN

BUILDING 67 LOW VALUE PROPERTY INVENTORY

1/4/96

67 ROOM ID	TRANSITION INVENTORY NUMBER	PROPERTY DESCRIPTION	TRANSFER TAG NUMBER	DISPOSITION	CONDITION CODE
115	4242	CHAIR, STACKABLE	28278	Excess	4 - Used, good
115	4243	CHAIR, STACKABLE	28277	Excess	4 - Used, good
115	4244	CHAIR, STACKABLE	28279	Excess	4 - Used, good
115	4245	CHAIR, STACKABLE	28280	Excess	4 - Used, good
115	4246	CHAIR, STACKABLE	28250	Excess	4 - Used, good
115	4247	CHAIR, STACKABLE	28242	Excess	4 - Used, good
115	4248	CHAIR, STACKABLE	28243	Excess	4 - Used, good
115	4249	CHAIR, STACKABLE	28256	Excess	4 - Used, good
115	4250	CHAIR, STACKABLE	28257	Excess	4 - Used, good
115	4251	CHAIR, STACKABLE	28258	Excess	4 - Used, good
115	4252	CHAIR, STACKABLE	28261	Excess	4 - Used, good
115	4253	CHAIR, STACKABLE	28260	Excess	4 - Used, good
115	4254	CHAIR, STACKABLE	28259	Excess	4 - Used, good
115	4255	BOARD, BULLETIN	24891	Excess	4 - Used, good
115	4256	TABLE, COMPUTER	24892	Excess	4 - Used, good
115	4257	CABINET, 5-DRAWER FILE	24894	Excess	4 - Used, good
115	4258	SAFE, 4 DRAWER	24895	excess	4 - Used, good
115	4259	DESK, 6-DRAWER	24890	Excess	4 - Used, good
115	4260	CABINET, CARDFILE	4260	Excess	4 - Used, good
115	4261	CABINET, CARDFILE	24696	Excess	4 - Used, good
115	4262	CABINET, 5-DRAWER FILE	24888	Excess	4 - Used, good
115	4263	CART, COMPUTER	24687	Excess	4 - Used, good
115	4264	BOOKCASE, 60-INCH	24885	Excess	4 - Used, good
115	4265	BIN, DESK FILE	24886	Excess	4 - Used, good
115	4266	PANEL(S), 2 OFFICE PARTITION	4266	Excess	4 - Used, good
115	4267	PANEL(S), 7 OFFICE PARTITION	4267	Excess	4 - Used, good
115	4268	BIN, OFFICE WALL MOUNT BINDER	24912	Excess	4 - Used, good
115	4269	BIN, OFFICE WALL MOUNT BINDER	24913	Excess	4 - Used, good
115	4270	BIN, OFFICE WALL MOUNT BINDER	24914	Excess	4 - Used, good
115	4271	BIN, OFFICE WALL MOUNT BINDER	24899	Excess	4 - Used, good
115	4272	SHELF, OFFICE WALL MOUNT BOOK W/LIGHT	24915	Excess	4 - Used, good
115	4273	SHELF, OFFICE WALL MOUNT BOOK W/LIGHT	4273	Excess	4 - Used, good
115	4274	TABLE, CRADENZA	24908	Excess	4 - Used, good
115	4275	CABINET, 2-DRAWER LATERAL FILE	24909	Excess	4 - Used, good
115	4276	CABINET, 2-DRAWER LATERAL FILE	24911	Excess	4 - Used, good
115	4277	BOOKCASE, STACKABLE	24916	Excess	4 - Used, good
115	4278	ORGANIZER, DESK FILE	24917	Excess	4 - Used, good
115	4279	PANEL(S), 6 OFFICE PARTITION	4279	Excess	4 - Used, good
115	4280	BOOKCASE, 60-INCH	24924	Excess	4 - Used, good
115	4281	DESK, 5-DRAWER	24922	Excess	4 - Used, good
115	4282	ORGANIZER, DESK FILE	24923	Excess	4 - Used, good
115	4283	TABLE, 6-FOOT CONFERENCE	24921	Excess	4 - Used, good

9.84-52

TRANSITION PROGRAMS - EM AREA SAFE SHUTDOWN

BUILDING 67 LOW VALUE PROPERTY INVENTORY

1/4/96

67 ROOM ID	TRANSITION INVENTORY NUMBER	PROPERTY DESCRIPTION	TRANSFER TAG NUMBER	DISPOSITION	CONDITION CODE
104	4326	CHAIR, CONFERENCE ROOM	28254	Excess	4 - Used, good
104	4327	CHAIR, CONFERENCE ROOM	11457	Excess	4 - Used, good
104	4328	CHAIR, CONFERENCE ROOM	28249	Excess	4 - Used, good
104	4329	CHAIR, CONFERENCE ROOM	28201	Excess	4 - Used, good
104	4330	CHAIR, CONFERENCE ROOM	4330	Excess	4 - Used, good
104	4331	CHAIR, CONFERENCE ROOM	4331	Excess	4 - Used, good
104	4332	CHAIR, CONFERENCE ROOM	28244	Excess	4 - Used, good
104	4333	CHAIR, CONFERENCE ROOM	4333	Excess	4 - Used, good
104	4334	CHAIR, CONFERENCE ROOM	24884	Excess	4 - Used, good
104	4335	CHAIR, CONFERENCE ROOM	24865	Excess	4 - Used, good
104	4336	CHAIR, CONFERENCE ROOM	4336	Excess	4 - Used, good
104	4337	CHAIR, CONFERENCE ROOM	4337	Excess	4 - Used, good
104	4338	CHAIR, CONFERENCE ROOM	28272	Excess	4 - Used, good
104	4339	CHAIR, CONFERENCE ROOM	28270	Excess	4 - Used, good
104	4340	CHAIR, CONFERENCE ROOM	28274	Excess	4 - Used, good
104	4341	CHAIR, CONFERENCE ROOM	28273	Excess	4 - Used, good
104	4342	CHAIR, CONFERENCE ROOM	24830	Excess	4 - Used, good
104	4343	CHAIR, CONFERENCE ROOM	28245	Excess	4 - Used, good
104	4344	CHAIR, OFFICE SWIVEL	11487	Excess	4 - Used, good
104	4345	CHAIR, OFFICE SWIVEL	4345	Excess	4 - Used, good
104	4346	TABLE, 8-FOOT CONFERENCE	28231	Excess	4 - Used, good
104	4347	TABLE, 8-FOOT CONFERENCE	28233	Excess	4 - Used, good
104	4348	TABLE, 8-FOOT CONFERENCE	28232	Excess	4 - Used, good
104	4349	BOARD, ERASEABLE MARKER	28237	Excess	4 - Used, good
104	4350	BOARD, ERASEABLE MARKER	28239	Excess	4 - Used, good
104	4351	TABLE, ROUND CONFERENCE	28236	Excess	4 - Used, good
104	4352	BLACKBOARD	28238	Excess	4 - Used, good
104	4353	CRADENZA	28228	Excess	4 - Used, good
104	4354	BOOKCASE, 7-FOOT WOODEN	28229	Excess	4 - Used, good
104	4355	BOOKCASE, 7-FOOT WOODEN	28230	Excess	4 - Used, good
107	4356	CABINET, WALL MOUNT STORAGE	28277	Excess	4 - Used, good
107	4357	CABINET, 38-INCH STORAGE	28226	Excess	4 - Used, good
103	4358	DESK, 6-DRAWER	28282	Excess	4 - Used, good
103	4359	CHAIR, OFFICE SWIVEL	28286	Excess	4 - Used, good
103	4360	TABLE, COMPUTER	28283	Excess	4 - Used, good
103	4361	STAND, TYPEWRITER	28284	Excess	4 - Used, good
103	4362	BOOKCASE, 36-INCH	28285	Excess	4 - Used, good
103	4363	STAND, PRINTER	28281	Excess	4 - Used, good
103	4364	CHAIR, OFFICE SWIVEL	28306	Excess	4 - Used, good
102	4365	CHAIR, OFFICE SWIVEL	28304	Excess	4 - Used, good
102	4366	CHAIR, OFFICE SWIVEL	4366	Excess	4 - Used, good
102	4367	CHAIR, OFFICE SWIVEL	24825	Excess	4 - Used, good

TRANSITION PROGRAMS - EM AREA SAFE SHUTDOWN

BUILDING 67 LOW VALUE PROPERTY INVENTORY
1/4/96

67 ROOM ID	TRANSITION INVENTORY NUMBER	PROPERTY DESCRIPTION	TRANSFER TAG NUMBER	DISPOSITION	CONDITION CODE
102	4368	CHAIR, OFFICE SWIVEL	24834	Excess	4 - Used, good
102	4369	CHAIR, OFFICE SWIVEL	24883	Excess	4 - Used, good
102	4370	CHAIR, OFFICE SWIVEL	28309	Excess	4 - Used, good
102	4371	CABINET, PORTABLE FILE	28240	Excess	4 - Used, good
102	4372	BOOKCASE, 36-INCH	28288	Excess	4 - Used, good
102	4373	CABINET, 2-DRAWER FILE	28292	Excess	4 - Used, good
102	4374	TABLE, SMALL	28300	Excess	4 - Used, good
102	4375	TABLE, SMALL	28294	Excess	4 - Used, good
102	4376	DESK, 3-DRAWER	28295	Excess	4 - Used, good
102	4377	CABINET, 5-DRAWER FILE	28296	Excess	4 - Used, good
102	4378	DESK, 6-DRAWER	28299	Excess	4 - Used, good
102	4379	ORGANIZER, DESK FILE	28298	Excess	4 - Used, good
102	4380	TABLE, COMPUTER	28301	Excess	4 - Used, good
102	4381	BOARD, BULLETIN	28303	Excess	4 - Used, good

9.84-54

Appendix G

Radiological Summary/Information

RADIOLOGICAL SURVEY PLAN

FOR THE

DEMOLITION OF BUILDING 67

September 2, 1999

1.0 Introduction

This document defines the radiological sampling requirements for Building 67. The final disposition of the Building is demolition. Therefore, these radiological sampling requirements are those determined necessary prior to demolition activities. The debris from demolition activities is planned to be dispositioned by 1) Recycling the metal, and 2) placing concrete, masonry and all other debris in rolloffs and sending offsite.

This plan will describe the methodology for obtaining radiological data and the criteria from which to evaluate the radiological data. All structural components will be radiologically evaluated and surveyed as appropriate. Survey methods will include direct and removable contamination surveys, dose rate measurements, core asbestos and lead samples. The results of the data obtained will be used to see if the debris can be dispositioned as planned.

2.0 Scope

The physical boundary of the building consist of the building and a 15 foot perimeter surrounding the exterior of the building, which primarily consist of concrete. The scope of this plan includes the building and 15 foot perimeter, substructure foundation and utilities to 3 foot in depth. It does not include any foundation structure or utility greater than 3 foot in depth. These items will be addressed in another plan, as applicable, once demolition of the building has been completed.

The building was constructed in 1983 and has a known history of being used for office space to support the activities in Building 27 and 42. The building has been used for the same purpose since construction and ceased operation in the mid 1990's. Research, development and testing of radioactive materials have not occurred in the building.

3.0 Building Description

Building 67 was constructed in 1983, and is a one story structure built slab on grade. It is a 3,787-square-foot, concrete-covered, polystyrene foam building with a metal roof.

4.0 Radiological Survey Requirements

The "Generic Process for the Disp ..ion of Buildings that have Potential or Actual Radiological Contamination" was used as guidance to perform the confirmatory surveys. Regulatory Guide 1.86 and DOE Order 5400.5 "Radiation Protection of the Public and Environment" were used to ensure that radiation and contamination levels met the acceptable criteria. Additionally, radiological surveys were performed in accordance with Mound Site procedures, MD-80043, "Radiological Work Requirements" and MD-80036, " Radiological Operations Procedures." Pre-Disposition surveys were done, as well as requiring post demolition rolloff surveys before disposal.

4.0 Radiological Survey Requirements (continued)

The purpose of the confirmatory surveys was to verify that the building, or portions thereof, are radiologically clean based on evaluation of exiting information. The surveys are non destructive surveys and serve as a final check that the building does not have unexpected radiological contamination above existing radiological criteria (Regulatory Guide 1.86, DOE Order 5400.5). Verification surveys, had they been required by the existence of abnormalities, would have dictated further determination of radioactive constituents and the meeting of regulatory criteria for disposition of the building as a non radiological.

Provided the fact that no abnormalities (e.g., elevated readings) were detected, confirmatory surveys were adequate in determining the building to be radiologically clean. If abnormalities had been detected then verification surveys would have been required.

5.0 Sampling

The main objectives of this radiological plan are to:

1. Verify that any surface contamination values are below the guidelines of Figure IV-1 of DOE 5400.5 and Regulatory Guide 1.86.

2. Verify that no radiation dose measurements exceed the dose limits specified in DOE 5400.5. (Gamma radiation must not exceed background radiation by more than 20 uR/hour (0.02 mrem/hr).

3. Ensure the site and DOE agreed upon position for release of subsurface concrete in non RMMA areas is complied with, and that removable and direct contamination readings are taken on concrete surfaces below ground level removed down to the 3 foot level.

5.1 Interior Radiological Surveys

Confirmatory surveys were performed throughout the building interior. The confirmatory surveys included the floor, air vents and floor drains. Direct measurements were preformed on 100% of the floor area, using portable NE Electra instrumentation for alpha and beta radioactivity. Representative swipes were taken and analyzed for gross alpha, beta, and tritium activity. Biased sampling was performed at all vent ducts and floor drain locations within the building. The biased sampling included both direct and swipe measurements. If contamination had been found during performance of the confirmatory surveys, then the radiological survey requirements would have been expanded to include components of the verification surveys. The verification surveys would have included the overheads and walls if they had been necessary. The actual confirmatory survey results are included as part of this sampling plan on the enclosed RSDS.

5.2 Exterior Radiological Surveys

Exterior building surveys will be performed on subsurface concrete in contact with the slab foundation and soil samples randomly selected around and within the 15 foot perimeter of the building. The surveys of the concrete in contact with the soil will include 100% direct alpha and beta frisk. Representative swipes will also be taken and analyzed for alpha, beta and tritium radioactivity. The soil within the 15 foot radius of Building 67 will be randomly sampled and results compared against the MD-80036, "Radiological Operations Procedures, Operation 90020, "Posting and De-Posting Underground Radioactive Material Areas." The criteria in Operation 90020, meets the 10^{-5} EPA Risk Based Factors for industrial use scenario.

6.0 Discussion of Results

The known results of the radiological survey effort supports the planned disposition of the debris from Building 67. The objectives identified in Section 5 are met and verifiable on the attached RSDS survey results.

Objective 1: Verify that any surface contamination values are below the guidelines of Figure IV-1 of DOE 5400.5 and Regulatory Guide 1.86.

The interior and exterior direct and removable contamination surveys met the guidelines of Figure IV-1 of DOE 5400.5 and Regulatory Guide 1.86.

Objective 2 : Verify that no radiation dose measurements exceed the dose limits specified in DOE 5400.5 [Gamma radiation must not exceed background radiation by more than 20 uR/hour (0.02 mrem/hr)]

The interior radiation dose rates were well below the 0.02 mrem/hr criteria.

Objective 3: Ensure the site and DOE agreed upon position for release of subsurface concrete in non RMMA areas is complied with, and that removable and direct contamination readings are taken on concrete surfaces below ground level removed down to the 3 foot level.

The criteria established in the agreed to position met the guidelines of Figure IV-1 of DOE 5400.5 and Regulatory Guide 1.86.

7.0 References

1) DOE Order 5400.5, Radiation Protection of the Public and the Environment, 1/7/93.

7.0 References (continued)

2) Generic Process for the Disposition of Buildings that have Potential or Actual Radiological Contamination, March 1997.

3) N. Brown's Letter OHMB-0376-98, criteria for the disposal of subsurface concrete in non-RMMA areas.

F-1 / F-486 P 6

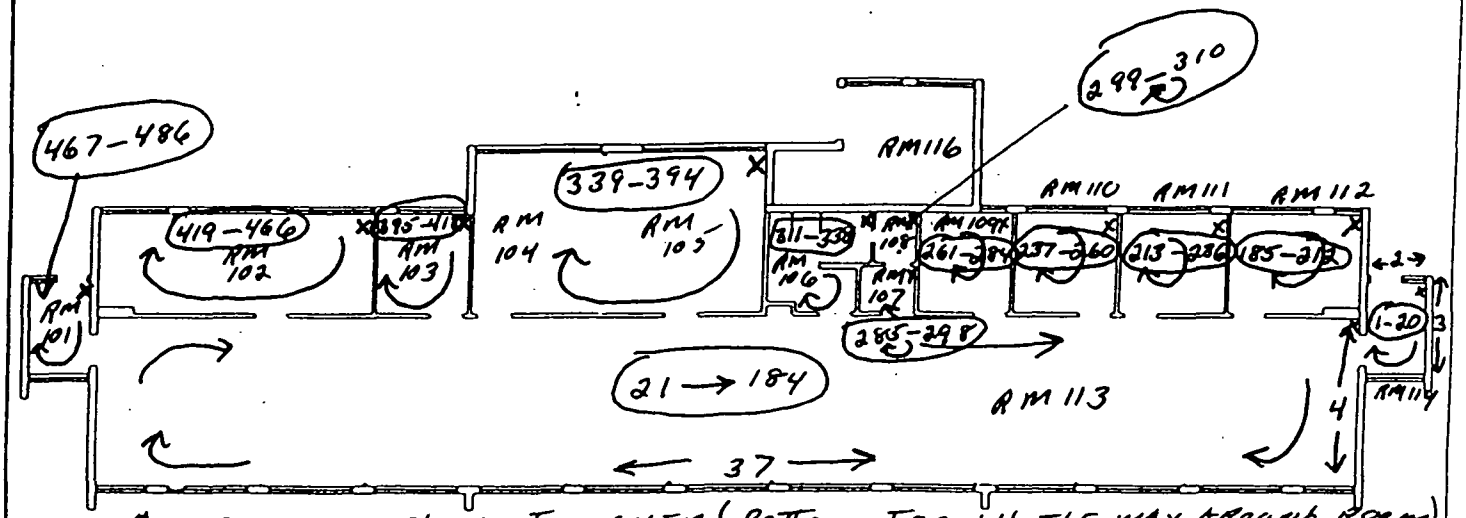
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) Bldg 67	SURVEY NO. 98-TF-1161
PURPOSE: SURVEY Bldg 67 FOR RELEASE WALLS	RWP NO. N/A
	DATE: 11-30-98
	TIME: 15:00

MAP/DRAWING

WEST →

TOOK DIRECT READINGS WITH NE AT OR NEAR EACH WIPE
α = <100 dpm/100cm²
β = <5K dpm/100cm²



wipe #1 - Bottom south WEST CORNER (Bottom - Top All THE WAY AROUND ROOM)
wipe #21 - Bottom south WEST CORNER (Bottom - Top All THE WAY AROUND ROOM
wipe #185 - Bottom south - WEST CORNER (BOTTOM - TOP All THE WAY AROUND ROOM)
wipe #213 - Bottom south - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #237 - Bottom south - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #261 - Bottom south - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #285 - Bottom south - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #299 - Bottom South - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #311 - Bottom south - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #339 - Bottom south - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #395 - Bottom South - WEST CORNER (Bottom - Top - All THE WAY AROUND ROOM)
wipe #419 - Bottom south - WEST CORNER (Bottom - Top - AM THE WAY AROUND ROOM)
wipe #467 - Bottom South - WEST CORNER (Bottom - Top - AM THE WAY AROUND ROOM)

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

COPY

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
NE	5402/5420	3-21-99
NO FURTHER ENTRIES		

[redacted]

HPs	Date:
5524	11-30-98
5268	12/1/98
6057	12/2/98

[redacted]

ML-9620 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				RM 114 - N. WALL
2				
3				
4				
5				
6				
7				N. WALL
8				
9				
10				
11				E. WALL
12				
13				
14				
15				
16				
17				S. WALL
18				
19				
20				
21				RM 113 - W. WALL
22				
23				
24				
25				
26				
27				
28				
29				N. WALL
30				
31				
32				
33				
34				
35				

SEE ATTACH FOR RESULTS

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36				RM 113 - N. WALL
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				

SEE ATTACH FOR RESULTS

COMMENTS: N/A

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

ML-9620 (2-98)

COPY

RADIOLOGICAL SURVEY DATA SHEET (cont.)

3 of 37

98-TF-1161

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
71				RM 113 - N. WALL
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84				
85				
86				
87				
88				
89				
90				
91				
92				
93				
94				
95				
96				
97				
98				
99				
100				
101				
102				
103				E. WALL
104				
105				

SEE ATTACH FOR RESULTS

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
106				RM 113 - E. WALL
107				
108				
109				
110				
111				S. WALL
112				
113				
114				
115				
116				
117				
118				
119				
120				
121				
122				
123				
124				
125				
126				
127				
128				
129				
130				
131				
132				
133				
134				
135				
136				
137				
138				
139				
140				

SEE ATTACH FOR RESULTS

COMMENTS: N/A

COPY

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 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

4437

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
141				RM113 - S. WALL
142				
143				
144				
145				
146				
147				
148				
149				
150				
151				
152				
153				
154				
155				
156				
157				
158				
159				
160				
161				
162				
163				
164				
165				
166				
167				
168				
169				
170				
171				
172				
173				
174				
175				

SEE ATTACH FOR RESULTS

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
176				RM113 - S. WALL
177				
178				
179				
180				
181				
182				
183				
184				
185				RM112 - W. WALL
186				
187				
188				
189				
190				
191				N. WALL
192				
193				
194				
195				
196				
197				
198				
199				E. WALL
200				
201				
202				
203				
204				
205				S. WALL
206				
207				
208				
209				
210				

SEE ATTACH FOR RESULTS

COMMENTS:
N/A

NOTES:

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

ML-9620 (2-98)

COPY

5237

RADIOLOGICAL SURVEY DATA SHEET (cont.)

98-TF-1161

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
211				RM 112 – S. WALL
212				↓ ↓
213				RM 111 – N. WALL
214				
215				
216				
217				
218				↓
219				N. WALL
220				
221				
222				
223				
224				↓
225				E. WALL
226				
227				
228				
229				
230				↓
231				S. WALL
232				
233				
234				
235				
236				↓ ↓
237				RM 110 – N. WALL
238				
239				
240				
241				
242				↓
243				N. WALL
244				
245				↓ ↓

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
246				RM 110 – N. WALL
247				
248				↓
249				E. WALL
250				
251				
252				
253				
254				↓
255				S. WALL
256				
257				
258				
259				
260				↓ ↓
261				RM 109 – N. WALL
262				
263				
264				
265				
266				↓
267				N. WALL
268				
269				
270				
271				
272				↓
273				E. WALL
274				
275				
276				
277				
278				↓
279				S. WALL
280				↓ ↓

SEE ATTACH FOR RESULTS

SEE ATTACH FOR RESULTS

COMMENTS: N/A

COPY

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.

6 of 37

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
281				RM109 - S.WALL
282				
283				
284				
285				RM107 - W.WALL
286				
287				
288				
289				N.WALL
290				
291				E.WALL
292				
293				
294				
295				S.WALL
296				
297				
298				
299				RM108 - W.WALL
300				
301				
302				
303				N.WALL
304				
305				E.WALL
306				
307				
308				
309				S.WALL
310				
311				RM106 - W.WALL
312				
313				
314				
315				

SEE ATTACH FOR RESULTS

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
316				RM106 - W.WALL
317				INNER N.W.
318				
319				OUTER N.W.
320				
321				N.WALL
322				
323				
324				
325				
326				
327				E.WALL
328				
329				
330				
331				
332				
333				S.WALL
334				
335				
336				
337				
338				
339				RM105 - W.WALL
340				
341				
342				
343				
344				
345				
346				
347				
348				
349				N.WALL
350				

SEE ATTACH FOR RESULTS

COMMENTS: N/A

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

ML-9620 (2-98)

COPY

78 37

RADIOLOGICAL SURVEY DATA SHEET (cont.)

98-TF-1161

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
351				RM105 - N. WALL
352				
353				
354				
355				
356				
357				
358				
359				
360				
361				
362				
363				
364				
365				
366				
367				E. WALL
368				
369				
370				
371				
372				
373				
374				
375				
376				
377				S. WALL
378				
379				
380				
381				
382				
383				
384				
385				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
386				RM105 - S. WALL
387				
388				
389				
390				
391				
392				
393				
394				
395				RM103 - W. WALL
396				
397				
398				
399				
400				
401				N. WALL
402				
403				
404				
405				
406				
407				E. WALL
408				
409				
410				
411				
412				
413				S. WALL
414				
415				
416				
417				
418				
419				RM102 - W. WALL
420				

SEE ATTACH FOR RESULTS

COMMENTS: N/A

COPY

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 (2-98)

RADIOLOGICAL SURVEY DATA SHEET (cont.)

0931

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
421				RM102 - W. WALL
422				
423				
424				
425				N. WALL
426				
427				
428				
429				
430				
431				
432				
433				
434				
435				
436				
437				
438				
439				
440				
441				
442				
443				E. WALL
444				
445				
446				
447				
448				
449				S. WALL
450				
451				
452				
453				
454				
455				

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
456				RM102 - S. WALL
457				
458				
459				
460				
461				
462				
463				
464				
465				
466				
467				RM101 - W. WALL
468				
469				
470				
471				
472				
473				N. WALL
474				
475				
476				
477				W. WALL
478				
479				
480				
481				
482				
483				S. WALL
484				
485				
486				

SEE ATTACH FOR RESULTS

NO FURTHER ENTRIES

COMMENTS: N/A = NOT APPLICABLE

All wipes < 1K dpm by NE. (FIELD COUNT)

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 (2-98)

COPY

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR068
Batch Ended: 12/1/98 10:25
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.41	2.02	<MDA	0.00	2.55	<MDA
A2	2	0.00	2.05	<MDA	0.12	1.94	<MDA
A3	3	0.00	2.03	<MDA	0.00	1.41	<MDA
A4	4	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	5	0.00	2.19	<MDA	1.72	2.55	<MDA
B2	6	0.00	2.05	<MDA	0.26	1.99	<MDA
B3	7	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	8	0.00	2.06	<MDA	3.35	2.84	<AL
C1	9	0.00	2.01	<MDA	2.89	2.64	<MDA
C2	10	0.00	2.00	<MDA	1.26	2.23	<MDA
C3	11	0.00	2.14	<MDA	0.00	1.30	<MDA
C4	12	0.00	2.12	<MDA	4.78	3.36	<AL
D1	13	0.00	1.98	<MDA	0.54	2.00	<MDA
D2	14	0.00	2.03	<MDA	0.38	2.01	<MDA
D3	15	0.86	2.33	<MDA	1.45	2.51	<MDA
D4	16	0.00	2.27	<MDA	5.92	3.39	<AL
A1	17	2.24	2.70	<MDA	0.00	1.75	<MDA
A2	18	0.00	2.05	<MDA	0.12	1.94	<MDA
A3	19	0.00	2.04	<MDA	1.02	2.33	<MDA
A4	20	1.69	2.07	<AL	0.00	1.41	<MDA
B1	21	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	22	5.51	3.50	<AL	0.00	1.48	<MDA
B3	23	3.16	2.88	<AL	0.36	1.99	<MDA
B4	24	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	25	0.00	2.00	<MDA	1.59	2.29	<MDA
C2	26	0.00	1.98	<MDA	0.00	1.40	<MDA
C3	27	0.00	2.15	<MDA	1.89	2.20	<MDA

COPY

98-TF-1161 9 of 37

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR068
Batch Ended: 12/1/98 10:25
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C4	28	1.16	2.08	<MDA	0.87	2.58	<MDA
D1	29	0.00	2.01	<MDA	5.95	3.37	<AL
D2	30	0.00	2.04	<MDA	3.08	2.77	<MDA
D3	31	0.00	2.33	<MDA	1.56	2.51	<MDA
D4	32	0.00	2.24	<MDA	1.80	2.41	<MDA
A1	33	0.41	1.98	<MDA	0.00	1.75	<MDA
A2	34	3.31	2.85	<AL	1.10	2.34	<MDA
A3	35	0.00	2.04	<MDA	2.33	2.67	<MDA
A4	36	1.69	2.10	<AL	1.08	2.33	<MDA
B1	37	1.56	2.19	<MDA	0.18	2.13	<MDA
B2	38	5.50	3.50	<AL	0.00	1.99	<MDA
B3	39	1.16	2.08	<MDA	0.47	1.99	<MDA
B4	40	3.77	2.85	<AL	0.00	1.63	<MDA
C1	41	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	42	0.00	2.00	<MDA	1.26	2.23	<MDA
C3	43	0.00	2.14	<MDA	0.63	1.81	<MDA
C4	44	0.00	2.08	<MDA	1.04	2.58	<MDA
D1	45	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	46	1.43	2.04	<MDA	2.95	2.77	<MDA
D3	47	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	48	1.71	2.24	<MDA	1.66	2.41	<MDA
A1	49	0.00	2.03	<MDA	0.00	2.87	<MDA
A2	50	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	51	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	52	1.69	2.07	<AL	0.00	1.41	<MDA
B1	53	0.00	2.21	<MDA	4.52	3.23	<AL
B2	54	0.00	2.05	<MDA	0.26	1.99	<MDA
B3	55	0.00	2.08	<MDA	0.57	1.99	<MDA
B4	56	0.00	2.06	<MDA	3.35	2.84	<AL

COPY

10837
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR068
Batch Ended: 12/1/98 10:25
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C1	57	0.00	2.02	<MDA	4.20	2.94	<AL
C2	58	0.00	1.98	<MDA	0.00	1.40	<MDA
C3	59	0.00	2.16	<MDA	3.15	2.54	<AL
C4	60	1.16	2.10	<MDA	2.12	2.86	<MDA
D1	61	0.00	1.98	<MDA	0.54	2.00	<MDA
D2	62	1.43	2.04	<MDA	2.95	2.77	<MDA
D3	63	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	64	0.00	2.23	<MDA	0.00	1.42	<MDA
A1	65	2.23	2.72	<MDA	0.00	2.55	<MDA
A2	66	1.35	2.03	<MDA	0.00	1.42	<MDA
A3	67	1.58	2.03	<MDA	0.00	1.41	<MDA
A4	68	1.69	2.08	<AL	0.00	1.93	<MDA
B1	69	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	70	1.49	2.05	<MDA	0.13	1.99	<MDA
B3	71	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	72	3.77	2.85	<AL	0.00	1.63	<MDA
C1	73	1.59	2.01	<MDA	2.74	2.64	<MDA
C2	74	0.00	2.02	<MDA	3.71	2.82	<AL
C3	75	0.00	2.14	<MDA	0.00	1.30	<MDA
C4	76	0.00	2.10	<MDA	2.28	2.86	<MDA
D1	77	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	78	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	79	0.86	2.33	<MDA	1.45	2.51	<MDA
D4	80	0.00	2.25	<MDA	3.17	2.77	<AL
A1	81	0.00	1.98	<MDA	0.00	1.75	<MDA
A2	82	5.29	3.45	<AL	0.00	1.42	<MDA
A3	83	1.58	2.03	<MDA	0.00	1.41	<MDA
A4	84	1.69	2.10	<AL	1.08	2.33	<MDA
B1	85	3.67	3.02	<AL	0.00	1.60	<MDA

COPY

1911-TF-1161
98-TF
11437

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR068
Batch Ended: 12/1/98 10:25
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
B2	86	1.50	2.04	<MDA	0.00	1.48	<MDA
B3	87	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	88	0.00	2.05	<MDA	2.01	2.50	<MDA
C1	89	0.00	1.99	<MDA	0.29	1.89	<MDA
C2	90	0.00	2.01	<MDA	2.48	2.54	<MDA
C3	91	0.00	2.15	<MDA	1.89	2.20	<MDA
C4	92	0.00	2.11	<MDA	3.53	3.12	<MDA
D1	93	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	94	1.43	2.04	<MDA	2.95	2.77	<MDA
D3	95	0.88	2.32	<MDA	0.00	1.63	<MDA
D4	96	0.00	2.26	<MDA	4.55	3.10	<AL

COPY

12 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR069
Batch Ended: 12/1/98 10:51
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	97	0.00	2.08	<MDA	3.15	3.66	<MDA
A2	98	0.00	2.08	<MDA	4.06	2.99	<AL
A3	99	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	100	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	101	0.00	2.21	<MDA	4.52	3.23	<AL
B2	102	1.47	2.07	<MDA	2.79	2.74	<MDA
B3	103	1.16	2.07	<MDA	0.00	1.47	<MDA
B4	104	0.00	2.05	<MDA	2.01	2.50	<MDA
C1	105	0.00	2.01	<MDA	2.89	2.64	<MDA
C2	106	0.00	1.98	<MDA	0.00	1.40	<MDA
C3	107	1.66	2.17	<MDA	4.28	2.83	<AL
C4	108	0.00	2.05	<MDA	0.00	1.40	<MDA
D1	109	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	110	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	111	5.25	3.86	<AL	0.00	1.63	<MDA
D4	112	0.00	2.23	<MDA	0.43	1.98	<MDA
A1	113	2.24	2.70	<MDA	0.00	1.75	<MDA
A2	114	1.35	2.03	<MDA	0.00	1.42	<MDA
A3	115	1.58	2.03	<MDA	0.00	1.92	<MDA
A4	116	1.69	2.07	<AL	0.00	1.41	<MDA
B1	117	1.60	2.18	<MDA	0.00	1.60	<MDA
B2	118	1.49	2.05	<MDA	0.13	1.99	<MDA
B3	119	0.00	2.08	<MDA	1.91	2.40	<MDA
B4	120	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	121	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	122	0.00	1.99	<MDA	0.03	1.86	<MDA
C3	123	1.67	2.14	<MDA	0.51	1.81	<MDA

COPY

13437
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR069
Batch Ended: 12/1/98 10:51
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C4	124	0.00	2.14	<MDA	6.03	3.59	<AL
D1	125	1.56	1.98	<AL	0.40	2.00	<MDA
D2	126	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	127	3.07	3.18	<AL	0.00	1.63	<MDA
D4	128	0.00	2.24	<MDA	1.80	2.41	<MDA
A1	129	0.40	2.03	<MDA	0.00	2.87	<MDA
A2	130	0.00	2.06	<MDA	1.43	2.34	<MDA
A3	131	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	132	0.00	2.11	<MDA	2.56	2.68	<MDA
B1	133	1.52	2.20	<MDA	2.98	2.91	<MDA
B2	134	0.00	2.07	<MDA	2.92	2.74	<MDA
B3	135	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	136	0.00	2.04	<MDA	0.67	2.11	<MDA
C1	137	1.59	2.01	<MDA	2.74	2.64	<MDA
C2	138	3.50	2.80	<AL	3.42	2.82	<AL
C3	139	0.00	2.14	<MDA	0.63	1.81	<MDA
C4	140	0.00	2.10	<MDA	2.28	2.86	<MDA
D1	141	1.57	1.97	<AL	0.00	1.47	<MDA
D2	142	0.00	2.03	<MDA	0.38	2.01	<MDA
D3	143	0.00	2.36	<MDA	8.29	3.92	<AL
D4	144	0.00	2.25	<MDA	3.17	2.77	<AL
A1	145	0.41	2.00	<MDA	0.00	2.18	<MDA
A2	146	1.35	2.05	<MDA	0.00	1.94	<MDA
A3	147	0.00	2.03	<MDA	0.00	1.41	<MDA
A4	148	0.00	2.08	<MDA	0.00	1.93	<MDA
B1	149	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	150	1.50	2.04	<MDA	0.00	1.48	<MDA
B3	151	0.00	2.09	<MDA	3.25	2.74	<AL
B4	152	0.00	2.04	<MDA	0.00	1.63	<MDA

14 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR069
Batch Ended: 12/1/98 10:51
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C1	153	1.59	2.02	<MDA	4.04	2.94	<AL
C2	154	3.51	2.78	<AL	0.00	1.40	<MDA
C3	155	0.00	2.14	<MDA	0.63	1.81	<MDA
C4	156	0.00	2.11	<MDA	3.53	3.12	<MDA
D1	157	1.56	1.98	<AL	0.40	2.00	<MDA
D2	158	0.00	2.04	<MDA	1.73	2.42	<MDA
D3	159	0.00	2.33	<MDA	1.56	2.51	<MDA
D4	160	1.73	2.23	<MDA	0.00	1.42	<MDA
A1	161	0.41	1.98	<MDA	0.00	1.75	<MDA
A2	162	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	163	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	164	0.00	2.08	<MDA	0.00	1.93	<MDA
B1	165	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	166	3.51	2.86	<AL	0.00	1.48	<MDA
B3	167	0.00	2.08	<MDA	0.57	1.99	<MDA
B4	168	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	169	0.00	1.99	<MDA	0.29	1.89	<MDA
C2	170	1.57	1.98	<AL	0.00	1.40	<MDA
C3	171	1.67	2.14	<MDA	0.00	1.30	<MDA
C4	172	0.00	2.11	<MDA	3.53	3.12	<MDA
D1	173	0.00	1.99	<MDA	1.89	2.42	<MDA
D2	174	1.46	2.02	<MDA	0.00	1.49	<MDA
D3	175	0.86	2.33	<MDA	1.45	2.51	<MDA
D4	176	0.00	2.26	<MDA	4.55	3.10	<AL
A1	177	0.00	2.02	<MDA	0.00	2.55	<MDA
A2	178	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	179	0.00	2.04	<MDA	1.02	2.33	<MDA
A4	180	0.00	2.10	<MDA	1.25	2.33	<MDA
B1	181	1.58	2.18	<MDA	0.00	1.60	<MDA

COPY

15 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR069
Batch Ended: 12/1/98 10:51
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
B2	182	1.52	2.04	<MDA	0.00	1.48	<MDA
B3	183	0.00	2.08	<MDA	0.57	1.99	<MDA
B4	184	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	185	0.00	2.00	<MDA	1.59	2.29	<MDA
C2	186	1.56	2.00	<MDA	1.12	2.23	<MDA
C3	187	1.67	2.14	<MDA	0.00	1.30	<MDA
C4	188	0.00	2.10	<MDA	2.28	2.86	<MDA
D1	189	1.55	1.99	<MDA	1.75	2.42	<MDA
D2	190	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	191	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	192	0.00	2.23	<MDA	0.00	1.42	<MDA
A1	193	2.23	2.73	<MDA	0.00	2.87	<MDA
A2	194	1.35	2.03	<MDA	0.00	1.42	<MDA
A3	195	0.00	2.03	<MDA	0.00	1.41	<MDA
A4	196	0.00	2.10	<MDA	1.25	2.33	<MDA
B1	197	3.67	3.02	<AL	0.00	1.60	<MDA
B2	198	1.49	2.05	<MDA	0.13	1.99	<MDA
B3	199	0.00	2.09	<MDA	3.25	2.74	<AL
B4	200	0.00	2.05	<MDA	2.01	2.50	<MDA

COPY

16 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR0701
Batch Ended: 12/1/98 11:21
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	201	0.00	2.02	<MDA	0.00	2.55	<MDA
A2	202	0.00	2.05	<MDA	0.12	1.94	<MDA
A3	203	5.58	3.48	<AL	0.00	1.92	<MDA
A4	204	0.00	2.08	<MDA	0.00	1.93	<MDA
B1	205	1.56	2.19	<MDA	0.18	2.13	<MDA
B2	206	0.00	2.06	<MDA	1.59	2.39	<MDA
B3	207	1.14	2.09	<MDA	3.14	2.74	<AL
B4	208	1.76	2.04	<AL	0.00	1.63	<MDA
C1	209	1.59	2.03	<MDA	5.34	3.22	<AL
C2	210	0.00	1.98	<MDA	0.00	1.40	<MDA
C3	211	0.00	2.14	<MDA	0.00	1.30	<MDA
C4	212	0.00	2.11	<MDA	3.53	3.12	<MDA
D1	213	1.58	1.97	<AL	0.00	1.47	<MDA
D2	214	0.00	2.04	<MDA	1.73	2.42	<MDA
D3	215	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	216	0.00	2.23	<MDA	0.00	1.42	<MDA
A1	217	0.00	2.00	<MDA	0.00	2.18	<MDA
A2	218	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	219	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	220	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	221	1.50	2.21	<MDA	4.39	3.23	<AL
B2	222	0.00	2.04	<MDA	0.00	1.48	<MDA
B3	223	1.16	2.07	<MDA	0.00	1.47	<MDA
B4	224	1.74	2.05	<AL	1.87	2.50	<MDA
C1	225	0.00	1.99	<MDA	0.29	1.89	<MDA
C2	226	0.00	2.01	<MDA	2.48	2.54	<MDA
C3	227	0.00	2.14	<MDA	0.00	1.30	<MDA

COPY

17837
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR070
Batch Ended: 12/1/98 11:21
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C4	228	1.16	2.07	<MDA	0.00	2.25	<MDA
D1	229	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	230	0.00	2.03	<MDA	0.38	2.01	<MDA
D3	231	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	232	0.00	2.23	<MDA	0.43	1.98	<MDA
A1	233	4.06	3.30	<AL	0.00	3.15	<MDA
A2	234	0.00	2.05	<MDA	0.12	1.94	<MDA
A3	235	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	236	1.69	2.08	<AL	0.00	1.93	<MDA
B1	237	1.54	2.19	<MDA	1.58	2.55	<MDA
B2	238	0.00	2.06	<MDA	1.59	2.39	<MDA
B3	239	0.00	2.08	<MDA	0.57	1.99	<MDA
B4	240	1.74	2.05	<AL	1.87	2.50	<MDA
C1	241	0.00	2.01	<MDA	2.89	2.64	<MDA
C2	242	1.56	1.99	<MDA	0.00	1.86	<MDA
C3	243	0.00	2.14	<MDA	0.63	1.81	<MDA
C4	244	0.00	2.11	<MDA	3.53	3.12	<MDA
D1	245	0.00	1.98	<MDA	0.54	2.00	<MDA
D2	246	0.00	2.04	<MDA	3.08	2.77	<MDA
D3	247	0.88	2.32	<MDA	0.00	1.63	<MDA
D4	248	3.88	3.14	<AL	2.90	2.77	<MDA
A1	249	0.00	2.03	<MDA	0.00	2.87	<MDA
A2	250	1.35	2.03	<MDA	0.00	1.42	<MDA
A3	251	3.58	2.85	<AL	0.00	1.41	<MDA
A4	252	0.00	2.07	<MDA	0.00	1.41	<MDA
C3	253	0.00	2.14	<MDA	0.00	1.30	<MDA
B1	253	0.00	2.18	<MDA	0.00	1.60	<MDA
B2	254	0.00	2.05	<MDA	0.26	1.99	<MDA
B3	255	0.00	2.08	<MDA	1.91	2.40	<MDA

COPY

18 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR070
Batch Ended: 12/1/98 11:21
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

* See last page for * #251 12/1/98 bd

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
B4	256	1.76	2.04	<AL	0.00	1.63	<MDA
C1	257	0.00	1.99	<MDA	0.29	1.89	<MDA
C2	258	5.45	3.39	<AL	0.00	1.86	<MDA
C4	260	0.00	2.11	<MDA	3.53	3.12	<MDA
D1	261	1.54	1.99	<MDA	3.10	2.77	<AL
D2	262	0.00	2.04	<MDA	3.08	2.77	<MDA
D3	263	3.04	3.20	<MDA	2.69	2.85	<MDA
D4	264	0.00	2.25	<MDA	3.17	2.77	<AL
A1	265	0.00	2.02	<MDA	0.00	2.55	<MDA
A2	266	0.00	2.07	<MDA	2.75	2.68	<MDA
A3	267	3.58	2.85	<AL	0.81	2.33	<MDA
A4	268	3.71	2.91	<AL	0.00	1.93	<MDA
B1	269	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	270	0.00	2.05	<MDA	0.26	1.99	<MDA
B3	271	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	272	0.00	2.04	<MDA	0.67	2.11	<MDA
C1	273	1.59	2.00	<AL	1.44	2.29	<MDA
C2	274	0.00	2.00	<MDA	1.26	2.23	<MDA
C3	275	1.67	2.15	<MDA	1.76	2.20	<MDA
C4	276	3.15	2.89	<AL	0.71	2.58	<MDA
D1	277	0.00	1.98	<MDA	0.54	2.00	<MDA
D2	278	0.00	2.03	<MDA	0.38	2.01	<MDA
D3	279	0.00	2.33	<MDA	2.91	2.85	<MDA
D4	280	1.70	2.25	<MDA	3.04	2.77	<MDA
A1	281	0.41	2.02	<MDA	0.00	2.55	<MDA
A2	282	1.35	2.03	<MDA	0.00	1.42	<MDA
A3	283	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	284	0.00	2.08	<MDA	0.00	1.93	<MDA
B1	285	0.00	2.19	<MDA	0.31	2.13	<MDA

COPY

19 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR070
Batch Ended: 12/1/98 11:21
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
B2	286	0.00	2.04	<MDA	0.00	1.48	<MDA
B3	287	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	288	1.77	2.04	<AL	0.00	1.63	<MDA
C1	289	1.59	2.00	<AL	1.44	2.29	<MDA
C2	290	0.00	1.99	<MDA	0.03	1.86	<MDA
C3	291	1.67	2.14	<MDA	0.00	1.30	<MDA
C4	292	1.16	2.06	<MDA	0.00	1.88	<MDA
D1	293	1.54	1.99	<MDA	3.10	2.77	<AL
D2	294	1.44	2.04	<MDA	1.60	2.42	<MDA
D3	295	0.00	2.32	<MDA	0.21	2.12	<MDA
D4	296	0.00	2.23	<MDA	0.00	1.42	<MDA
A1	297	0.00	1.98	<MDA	0.00	1.75	<MDA
A2	298	3.31	2.85	<AL	1.10	2.34	<MDA
A3	299	0.00	2.04	<MDA	1.02	2.33	<MDA
A4	300	0.00	2.08	<MDA	0.00	1.93	<MDA

COPY

20 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR072
Batch Ended: 12/1/98 13:58
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A2	301	1.35	2.03	<MDA	0.00	1.42	<MDA
A3	302	0.00	2.03	<MDA	0.00	1.41	<MDA
A4	303	0.00	2.08	<MDA	0.00	1.93	<MDA
B1	304	1.56	2.19	<MDA	0.18	2.13	<MDA
B2	305	1.49	2.05	<MDA	0.13	1.99	<MDA
B3	306	0.00	2.08	<MDA	1.91	2.40	<MDA
B4	307	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	308	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	309	1.57	1.98	<AL	0.00	1.40	<MDA
C3	310	0.00	2.14	<MDA	0.63	1.81	<MDA
C4	311	0.00	2.07	<MDA	0.00	2.25	<MDA
D1	312	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	313	0.00	2.03	<MDA	0.38	2.01	<MDA
D3	314	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	315	0.00	2.23	<MDA	0.43	1.98	<MDA
A2	316	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	317	1.58	2.03	<MDA	0.00	1.41	<MDA
A4	318	1.69	2.07	<AL	0.00	1.41	<MDA
B1	319	0.00	2.18	<MDA	0.00	1.60	<MDA
B2	320	0.00	2.06	<MDA	1.59	2.39	<MDA
B3	321	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	322	1.76	2.04	<AL	0.00	1.63	<MDA
C1	323	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	324	0.00	1.99	<MDA	0.03	1.86	<MDA
C3	325	0.00	2.15	<MDA	1.89	2.20	<MDA
C4	326	0.00	2.14	<MDA	6.03	3.59	<AL
D1	327	0.00	1.97	<MDA	0.00	1.47	<MDA

COPY

21 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR072
Batch Ended: 12/1/98 13:58
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D2	328	0.00	2.03	<MDA	0.38	2.01	<MDA
D3	329	0.00	2.32	<MDA	0.21	2.12	<MDA
D4	330	0.00	2.23	<MDA	0.00	1.43	<MDA
A2	331	0.00	2.06	<MDA	1.43	2.34	<MDA
A3	332	0.00	2.03	<MDA	0.00	1.41	<MDA
A4	333	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	334	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	335	0.00	2.06	<MDA	1.59	2.39	<MDA
B3	336	0.00	2.09	<MDA	3.25	2.74	<AL
B4	337	0.00	2.06	<MDA	3.35	2.84	<AL
C1	338	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	339	0.00	1.99	<MDA	0.03	1.86	<MDA
C3	340	0.00	2.15	<MDA	1.89	2.20	<MDA
C4	341	0.00	2.08	<MDA	1.04	2.58	<MDA
D1	342	1.57	1.97	<AL	0.00	1.47	<MDA
D2	343	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	344	0.87	2.32	<MDA	0.10	2.12	<MDA
D4	345	1.74	2.23	<AL	0.00	1.43	<MDA
A2	346	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	347	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	348	1.69	2.08	<AL	0.00	1.93	<MDA
B1	349	0.00	2.18	<MDA	0.00	1.60	<MDA
B2	350	0.00	2.04	<MDA	0.00	1.48	<MDA
B3	351	0.00	2.08	<MDA	0.57	1.99	<MDA
B4	352	1.76	2.04	<AL	0.00	1.63	<MDA
C1	353	1.59	2.00	<AL	1.44	2.29	<MDA
C2	354	1.56	1.99	<MDA	0.00	1.86	<MDA
C3	355	0.00	2.14	<MDA	0.00	1.30	<MDA
C4	356	0.00	2.07	<MDA	0.00	2.25	<MDA

COPY

22837
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR072
Batch Ended: 12/1/98 13:58
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D1	357	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	358	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	359	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	360	0.00	2.23	<MDA	0.00	1.43	<MDA
A2	361	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	362	0.00	2.03	<MDA	0.00	1.41	<MDA
A4	363	1.69	2.11	<AL	2.40	2.68	<MDA
B1	364	1.54	2.19	<MDA	1.58	2.55	<MDA
B2	365	0.00	2.06	<MDA	1.59	2.39	<MDA
B3	366	1.16	2.08	<MDA	0.47	1.99	<MDA
B4	367	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	368	0.00	2.02	<MDA	4.20	2.94	<AL
C2	369	0.00	2.01	<MDA	2.48	2.54	<MDA
C3	370	0.00	2.15	<MDA	1.89	2.20	<MDA
C4	371	0.00	2.07	<MDA	0.00	2.25	<MDA
D1	372	0.00	1.99	<MDA	1.89	2.42	<MDA
D2	373	0.00	2.04	<MDA	1.73	2.42	<MDA
D3	374	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	375	0.00	2.23	<MDA	0.00	1.42	<MDA
A2	376	0.00	2.07	<MDA	2.75	2.68	<MDA
A3	377	1.58	2.03	<MDA	0.00	1.41	<MDA
A4	378	0.00	2.08	<MDA	0.00	1.93	<MDA
B1	379	0.00	2.18	<MDA	0.00	1.60	<MDA
B2	380	0.00	2.08	<MDA	4.25	3.04	<AL
B3	381	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	382	1.74	2.05	<AL	1.87	2.50	<MDA
C1	383	1.59	1.99	<AL	0.13	1.89	<MDA
C2	384	0.00	1.98	<MDA	0.00	1.40	<MDA
C3	385	1.66	2.19	<MDA	8.05	3.57	<AL

23 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR072
Batch Ended: 12/1/98 13:58
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C4	386	0.00	2.12	<MDA	4.78	3.36	<AL
D1	387	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	388	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	389	0.00	2.33	<MDA	1.56	2.51	<MDA
D4	390	1.74	2.23	<AL	0.00	1.43	<MDA
A2	391	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	392	1.58	2.04	<MDA	0.91	2.33	<MDA
A4	393	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	394	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	395	3.51	2.86	<AL	0.00	1.48	<MDA
B3	396	0.00	2.07	<MDA	0.00	1.47	<MDA
B4	397	1.77	2.04	<AL	0.00	1.63	<MDA
C1	398	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	399	0.00	1.98	<MDA	0.00	1.40	<MDA
C3	400	0.00	2.14	<MDA	0.00	1.30	<MDA
C4	401	0.00	2.05	<MDA	0.00	1.40	<MDA
D1	402	0.00	1.99	<MDA	1.89	2.42	<MDA
D2	403	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	404	0.00	2.33	<MDA	1.56	2.51	<MDA
D4	405	0.00	2.23	<MDA	0.00	1.43	<MDA

COPY

24 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR073
Batch Ended: 12/1/98 14:48
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A2	406	1.35	2.03	<MDA	0.00	1.42	<MDA
A3	407	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	408	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	409	0.00	2.19	<MDA	0.31	2.13	<MDA
B2	410	0.00	2.08	<MDA	4.25	3.04	<AL
B3	411	0.00	2.08	<MDA	0.57	1.99	<MDA
B4	412	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	413	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	414	0.00	1.99	<MDA	0.03	1.86	<MDA
C3	415	0.00	2.14	<MDA	0.00	1.30	<MDA
C4	416	0.00	2.06	<MDA	0.00	1.88	<MDA
D1	417	0.00	1.99	<MDA	1.89	2.42	<MDA
D2	418	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	419	0.00	2.33	<MDA	1.56	2.51	<MDA
D4	420	0.00	2.23	<MDA	0.43	1.98	<MDA
A2	421	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	422	0.00	2.03	<MDA	0.00	1.41	<MDA
A4	423	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	424	0.00	2.20	<MDA	3.12	2.91	<MDA
B2	425	0.00	2.05	<MDA	0.26	1.99	<MDA
B3	426	0.00	2.08	<MDA	1.91	2.40	<MDA
B4	427	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	428	0.00	1.99	<MDA	0.29	1.89	<MDA
C2	429	1.56	1.99	<MDA	0.00	1.86	<MDA
C3	430	0.00	2.15	<MDA	1.89	2.20	<MDA
C4	431	0.00	2.08	<MDA	1.04	2.58	<MDA
D1	432	1.55	1.99	<MDA	1.75	2.42	<MDA

COPY

2 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR073
Batch Ended: 12/1/98 14:48
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D2	433	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	434	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	435	0.00	2.23	<MDA	0.00	1.42	<MDA
A2	436	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	437	3.58	2.85	<AL	0.00	1.41	<MDA
A4	438	1.69	2.08	<AL	0.00	1.93	<MDA
B1	439	0.00	2.20	<MDA	3.12	2.91	<MDA
B2	440	1.44	2.08	<MDA	5.44	3.32	<AL
B3	441	0.00	2.08	<MDA	0.57	1.99	<MDA
B4	442	1.76	2.04	<AL	0.00	1.63	<MDA
C1	443	0.00	1.98	<MDA	0.00	1.37	<MDA
C2	444	0.00	2.01	<MDA	2.48	2.54	<MDA
C3	445	0.00	2.14	<MDA	0.63	1.81	<MDA
C4	446	0.00	2.06	<MDA	0.00	1.88	<MDA
D1	447	0.00	1.97	<MDA	0.00	1.47	<MDA
D2	448	0.00	2.03	<MDA	0.38	2.01	<MDA
D3	449	0.00	2.32	<MDA	0.21	2.12	<MDA
D4	450	0.00	2.23	<MDA	0.43	1.98	<MDA
A2	451	0.00	2.05	<MDA	0.12	1.94	<MDA
A3	452	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	453	3.71	2.91	<AL	0.00	1.93	<MDA
B1	454	0.00	2.19	<MDA	1.72	2.55	<MDA
B2	455	0.00	2.05	<MDA	0.26	1.99	<MDA
B3	456	1.16	2.08	<MDA	0.47	1.99	<MDA
B4	457	0.00	2.04	<MDA	0.00	1.63	<MDA
C1	458	0.00	1.99	<MDA	0.29	1.89	<MDA
C2	459	1.57	1.98	<AL	0.00	1.40	<MDA
C3	460	1.67	2.14	<MDA	0.00	1.30	<MDA
C4	461	0.00	2.10	<MDA	2.28	2.86	<MDA

26 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR073
Batch Ended: 12/1/98 14:48
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
D1	462	1.57	1.97	<AL	0.00	1.47	<MDA
D2	463	1.46	2.02	<MDA	0.00	1.49	<MDA
D3	464	0.00	2.33	<MDA	1.56	2.51	<MDA
D4	465	0.00	2.23	<MDA	0.43	1.98	<MDA
A2	466	0.00	2.03	<MDA	0.00	1.42	<MDA
A3	467	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	468	0.00	2.07	<MDA	0.00	1.41	<MDA
B1	469	0.00	2.19	<MDA	1.72	2.55	<MDA
B2	470	0.00	2.06	<MDA	1.59	2.39	<MDA
B3	471	1.16	2.07	<MDA	0.00	1.47	<MDA
B4	472	1.73	2.06	<AL	3.21	2.84	<AL
C1	473	0.00	1.99	<MDA	0.29	1.89	<MDA
C2	474	0.00	1.98	<MDA	0.00	1.40	<MDA
C3	475	1.67	2.14	<MDA	0.00	1.30	<MDA
C4	476	0.00	2.11	<MDA	3.53	3.12	<MDA
D1	477	0.00	1.98	<MDA	0.54	2.00	<MDA
D2	478	0.00	2.02	<MDA	0.00	1.49	<MDA
D3	479	0.00	2.32	<MDA	0.00	1.63	<MDA
D4	480	1.73	2.23	<MDA	0.00	1.42	<MDA
A2	481	0.00	2.05	<MDA	0.12	1.94	<MDA
A3	482	0.00	2.03	<MDA	0.00	1.92	<MDA
A4	483	0.00	2.08	<MDA	0.00	1.93	<MDA
B1	484	0.00	2.20	<MDA	3.12	2.91	<MDA
B2	485	0.00	2.05	<MDA	0.26	1.99	<MDA
B3	486	0.00	2.08	<MDA	0.57	1.99	<MDA

COPY

27 of 37
98-TF-1161

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Blue
Data file name: SMEAR074
Batch Ended: 12/1/98 15:19
Cal. Due Date: 4/13/99
Serial Number: 26966-3

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Batch ID: T 98-TF-1161 BD. 67-WILLIAMS

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
B1	259	0.00	2.20	<MDA	3.12	2.91	<MDA

COPY

28 of 37
98-TF-1161

Protocol #: 6 Name:PW H3 #401387 02-Dec-98 12:47
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
T 98-TF-1161 [F1-F486] WILLIAMS 12-2-98 RLH
Conventional DPM
Nuclide 1 = 800
Luminescence Correction On

29 of 31
98-TF-1161

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
-1	10.00	19.00	18.80	9.40	B	5	605.	
0	2.00	393.00	378.70	0.10		1	588.	918.58
1	2.00	0.00	0.00	0.00		0	634.	0.00
2	2.00	0.00	0.00	0.00		0	642.	0.00
3	2.00	0.00	0.00	0.10		24	613.	0.00
4	2.00	0.00	0.00	0.00		16	647.	0.00
5	2.00	0.00	0.00	0.00		5	659.	0.00
6	2.00	0.00	0.00	0.00		0	651.	0.00
7	2.00	0.00	0.00	2.10		0	640.	0.00
8	2.00	0.00	0.00	2.60		9	631.	0.00
9	2.00	0.00	0.00	0.00		8	634.	0.00
10	2.00	0.00	0.00	1.10		14	645.	0.00
11	2.00	0.00	0.00	0.00		5	611.	0.00
12	2.00	0.00	0.00	3.10		0	592.	0.00
13	2.00	0.00	0.00	0.00		0	536.	0.00
14	2.00	0.00	0.00	0.00		14	649.	0.00
15	2.00	0.00	0.00	0.60		17	643.	0.00
16	2.00	0.00	0.00	0.00		0	639.	0.00
17	2.00	0.00	0.00	0.10		5	638.	0.00
18	2.00	0.00	0.00	0.00		12	630.	0.00
19	2.00	0.00	0.00	2.60		16	632.	0.00
20	2.00	0.00	0.00	0.00		27	631.	0.00
21	2.00	0.00	0.00	0.00		5	631.	0.00
22	2.00	0.00	0.00	2.60		8	647.	0.00
23	2.00	0.00	0.00	0.10		0	629.	0.00
24	2.00	0.00	0.00	0.00		0	629.	0.00
25	2.00	0.00	0.00	1.10		7	636.	0.00
26	2.00	0.00	0.00	0.00		6	648.	0.00
27	2.00	0.00	0.00	1.10		0	653.	0.00
28	2.00	0.00	0.00	0.00		0	651.	0.00
29	2.00	0.00	0.00	0.10		0	657.	0.00
30	2.00	56.00	27.20	0.00		3	640.	121.95
31	2.00	0.00	0.00	0.00		0	647.	0.00
32	2.00	0.00	0.00	0.00		18	647.	0.00
33	2.00	0.00	0.00	0.00		10	633.	0.00
34	2.00	0.00	0.00	0.00		0	615.	0.00
35	2.00	0.00	0.00	0.00		0	629.	0.00
36	2.00	0.00	0.00	0.00		17	646.	0.00
37	2.00	0.00	0.00	0.60		7	629.	0.00
38	2.00	0.00	0.00	3.10		18	618.	0.00
39	2.00	0.00	0.00	1.60		0	646.	0.00
40	2.00	0.00	0.00	1.10		0	616.	0.00
41	2.00	0.00	0.00	0.00		16	644.	0.00
42	2.00	0.00	0.00	0.00		0	637.	0.00
43	2.00	0.00	0.00	0.00		6	652.	0.00
44	2.00	0.00	0.00	0.00		8	604.	0.00

COPY

30 of 37

98-TF-116

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
45	2.00	0.00	0.00	4.60		6	642.	0.00
46	2.00	0.00	0.00	0.00		0	623.	0.00
47	2.00	0.00	0.00	0.00		6	641.	0.00
48	2.00	0.00	0.00	0.00		0	602.	0.00
49	2.00	0.00	0.00	0.00		6	637.	0.00
50	2.00	0.00	0.00	1.60		14	570.	0.00
51	2.00	0.00	0.00	1.60		6	651.	0.00
52	2.00	0.00	0.00	1.10		6	639.	0.00
53	2.00	0.00	0.00	0.60		11	655.	0.00
54	2.00	0.00	0.00	3.60		7	626.	0.00
55	2.00	0.00	0.00	0.60		7	641.	0.00
56	2.00	0.00	0.00	0.00		14	627.	0.00
57	2.00	0.00	0.00	0.00		0	640.	0.00
58	2.00	0.00	0.00	0.00		0	647.	0.00
59	2.00	0.00	0.00	3.60		9	648.	0.00
60	2.00	0.00	0.00	3.60		12	619.	0.00
61	2.00	0.00	0.00	0.00		0	640.	0.00
62	2.00	0.00	0.00	0.00		26	619.	0.00
63	2.00	0.00	0.00	2.60		0	648.	0.00
64	2.00	0.00	0.00	0.00		43	619.	0.00
65	2.00	0.00	0.00	0.10		0	637.	0.00
66	2.00	0.00	0.00	0.00		7	569.	0.00
67	2.00	0.00	0.00	0.00		0	657.	0.00
68	2.00	0.00	0.00	0.60		18	595.	0.00
69	2.00	0.00	0.00	0.00		0	646.	0.00
70	2.00	0.00	0.00	2.10		5	592.	0.00
71	2.00	0.00	0.00	0.00		0	643.	0.00
72	2.00	0.00	0.00	0.10		6	547.	0.00
73	2.00	0.00	0.00	0.00		0	647.	0.00
74	2.00	0.00	0.00	0.00		0	562.	0.00
75	2.00	0.00	0.00	3.10		0	659.	0.00
76	2.00	0.00	0.00	0.00		0	609.	0.00
77	2.00	0.00	0.00	0.00		0	652.	0.00
78	2.00	0.00	0.00	1.60		0	589.	0.00
79	2.00	0.00	0.00	0.00		0	641.	0.00
80	2.00	0.00	0.00	3.10		16	631.	0.00
81	2.00	0.00	0.00	0.00		25	633.	0.00
82	2.00	0.00	0.00	1.10		12	620.	0.00
83	2.00	0.00	0.00	0.10		22	662.	0.00
84	2.00	0.00	0.00	0.00		0	582.	0.00
85	2.00	0.00	0.00	0.10		0	633.	0.00
86	2.00	0.00	0.00	0.00		5	627.	0.00
87	2.00	0.00	0.00	0.10		5	658.	0.00
88	2.00	0.00	0.00	0.10		0	611.	0.00
89	2.00	0.00	0.00	0.00		14	647.	0.00
90	2.00	0.00	0.00	2.10		7	612.	0.00
91	2.00	0.00	0.00	1.60		7	655.	0.00
92	2.00	0.00	0.00	0.00		0	618.	0.00
93	2.00	0.00	0.00	2.60		0	664.	0.00
94	2.00	0.00	0.00	0.10		0	612.	0.00
95	2.00	0.00	0.00	0.00		9	655.	0.00
96	2.00	0.00	0.00	0.60		0	611.	0.00
97	2.00	0.00	0.00	0.00		0	650.	0.00
98	2.00	0.00	0.00	2.10		0	620.	0.00
99	2.00	0.00	0.00	0.10		8	634.	0.00
100	2.00	0.00	0.00	1.60		5	651.	0.00

COPY

31 of 37

98-TF-11

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
101	2.00	0.00	0.00	0.00		0	647.	0.00
102	2.00	0.00	0.00	2.10		6	573.	0.00
103	2.00	0.00	0.00	1.60		5	659.	0.00
104	2.00	0.00	0.00	1.10		7	653.	0.00
105	2.00	0.00	0.00	0.10		9	650.	0.00
106	2.00	0.00	0.00	0.00		5	654.	0.00
107	2.00	0.00	0.00	1.10		14	650.	0.00
108	2.00	0.00	0.00	4.10		0	661.	0.00
109	2.00	0.00	0.00	0.00		8	659.	0.00
110	2.00	0.00	0.00	0.00		7	621.	0.00
111	2.00	0.00	0.00	0.60		0	666.	0.00
112	2.00	0.00	0.00	1.10		0	572.	0.00
113	2.00	0.00	0.00	0.00		0	662.	0.00
114	2.00	0.00	0.00	0.00		0	656.	0.00
115	2.00	0.00	0.00	0.00		5	647.	0.00
116	2.00	0.00	0.00	1.10		0	645.	0.00
117	2.00	0.00	0.00	0.60		0	645.	0.00
118	2.00	0.00	0.00	0.00		0	640.	0.00
119	2.00	0.00	0.00	0.60		5	636.	0.00
120	2.00	0.00	0.00	0.00		20	656.	0.00
121	2.00	0.00	0.00	0.00		0	650.	0.00
122	2.00	0.00	0.00	0.00		7	642.	0.00
123	2.00	0.00	0.00	0.10		0	650.	0.00
124	2.00	0.00	0.00	0.00		0	644.	0.00
125	2.00	0.00	0.00	0.60		13	647.	0.00
126	2.00	0.00	0.00	0.00		0	651.	0.00
127	2.00	0.00	0.00	0.00		0	659.	0.00
128	2.00	0.00	0.00	0.00		9	652.	0.00
129	2.00	0.00	0.00	0.10		14	627.	0.00
130	2.00	0.00	0.00	0.00		47	640.	0.00
131	2.00	0.00	0.00	0.00		14	639.	0.00
132	2.00	0.00	0.00	0.00		0	643.	0.00
133	2.00	0.00	0.00	1.10		0	618.	0.00
134	2.00	0.00	0.00	0.00		5	650.	0.00
135	2.00	0.00	0.00	3.60		0	647.	0.00
136	2.00	0.00	0.00	2.60		0	640.	0.00
137	2.00	0.00	0.00	0.00		0	647.	0.00
138	2.00	0.00	0.00	0.60		6	660.	0.00
139	2.00	0.00	0.00	0.00		8	654.	0.00
140	2.00	0.00	0.00	0.00		6	660.	0.00
141	2.00	0.00	0.00	0.00		11	662.	0.00
142	2.00	0.00	0.00	0.00		10	641.	0.00
143	2.00	0.00	0.00	0.00		9	626.	0.00
144	2.00	0.00	0.00	0.00		8	623.	0.00
145	2.00	0.00	0.00	0.00		22	660.	0.00
146	2.00	0.00	0.00	1.10		0	648.	0.00
147	2.00	0.00	0.00	0.00		0	645.	0.00
148	2.00	0.00	0.00	0.60		0	637.	0.00
149	2.00	0.00	0.00	3.10		8	648.	0.00
150	2.00	0.00	0.00	0.00		0	645.	0.00
151	2.00	0.00	0.00	0.00		0	644.	0.00
152	2.00	0.00	0.00	0.10		10	658.	0.00
153	2.00	0.00	0.00	1.60		0	619.	0.00
154	2.00	0.00	0.00	0.60		0	627.	0.00
155	2.00	0.00	0.00	4.10		6	458.	0.00
156	2.00	0.00	0.00	3.10		9	642.	0.00

COPY

32 of 37

98-TF-116

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
157	2.00	0.00	0.00	0.00		12	656.	0.00
158	2.00	0.00	0.00	0.10		14	647.	0.00
159	2.00	0.00	0.00	0.60		6	650.	0.00
160	2.00	0.00	0.00	0.00		0	644.	0.00
161	2.00	0.00	0.00	3.10		20	640.	0.00
162	2.00	0.00	0.00	0.60		22	635.	0.00
163	2.00	0.00	0.00	0.60		0	648.	0.00
164	2.00	0.00	0.00	0.00		6	654.	0.00
165	2.00	0.00	0.00	0.00		6	651.	0.00
166	2.00	0.00	0.00	0.10		0	635.	0.00
167	2.00	0.00	0.00	0.00		0	660.	0.00
168	2.00	0.00	0.00	0.60		7	657.	0.00
169	2.00	0.00	0.00	1.60		6	640.	0.00
170	2.00	0.00	0.00	0.00		0	636.	0.00
171	2.00	0.00	0.00	0.00		17	632.	0.00
172	2.00	0.00	0.00	0.00		16	614.	0.00
173	2.00	0.00	0.00	1.60		0	654.	0.00
174	2.00	0.00	0.00	0.00		0	590.	0.00
175	2.00	0.00	0.00	0.10		0	646.	0.00
176	2.00	0.00	0.00	0.00		0	657.	0.00
177	2.00	0.00	0.00	0.00		6	652.	0.00
178	2.00	0.00	0.00	0.00		20	645.	0.00
179	2.00	0.00	0.00	1.10		0	658.	0.00
180	2.00	0.00	0.00	0.00		8	647.	0.00
181	2.00	0.00	0.00	0.00		0	641.	0.00
182	2.00	0.00	0.00	0.10		0	628.	0.00
183	2.00	0.00	0.00	0.00		0	655.	0.00
184	2.00	0.00	0.00	3.60		0	634.	0.00
185	2.00	0.00	0.00	0.00		7	672.	0.00
186	2.00	0.00	0.00	0.00		0	663.	0.00
187	2.00	0.00	0.00	4.60		8	663.	0.00
188	2.00	0.00	0.00	0.00		0	665.	0.00
189	2.00	0.00	0.00	0.00		7	671.	0.00
190	2.00	0.00	0.00	0.60		0	655.	0.00
191	2.00	0.00	0.00	0.10		0	652.	0.00
192	2.00	0.00	0.00	3.60		7	644.	0.00
193	2.00	0.00	0.00	5.60		0	661.	0.00
194	2.00	0.00	0.00	0.00		0	637.	0.00
195	2.00	0.00	0.00	0.00		15	652.	0.00
196	2.00	0.00	0.00	0.00		0	649.	0.00
197	2.00	0.00	0.00	0.60		6	641.	0.00
198	2.00	0.00	0.00	2.60		12	627.	0.00
199	2.00	0.00	0.00	2.10		0	651.	0.00
200	2.00	0.00	0.00	3.10		0	661.	0.00
201	2.00	0.00	0.00	0.00		0	648.	0.00
202	2.00	0.00	0.00	1.10		7	668.	0.00
203	2.00	0.00	0.00	2.10		16	627.	0.00
204	2.00	0.00	0.00	0.00		6	668.	0.00
205	2.00	0.00	0.00	0.00		0	637.	0.00
206	2.00	0.00	0.00	0.00		8	643.	0.00
207	2.00	0.00	0.00	0.00		0	650.	0.00
208	2.00	0.00	0.00	0.00		5	646.	0.00
209	2.00	0.00	0.00	1.10		6	630.	0.00
210	2.00	0.00	0.00	0.00		4	655.	0.00
211	2.00	0.00	0.00	1.10		0	651.	0.00
212	2.00	0.00	0.00	1.10		0	649.	0.00

COPY

33 of 37

98-TF-116

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
213	2.00	0.00	0.00	0.00		7	652.	0.00
214	2.00	0.00	0.00	0.00		0	657.	0.00
215	2.00	0.00	0.00	0.00		0	643.	0.00
216	2.00	0.00	0.00	2.60		6	659.	0.00
217	2.00	0.00	0.00	3.10		7	649.	0.00
218	2.00	0.00	0.00	0.00		19	642.	0.00
219	2.00	0.00	0.00	0.00		10	646.	0.00
220	2.00	0.00	0.00	0.00		0	661.	0.00
221	2.00	0.00	0.00	2.10		0	651.	0.00
222	2.00	0.00	0.00	0.00		13	654.	0.00
223	2.00	0.00	0.00	0.00		0	626.	0.00
224	2.00	0.00	0.00	0.00		8	626.	0.00
225	2.00	0.00	0.00	0.00		4	644.	0.00
226	2.00	0.00	0.00	4.10		0	653.	0.00
227	2.00	0.00	0.00	0.60		18	620.	0.00
228	2.00	0.00	0.00	0.00		24	640.	0.00
229	2.00	0.00	0.00	0.00		9	609.	0.00
230	2.00	0.00	0.00	1.10		0	659.	0.00
231	2.00	0.00	0.00	0.00		0	651.	0.00
232	2.00	0.00	0.00	0.00		8	568.	0.00
233	2.00	0.00	0.00	0.10		0	642.	0.00
234	2.00	0.00	0.00	0.10		0	612.	0.00
235	2.00	0.00	0.00	2.60		0	653.	0.00
236	2.00	0.00	0.00	0.10		11	657.	0.00
237	2.00	0.00	0.00	0.00		14	654.	0.00
238	2.00	0.00	0.00	0.00		0	672.	0.00
239	2.00	0.00	0.00	0.00		0	661.	0.00
240	2.00	0.00	0.00	1.10		0	659.	0.00
241	2.00	0.00	0.00	0.60		0	652.	0.00
242	2.00	0.00	0.00	0.00		14	661.	0.00
243	2.00	0.00	0.00	0.00		18	658.	0.00
244	2.00	0.00	0.00	0.10		30	649.	0.00
245	2.00	0.00	0.00	2.60		6	669.	0.00
246	2.00	0.00	0.00	0.00		0	668.	0.00
247	2.00	0.00	0.00	0.00		0	662.	0.00
248	2.00	0.00	0.00	0.00		10	655.	0.00
249	2.00	0.00	0.00	0.00		22	654.	0.00
250	2.00	0.00	0.00	2.60		0	659.	0.00
251	2.00	0.00	0.00	1.60		9	652.	0.00
252	2.00	0.00	0.00	0.00		16	632.	0.00
253	2.00	0.00	0.00	0.10		7	662.	0.00
254	2.00	0.00	0.00	0.00		0	643.	0.00
255	2.00	0.00	0.00	0.00		0	653.	0.00
256	2.00	0.00	0.00	0.00		23	637.	0.00
257	2.00	0.00	0.00	0.00		27	659.	0.00
258	2.00	0.00	0.00	1.60		8	661.	0.00
259	2.00	0.00	0.00	0.00		23	647.	0.00
260	2.00	0.00	0.00	0.00		0	661.	0.00
261	2.00	0.00	0.00	0.00		0	653.	0.00
262	2.00	0.00	0.00	2.10		19	615.	0.00
263	2.00	0.00	0.00	0.00		0	654.	0.00
264	2.00	0.00	0.00	0.00		6	647.	0.00
265	2.00	0.00	0.00	0.00		40	657.	0.00
266	2.00	0.00	0.00	0.00		0	654.	0.00
267	2.00	0.00	0.00	0.00		0	631.	0.00
268	2.00	0.00	0.00	4.10		22	643.	0.00

COPY

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
269	2.00	0.00	0.00	0.00		6	650.	0.00
270	2.00	0.00	0.00	0.00		10	659.	0.00
271	2.00	0.00	0.00	0.00		0	662.	0.00
272	2.00	0.00	0.00	2.10		8	665.	0.00
273	2.00	0.00	0.00	0.10		0	656.	0.00
274	2.00	0.00	0.00	0.00		7	638.	0.00
275	2.00	0.00	0.00	4.10		0	630.	0.00
276	2.00	0.00	0.00	0.60		0	655.	0.00
277	2.00	0.00	0.00	0.00		0	648.	0.00
278	2.00	0.00	0.00	2.10		8	640.	0.00
279	2.00	0.00	0.00	0.00		18	650.	0.00
280	2.00	0.00	0.00	0.00		5	652.	0.00
281	2.00	0.00	0.00	0.10		0	665.	0.00
282	2.00	0.00	0.00	0.60		24	663.	0.00
283	2.00	0.00	0.00	1.60		8	658.	0.00
284	2.00	0.00	0.00	0.00		4	618.	0.00
285	2.00	0.00	0.00	0.00		11	637.	0.00
286	2.00	0.00	0.00	0.00		5	656.	0.00
287	2.00	0.00	0.00	0.10		13	647.	0.00
288	2.00	0.00	0.00	0.10		0	654.	0.00
289	2.00	0.00	0.00	0.00		6	640.	0.00
290	2.00	0.00	0.00	0.00		5	647.	0.00
291	2.00	0.00	0.00	0.10		0	447.	0.00
292	2.00	0.00	0.00	0.60		16	613.	0.00
293	2.00	0.00	0.00	0.00		14	629.	0.00
294	2.00	0.00	0.00	0.00		0	634.	0.00
295	2.00	0.00	0.00	0.60		23	642.	0.00
296	2.00	0.00	0.00	0.60		5	623.	0.00
297	2.00	0.00	0.00	0.00		10	620.	0.00
298	2.00	0.00	0.00	1.60		0	630.	0.00
299	2.00	0.00	0.00	2.60		6	623.	0.00
300	2.00	0.00	0.00	0.00		0	649.	0.00
301	2.00	0.00	0.00	0.00		16	630.	0.00
302	2.00	0.00	0.00	0.60		13	659.	0.00
303	2.00	0.00	0.00	0.00		0	617.	0.00
304	2.00	0.00	0.00	0.00		0	635.	0.00
305	2.00	0.00	0.00	0.00		0	651.	0.00
306	2.00	0.00	0.00	0.60		8	656.	0.00
307	2.00	0.00	0.00	0.00		9	628.	0.00
308	2.00	0.00	0.00	0.00		10	626.	0.00
309	2.00	0.00	0.00	0.00		0	648.	0.00
310	2.00	0.00	0.00	0.10		7	661.	0.00
311	2.00	0.00	0.00	2.60		8	633.	0.00
312	2.00	0.00	0.00	0.00		11	651.	0.00
313	2.00	0.00	0.00	0.00		8	640.	0.00
314	2.00	0.00	0.00	0.00		9	636.	0.00
315	2.00	0.00	0.00	0.00		8	637.	0.00
316	2.00	0.00	0.00	0.00		8	647.	0.00
317	2.00	0.00	0.00	0.60		14	634.	0.00
318	2.00	0.00	0.00	0.00		0	638.	0.00
319	2.00	0.00	0.00	4.10		0	643.	0.00
320	2.00	0.00	0.00	1.10		0	651.	0.00
321	2.00	0.00	0.00	1.10		8	658.	0.00
322	2.00	0.00	0.00	4.10		11	634.	0.00
323	2.00	0.00	0.00	0.60		19	654.	0.00
324	2.00	0.00	0.00	0.60		0	647.	0.00

34 of 37

98-TF-116

COPY

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
325	2.00	0.00	0.00	0.00		5	653.	0.00
326	2.00	0.00	0.00	0.00		15	643.	0.00
327	2.00	0.00	0.00	1.10		0	660.	0.00
328	2.00	0.00	0.00	0.00		12	652.	0.00
329	2.00	0.00	0.00	0.10		7	663.	0.00
330	2.00	0.00	0.00	1.10		6	656.	0.00
331	2.00	0.00	0.00	3.10		0	659.	0.00
332	2.00	0.00	0.00	0.00		9	656.	0.00
333	2.00	0.00	0.00	0.00		25	636.	0.00
334	2.00	0.00	0.00	0.00		8	659.	0.00
335	2.00	0.00	0.00	2.60		8	628.	0.00
336	2.00	0.00	0.00	0.60		0	648.	0.00
337	2.00	0.00	0.00	2.10		0	645.	0.00
338	2.00	0.00	0.00	0.60		22	650.	0.00
339	2.00	0.00	0.00	0.00		0	664.	0.00
340	2.00	0.00	0.00	0.10		6	656.	0.00
341	2.00	0.00	0.00	0.00		0	658.	0.00
342	2.00	0.00	0.00	0.00		0	656.	0.00
343	2.00	0.00	0.00	0.00		16	656.	0.00
344	2.00	0.00	0.00	0.60		5	663.	0.00
345	2.00	0.00	0.00	0.60		22	653.	0.00
346	2.00	0.00	0.00	2.10		0	662.	0.00
347	2.00	0.00	0.00	0.00		7	652.	0.00
348	2.00	0.00	0.00	3.10		8	650.	0.00
349	2.00	0.00	0.00	0.00		6	667.	0.00
350	2.00	0.00	0.00	0.00		7	661.	0.00
351	2.00	0.00	0.00	3.60		5	646.	0.00
352	2.00	0.00	0.00	0.00		7	636.	0.00
353	2.00	0.00	0.00	0.00		18	633.	0.00
354	2.00	0.00	0.00	0.00		0	644.	0.00
355	2.00	0.00	0.00	0.00		0	668.	0.00
356	2.00	0.00	0.00	0.10		49	658.	0.00
357	2.00	0.00	0.00	4.60		16	653.	0.00
358	2.00	0.00	0.00	1.60		0	651.	0.00
359	2.00	0.00	0.00	0.00		0	657.	0.00
360	2.00	0.00	0.00	0.00		0	662.	0.00
361	2.00	0.00	0.00	0.00		7	662.	0.00
362	2.00	0.00	0.00	1.10		8	661.	0.00
363	2.00	0.00	0.00	0.00		17	634.	0.00
364	2.00	0.00	0.00	0.00		16	614.	0.00
365	2.00	0.00	0.00	0.00		0	618.	0.00
366	2.00	0.00	0.00	2.10		8	630.	0.00
367	2.00	0.00	0.00	2.60		16	650.	0.00
368	2.00	0.00	0.00	0.00		16	662.	0.00
369	2.00	0.00	0.00	0.00		8	618.	0.00
370	2.00	0.00	0.00	2.60		0	578.	0.00
371	2.00	0.00	0.00	2.10		16	595.	0.00
372	2.00	0.00	0.00	0.00		0	659.	0.00
373	2.00	0.00	0.00	0.00		0	649.	0.00
374	2.00	0.00	0.00	0.00		6	640.	0.00
375	2.00	0.00	0.00	0.00		27	641.	0.00
376	2.00	0.00	0.00	3.60		5	660.	0.00
377	2.00	0.00	0.00	2.60		0	644.	0.00
378	2.00	0.00	0.00	2.10		24	623.	0.00
379	2.00	0.00	0.00	0.60		0	652.	0.00
380	2.00	0.00	0.00	0.00		22	626.	0.00

35 of 37

98-TF-116

COPY

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
381	2.00	0.00	0.00	2.10		9	652.	0.00
382	2.00	0.00	0.00	0.00		8	572.	0.00
383	2.00	0.00	0.00	4.10		0	598.	0.00
384	2.00	0.00	0.00	1.60		6	590.	0.00
385	2.00	0.00	0.00	3.10		6	636.	0.00
386	2.00	0.00	0.00	0.00		14	652.	0.00
387	2.00	0.00	0.00	0.00		22	651.	0.00
388	2.00	0.00	0.00	1.10		6	633.	0.00
389	2.00	0.00	0.00	0.00		24	651.	0.00
390	2.00	0.00	0.00	0.00		10	625.	0.00
391	2.00	0.00	0.00	1.10		0	659.	0.00
392	2.00	0.00	0.00	1.60		19	616.	0.00
393	2.00	0.00	0.00	0.00		17	648.	0.00
394	2.00	0.00	0.00	1.10		8	605.	0.00
395	2.00	0.00	0.00	0.00		24	651.	0.00
396	2.00	0.00	0.00	0.00		0	666.	0.00
397	2.00	0.00	0.00	0.00		0	666.	0.00
398	2.00	0.00	0.00	0.00		17	658.	0.00
399	2.00	0.00	0.00	0.00		5	658.	0.00
400	2.00	0.00	0.00	0.00		8	652.	0.00
401	2.00	0.00	0.00	2.60		11	632.	0.00
402	2.00	0.00	0.00	0.00		0	629.	0.00
403	2.00	0.00	0.00	0.00		0	643.	0.00
404	2.00	0.00	0.00	1.60		0	663.	0.00
405	2.00	0.00	0.00	0.00		11	663.	0.00
406	2.00	0.00	0.00	0.00		5	645.	0.00
(1 missing vial)								
408	2.00	0.00	0.00	0.60		7	649.	0.00
409	2.00	0.00	0.00	0.10		20	624.	0.00
410	2.00	0.00	0.00	0.00		11	658.	0.00
411	2.00	0.00	0.00	0.00		8	655.	0.00
412	2.00	0.00	0.00	1.10		14	650.	0.00
413	2.00	0.00	0.00	2.60		5	655.	0.00
414	2.00	0.00	0.00	0.00		22	645.	0.00
415	2.00	0.00	0.00	0.00		14	642.	0.00
416	2.00	0.00	0.00	0.00		0	598.	0.00
417	2.00	0.00	0.00	2.10		6	645.	0.00
418	2.00	0.00	0.00	0.60		0	636.	0.00
419	2.00	0.00	0.00	2.60		8	641.	0.00
420	2.00	0.00	0.00	0.00		0	662.	0.00
421	2.00	0.00	0.00	3.10		7	650.	0.00
422	2.00	0.00	0.00	0.00		0	640.	0.00
423	2.00	0.00	0.00	0.10		30	640.	0.00
424	2.00	0.00	0.00	0.00		11	653.	0.00
425	2.00	0.00	0.00	0.00		0	644.	0.00
426	2.00	0.00	0.00	0.00		0	654.	0.00
427	2.00	0.00	0.00	2.60		20	603.	0.00
428	2.00	0.00	0.00	0.60		7	659.	0.00
429	2.00	0.00	0.00	0.00		16	640.	0.00
430	2.00	0.00	0.00	0.00		14	630.	0.00
431	2.00	0.00	0.00	0.00		25	598.	0.00
432	2.00	0.00	0.00	0.00		11	605.	0.00
433	2.00	0.00	0.00	1.10		33	631.	0.00
434	2.00	0.00	0.00	2.10		5	638.	0.00
435	2.00	0.00	0.00	3.60		7	625.	0.00
436	2.00	0.00	0.00	0.00		0	635.	0.00

S#	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1
437	2.00	0.00	0.00	1.60		12	619.	0.00
438	2.00	0.00	0.00	1.60		8	646.	0.00
439	2.00	0.00	0.00	5.10		10	645.	0.00
440	2.00	0.00	0.00	0.00		7	643.	0.00
441	2.00	0.00	0.00	0.00		8	633.	0.00
442	2.00	0.00	0.00	1.10		0	641.	0.00
443	2.00	0.00	0.00	0.00		4	661.	0.00
444	2.00	0.00	0.00	2.10		9	647.	0.00
445	2.00	0.00	0.00	0.00		0	634.	0.00
446	2.00	0.00	0.00	0.00		18	650.	0.00
447	2.00	0.00	0.00	0.10		8	637.	0.00
448	2.00	0.00	0.00	0.00		0	658.	0.00
449	2.00	0.00	0.00	0.00		7	651.	0.00
450	2.00	0.00	0.00	0.00		7	609.	0.00
451	2.00	0.00	0.00	0.00		12	662.	0.00
452	2.00	0.00	0.00	0.00		26	652.	0.00
453	2.00	0.00	0.00	0.00		0	655.	0.00
454	2.00	0.00	0.00	2.60		0	636.	0.00
455	2.00	0.00	0.00	3.10		16	653.	0.00
456	2.00	0.00	0.00	0.00		8	629.	0.00
457	2.00	0.00	0.00	0.10		8	614.	0.00
458	2.00	0.00	0.00	0.00		0	628.	0.00
459	2.00	0.00	0.00	1.10		18	643.	0.00
460	2.00	0.00	0.00	0.10		4	600.	0.00
461	2.00	0.00	0.00	5.60		0	595.	0.00
462	2.00	0.00	0.00	3.60		0	623.	0.00
463	2.00	0.00	0.00	0.00		0	658.	0.00
464	2.00	0.00	0.00	0.00		10	651.	0.00
465	2.00	0.00	0.00	0.00		10	650.	0.00
466	2.00	0.00	0.00	0.10		19	647.	0.00
467	2.00	0.00	0.00	1.10		10	654.	0.00
468	2.00	0.00	0.00	2.60		0	657.	0.00
469	2.00	0.00	0.00	2.60		5	629.	0.00
470	2.00	0.00	0.00	0.00		0	634.	0.00
471	2.00	0.00	0.00	0.00		0	614.	0.00
472	2.00	0.00	0.00	1.60		0	625.	0.00
473	2.00	0.00	0.00	3.60		20	642.	0.00
474	2.00	0.00	0.00	0.00		0	605.	0.00
475	2.00	0.00	0.00	0.60		22	655.	0.00
476	2.00	0.00	0.00	0.10		7	627.	0.00
477	2.00	0.00	0.00	0.00		0	661.	0.00
478	2.00	0.00	0.00	0.00		14	637.	0.00
479	2.00	0.00	0.00	0.00		7	647.	0.00
480	2.00	0.00	0.00	1.60		7	656.	0.00
481	2.00	0.00	0.00	0.00		6	662.	0.00
482	2.00	0.00	0.00	0.00		0	662.	0.00
483	2.00	0.00	0.00	0.00		25	638.	0.00
484	2.00	0.00	0.00	0.00		10	639.	0.00
485	2.00	0.00	0.00	0.00		8	654.	0.00
486	2.00	0.00	0.00	0.10		13	655.	0.00

37 of 37

98-TF-116

COPY

Appendix H

Radon Survey/Information

UNC Geotech

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

April 12, 1990

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

File

Dear Mr. Murphy:

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

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

Sincerely yours,

Mark D. Pearson

Mark D. Pearson
Project Manager
UNC Geotech

cc: DOE Points of Contact

Area	Bldg	Bldg Description	Room	Radon pCi/l	Radon pCi/l	Manid	Dupid	Install Date	Retrieve Date	Comments
			ABOVE AIR SAMPLER	161.1	125.0	1678055	1666782	12/14/89	2/16/90	MET - OLD THORIUM STORAGE
	21		ABOVE AIR SAMPLERS	116.7		1666588		12/14/89	2/16/90	MET - OLD THORIUM STORAGE
	21		19 MID EAST WALL	4.8		1661547		12/12/89	2/19/90	HISTORY OF ELEVATED READINGS
		SM	114 B CLOSET ON SPRINKLER PIPE	3.2		1671292		12/12/89	2/19/90	
	48		ROOM 1	2.6		1678051		12/13/89	2/19/90	
	19	OLD SO BLDG	BASEMENT RIGHT CABINET	2.4		1661595		12/14/89	2/19/90	
			1 BELOW THERMOSTAT ON E WALL	2.1		1661515		12/18/89	2/19/90	
	55		ROOM 1	1.9		1661565		12/12/89	2/19/90	
	57		143	1.5		1661583		12/13/89	2/19/90	
	87		ROOM 002 EQUIPMENT ROOM WITH SUMP	1.4		1654450		12/12/89	2/19/90	
	998	FIRE STATION	ROOM 1 PLANT NORTH WALL	1.3		1672087		12/12/89	2/19/90	
	24		PS 4	1.2		1661516		12/12/89	2/16/90	
		PAINT SHOP	ROOM 3 EAST	1.1		1671262		12/12/89	2/16/90	
	30		103 MIDDLE OF NORTH WALL	1.0		1678050		12/12/89	2/19/90	
	100		6 NORTH WALL	1.0		1678046		12/12/89	2/19/90	
	37		34 A WEST WALL	.9	.6	1672062	1672042	12/12/89	2/16/90	MET
	34		123	.9		1661577		12/14/89	2/19/90	
	102		RM 221 MIDDLE OF NORTH WALL	.9		1661585		12/13/89	2/19/90	
	61		101 N	.8		1678020		12/12/89	2/19/90	
→	67		G-514 WEST WALL	.9		1661544		12/12/89	2/19/90	
	G-13	LOB	CORRIDOR 26	.8		1678039		1/15/90	2/19/90	
		T	153	.8		1678067		1/15/90	2/19/90	
		T	78	.8		1678077		1/15/90	2/19/90	
		T	30	.8		1661586		1/15/90	2/19/90	
		T	STAIRWELL NEXT TO ROOM 127	.8		1661564		12/12/89	2/19/90	
	105	PARTS MACHINING BUILDING	3 ON BOOK CASE MIDDLE	.8		1671314		12/15/89	2/19/90	
	25	ARAC	1 ON DOOR TO ROOM 3	.8		1678049		12/12/89	2/19/90	
	60		153C CENTER CUBICLE WEST WALL	.8		1672056		12/14/89	2/16/90	
		A	NORTHEAST SECTION INTERNAL WALL RM2	.8		1672052		12/12/89	2/16/90	
		C BUILDING OLD CAFETERIA	68 NORTH WALL	.8		1678058		12/13/89	2/16/90	
		R BUILDING	9 WEST WALL AT OLD RECOVERY	.8		1672057		12/11/89	2/16/90	
		SM	MD 8	.8		1678045		12/18/89	2/19/90	
		MD BLDG	124	.8		1678032		12/12/89	2/19/90	
	87		ROOM 116 ON NORTH WALL RIGHT OF CEN	.7	.5	1661524	1661535	12/12/89	2/19/90	
	88		101 NEAR BACK CORNER BY ROOF DRAIN	.7	.5	1666783	1668532	12/15/89	2/19/90	
	89		RM 1 EAST CORRIDOR ON STORAGE RACK	.7		1678070		12/13/89	2/19/90	
	22		ROOM 1 THERE IS ONLY 1 ROOM	.7		1678066		12/12/89	2/19/90	
	56	FIRE PUMP HOUSE	E 225 EAST WALL	.7		1661552		12/18/89	2/16/90	
		E ANNEX	REPAIR SHOP NORTH EAST CORNER	.7		1678048		12/12/89	2/19/90	
		POWER HOUSE PH-1	M-135	.7		1661553		12/12/89	2/16/90	
		M BLDG	ROOM 84 SOUTH WEST WALL	.6	.9	1672040	1667159	12/13/89	2/16/90	
	26		RM 7 ON NORTH WALL	.6	.4	1672044	1672077	12/12/89	2/19/90	
	69		ROOM 84 SOUTH WEST WALL	.6		1671270		12/13/89	2/16/90	
	26		RM 7	.6		1654459		12/14/89	2/19/90	
	35		PP CORR 136	.6		1678016		12/14/89	2/19/90	
	38	PP BLDG	ON OVERHEAD DOOR BEAM	.6		1672069		1/03/90	2/19/90	
	72		HALLWAY 107 (MIDWAY)	.6		1661629		12/13/89	2/20/90	
	93		ROOM 114 DORM	.6		1661507		12/12/89	2/19/90	
	96	FIRE STATION	RM STAIRWELL AT BASEMENT LEVEL	.6		1672086		12/14/89	2/19/90	
		COS	120 C	.6		1661573		12/12/89	2/16/90	
		OSM	150 WEST END GAS BOX	.6		1678043		12/11/89	2/16/90	
		SM	34 EAST WALL	.5	.7	1672075	1672051	12/14/89	2/16/90	
		A	102 MIDDLE OF EAST WALL	.5	.5	1658110	1666819	12/12/89	2/16/90	
	47									

Radon Monitor Results for US Round Facility

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	1660533	1666816	12/13/89	2/16/90	
101		ROOM 5 ON SOUTH WEST WALL IN OFFSET	.5		1671288		12/12/89	2/19/90	
	"B" 175	175 WEST WALL	.5		1678048		12/12/89	2/16/90	
		ELECTRICAL PANEL RM IN ELECTRONICS	.5		1678062		12/12/89	2/19/90	
		100	.5		1654480		12/13/89	2/16/90	
40		1 EAST WALL OVER WATER DISPENSER	.5		1678076		12/12/89	2/20/90	
43		ON BULLETIN BOARD	.5		1678047		12/12/89	2/16/90	
44		102 MIDDLE OF EAST WALL	.5		1678059		12/12/89	2/16/90	
47		CELL 113	.5		1661502		12/13/89	2/19/90	
50		CENTRAL HALLWAY WEST OF DOOR TO RM7	.5		1661605		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		1661593		12/15/89	2/16/90	
91		HALLWAY RIGHT OFF ROOM 8	.5		1661509		12/12/89	2/19/90	
92		BAY 2 NORTH WALL	.5		1654477		12/12/89	2/19/90	
94		215 WEST WALL	.5		1661572		12/14/89	2/16/90	
	A	1080 WEST WALL	.5		1661580		12/14/89	2/16/90	
	A	110 N WALL NEAR PUNCH PRESS	.5		1654456		12/12/89	2/19/90	
	COS	319 WALL CABINET TO RIGHT OF SINK	.5		1661598		12/12/89	2/19/90	
	COS	159 WEST WALL	.5		1678033		12/14/89	2/16/90	
	E BUILDING	103 WEST WALL	.5		1678072		12/14/89	2/16/90	
	E BUILDING	E 212 NORTH WALL	.5		1661587		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		1661571		12/12/89	2/16/90	
	H BLDG	MH-8	.5		1671269		12/18/89	2/19/90	
	MH	BASEMENT LEFT CRAWL SPACE DOOR	.5		1671260		12/12/89	2/19/90	
	I BUILDING	H 108	.5		1678056		12/15/89	2/19/90	
	N 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	
	OSW	CORR 212 SOUTH WALL NEAR 218 DOOR	.5		1678036		12/15/89	2/16/90	
	OSE	319	.5		1678069		12/13/89	2/16/90	
	OSW	2ND FLOOR	.5		1661611		12/12/89	2/16/90	
	OSW	STATIONARY BOARD CORNER	.5		1678073		12/12/89	2/19/90	
	POWER HOUSE PH-1	145 WEST WALL ABOVE BALANCE	.5		1654538		12/14/89	2/16/90	
	R BUILDING	128 OVER LARGE METAL FLOOR DISC	.5		1678019		12/12/89	2/16/90	
	SM/R TRITIUM COMPLEX	W135 WEST CENTRAL WALL	.5		1671293		12/12/89	2/16/90	
	W BLDG	WOA 110	.5		1671301		12/18/89	2/16/90	
	WO BLDG	EAST WALL	.5		1667189		12/12/89	2/16/90	
	"B" 124	113 BULLETIN BOARD OPPOSITE ELEVATO	.5		1678027		12/15/89	2/16/90	
	OSE	114 EAST WALL CENTER OF ROOM	.4		1678064		12/12/89	2/19/90	
TF-2		MH-24	.4		1667187		12/14/89	2/19/90	
	MH	CORRIDOR 7 NEXT TO ROOM 216	.4		1661614		12/13/89	2/19/90	
	DS BUILDING	1A MIDDLE OF WEST WALL	.4	.6	1672135	1661542	12/12/89	2/19/90	
	GP 81	136 QC OFFICE	.4		1678017		12/12/89	2/19/90	
105	PARTS MACHINING BUILDING	CELL 8 - WALL	.4		1661583		12/12/89	2/19/90	
27		101	.4		1672061		12/12/89	2/19/90	
28	CERAMIC PRODUCTION	HALLWAY	.4		1672105		12/14/89	2/19/90	
29		3-315	.4		1672036		12/12/89	2/19/90	
	TEST FIRE BUILDING 3	PP CORR 16/BAY 2 WALL	.4		1661570		12/14/89	2/19/90	
30	PP BLDG	BREAK RM	.4		1678050		12/14/89	2/19/90	
39		101 B EAST WALL	.4		1678031		12/13/89	2/19/90	
42									

14/90 Radon Monitor Results for DB Mound Facility

ba	Bldg	Bldg Description	Room	Avg Radon pCi/l	Duplicate Radon pCi/l	Monid	Dupid	Monitor Install Date	Monitor Retrieve Date	Comments
	45		WORK STATION AREA	.4		1681568		12/14/89	2/19/90	
	46		81 EAST WALL	.4		1672070		12/12/89	2/19/90	
	49		WALL OUTSIDE RM 125	.4		1678020		12/14/89	2/19/90	
	51		107 TOP OF FUME HOOD	.4		1681575		12/12/89	2/19/90	
	63		ROOM 134	.4		1672059		12/13/89	2/20/90	
	63N		RM 4	.4		1678070		12/14/89	2/19/90	
	65		ROOM 10 CONFERANCE ROOM	.4		1671284		12/14/89	2/19/90	
	66		OFFICE AREA	.4		1681554		12/12/89	2/19/90	
	68		EAST WALL CENTER BEAM	.4		1681555		12/14/89	2/19/90	
	69		RM 10A	.4		1681576		12/12/89	2/19/90	
	70		170 MEETING ROOM CENTER WALL	.4		1678041		12/12/89	2/19/90	
	88		ROOM 116	.4		1671295		12/12/89	2/19/90	
	95	SN/PP	95- BLD-ROOM81	.4		1661531		12/12/89	2/20/90	
		DS BUILDING	CORRIDOR 2 - 6 FT. ABOVE FLOOR	.4		1678071		12/13/89	2/19/90	
		I	I HALLWAY	.4		1667194		12/12/89	2/19/90	
		N BUILDING	N 21 WEST WALL	.4		1678057		12/15/89	2/20/90	
		POWER HOUSE PH-1	OFFICE SUPERVISOR	.4		1678036		12/12/89	2/19/90	
		R BUILDING	12 SOUTH WALL	.4		1681566		12/13/89	2/19/90	
	34		BURN ROOM			1654481		12/12/89		BURNT (NOT AVAILABLE)
	61		RM 151			1681567		12/13/89		MISSING

Appendix I

Asbestos Summary/Information

Date: January 6, 1999

From: Christopher Ahlquist
Industrial Hygiene

To: John Schneider

Re: Building 67

The survey of Building 67 for beryllium, lead, and asbestos concerns has been completed by Industrial Hygiene (IH). No asbestos, lead, or beryllium concerns were identified by IH during the course of the survey.

Beryllium
The referenced structure was compared against a list maintained by IH of areas at Mound known to have had beryllium processes. The referenced structure was not among those known to have had beryllium.

Lead Paint
A screen for lead-based paint was conducted on the predominant exposed paint coatings found in conjunction with Building 67 using a Niton Model XL-309 XRF lead detector. None of the referenced paint coatings were found to contain lead within the instrument's limit of detection. If, during the course of planning or accomplishing demolition of Building 67, any painted building components are to be disturbed by direct worker contact (torch cutting, sanding, scraping, etc.), it is recommended that the affected coatings be assessed for lead content. The lead paint screen accomplished during the course of this survey was not a complete or formal lead-based paint inspection.

Asbestos
A review of the IH Building Files for previous asbestos inspection and assessment surveys was accomplished. A previous asbestos survey, completed by Barge, Waggoner, Sumner & Cannon in 1993, determined that the ceiling tiles, drywall, and interior "surface stucco" materials did not contain asbestos. A site survey conducted by IH in December 1998 revealed other materials suspect for containing asbestos. Bulk samples of these suspect materials (floor tile and associated mastic, carpet mastic, fireproofing on structural beams, and textured exterior paint) were collected in accordance with USEPA prescribed protocol and analyzed for asbestos by polarized-light microscopy. None of these sampled materials were found through analysis to contain asbestos. In summary, no asbestos-containing materials were identified in connection with Building 67.

Attachments
Enclosed with this summary report are copies of the original Survey Request form which you submitted, a copy of the asbestos bulk sample data sheet, a copy of the lab report for the asbestos analyses performed, and a copy of the readout generated by the Niton XRF for the lead readings accomplished.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

ASBESTOS/LEAD/BERYLLIUM SURVEY REQUEST

A. Project Engineer Completes This Section

Project: Building 67		
Charge: 00694		
Location (crawl space, Penthouse, etc.) and type of material to be sampled: The structure itself and utilities in the immediate area.		
Known historical asbestos, beryllium and lead information (Review the drawings for this project, if asbestos is identified briefly indicate location, quantity and friability.) None known		
Project Engineer: Larry Lamsa	Phone: 4182	Date Submitted: 8/6/98

B. Industrial Hygiene Completes this section

Findings:

No Be, ACM, or Lead Paint found.

If hidden asbestos is encountered during this project, stop work and call Industrial Hygiene.

Is all asbestos accounted for according to past surveys? ☐ Yes ☐ No None found

Abatement action required:

None unless direct contact with painted surface anticipated. (see survey report 1/6/99)

Date: 1/6/99	Approved: [signature] Industrial Hygiene Rep.

ASBESTOS BULK SAMPLE DATA SHEET

PROJECT TITLE:

Page No. 1 of 2

BUILDING/LOCATION: Building 67

SURVEY DATE: 12/1/98

SAMPLED BY: [redacted]

HP NUMBER: 7961

HOMO AREA #	SAMPLE NUMBER	AMT.	SAMPLE LOCATION	MATERIAL DESCRIPTION	FRIABLE/ NONFRI.	COND.	SAMPLE RESULTS	COMMENTS
1	98120101		Room 105 under carpet	Carpet mastic tan	NF		ND	
2	98120102		Ent, foyer 113	Floor Tile 12x12 white swirl pattern	NF		ND	Black mastic
3	98120701		"Corridor 114" East end	Cementitious fireproofing, gray	NF		ND	above ceiling tile
3	98120702		Corr. 114 center of N. wall	↓	NF		ND	↓
3	98120703		Corr. 114 west end	↓	NF		ND	↓
4	98120704		outside on ext. wall, NW	Textured Paint	NP		ND	Pinky (some yellowish vapor?)
4	98120705		SW ~~S. central~~	↓	NF		ND	↓
4	98120706		S. central	↓	NF		Trace	↓
4	98120707		S. central	↓	NF		NP	↓
4	98120708		SE	↓	NP		ND	↓

ADDITIONAL COMMENTS:

ML-9706

ASBESTOS BULK SAMPLE DATA SHEET

PROJECT TITLE:

Page No. 2 of 2

BUILDING/LOCATION: Building G7

SURVEY DATE:

SAMPLED BY: [redacted]

HP NUMBER: 7961

HOMO AREA #	SAMPLE NUMBER	AMT.	SAMPLE LOCATION	MATERIAL DESCRIPTION	FRIABLE/ NONFRI.	COND.	SAMPLE RESULTS	COMMENTS
4	98120709		NE	Textured Paint	NF		ND	Plate
4	98120710		NW	↓	NF		ND	↓

ADDITIONAL COMMENTS:

ML-9706

JAN 1999 15:24 HRSH 937 865 4730 P.005

DATA CHEM LABORATORIES
A SORENSON COMPANY

12/11/98

SUBMITTED TO:
[illegible] Kirk
[illegible]ock & Wilcox of Ohio, Inc.
[illegible] Box 3030, Bldg. B-157
[illegible]isburg, OH 45343-3030

C. Ahlquist
Bulk Samples
Bldg 67
Rec'd Coa
1-6-99

REFERENCE DATA:

Client Sample No.:	98120101 through 98120710
[illegible] No.:	Not Available
Sample Location:	Not Available
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
[illegible] Set ID No.:	98-A-7968
[illegible] Sample ID No.:	98-47185 through 98-47196
Analysis Date:	12/11/98

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide*. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached Bulk Asbestos Analysis Data Sheets. Data Chem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

[illegible]wn Smythe
Analyst

Anna Marie Ristich
Reviewer

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers which are not visible by PLM and can only be discovered by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross-contaminated.

Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

Samples will be disposed of after 60 days unless instructed otherwise. Report applies only to portion of sample analyzed.

[illegible]KE CITY OFFICE
[illegible]ST LeVOY DRIVE
[illegible]KE CITY, U[illegible]-2547
[illegible]-7700, FAX [illegible]72

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

MARYLAND OFFICE
17624 MACDUFF AVENUE
OLNEY, MARYLAND 20832
301 924-1967, FAX 301 924-1981

NVLAP Accredited

DATACHEM LABORATORIES
FiberFAX SM
Polarized Light Microscopy Asbestos Analysis Summary

Client: Babcock & Wilcox of Ohio, Inc. Date: 12/11/98
Sample Set ID Number: 98-A-7968 Page: 1

Client Sample #:	98120101	98120102	98120701	98120702	98120703
DataChem Laboratories Sample #:	98-47185	98-47186	98-47187	98-47188	98-47189
MICROSCOPIC EXAMINATION:					
Sample Accepted or Rejected:	Accepted	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Homog.	Layered Inseparable	Homog.	Homog.	Homog.
Color:	Tan	Grey/Black	Grey	Grey	Grey
Texture:	Crmby/Fbrs	Comp/Resns	Crumbly	Crumbly	Crumbly
Sample Description:	Material	Tile	Plaster	Plaster	Plaster
Analysis:	PLM	PLM	PLM	PLM	PLM
ASBESTIFORM MINERALS:					
% Chrysotile:					
% Amosite:					
% Crocidolite:					
% Tremolite-Actinolite:					
% Anthophyllite:					
% Total Asbestos	ND	ND	ND	ND	ND
OTHER MATERIALS:					
% Cellulose:	>30≤40				
% Fibrous Glass:					
% Other Fibers:					
% Resin/Binder:		>10≤20			
% Other Non-Fibrous:	>50≤60	>70≤80	>90≤100	>90≤100	>90≤100

Special Prep. Procedures:

*Notes:

Steven Smythe
Microscopist

All values are in percent by area by visual estimate. The Federal Register/Vol. 55, No. 224/Tuesday, November 20, 1990/Rules and Regulations states: "If the asbestos content is estimated to be less than 10% by a method other than point counting,...(the analysis) be repeated using the point counting technique with PLM." Any of the above samples can be reanalyzed by point counting at the client's request, if deemed necessary by the client. Separate phases are analyzed and reported individually.

ND=Non-Detected Trace= <1%

©1988 DataChem Laboratories

NVLAP Accredited

DATACHEM LABORATORIES
FiberFAX℠
Polarized Light Microscopy Asbestos Analysis Summary

Client: Babcock & Wilcox of Ohio, Inc. Date: 12/11/98
Sample Set ID Number: 98-A-7968 Page: 2

Client Sample #:	98120704	98120705	98120706	98120707	98120708
DataChem Laboratories Sample #:	98-47190	98-47191	98-47192	98-47193	98-47194
MACROSCOPIC EXAMINATION:					
Sample Accepted or Rejected:	Accepted	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Homog.	Homog.	Homog.	Homog.	Homog.
Color:	Grey	Grey	Grey/Black	Grey/Black	Grey
Texture:	Crumbly	Crumbly	Crumbly	Crumbly	Crumbly
Sample Description:	Material	Material	Material	Material	Material
Analysis:	PLM	PLM	PLM	PLM	PLM
ASBESTIFORM MINERALS:					
% Chrysotile:			Trace		
% Amosite:					
% Crocidolite:					
% Tremolite-Actinolite:					
% Anthophyllite:					
% Total Asbestos	ND	ND	Trace	ND	ND
OTHER MATERIALS:					
% Cellulose:					
% Fibrous Glass:					
% Other Fibers:					
% Resin/Binder:					
% Other Non-Fibrous:	>90≤100	>90≤100	>90≤100	>90≤100	>90≤100

Special Prep. Procedures:

*Notes:

Steven Smythe
Microscopist

All values are in percent by area by visual estimate. The Federal Register/Vol. 55, No. 224/Tuesday, November 20, 1990/Rules and Regulations states, "If the asbestos content is estimated to be less than 10% by a method other than point counting,...(the analysis) be repeated using the point counting technique with PLM." Any of the above samples can be reanalyzed by point counting at the client's request, if deemed necessary by the client. Separate phases are analyzed and reported individually.

ND=Non-Detected Trace= <1%

©1988 DataChem Laboratories

N[illegible]AP Accredited

DATACHEM LABORATORIES
FiberFAX SM
Polarized Light Microscopy Asbestos Analysis Summary

C[illegible] Babcock & Wilcox of Ohio, Inc. Date: 12/11/98
S[illegible]e Set ID Number: 98-A-7968 Page: 3

C[illegible] Sample #:	98120709	98120710
D[illegible]hem Laboratories Sample #:	98-47195	98-47196
M[illegible]ROSCOPIC EXAMINATION:		
S[illegible]e Accepted or Rejected:	Accepted	Accepted
H[illegible]geneity:	Homog.	Homog.
C[illegible]	Grey	Grey
T[illegible]e:	Crumbly	Crumbly
S[illegible]le Description:	Material	Material
A[illegible]sis:	PLM	PLM
AS[illegible]ESTIFORM MINERALS:		
% [illegible]rysotile:		
% [illegible]osite:		
% [illegible]cidolite:		
% [illegible]molite- Actinolite:		
% [illegible]hophyllite:		
% [illegible]tal Asbestos	ND	ND
C[illegible]ER MATERIALS:		
% [illegible]ulose:		
% [illegible]rous Glass:		
% [illegible]er Fibers:		
% [illegible]in/Binder:		
% [illegible]her Non-Fibrous:	>90≤100	>90≤100

S[illegible]al Prep. Procedures:

*[illegible]:

[illegible]n Smythe
[illegible]scopist

A[illegible]es are in percent by area by visual estimate. The Federal Register/Vol. 55, No. 224/Tuesday, November 20, 1990/Rules and Regulations [illegible] "If the asbestos content is estimated to be less than 10% by a method other than point counting,...(the analysis) be repeated [illegible]e point counting technique with PLM." Any of the above samples can be reanalyzed by point counting at the client's request, if deemed [illegible]y by the client. Separate phases are analyzed and reported individually.

[illegible]n-Detected Trace= <1%

©1988 DataChem Laboratories

Babcock & Wilcox of Ohio, Inc.

REQUEST FOR LABORATORY ANALYTICAL SERVICES

RUSH

REPORT RESULTS TO

Name: EVAN KIRK Title: IND. HYGIENE

Babcock & Wilcox of Ohio, Inc.

P.O. Box 3030 Bldg. B-157

Miamisburg, Ohio 45343-3030

Telephone No. (937) 865-4172 FAX No. (937) 865-4730

Date Results Required: 2/3 Day TAT 12/10/98 Phone Results: ☐

Special Instructions: (method, limit of detection, etc.)

Please fax results when available

Asbestos Bulk - PLM (NVLAP)

ANALYSIS REQUESTED (Enter an 'X' in the box below to indicate request. Enter a 'P' if preservative added.)

Asbestos - PLM (12 samples)

SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	98-	FOR LAB USE ONLY (task #, QC #, etc.)
98120101	12-1-98	Bulk	—	X	47185
98120102	↓	↓	—	X	47186
98120701	12-7-98		—	X	47187
98120702			—	X	47188
98120703			—	X	47189
98120704			—	X	47190
98120705			—	X	47191
98120706			—	X	47192
98120707			—	X	47193
98120708			—	X	47194
98120709			—	X	47195
98120712			—	X	47196

CHAIN OF CUSTODY

Relinquished by: [signature]	Date/Time 12-7-98 18:15	Preservation Method: N/A
Received by:	Date/Time	
Relinquished by:	Date/Time	Analyzed by: Date
Received by: [signature] LAB	Date/Time 12-7-98 18:20	Received at Lab by: Date/Time
Method of Shipment: Personal delivery		Name of Lab: Data Chem

ML-9222 (2-98)

JAN. 399 :4: 15:4 937 865 4730 P.010

Site: Date: 12/1/98
Ranges (NEG<INC<POS): Device PCS

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				[illegible]						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2		2		Shutter Cal-1						0.00 ± 0.00	...	0.0 ± 0.0	0.0 ± 0.0	0.0	35.7	12/1/98
3		**3**		**Calibrate**						**1.11 ± 0.13**	**POS**	**0.5 ± 0.8**	**1.1 ± 0.2**	**1.0**	**22.3**	**12/1/98**
4		**4**		**Calibrate**						**1.32 ± 0.30**	**POS**	**0.1 ± 0.9**	**1.3 ± 0.4**	**2.8**	**20.3**	**12/1/98**
5		**5**		**Calibrate**						**1.12 ± 0.25**	**POS**	**-0.1 ± 0.8**	**1.1 ± 0.2**	**2.5**	**20.3**	**12/1/98**
6	Bldg67	6	CAA	Room-112		Door-north	Good	Metal	Brown	0.00 ± 0.10	NEG	0.6 ± 1.0	0.0 ± 0.2	1.0	22.5	[illegible]
7	Bldg67	7	CAA	Room-112		Door frame-west	Good	Metal	Brown	0.04 ± 0.10	NEG	0.5 ± 1.0	0.0 ± 0.2	1.0	20.6	12/1/98
8	Bldg67	8	CAA	Room-101		Door-west	Good	Metal	Brown	0.00 ± 0.10	NEG	-0.5 ± 1.5	0.0 ± 0.2	1.0	8.5	12/1/98
9	Bldg67	9	CAA	Corridor-114	East	Fire hose cabinet	Good	Metal	Red	0.06 ± 0.12	NEG	-0.5 ± 1.4	0.1 ± 0.2	2.2	10.5	12/1/98
10	Bldg67	10	CAA	Corridor-114	East	Fire line pipe	Good	Metal	Red	0.02 ± 0.10	NEG	-0.6 ± 1.5	0.0 ± 0.2	1.2	12.8	12/1/98
11	Bldg67	11	CAA	Corridor-114	East	Wall-east	Good	Concrete	Tan	0.00 ± 0.10	NEG	0.1 ± 1.0	0.0 ± 0.2	1.0	13.5	12/1/98
12	Bldg67	12	CAA	Corridor-114	Center	Wall-north	Good	Concrete	Tan	0.00 ± 0.10	NEG	0.7 ± 0.9	0.0 ± 0.2	1.0	20.8	12/1/98
13	Bldg67	13	CAA	Room-105		Window sill-tower	Cracked	Concrete	Tan	0.00 ± 0.10	NEG	0.0 ± 1.1	0.0 ± 0.2	1.0	13.5	12/1/98
14	Bldg67	14	CAA	Corridor-114	West	Wall	Good	Concrete	Tan	0.00 ± 0.10	NEG	0.1 ± 1.0	0.0 ± 0.2	1.0	13.5	12/1/98
15	Bldg67	15	CAA	Corridor-114	West	Fire hose cabinet	Good	Metal	Red	0.02 ± 0.10	NEG	0.0 ± 1.1	0.0 ± 0.2	1.0	17.5	12/1/98
16	Bldg67	16	CAA	Outside-Entrance	West	Support piller	Cracked	Concrete	Pink	0.00 ± 0.11	NEG	-0.9 ± 1.5	0.0 ± 0.2	1.0	6.1	12/1/98
17	Bldg67	17	CAA	Outside-South	Center	Wall	Cracked	Concrete	Pink	0.00 ± 0.10	NEG	-0.1 ± 0.9	0.0 ± 0.2	1.0	11.0	12/1/98
18	Bldg67	18	CAA	Outside-East	Center	Wall	Cracked	Concrete	Pink	0.00 ± 0.11	NEG	-1.7 ± 1.9	0.0 ± 0.2	1.0	6.1	12/1/98

Appendix J

Lead Summary/Information

Date: January 6, 1999

From: Christopher Ahlquist
Industrial Hygiene

To: John Schneider

Re: Building 67

The survey of Building 67 for beryllium, lead, and asbestos concerns has been completed by Industrial Hygiene (IH). No asbestos, lead, or beryllium concerns were identified by IH during the course of the survey.

Beryllium
The referenced structure was compared against a list maintained by IH of areas at Mound known to have had beryllium processes. The referenced structure was not among those known to have had beryllium.

Lead Paint
A screen for lead-based paint was conducted on the predominant exposed paint coatings found in conjunction with Building 67 using a Niton Model XL-309 XRF lead detector. None of the referenced paint coatings were found to contain lead within the instrument's limit of detection. If, during the course of planning or accomplishing demolition of Building 67, any painted building components are to be disturbed by direct worker contact (torch cutting, sanding, scraping, etc.), it is recommended that the affected coatings be assessed for lead content. The lead paint screen accomplished during the course of this survey was not a complete or formal lead-based paint inspection.

Asbestos
A review of the IH Building Files for previous asbestos inspection and assessment surveys was accomplished. A previous asbestos survey, completed by Barge, Waggoner, Sumner & Cannon in 1993, determined that the ceiling tiles, drywall, and interior "surface stucco" materials did not contain asbestos. A site survey conducted by IH in December 1998 revealed other materials suspect for containing asbestos. Bulk samples of these suspect materials (floor tile and associated mastic, carpet mastic, fireproofing on structural beams, and textured exterior paint) were collected in accordance with USEPA prescribed protocol and analyzed for asbestos by polarized-light microscopy. None of these sampled materials were found through analysis to contain asbestos. In summary, no asbestos-containing materials were identified in connection with Building 67.

Attachments
Enclosed with this summary report are copies of the original Survey Request form which you submitted, a copy of the asbestos bulk sample data sheet, a copy of the lab report for the asbestos analyses performed, and a copy of the readout generated by the Niton XRF for the lead readings accomplished.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

ASBESTOS/LEAD/BERYLLIUM SURVEY REQUEST

A. Project Engineer Completes This Section

Project: Building 67		
Charge: 00694		
Location (crawl space, Penthouse, etc.) and type of material to be sampled: The structure itself and utilities in the immediate area.		
Known historical asbestos, beryllium and lead information (Review the drawings for this project, if asbestos is identified briefly indicate location, quantity and quality.) None known		
Project Engineer: Larry Lamsa	Phone: 4182	Date Submitted: 8/6/98

B. Industrial Hygiene Completes this section

Findings:

No Be, ACM, or Lead Paint found.

If hidden asbestos is encountered during this project, stop work and call Industrial Hygiene.

Is all asbestos accounted for according to past surveys? ☐ Yes ☐ No None found

Abatement action required:

None unless direct contact with painted surface anticipated. (see survey report 1/6/99)

Date: 1/6/99	Approved: [signature] Industrial Hygiene Rep.

Appendix K

Chemical Summary/Information

There are no chemicals of concern associated with Building 67.

(There is no Chemical Summary/Information.)

Appendix L

Noted Soil Sampling, Vicinity

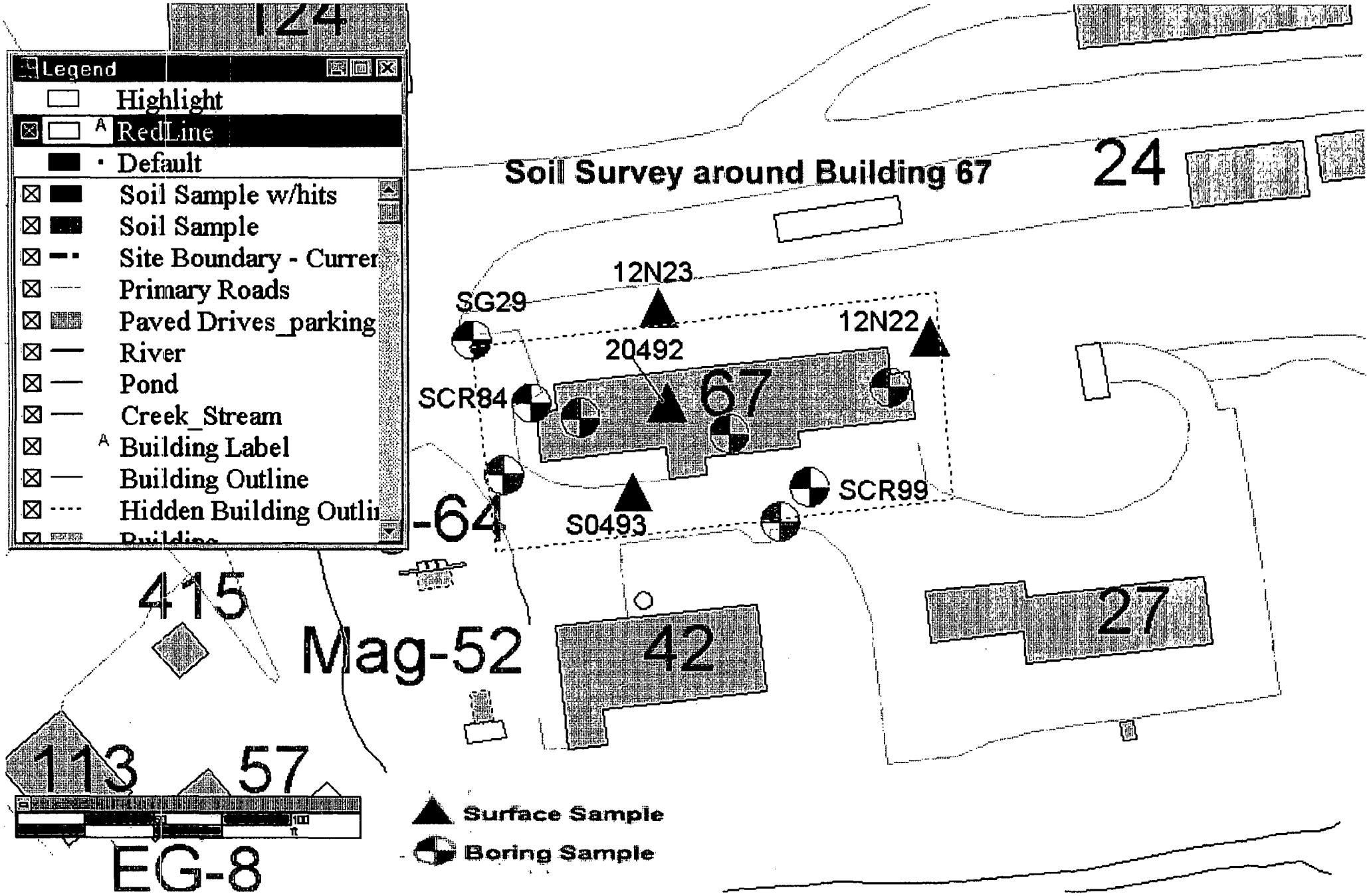
This Appendix L consists of three elements.

Element One is a graphic depiction of soil sampling in and around the subject property. Triangles signify surface sampling and circles denote boring (at depth) samples. The magenta color denotes a detection. A gray colored triangle or circle indicates a non-detection. Sampling detections are assigned a location alpha-numeric identifier.

Element Two is a spreadsheet detailing the element one detections. Detections (magenta colored symbols) identified in element one are listed. The first or left-most column entries of the element two spreadsheet can be matched to the element one identifiers. Sample detections that exceed comparison values are highlighted by bold text in the "Measured Value" column of the spreadsheet. Additionally, these comparison values are also identified in the "Comments" column of element two.

Element three is a table of comparison values. The constituent of concern can be found in the center column of this table; identified as "parameter name." Comparison values are located to the immediate right of these constituents. The first or left-most column of the element three table contains a single digit number identifying the basis of the comparison value. Basis identification is found on the last page of the element three table, and is again listed here.

Comparison Value Basis Number	Comparison Value Basis Definition
1	$10E^{-6}$ Risk-Based Guideline Value
2	Soil Background Value (OU9)
3	Other Criteria, such as Mound Plant Plutonium/Thorium Protocol
5	MCL Value
6	Guideline Value Based on Hazardous Index


Soil Survey around Building 67
Legend
Highlight
RedLine
Default
Soil Sample w/hits
Soil Sample
Site Boundary - Curren
Primary Roads
Paved Drives_parking
River
Pond
Creek_Stream
Building Label
Building Outline
Hidden Building Outli
124
24
12N23
SG29
12N22
20492
SCR84
67
SCR99
S0493
-64
415
Mag-52
42
27
113
57
EG-8
Surface Sample
Boring Sample

Location_	Sample_id	Location_	Collection_	Media	Value_name	Measured_v	Value_u	Detect	Chem_class	Sta	End	Dep	Cas_number	La	Project_code	Data	Comments
12N22	12N22	Surface lo	19941004	Soil	Total Aromatic Hydrocarbons	34733.00	IC		GENERA	0	2	FT	AHYD		2680		
12N22	12N22	Surface lo	19941004	Soil	Total C5 TO C11 Petrolium Hydroca	68783.00	IC		GENERA	0	2	FT	TOGRHY		2680		
12N22	12N22	Surface lo	19941004	Soil	Total Halogenated Hydrocarbons	4170.00	IC		GENERA	0	2	FT	THAHYC		2680		
12N23	12N23	Surface lo	19940927	Soil	Total Aromatic Hydrocarbons	270880.00	IC		GENERA	0	2	FT	AHYD		2680		
12N23	12N23	Surface lo	19940927	Soil	Total C5 TO C11 Petrolium Hydroca	811312.00	IC		GENERA	0	2	FT	TOGRHY		2680		
12N23	12N23	Surface lo	19940927	Soil	Total Semivolatile Hydrocarbons	16958.00	IC		GENERA	0	2	FT	TSVHYC		2680		
S0492	6872	Surface lo	19840801	Soil	Plutonium-238	0.02	PCI/G	0.01	RAD	0	0	FT	13981-16-3		RSS		
S0493	6870	Surface lo	19840801	Soil	Plutonium-238	0.03	PCI/G	0.01	RAD	0	0	FT	13981-16-3		RSS		
SCR84	88021710	Borehole	19880217	Soil	Thorium-232	**2.10**	PCI/G		RAD	2	2	FT	7440-29-1		SCRDATA		Exceeds background value.
SCR99	8901235	Borehole	19890123	Soil	Plutonium-238	**25.00**	PCI/G		RAD	0	0	FT	13981-16-3		SCRDATA		Exceeds soil 10-6 GV. Exceeds background value.
SG29	SG29	Borehole		Soil	Benzene	0.24	UG/L		ORVOA	0	2		71-43-2		SGS		
SG29	SG29	Borehole		Soil	Ethylbenzene	0.30	UG/L		ORVOA	0	2		100-41-4		SGS		
SG29	SG29	Borehole		Soil	Toluene	0.13	UG/L		ORVOA	0	2		108-88-3		SGS		
SG29	SG29	Borehole		Soil	Trichloroethene	0.03	UG/L		ORVOA	0	2		79-01-6		SGS		

comp_no	par_code	parameter name	comparison value	units
1	7440-41-7	Beryllium	7.00E-01	MG/KG
1	7440-43-9	Cadmium	5.00E+04	MG/KG
1	7440-47-3	Chromium	7.50E+03	MG/KG
1	121-82-4	RDX	2.70E+01	UG/KG
1	72-55-9	4,4'-DDE	9.00E+00	MG/KG
1	50-29-3	4,4'-DDT	9.00E+00	MG/KG
1	12672-29-6	Aroclor-1248	3.85E-01	MG/KG
1	11096-82-5	Aroclor-1260	3.85E-01	MG/KG
1	319-85-7	Beta-BHC	1.65E+00	MG/KG
1	60-57-1	Dieldrin	1.85E-01	MG/KG
1	56-55-3	Benzo(a)anthracene	4.10E+00	MG/KG
1	50-32-8	Benzo(a)pyrene	4.10E-01	MG/KG
1	205-99-2	Benzo(b)fluoranthene	4.10E+00	MG/KG
1	207-08-9	Benzo(k)fluoranthene	4.10E+01	MG/KG
1	117-81-7	Bis(2-ethylhexyl)phthalate	2.15E+02	MG/KG
1	218-01-9	Chrysene	4.10E+02	MG/KG
1	53-70-3	Dibenz(a,h)anthracene	4.10E-01	MG/KG
1	193-39-5	Indeno(1,2,3-cd)pyrene	4.10E+00	MG/KG
1	78-59-1	Isophorone	3.15E+03	MG/KG
1	86-30-6	N-Nitrosodiphenylamine	6.00E+02	MG/KG
1	87-86-5	Pentachlorophenol	2.50E+01	MG/KG
1	107-06-2	1,2-Dichloroethane	1.10E+01	MG/KG
1	71-43-2	Benzene	3.20E+01	MG/KG
1	75-27-4	Bromodichloromethane	4.80E+01	MG/KG
1	75-25-2	Bromoform	3.75E+02	MG/KG
1	56-23-5	Carbon Tetrachloride	1.20E+01	MG/KG
1	67-66-3	Chloroform	1.55E+01	MG/KG
1	124-48-1	Dibromochloromethane	3.55E+01	MG/KG
1	75-09-2	Dichloromethane	3.95E+02	MG/KG
1	79-01-6	Trichloroethene	1.25E+02	MG/KG
1	AC-227	Actinium-227	1.00E+00	PCI/G
1	14596-10-2	Americium-241	4.95E+00	PCI/G
1	13982-38-2	Bismuth-207	1.75E-01	PCI/G
1	BI-207	Bismuth-207	1.75E-01	PCI/G
1	10045-97-3	Cesium-137	4.60E-01	PCI/G
1	10198-40-0	Cobalt-60	1.00E-01	PCI/G
1	13981-16-3	Plutonium-238	5.50E+00	PCI/G
1	15117-48-3	Plutonium-239	5.50E+00	PCI/G
1	PU239/240	Plutonium-240	5.50E+00	PCI/G
1	13982-63-3	Radium-226	1.40E-01	PCI/G
1	10098-97-2	Strontium-90	3.00E+00	PCI/G
1	14274-82-9	Thorium-228	8.50E-01	PCI/G
1	14269-63-7	Thorium-230	4.40E+01	PCI/G
1	7440-29-1	Thorium-232	5.00E+01	PCI/G
1	10028-17-8	Tritium	2.35E+04	PCI/G
1	U-233	Uranium-233	3.70E+01	PCI/G
1	13966-29-5	Uranium-234	3.75E+01	PCI/G
1	15117-96-1	Uranium-235	3.35E+00	PCI/G
1	24678-82-8	Uranium-238	1.10E+01	PCI/G
2	7429-90-5	Aluminum	19000	MG/KG

comp_no	par_code	parameter name	comparison value	units
2	7440-38-2	Arsenic	8.6	MG/KG
2	7440-39-3	Barium	180	MG/KG
2	7440-69-9	Bismuth	ND	MG/KG
2	7440-41-7	Beryllium	1.3	MG/KG
2	7440-43-9	Cadmium	2.1	MG/KG
2	7440-70-2	Calcium	310000	MG/KG
2	7440-47-3	Chromium	20	MG/KG
2	7440-48-4	Cobalt	19	MG/KG
2	7440-50-8	Copper	26	MG/KG
2	57-12-5	Cyanide	ND	MG/KG
2	7439-89-6	Iron	35000	MG/KG
2	7439-92-1	Lead	48	MG/KG
2	7439-93-2	Lithium	26	MG/KG
2	7439-95-4	Magnesium	40000	MG/KG
2	7439-96-5	Manganese	1400	MG/KG
2	7439-97-6	Mercury	ND	MG/KG
2	7439-98-7	Molybdenum	27	MG/KG
2	7440-02-0	Nickel	32	MG/KG
2	7440-09-7	Potassium	1900	MG/KG
2	7440-22-4	Silver	1.7	MG/KG
2	7782-49-2	Selenium	ND	MG/KG
2	7440-23-5	Sodium	240	MG/KG
2	7440-28-0	Thallium	0.46	MG/KG
2	7440-31-5	Tin	20	MG/KG
2	7440-62-2	Vanadium	25	MG/KG
2	7440-66-6	Zinc	140	MG/KG
2	72-54-8	4,4'-DDD	4.2	MG/KG
2	72-55-9	4,4'-DDE	4.3	MG/KG
2	50-29-3	4,4'-DDT	13	MG/KG
2	309-00-2	Aldrin	ND	MG/KG
2	5103-71-9	Alpha Chlordane	ND	MG/KG
2	319-84-6	Alpha-BHC	ND	MG/KG
2	12672-29-6	Aroclor-1248	ND	MG/KG
2	11097-69-1	Aroclor-1254	58	MG/KG
2	11096-82-5	Aroclor-1260	ND	MG/KG
2	319-85-7	Beta-BHC	ND	MG/KG
2	60-57-1	Dieldrin	ND	MG/KG
2	959-98-8	Endosulfan I	ND	MG/KG
2	1031-07-8	Endosulfan Sulfate	ND	MG/KG
2	72-20-8	Endrin	ND	MG/KG
2	7421-93-4	Endrin Aldehyde	ND	MG/KG
2	53494-70-5	Endrin Ketone	ND	MG/KG
2	5103-74-2	Gamma Chlordane	ND	MG/KG
2	58-89-9	Gamma-BHC (Lindane)	ND	MG/KG
2	76-44-8	Heptachlor	ND	MG/KG
2	1024-57-3	Heptachlor Epoxide	ND	MG/KG
2	72-43-5	Methoxychlor	30	MG/KG
2	77-47-4	Hexachlorocyclopentadiene	ND	MG/KG
2	14596-10-2	Americium-241	ND	MG/KG
2	13982-38-2	Bismuth-207	ND	MG/KG

comp_no	par_code	parameter name	comparison value	units
2	BI-207	Bismuth-207	ND	MG/KG
2	BI-210M	Bismuth-210m	ND	MG/KG
2	10045-97-3	Cesium-137	0.42	PCI/G
2	13981-16-3	Plutonium-238	0.13	PCI/G
2	13966-00-2	Potassium-40	37	PCI/G
2	13982-63-3	Radium-226	2	PCI/G
2	10098-97-2	Strontium-90	0.72	PCI/G
2	14274-82-9	Thorium-228	1.5	PCI/G
2	14269-63-7	Thorium-230	1.9	PCI/G
2	7440-29-1	Thorium-232	1.4	PCI/G
2	10028-17-8	Tritium	1.6	PCI/G
2	13966-29-5	Uranium-234	1.1	PCI/G
2	15117-96-1	Uranium-235	0.11	PCI/G
2	24678-82-8	Uranium-238	1.2	PCI/G
3	7439-92-1	Lead	400	MG/KG
3	13982-63-3	Radium-226	5	PCI/G
3	13981-16-3	Plutonium-238	25	PCI/G
3	7440-29-1	Thorium-232	5	PCI/G
5	7440-36-0	Antimony	0.0006	MG/L
5	7440-38-2	Arsenic	0.05	MG/L
5	7440-39-3	Barium	2	MG/L
5	7440-41-7	Beryllium	0.004	MG/L
5	7440-43-9	Cadmium	0.005	MG/L
5	7440-47-3	Chromium	0.1	MG/L
5	7440-50-8	Copper	1.3	MG/L
5	57-12-5	Cyanide	0.2	MG/L
5	7439-92-1	Lead	0.015	MG/L
5	7439-97-6	Mercury	0.002	MG/L
5	7440-02-0	Nickel	0.1	MG/L
5	7782-49-2	Selenium	0.05	MG/L
5	7440-28-0	Thallium	0.002	MG/L
5	16984-48-8	Flouride	4	MG/L
5	NO3	Nitrate	10	MG/L
5	NO2	Nitrite	1	MG/L
5	57-74-9	Chlordane	0.002	MG/L
5	72-20-8	Endrin	0.002	MG/L
5	76-44-8	Heptachlor	0.0004	MG/L
5	1024-57-3	Heptachlor Epoxide	0.0002	MG/L
5	72-43-5	Methoxychlor	0.04	MG/L
5	8001-35-2	Toxaphene	0.003	MG/L
5	120-82-1	1,2,4-Trichlorobenzene	0.07	MG/L
5	95-95-4	2,4,5-Trichlorophenol	0.05	MG/L
5	50-32-8	Benzo(a)pyrene	0.002	MG/L
5	118-74-1	Hexachlorobenzene	0.001	MG/L
5	77-47-4	Hexachlorocyclopentadiene	0.05	MG/L
5	87-86-5	Pentachlorophenol	0.001	MG/L
5	71-55-6	1,1,1-Trichloroethane	0.2	MG/L
5	79-00-5	1,1,2-Trichloroethane	0.005	MG/L
5	75-35-4	1,1-Dichloroethene	0.007	MG/L
5	156-59-2	1,2-cis-Dichloroethene	0.07	MG/L

comp_no	par_code	parameter name	comparison value	units
5	107-06-2	1,2-Dichloroethane	0.005	MG/L
5	78-87-5	1,2-Dichloropropane	0.005	MG/L
5	106-46-7	1,4-Dichlorobenzene	0.075	MG/L
5	108-90-7	Chlorobenzene	0.1	MG/L
5	96-12-8	Dibromochloropropane	0.0002	MG/L
5	106-93-4	1,2-Dibromoethane	0.00005	MG/L
5	95-50-1	1,2-Dichlorobenzene	0.6	MG/L
5	75-09-2	Dichloromethane (Methylene Chloride)	0.005	MG/L
5	88-85-7	Dinoseb	0.007	MG/L
5	1746-01-6	Dioxin	0.00000003	MG/L
5	94-75-7	2,4-D	0.07	MG/L
5	156-60-5	1,2-trans-Dichloroethene	0.01	MG/L
5	71-43-2	Benzene	0.005	MG/L
5	75-27-4	Bromodichloromethane	0.008	MG/L
5	75-25-2	Bromoform	0.008	MG/L
5	56-23-5	Carbon Tetrachloride	0.005	MG/L
5	67-66-3	Chloroform	0.008	MG/L
5	100-41-4	Ethylbenzene	0.07	MG/L
5	58-89-9	Gamma-BHC (Lindane)	0.0002	MG/L
5	117-81-7	bis(2-ethylhexyl)phthalate	0.006	MG/L
5	100-42-5	Styrene	0.1	MG/L
5	127-18-4	Tetrachloroethene	0.005	MG/L
5	108-88-3	Toluene	1	MG/L
5	79-01-6	Trichloroethene	0.005	MG/L
5	75-01-4	Vinyl Chloride	0.002	MG/L
5	1330-20-7	Xylenes, Total	10	MG/L
5	AC-227	Actinium-227	0.4	PCI/L
5	14596-10-2	Americium-241	1.2	PCI/L
5	13982-38-2	Bismuth-207	1200	PCI/L
5	10045-97-3	Cesium-137	120	PCI/L
5	10198-40-0	Cobalt-60	400	PCI/L
5	13981-16-3	Plutonium-238	1.6	PCI/L
5	13982-63-3	Radium-226	4	PCI/L
5	10098-97-2	Strontium-90	40	PCI/L
5	14274-82-9	Thorium-228	16	PCI/L
5	14269-63-7	Thorium-230	12	PCI/L
5	7440-29-1	Thorium-232	2	PCI/L
5	10028-17-8	Tritium	20000	PCI/L
5	U-233	Uranium-233	20	PCI/L
5	13966-29-5	Uranium-234	20	PCI/L
5	15117-96-1	Uranium-235	24	PCI/L
5	24678-82-8	Uranium-238	24	PCI/L
6	7440-47-3	Chromium	1.10E+03	MG/KG
6	7440-36-0	Antimony	8.50E+01	MG/KG
6	7440-38-2	Arsenic	6.40E+01	MG/KG
6	7440-39-3	Barium	1.50E+04	MG/KG
6	7440-41-7	Beryllium	1.10E+03	MG/KG
6	7440-43-9	Cadmium	2.10E+02	MG/KG
6	57-12-5	Cyanide	4.30E+03	MG/KG
6	7439-96-5	Manganese	2.70E+04	MG/KG

comp_no	par_code	parameter name	comparison value	units
6	7439-97-6	Mercury	6.40E+01	MG/KG
6	7440-02-0	Nickel	4.30E+03	MG/KG
6	7440-22-4	Silver	1.10E+03	MG/KG
6	7440-62-2	Vanadium	1.50E+03	MG/KG
6	7440-66-6	Zinc	6.40E+04	MG/KG
6	2691-41-0	HMX	1.10E+04	UG/KG
6	121-82-4	RDX	6.40E+04	UG/KG
6	50-29-3	4,4'-DDT	1.10E+02	MG/KG
6	11097-69-1	Aroclor-1254	4.30E+00	MG/KG
6	60-57-1	Dieldrin	1.10E+01	MG/KG
6	106-44-5	4-Methylphenol	1.10E+03	MG/KG
6	120-12-7	Anthracene	6.40E+04	MG/KG
6	65-85-0	Benzoic Acid	8.50E+05	MG/KG
6	117-81-7	Bis(2-ethylhexyl)phthalate	4.30E+03	MG/KG
6	85-68-7	Butyl Benzyl Phthalate	4.30E+04	MG/KG
6	84-74-2	Di-n-butyl Phthalate	2.10E+04	MG/KG
6	117-84-0	Di-n-octyl Phthalate	4.30E+03	MG/KG
6	206-44-0	Fluoranthene	8.50E+03	MG/KG
6	78-59-1	Isophorone	4.30E+04	MG/KG
6	87-86-5	Pentachlorophenol	6.40E+03	MG/KG
6	108-95-2	Phenol	1.30E+05	MG/KG
6	129-00-0	Pyrene	6.40E+03	MG/KG
6	75-34-3	1,1-Dichloroethane	7.80E+00	MG/KG
6	156-60-5	1,2-trans-Dichloroethene	4.30E+03	MG/KG
6	108-10-1	2-Methyl-4-pentanone	7.00E+02	MG/KG
6	67-64-1	Acetone	2.10E+04	MG/KG
6	75-27-4	Bromodichloromethane	4.30E+03	MG/KG
6	75-25-2	Bromoform	4.30E+03	MG/KG
6	75-15-0	Carbon Disulfide	2.80E+02	MG/KG
6	56-23-5	Carbon Tetrachloride	1.50E+02	MG/KG
6	75-00-3	Chloroethane	1.60E+02	MG/KG
6	67-66-3	Chloroform	2.10E+03	MG/KG
6	124-48-1	Dibromochloromethane	4.30E+03	MG/KG
6	75-09-2	Dichloromethane	1.00E+03	MG/KG
6	100-41-4	Ethylbenzene	4.80E-01	MG/KG
6	110-54-3	Hexane	9.10E+01	MG/KG
6	127-18-4	Tetrachloroethene	2.10E+03	MG/KG
6	108-88-3	Toluene	2.50E+02	MG/KG
6	75-69-4	Trichlorofluoromethane	7.30E+02	MG/KG
6	1330-20-7	Xylenes, Total	4.30E+05	MG/KG
6	78-93-3	2-Butanone	9.30E+03	MG/KG

1 Value is 10-6 Risk-Based Guide Value
2 Value is OU9 Soil Background Value
3 Value is other criteria, I.e. 5 pCi/g for certain radionuclides
25 pCi/g plutonium
5 Value is MCL
6 Value is the Guide Value based on the hazard index

Appendix M

Occurrence Reports

(There are no Occurrence Reports.)

Appendix N

PRS Information

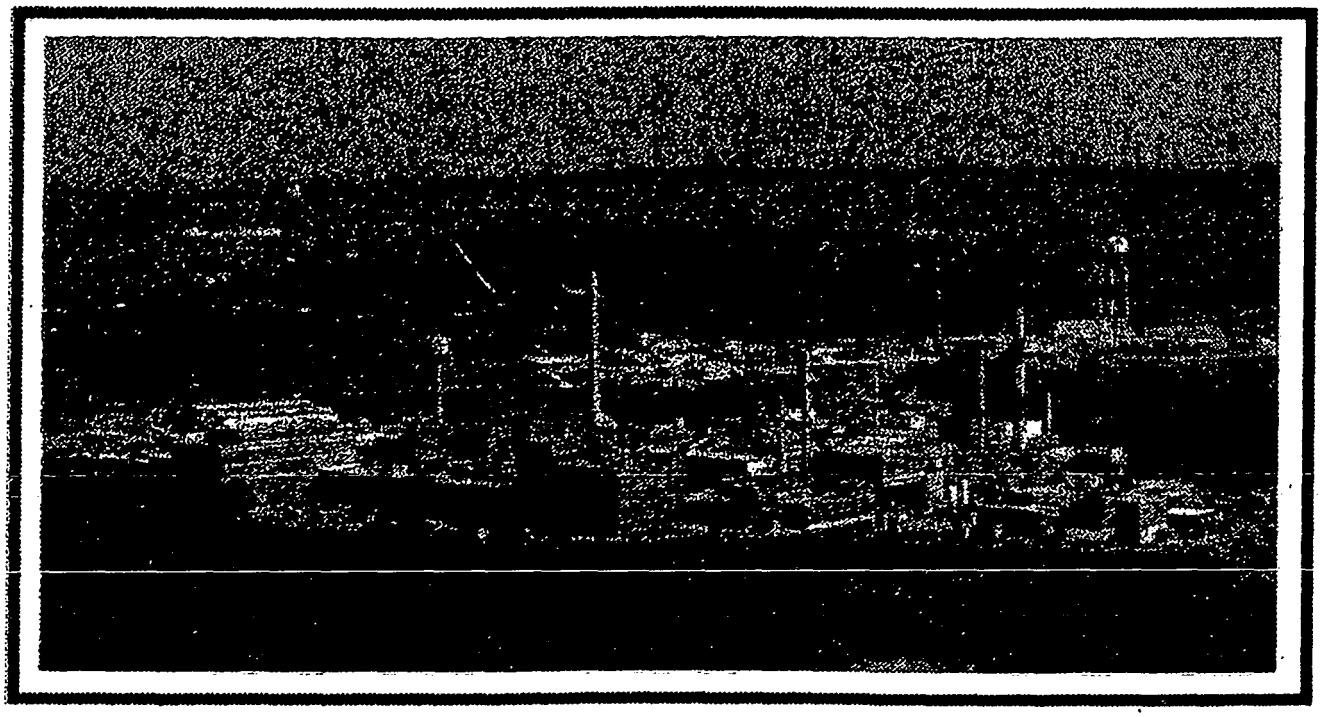
MOUND

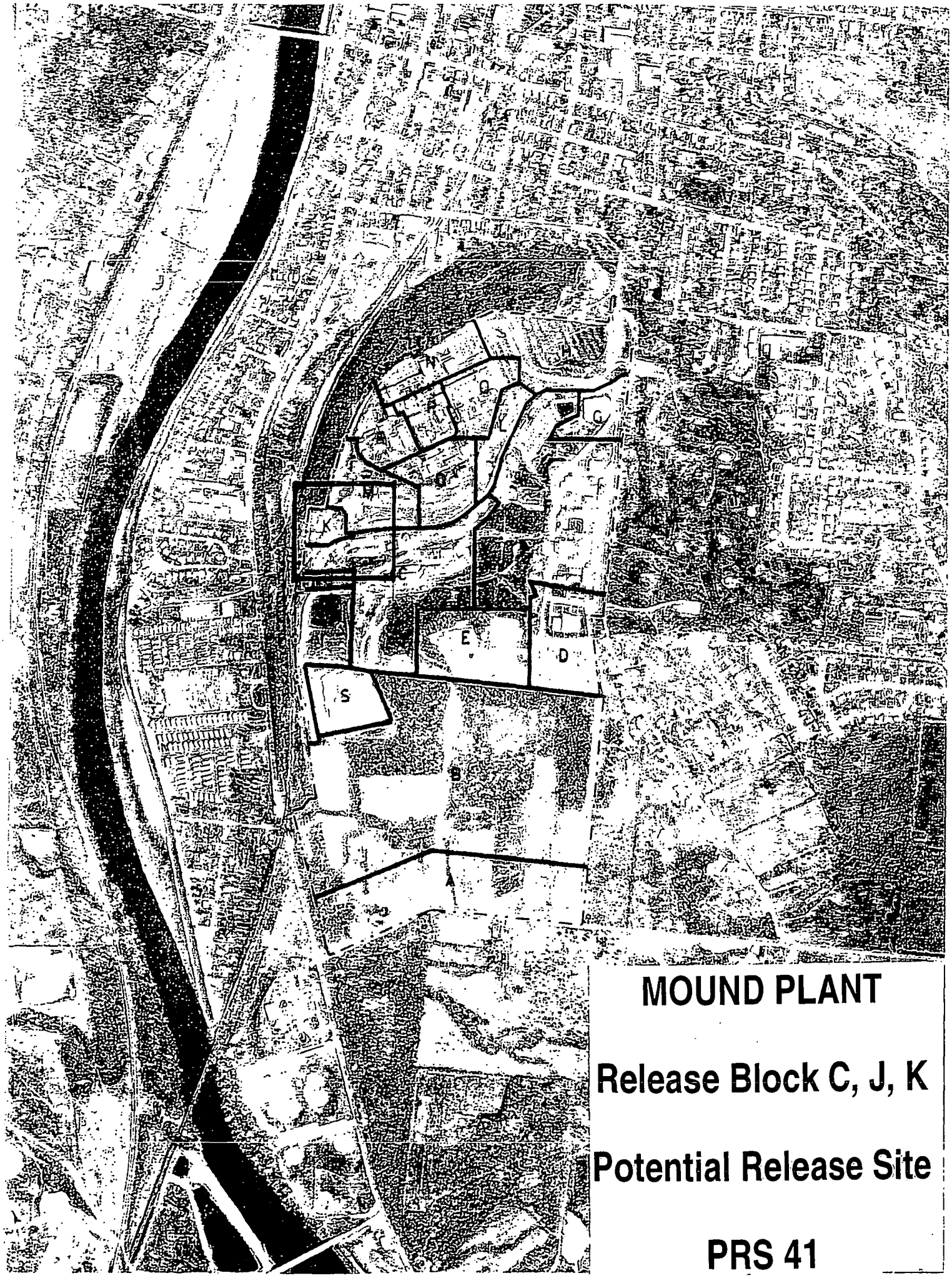
Environmental
Restoration
Program

MOUND PLANT

Potential Release Site Package

PRS # 41



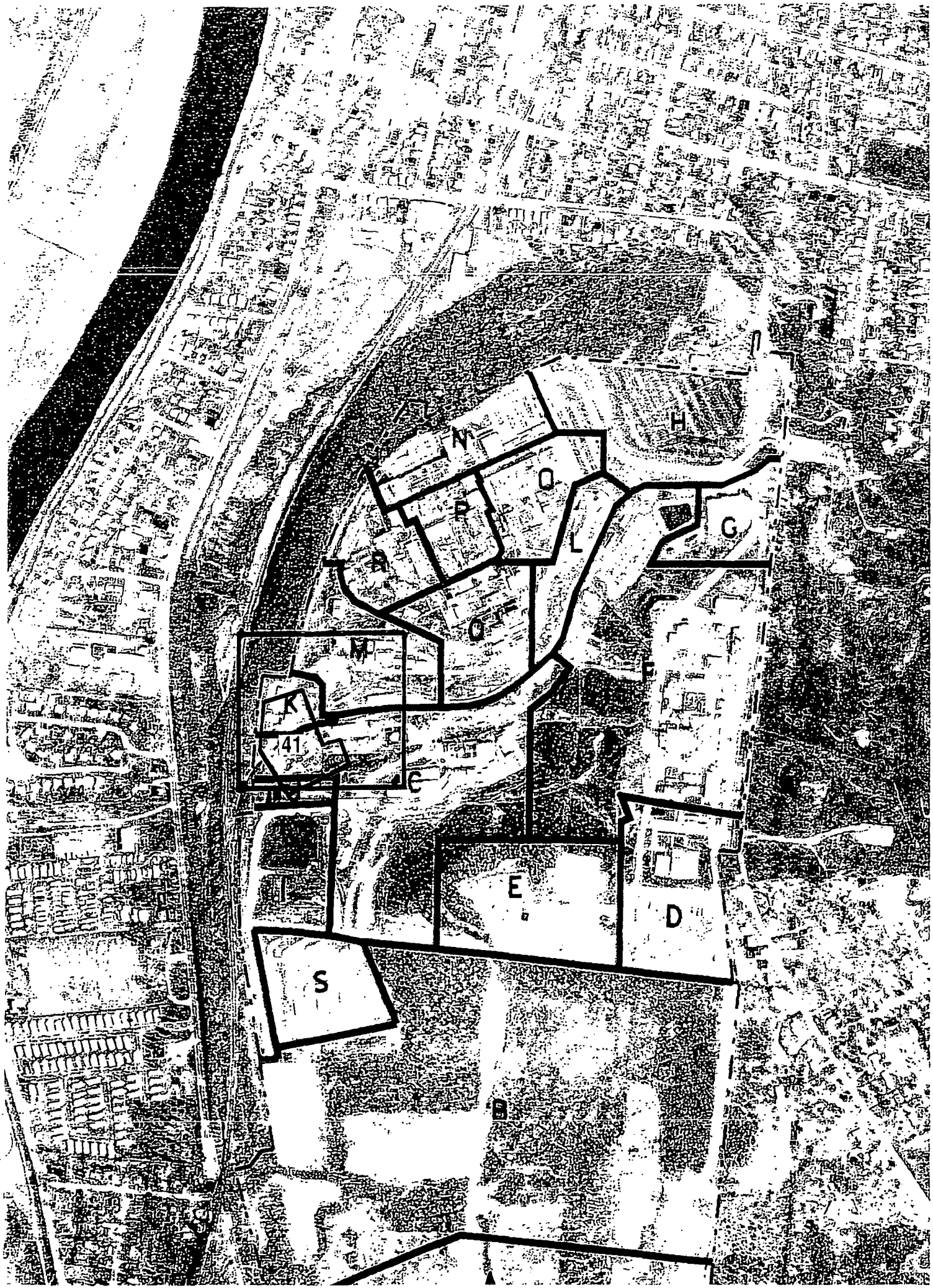


MOUND PLANT

Release Block C, J, K

Potential Release Site

PRS 41

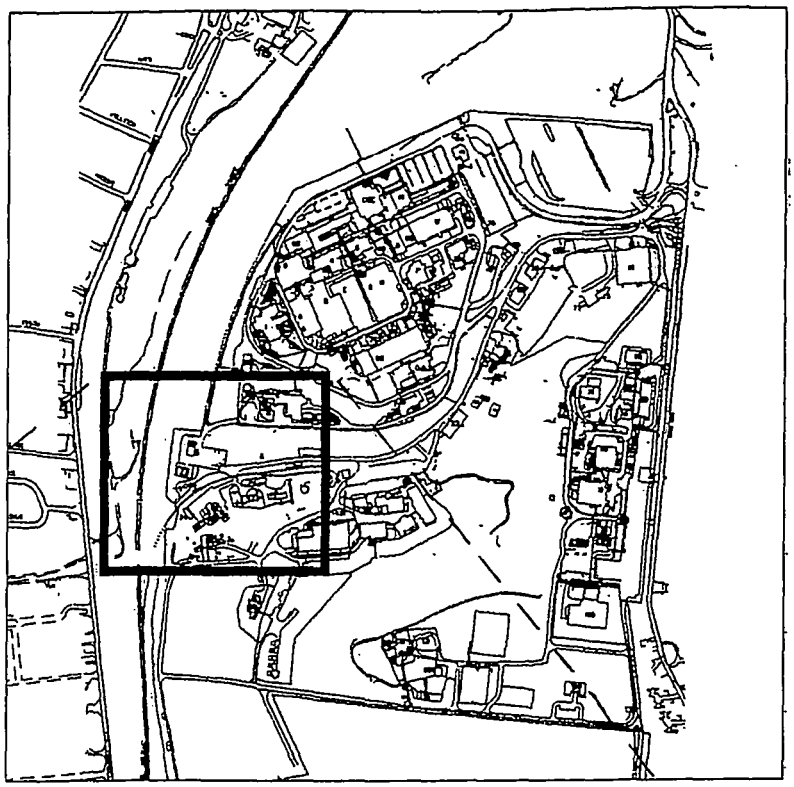

H
N
O
P
L
G
R
Q
M
K
41
C
E
D
S
B

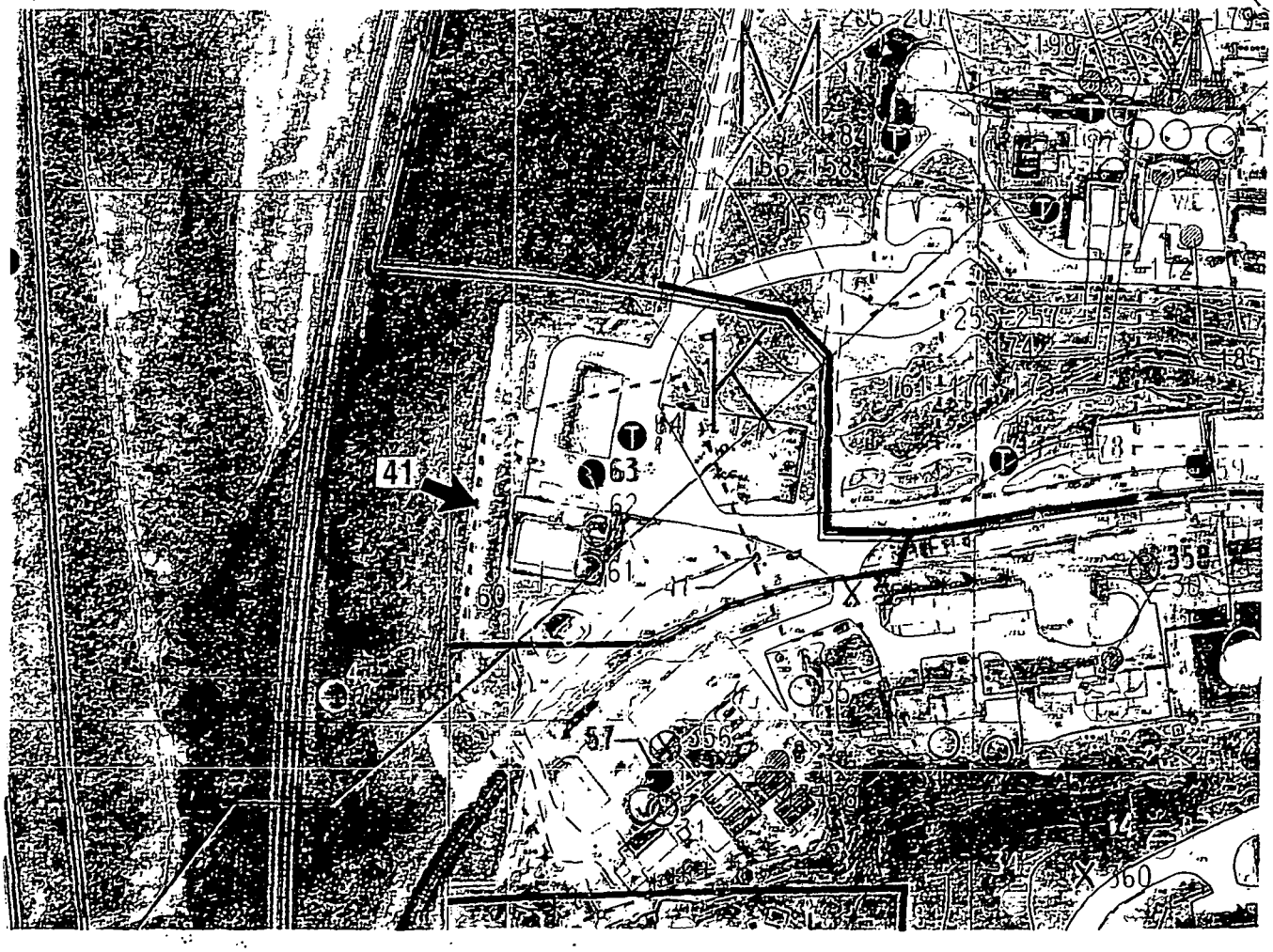
MOUND PLANT

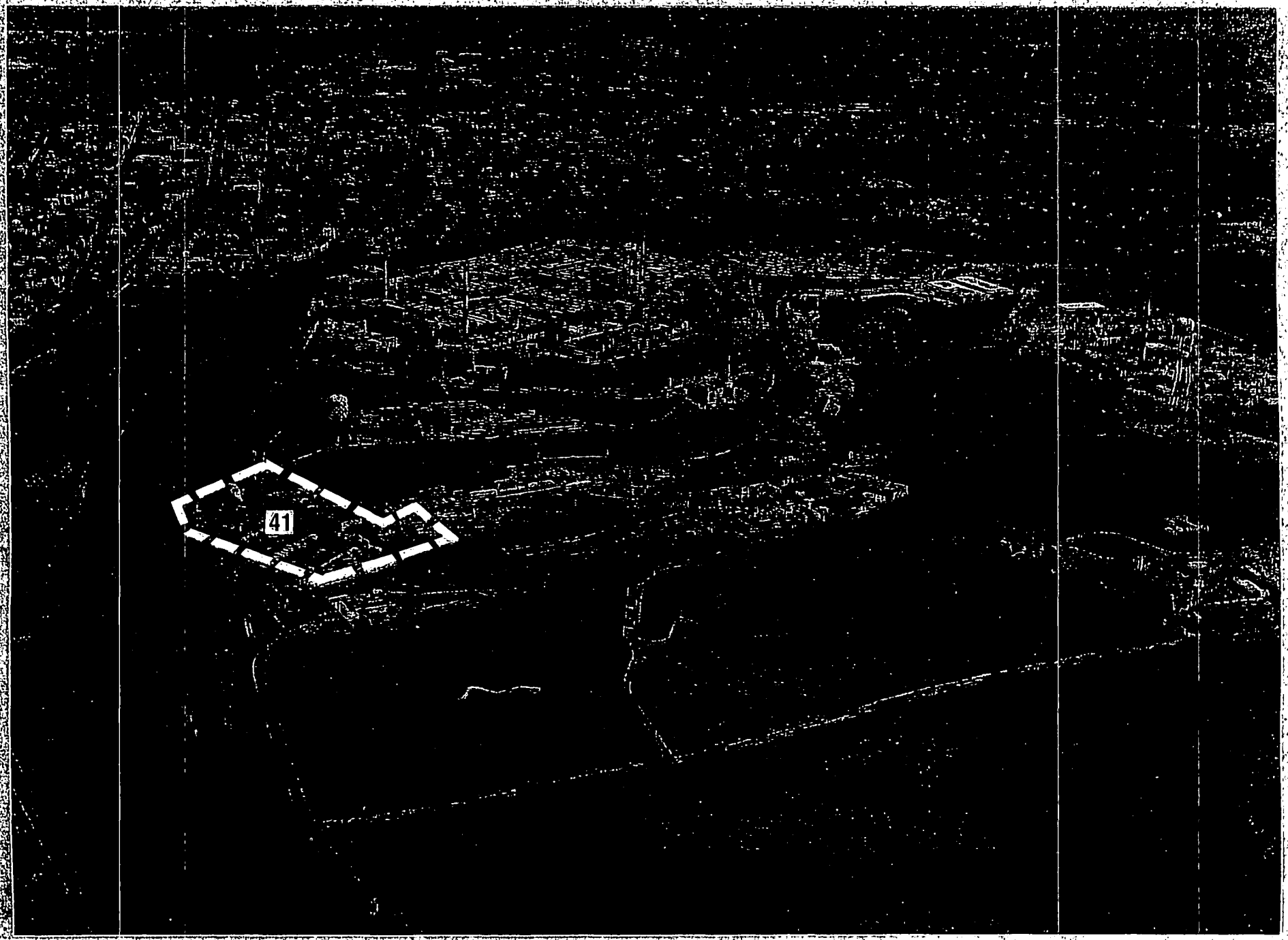
Release Block C, J, K

Potential Release Site

PRS 41






41

PRS 41

PRS HISTORY:

In the mid-1950s, the Atomic Energy Commission directed Mound Plant to develop a process for the extraction of thorium from Brazilian monazite sludge and other thorium-bearing materials. The goal was to construct a refinery that would recover thorium from the sludge and other ores and provide a thorium salt suitable for preparing high purity thorium metal.[2,8] The thorium ore processing program was very short lived. Mound Plant began to receive sludge materials in early 1955 and the program was canceled in May 1955. [4] However, before the Commission canceled the program, the Mound Plant had received 5,900 55-gallon drums of thorium containing sludge and ore.[8]

From 1955 to 1965, the thorium ore and sludges were repackaged almost annually and the drums were stored in large groups throughout the plant grounds. As many as 20,000 empty, but corroded drums were buried. In 1966, the thorium was moved to a bulk-type storage silo (Building 21) and then was removed from the silo in 1974.

Interviews with current and former employees and a search of historical Mound Plant records identified that the thorium ores were stored in Area 3 which is Potential Release Site 41. In 1988, the Mound Site Survey Project[5] confirmed the presence of thorium in Area 3. Historical aerial photos of the plant show evidence of drum storage in this area.[6] Area 3 is located in the area surrounding Buildings 19 and 72 on the western border of Mound Plant. In 1965, thorium-contaminated soil was reportedly scraped, and the area was graded.

In a small section of Area 3, near Building 19, plutonium was detected during the site survey project. This area may have been contaminated by the 1969 plutonium-238 waste line break which contaminated the Miami-Erie Canal and the runoff hollow, west of the fenceline at the western edge of Area 3.

CONTAMINATION:

The major isotope in the Brazilian sludge was thorium-232 with the major daughter products being radium-228, radium-224, and other daughters. Minor amounts of thorium-230 may have also been present in the naturally occurring ores, and thorium-228 would be present due to the decay of radium-228. No analytical data quantifying these isotopes in the original thorium sludges was found. The ores were also found to contain small amounts of a variety of rare earth elements.

Both Scoping Report Volume 3 [2] and the Mound Site Survey report[5] show most of the elevated plutonium-238 activity as being present near Building 19 (core locations 0099, 0100, 0101, 0102, and 0104 on Plate 1; C099, C0100, C0101, C0102, and C0104 on Table V.2) and in the southwest corner of the area (surface locations 0547, 0548, 0550, 0552 on Plate 1; S0547, S0548, S0550, and S0552 on Table V.2). The maximum plutonium-238 concentration reported for

samples collected from Area 3, 50.60 pCi/g, was detected in the sample collected from core location C0104 at a depth of 18 inches. Only five samples contained plutonium-238 concentrations greater than 25 pCi/g.

Only four of the 63 samples collected in Area 3 contained levels of total thorium in excess of 2 pCi/g. The maximum concentration, 5.30 pCi/g, was detected in a surface sample collected from location 0547 (S0547 on Table V.2).

The depth of the core samples collected in Area 3 during the Site Survey Project ranged from 18 inches to a maximum of 180 inches. Most core locations were sampled to a depth of approximately 36 inches.

The Uranium Mill Tailings Reduction Act specifies clean-up guidelines for thorium as 5 pCi/g at the surface and 15 pCi/g in sub-surface soils. For plutonium-238, the Mound Plant attempts to attain an ALARA (As Low As Reasonably Achievable) criteria of 25 pCi/g for soils on the plant site.

As part of the 1974 investigations of plutonium-238 in the Miami-Erie Canal, Mound collected surface and core samples around the plant perimeter and fence line. Some samples were collected at the western border of Area 3. Samples were analyzed only for plutonium-238. Sample results indicate concentrations up to 125 pCi/g in the area where Area 3 borders the run-off hollow and 1 to 2 pCi/g elsewhere.

Mound Plant records[14] show that in 1987 two samples were collected in Area 3. One near building 55 and the other along the railroad near trailer 15. The sample near building 55 contained 13 pCi/g of thorium-232 and the other contained 107 pCi/g of thorium-232.

Elevated levels of plutonium-238 have also been discovered in Area 3 during surveys conducted for construction activities. Since 1985, Mound Plant has routinely conducted gamma ray screening of soils dug during construction activities. In August 1988, during survey of the dismantling of a portion of the sludge drying beds adjacent to the wastewater treatment facility, elevated levels of thorium and plutonium were indicated. An internal memorandum[7] indicates that analysis of 15 samples from bed #3 shows thorium concentrations that range from less than 1 to 63 pCi/g and plutonium-238 concentrations that range from less than 20 to 1,235 pCi/g. Notes on the memo indicate that the samples were collected at the surface, but during interviews with the personnel that collected the samples, it was indicated that the samples were collected below the drying bed at the surface of the underlying soil. As part of the construction, the contaminated soil was removed and boxed for off-site disposal. According to Collins[7] considerable doubt exists that any of the identified contamination actually contained plutonium-238. All of the radioactivity was assumed to be thorium-232, as it is apparent with as much thorium activity as was present in the drying beds, considerable interference occurs on the plutonium-238 channel of the analytical equipment. The 1,235 pCi/g of plutonium-238 were considered to have occurred by this interference. Soil was removed to a level approximating 15 pCi/g thorium according to field screening with a FIDLER (Field Instrument for Detection of Low Energy Radiation). No additional soil samples were taken before the area was backfilled.[2]

No processes, other than perhaps runoff from Area 14 (soils resulting from the 1969 pipeline break, PRS 176), could account for plutonium-238 under the sludge drying beds. The drying beds themselves were constructed in 1974 as part of the wastewater treatment plant. During that era, routine surveys did not accompany construction activities and the beds may have been built over soils contaminated with thorium.[2]

In August 1993, prior to construction of new sewage treatment facilities and a proposed waste storage building, Mound conducted sampling at the construction sites.[8] A variety of polycyclic aromatic hydrocarbons were detected. Benzo(a)pyrene and dibenz anthracene were detected above guideline values. All radionuclides detected were below guideline criteria or background values except for thorium-228. Metals were reported at concentrations below respective guideline criteria or background values. The results above guideline criteria are tabulated below.

Chemical	Maximum concentration	Guideline Criteria	Background Value
benzo(a)pyrene	4.0 mg/kg	0.41 mg/kg	Not available
dibenz anthracene	1.2 mg/kg	0.41 mg/kg	Not available

In 1994, Mound's Environmental Restoration Program conducted a screening investigation at Area 3.[3] The soil samples were analyzed at the Mound Soil Screening Facility for Plutonium and Thorium. Soil Screening detected plutonium above 25 pCi/g in 21 of the 72 samples, and the maximum concentration was 81 pCi/g. The maximum concentration of thorium-232 found was 3.1 pCi/g which is less than the UMTRA guideline of 5 pCi/g surface/ 15 pCi/g sub-surface. FIDLER surveys within Area 3 found several locations where elevated levels of radionuclides are suspected.

PETREX soil gas screening was also performed during the 1994 ER Program investigation[3]. The data obtained from this study is not quantitative but show that petroleum-based, aromatic, halogenated, and semi-volatile organic compounds exist within the area.

In February 1996 nine samples were collected and analyzed to quantify the elevated PETREX soil gas measurements in Area 3.[16] The samples were analyzed for a full suite of chemicals including volatile organic compounds, semi volatile organic compounds, pesticides and PCB's, explosives, metals and radionuclides. The following table lists chemicals that were detected above guideline criteria, background, or where there was no available criteria.

Chemical	Maximum concentration	Guideline Criteria	Background Value
benzo(a)pyrene	850 mg/kg	410 mg/kg	Not available
endosulfan II	4.4 mg/kg	Not available	Not available
magnesium	86,000 mg/kg	Not available	40,000 mg/kg
sodium	464 mg/kg	Not available	240 mg/kg
radium-226	0.88 pCi/g	0.14 pCi/g	2.0 pCi/g
thorium-228	1.18 pCi/g	0.85 pCi/g	1.5 pCi/g
plutonium-238	3.11 pCi/g	5.5 pCi/g	0.13 pCi/g

Reconnaissance sampling conducted in the Soil Gas Survey and Geophysical Investigation [10] collected soil gas samples at two locations in Area 3. Near building 19, elevated levels of Freon 11, Freon 113, trichloroethene, toluene were detected. Comparison of toluene and TCE soil gas values with calculated acceptable soil gas values show the detections are below levels of concern.[15]

Contaminant	Maximum Soil Gas Value	Acceptable Soil Gas Value
Trichloroethene	66 ppb	2400
Toluene	16 ppb	414600

During installation of monitoring wells soil samples were collected at several depths and analyzed for a suite of chemicals.[11] A number of metals were detected in samples collected during installation of well 0347 located within Area 3. All detections were below background or guideline criteria except the following:

Chemical	Maximum concentration	Guideline Criteria	Background Value
bismuth	11.4 mg/kg	Not available	Not available
lithium	36.1 mg/kg	Not available	26 mg/kg
magnesium	57,100 mg/kg	Not available	40,000 mg/kg
potassium	3340 mg/kg	Not available	1900 mg/kg
sodium	272 mg/kg	Not available	240 mg/kg

The samples were also analyzed for volatile organic compound and semi-volatile organic compounds. No organics were detected above guideline values although diethyl phthalate was detected once with a concentration of 47 mg/kg. No comparison values exist for diethyl phthalate. No radionuclides were detected above their respective background or guideline values. Thorium concentrations were below background values.

Monitoring wells 137, 312, 315, 347, 386, and 389 are in or downgradient from Area 3 and were sampled twice during the Operable Unit 9 Groundwater Sweeps Investigation.[13] Subsequent to the Groundwater Sweeps sampling, these wells and peizometer P023 were sampled in June

1995.[12] The following chemicals were detected above Maximum Contaminant Levels (MCL) specified in EPA's drinking water standards.

Chemical	Maximum concentration	MCL	Monitoring wells
lead	23.8 mg/l	15 mg/l (TT)	137, P023
cadmium	7.0 mg/l	5 mg/l	137
nickel	11600 mg/l	100 mg/l	312, 386
trichloroethene	10 mg/l	5 µg/l	312, 315, 347, 386, 389
chromium	13300 mg/l	100 mg/l	312, 315, 386

TT = total at tap

READING ROOM REFERENCES:

1) OU9, Site Scoping Report: Vol. 12 - Site Summary Report, December 1994. (pages 9-12)
2) OU9, Site Scoping Report: Vol. 3 - Radiological Site Survey, June 1993. (pages 13-26)
3) OU5, Operational Area Phase I Investigation Area 3 Field Report. (pages 27-53)
4) OU9, Site Scoping Report: Vol. 7 - Waste Management Report. (pages 54-56)
5) The Mound Site Survey Project for the Characterization of Radioactive Materials in Site Soils, May 1988. (pages 57-61)
6) Site Scoping Report: Volume 6 - Photo History. (pages 62-79)
10) Soil Gas Survey and Geophysical Investigations, February 1993. (pages 122-130)
11) Operable Unit 9 Hydrogeologic Investigation: Soil Chemistry Report, September 1994. (pages 131-140)
13) Operable Unit 9 Hydrogeologic Investigation: Groundwater Sweeps Report, April 1995. (pages 147-157)
16) Further Assessment: Soil Gas Confirmation Sampling, November 1996. (pages 162-173)

OTHER REFERENCES:

7) Collins 1988. (pages 80-81)
8) Options for Disposal of Thorium Ore Residues, April 1973. (pages 82-88)
9) Sampling and Analysis Report, Mound Operable Unit 5, Area 3, August 1993. (pages 89-121)
12) Groundwater Monitoring and Mapping for June 1995, Operable Unit 9, October 1995. (pages 141-146)
14) Pearson, T.J. Mound Plant Internal Memo, Soil Screening Facility. (page 158)
15) Comparison of Actual Soil Gas Values with Calculated Acceptable Soil Gas Values, A. Bray, March 19, 1996. (pages 159-161)

PREPARED BY:

James N. Rigano, Member of EG&G Technical Staff

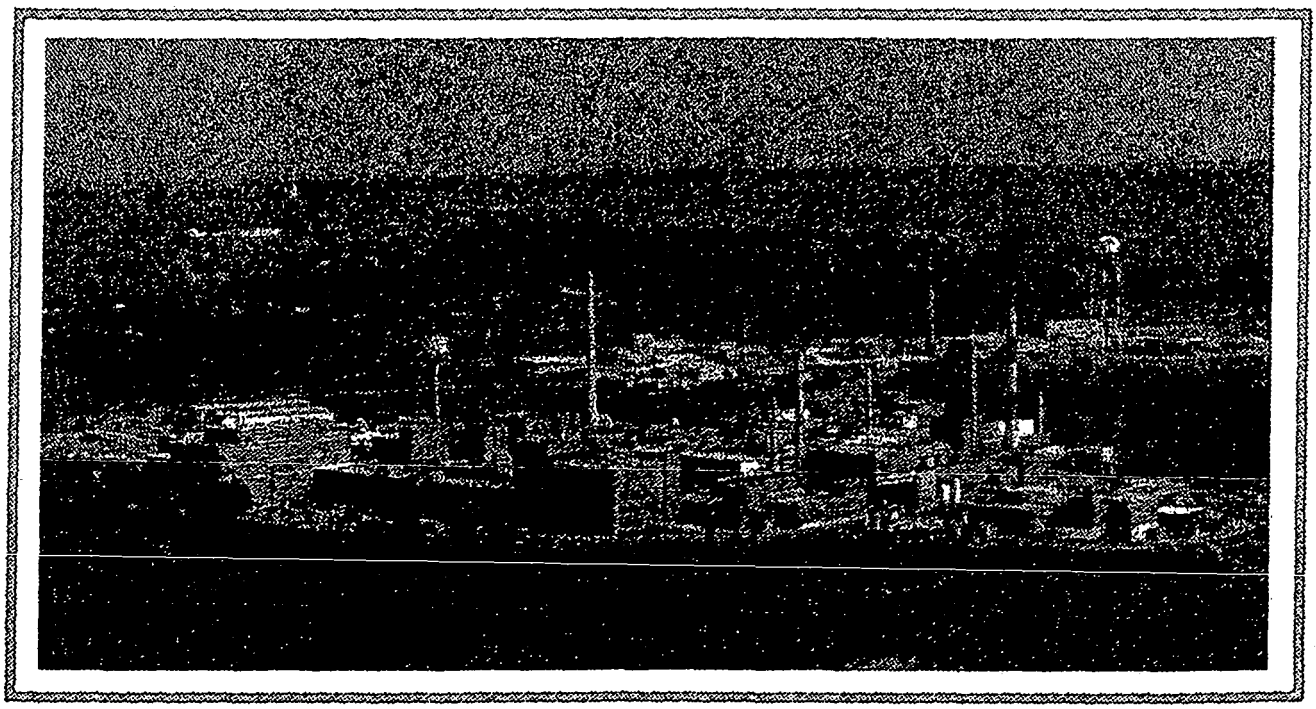
MOUND

Environmental
Restoration
Program

MOUND PLANT

Potential Release Site Package

PRS # 41 Group Supplementary Data

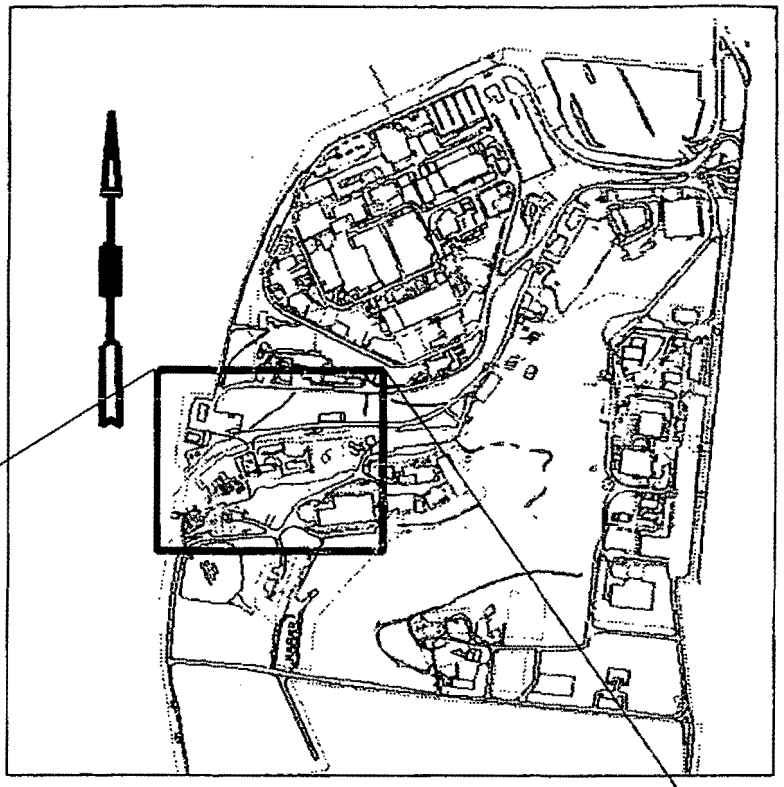


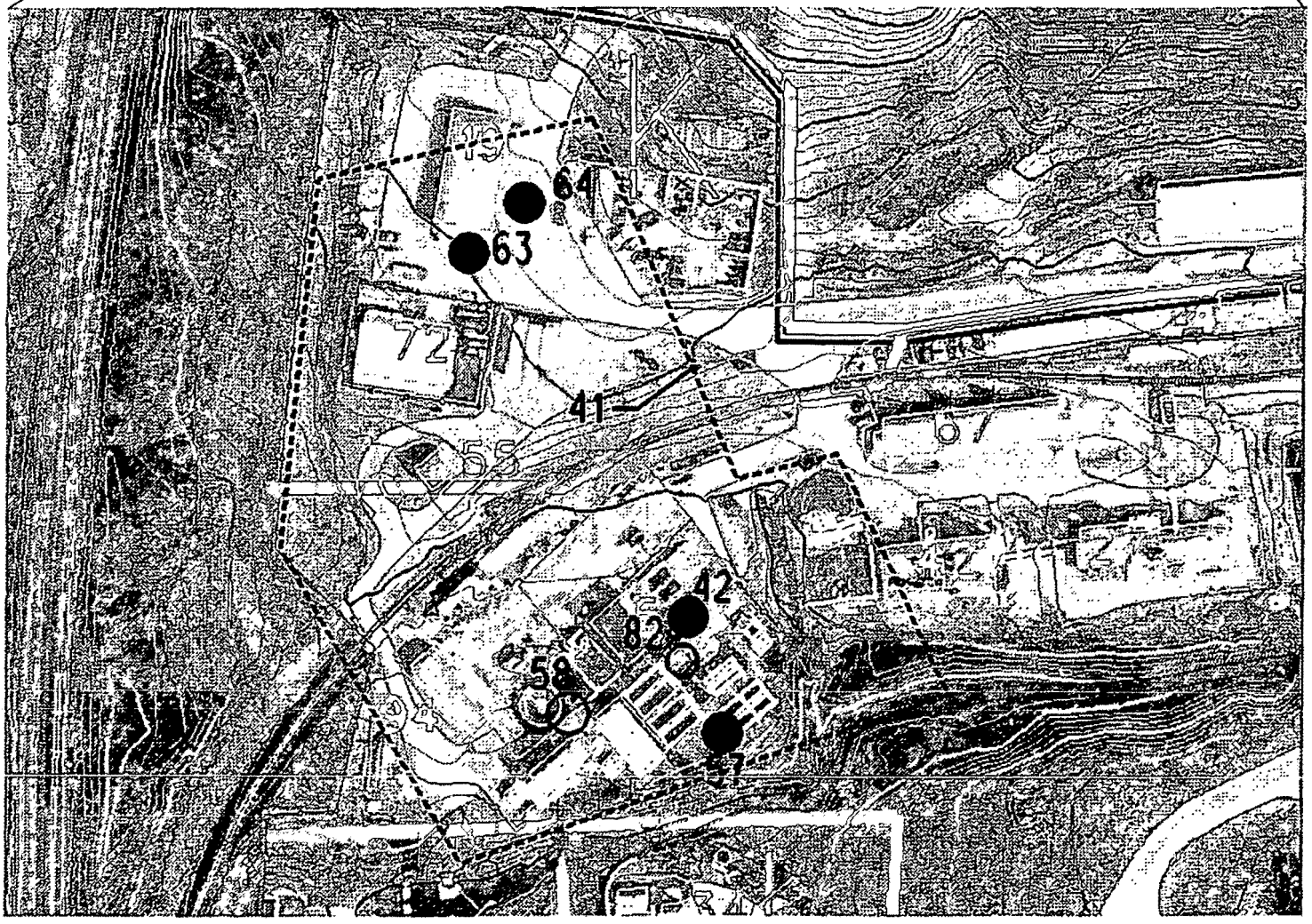
Mound Plant

Release Block C/K/J

Potential Release Site

PRS 41, 42, 57, 58, 63, 64, 82





41
64
63
42
58
57

INTRODUCTION

to the PRS 41 Group

(PRSs 41, 42, 57, 58, 63, 64 and 82)

In an effort to better understand Potential Release Sites (PRSs) 41, 42, 57, 58, 63, 64 and 82, it is desired to introduce these PRSs as a group prior to addressing them as individual PRSs. These PRSs lend themselves to group study because each PRS represents a potential release located in a single large area, known as PRS 41, that has a history of diverse usage.

AREA HISTORY (chronological order)

T Building was one of the first buildings constructed on the Mound site. The construction of T-Building required the removal of a great deal of bedrock (shale and limestone) from the "Main Hill". Most of the ***T-Building excavation was deposited in the lower valley (PRS 42)***. The excavated material was compacted and graded and became a solid fill. Subsequently, roads, rails, paved parking, and Mound's wastewater treatment plant have been built on tope of the PRS 42 fill.

1947 Mound drawings show an ***underground fuel storage tank (PRS 64)***, a maintenance garage and two gasoline pumps located next to Building 19. The garage and fuel pumps no longer exist. It is not known if the tank has been removed.

In early 1955, fifty-five gallon drums containing a raw "ore" of thorium arrived by rail at the Mound site. Mound planned to use the thorium ore to develop a process of thorium extraction. However, the program was short lived and was canceled in May 1955 leaving behind some 6,000 fifty-five gallon drums of highly corrosive thorium sludge. The thorium drums were stored and repackaged outdoors on top of and beyond the boundaries of both the PRS 42 (T-Building fill) and the underground fuel storage tank location (PRS 64). This area, approximately 150,000 ft^2, encompassing the ***thorium operations is PRS 41***. In 1965, PRS 41 thorium contaminated soil was reportedly scraped and the area graded.

In 1974, ***four sludge drying beds (PRS 57)*** were installed next to Mound's wastewater treatment plant. The beds were located on top of the historic thorium drumming area (PRS 41) and the T-Building excavation deposits (PRS 42). The beds were used to air dry biological sludges generated in the wastewater treatment plant's operations. Later, ***three portable drying beds were temporarily used in the treatment plant's sludge drying operations (PRS 58)***. The beds had been moved from Mound's asphalt lined pond where they were being used to drain and dry dredged spoils materials from the pond (PRS 68). Some of the pond's spoils materials contained low level radiological contamination. By 1991, Mound had discontinued the use of all air drying beds in favor of a filter press. All of the beds have been removed from the Mound site.

In 1974, ***an 850 gallon underground diesel fuel storage tank (PRS 82)*** was installed, near Building 57, within the PRS 41 boundary. The tank supplied diesel fuel to power an emergency generator. The tank was removed in 1995.

On May 31, 1984, a drain pipe, contaminated with cobalt-60 and cesium-137, was removed from T Building. The pipe spread contamination to ***a two square foot area of pavement outside of Building 19 (PRS 63)***. The pavement was decontaminated the following day.

CONTAMINATION SUMMARY

All available evidence of existing contamination in excess of regulatory, ALARA or 10^{-6} Risk Based Guideline Values is listed in the table below:

PRS	Contaminant	Maximum Concentration Detected	Guideline Criteria
41	Plutonium-238	125 pCi/g (in soil)	25 pCi/g (Mound ALARA in soil)
41	Thorium-232	13 pCi/g (in soil)	5 pCi/g (Regulatory limit in soil)
41	Benzo(a)pyrene	4 mg/kg (in soil)	0.41 mg/kg (10^{-6} Risk Based limit in soil)
41	Dibenz anthracene	1.2 mg/kg (in soil)	0.41 mg/kg (10^{-6} Risk Based limit in soil)
41	Lead	23.8 mg/l (in water)	15 mg/l (Regulatory limit in water)
41	Cadmium	7.0 mg/l (in water)	5 mg/l (Regulatory limit in water)
41	Nickel	11,600 mg/l (in water)	100 mg/l (Regulatory limit in water)
41	Trichloroethene	10 mg/l (in water)	5 mg/l (Regulatory limit in water)
41	Chromium	13,300 mg/l (in water)	100 mg/l (Regulatory limit in water)
63	Plutonium-238	32 pCi/g (in soil)	25 pCi/g (Mound ALARA in soil)

NOTE: No evidence is available of any contamination in excess of guideline criteria for PRSs 42, 57, 58, 64 or 82.
mg = milligrams, l = liters, pCi = picocuries, g = grams, ALARA = As Low As Reasonably Achievable, kg = kilograms

NOTES:

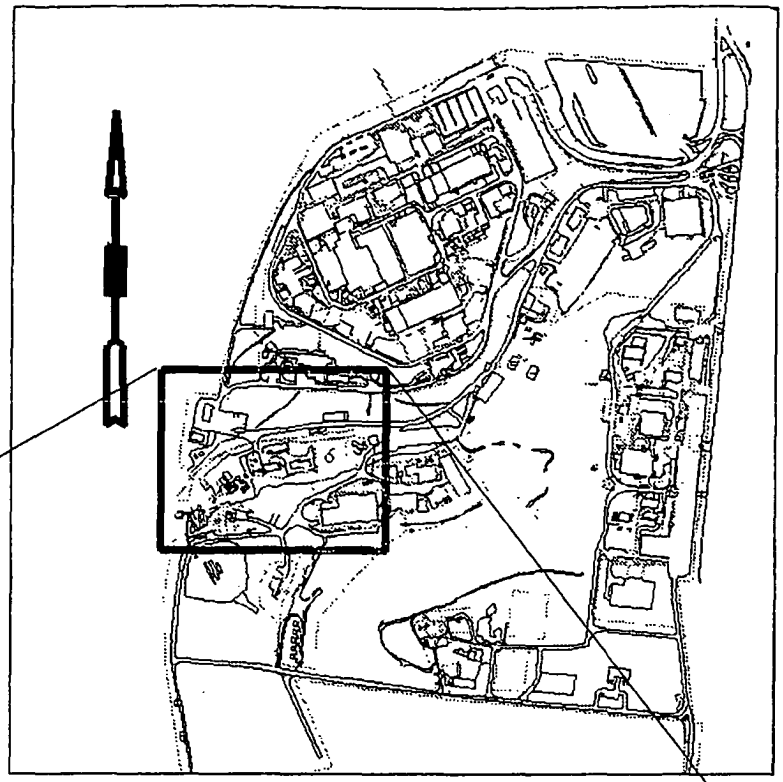
1) PRSs 31, 35, 43-56 and 60-62 are also located in or around the thorium storage and drumming area (PRS 41). However, these PRSs are not addressed in this grouping because they pertain to existing buildings (as opposed to soils associated with thorium drums) and will be evaluated as part of the Decontamination and Decommissioning building evaluation process.
2) PRS 356 is a soils location in the historical thorium drum area. However, this PRS was created due solely to elevated PETREX Soil Gas readings and has no historical process information. Hence, this PRS will be evaluated as a stand alone PRS.

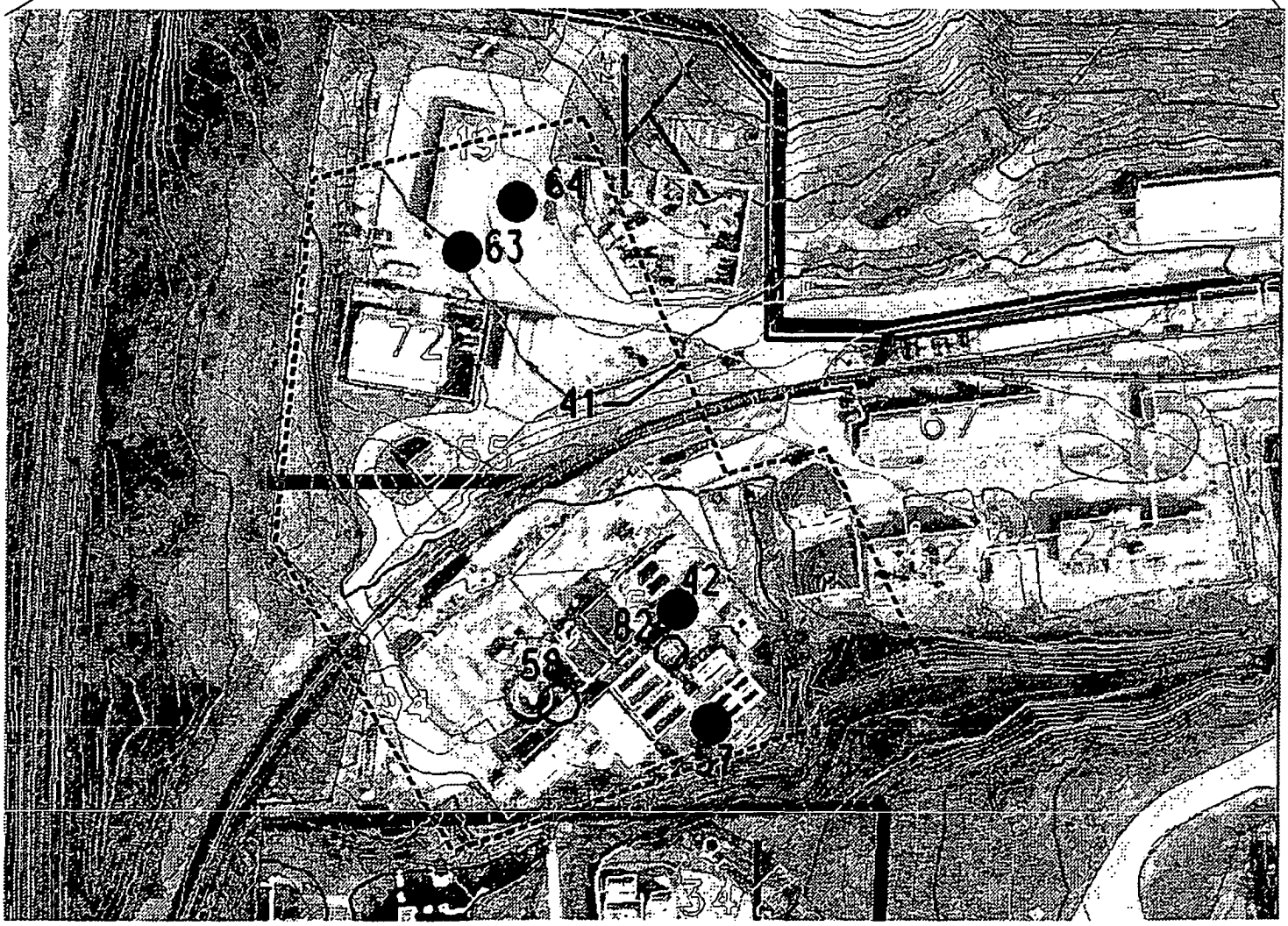
Mound Plant

Release Block C/K/J

Potential Release Site

PRS 41





MOUND PLANT
PRS 351/352/353/357/359/360/361/362/385/386/387
SOIL CONTAMINATION

RECOMMENDATION:

PRSs 351, 352, 353, 357, 359, 360, 361, 362, 385, 386, and 387 are located in the western sector of the original Mound plant. These soil locations were identified as PRSs due to qualitative hydrocarbon detections found during the PETREX soil gas portion of the ***OU5, Non Area of Concern*** investigation. No radioactive or hazardous waste generating processes or activities are known to have occurred at these PRSs.

In 1996, the Soil Gas Confirmation sampling effort sampled the locations with the highest ion counts (confirmation sample locations 7, 11, and 18) in the western sector and discovered no contamination above the 10^{-6} risk range. PRSs 351, 352, 353, 357, 359, 360, 361, 362, 385, 386, and 387 were not sampled as part of the *Soil Gas Confirmation Sampling* but the PRSs had lower ion counts than confirmation sample locations 7, 11, and 18. This implies that these PRSs will have similar or lower health risk.

All radiological samples collected near these PRSs indicate that radionuclides are below their applicable 10^{-6} Risk Based Guideline Criteria, ALARA, regulatory, or background levels. Therefore, NO FURTHER ASSESSMENT is recommended.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath 11/20/96
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 11/20/96
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 11/26/96
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 12/19/96 to 1/23/97

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

Page R

Appendix O

Work Plan

JOB SPECIFIC WORK PLAN

FOR

DEMOLITION OF BUILDING 67

TEST FIRE VALLEY PROJECT

Prepared by:
Allan E. Dinger

Babcock & Wilcox of Ohio, Inc.

Project Team Review Sheet

Scope of project work activity: This project covers the isolation and demolition of Building 67, removal of debris, and restoring the site to its original condition.

The Job Specific Work Plan and the General Work Plan Checklist associated with the above work scope has been reviewed and hazards have been appropriately addressed.

Reviews:

_____ / _____
ISH Point of Contact — Date

_____ / _____
Radiological Controls Point of Contact — Date

_____ / _____
Project Engineer — Date

_____ / _____
Project Superintendent/Foreman — Date

_____ / _____
Waste Management Point of Contact — Date

_____ / _____
ES&C Point of Contact — Date

_____ / _____
Building Manager — Date

Approved:

_____ / _____
Project Manager — Date

Work Package Closure: The work described in this work package has been satisfactorily completed.

_____ / _____
Job Supervisor — Date

_____ / _____
Project Manager — Date

Work Package Revision History

Rev. No.	Reason	Signature	Date

1 INTRODUCTION

This Job Specific Work Plan (JSWP) follows the outline of the MD-10502, General Work Plan for Building Decontamination and Demolition or Decontamination and Transition at the Mound Site, Miamisburg, Ohio. Included are a General Work Planning Checklist (ML-9846) and a Job Safety Hazard Analysis (JSHA). A Pre-Job Briefing Form, ML-9657, and the Project Manager's Work Authorization Checklist will be completed to document that the workers were briefed on the activities covered in this JSWP and the JSHA before demolition work begins.

2 PURPOSE

The purpose of this effort is to demolish Building 67, remove the debris, and restore the area. This will be accomplished by confirming that all utilities have been isolated, removing miscellaneous equipment, establishing a construction zone, and using heavy duty equipment to demolish the building. After this the concrete slabs, foundations, and footers will be demolished/removed down to 3-feet below grade. The last step will be to remove the debris and grade/reclaim the area. Metal waste will be sent to Franklin Iron & Metal to be recycled. Concrete waste will be sent to Mound's spoils area. Other miscellaneous items will be placed in a roll-off for disposal at a landfill.

3 SITE INFORMATION

Building 67 is a 3,787-square-foot, one-story structure. Built slab-on-grade, it is a concrete-covered, polystyrene foam building with a metal roof. The building was originally constructed as office space to support the activities in Buildings 27 and 42. The building was constructed in 1983. The building has been used for the same purpose since construction, and ceased operation in the mid-1990's, and has been vacant since that time. Research, development, and testing of radioactive materials have not occurred in the building.

The building services include central steam heat, chilled water, and electrical service of 240 V, sanitary services, and a storm drain. The lavatories and the mechanical room each have interior floor drains. Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross connection in the mechanical room. The building has a service water supply; it is not distributed within the building except for the fire sprinkler system.

All work is within the Test Fire Valley Project. A portion of the demolition work zone is within EG&G Optoelectronics' designated explosive blast and fragment zone. Therefore, demolition activities will be coordinated with EG&G Optoelectronics.

This demolition effort will be considered a standard construction demolition and will not be considered a removal under CERCLA and will not be designated as an HAZWOPER site.

4 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

A Job Specific Hazards Analysis (JSHA) is required for this demolition that will use a hoe mounted hydraulic hammer, shears, bucket, and grapple. The construction zone, as defined in Attachment "A", identifies construction boundaries, evacuation routes, the take-shelter area, and

the assembly area. Debris will be cleared from the immediate demolition zone as required to provide safe equipment activity. The debris will be disposed of in accordance with Waste Management. Water shall be used as needed for dust control during activities that have the potential for generating dust.

Underground electrical utilities will be identified and field located by scanning the area prior to any activities beginning. Lock-out-tag-out procedures will be followed and electrical energy detection will be performed prior to any electrical demolition activities.

An excavation/soil disturbance permit will be required prior to demolition activities.

Monitoring for crystalline silica (concrete dust) will be performed as determined by previous monitoring results and IS&H staff. IS&H will be notified before the demolition of concrete begins.

Whole body vibration will be administratively controlled using April 13, 1998 letter from Test Fire Valley Team (copy attached to JSHA) and by reviewing topic at Pre-job meeting.

A Hot Work Permit will be required if a torch is used for cutting.

Monitoring of noise levels will be performed as determined by previous monitoring results and the IS&H staff.

5 RADIATION PROTECTION REQUIREMENTS

Based on recent radiological surveys, no radiological controls will be required during work associated with the demolition of Building 67, pads, concrete walkway, foundation, and footers. An excavation/soil disturbance permit that requires Radiological Operations approval is required. Prior to disposition of concrete at a local landfill or to the on-site spoils area, removable and fixed contamination surveys will be performed as required in Section 10.

There is an URMA area immediately north of the project site. In the event that this area will need to be disturbed, a RWP will be required first.

6 ENVIRONMENTAL COMPLIANCE REQUIREMENTS

6.1 Overview

Building 67 structure will be demolished as a non-CERCLA project. A building data package will be prepared and submitted to the Core Team at least thirty days in advance of the demolition.

6.2 Permits

No air permit is required for the building demolition, as demolitions do not equate to new source installation. However, visible particulate emissions from the demolition shall not exceed twenty-percent opacity as a three-minute average. Control measures to mitigate fugitive dust shall include the following:

Water misting or other suitable dust suppression shall be used to control fugitive dust from demolition activities and grading of the lot after demolition.

Debris and soil shall be covered when hauled to the Spoils Area.

Periodic application of water, oil, or other suitable dust suppression to roadways and parking lots shall be used to prevent dust from becoming airborne.

Water source permitting requirements do not apply, as there is no new or increased discharge related to this project. All inlets to the sanitary and storm systems will be plugged/covered to prevent accidental discharges to the wastewater treatment plant or the environment.

6.3 National Emissions Standards for Hazardous Air Pollutants (NESHAPs)

Based on the best available radiological data and removal assumptions for this demolition project, the offsite estimated effective dose equivalent (EDE) was calculated to be 2.0E-03 mrem/year. Therefore, USEPA approval is not required for this project, as the dose does not exceed the 0.1 mrem/year threshold.

6.4 National Environmental Policy Act (NEPA)

Building 67 meets the criteria for a categorical exclusion documented in NEPA Environmental Checklist MDP-98-05 approved March 23, 1998. No further NEPA documentation is required.

6.5 Regional Air Pollution Control Agency (RAPCA)

ES&C will notify RAPCA at least ten days in advance of any demolition.

No asbestos notification is required for this project. There was no asbestos identified in Building 67 characterization.

6.6 Historic and Cultural Resources

Building 67 is not one of Mound Facility's original structures built to support the polonium processing and research mission. Accordingly, the building does not qualify for inclusion in the National Register of Historic Places and its demolition will not be an adverse impact upon a historic structure. However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative shall be notified at extension 3691. Work shall be suspended until which time the items or artifacts have been recovered.

6.7 Storm Water Pollution Prevention

The site's National Pollutant Discharge Elimination System (NPDES) Permit No. 1IO00005*HD requires the implementation 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.

Maintain silt fencing to prevent sediment from entering the drainage ditch.

After project completion, the disturbed area will be appropriately graded and compacted with chips and dust. A topcoat of gravel will be applied to minimize the creation of fines in storm water effluent leaving the project area. (Seeding and covering the area with straw is an option).

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, which has collected in an open excavation or in sumps, must be monitored prior discharging to the sanitary or storm sewer systems. Contact Environmental Monitoring at extension 4188 for monitoring and review of these non-routine discharges.

6.8 Safe Drinking Water Act

The potable water supply to Building 67 must be turned-off and capped in order to protect the integrity of the water supply to that portion of the plant site. Buildings adjacent to the project must be posted if their potable water supply is shut-off while capping the water supply main to Building 67. If the ground must be excavated in order to cap-off the water main, then such buildings that are affect shall be monitored for total coliform bacteria. All fittings and open pipes must be disinfected by swabbing with chlorine. Contact Environmental Safeguards and Compliance at extension 4080 for compliance monitoring.

Caution must be exercised during the foundation and slab removal to keep the integrity of the three-inch potable water supply main running north and south under the building. In addition, two eight-inch supply lines from the deep wells pass within ten feet of Building 67. One line runs along the north side of the building, while the other passes along the south side. For approximately fourteen feet, portions of the southern supply line runs approximately three feet from the building. The dual lines provide system backup in the event of a ruptured main. Consequently, excavation of the foundation and slab can only proceed along either the north or south elevation.

7 CHEMICAL AND WASTE MANAGEMENT REQUIREMENTS

All chemicals and waste will be managed in accordance with the Excess Chemical Disposition Plan and Waste Management Plan for the Mound Exit Project, MD-10499. The Waste Coordinator, (Waste Management POC) will be responsible for ensuring that the Project Team is working on the latest revision of the above documents. All chemicals must be tracked and handled per the Waste Inventory Data System (WIDS). To the best of the Project Team's

knowledge, all chemicals have been removed. All waste must be characterized for proper disposal. The Waste Coordinator will ensure that this is accomplished and summarize disposal options for each waste stream in a Job Specific Waste Management Plan, which is included below.

Job Specific Waste Management Plan (Projected Volumes)	
4800 Ft^3	Concrete debris to Spoils Area
6650 Ft^3	Scrap Metal to Franklin Iron & Metal
7980 Ft^3	Roll-off with debris to construction debris landfill
<4 Ft^3	Ballast from overhead lights to building 72

8 QUALITY ASSURANCE REQUIREMENTS

The Quality Level for this project is III thus a formal written Quality Plan is not required. The quality level determination worksheet is in the project file. Risk is expected to be mitigated on a Level III project without any planned or special effort beyond routine practices.

9 EMERGENCY PREPAREDNESS

9.1 Site Notification Procedures

Use **911** for all emergency services on-site. This is the first response for any emergency. 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 working will be notified of emergency or abnormal conditions by the plant paging system. Additionally, unique sheltering and evacuation signals are available should site-wide protective actions be necessary. Plant radios will be available.

9.2 Evacuation Route/Assembly Areas

The assembly area is west of Building 67. See map per Attachment "A".

9.3 Take Shelter Area

The take shelter area is in Building 19. See map per Attachment "A".

10 PROJECT EXECUTION/GENERAL SEQUENCE OF WORK

10.1 Structure Characterization

10.1.1 Physical Characterization

A structural engineering survey will be performed and documented for Building 67 to meet the requirements of OSHA 29 CFR 1926.850(a). ***(Requested)*** A walkdown of the structure will be used to identify potential hazards as listed in 29 CFR 1926.850(e) through (i). It has been determined the building does not meet the criteria that cause the structure to be historically significant.

10.1.2 Radiological Characterization

Based on the radiological characterization summaries that have been performed for Building 67, there are no radiological concerns and a Radiation Work Permit will not be required. Two (2) tritium exit lights will be removed prior to demolition.

10.1.3 Chemical and Metals Characterization

Not applicable. All chemicals have been removed.

10.1.4 Asbestos Characterization

No asbestos-containing material was identified in connection with Building 67.

10.2 Safe Shutdown

10.2.1 Hazard Analysis

The Project Engineer, Rad Engineer, Environmental Engineer, Project Superintendent, and representatives from OCAW, Industrial Safety and Hygiene, and Waste Management performed a safety walkdown to identify potential safety or environmental hazards. This was recorded in the Project Engineer's log. No unusual hazards were identified and the basic job steps were incorporated into the attached Job Safety & Health Analysis (JSHA) form.

10.2.2 Property Management

The following will be considered excess property; two (2) HVAC Heat Pumps.

10.2.3 Space Configuration Management

Not applicable. There are no personnel located at Building 67.

10.2.4 Utility Isolation

Building 67 is currently in Safe Shutdown. The building is unoccupied and the various utilities have been taken out of service. Utility isolation will take place prior to project execution/general sequence of work. See section 10.5

10.2.5 Secure and Lock Equipment

Two (2) HVAC Heat Pumps, located outside of the building on equipment pads, will be disconnected and will be considered excess property. All Freon has been previously removed and recycled. See 10.2.2

10.2.6 Equipment and Waste Removal

One (1) wall mounted drinking fountain will be considered waste and returned to building 72. All other metal will be sent to Franklin Iron & Metal for smelting. Non metal equipment will be disposed of in a Koogler roll-off.

10.2.7 Chemical Round Up

This has been completed.

10.3 Site Preparation

10.3.1 Site Access Control

The demolition area will be marked off with barricade tape/fencing. If fence posts need to be installed by hand using a post driver, the area will be first scanned after obtaining a completed Excavation/Soils Disturbance Permit.

There will be no entry into the demolition area without notifying the Project Superintendent, attending a pre-job briefing, signing the Pre-job Briefing Record, and signing in with EG&G Optoelectronics because a portion of the work zone is within the designated explosive and blast fragment zone.

10.3.2 Clearing and Grubbing

The soil against the building and foundation will be cleared using heavy-duty equipment.

10.3.3 Temporary Utilities

The only temporary utility that may be required is electric. A portable generator would supply this.

10.3.4 Temporary Facilities

This project will use the existing Test Fire Valley project trailer and portable toilet that have been located at the job site.

10.3.5 Temporary Communications

The project trailer has telephones, a cell phone, radios, and speakers for plant announcements and emergency notifications. At the job site plant announcements and emergency notifications can be heard on the Plant Maintenance radio channel.

10.3.6 Staging Areas

The project site is of sufficient size to also be used as a staging area.

10.4 Interior Decontamination and Demolition

10.4.1 Construction Hazard Abatement

The Project Engineer, Superintendent, Industrial Safety and Health representative, or one of their designees will perform a safety walkdown prior to the start of work to identify any unsafe conditions which may be present as a result of Safe Shutdown operations.

10.4.2 General Housekeeping

Debris or equipment will be cleared from the perimeter of the building as required to provide safe access to the structures and active work areas will be maintained. Housekeeping will be performed so that the project site complies with the *Storm Water Pollution Prevention Plan.*

10.4.3 Regulated Waste Handling

There are 2 tritium exit lights, which will be deliver to W Building Maintenance Shop, for disposition/disposal.

10.4.4 Dust Control

Water mist as necessary for dust control during demolition and size reduction. The Project Superintendent will make this determination. The Project Superintendent is responsible for preventing and/or eliminating hazards caused by water misting.

10.4.5 Surface Water Controls

The drainage pattern for the project area provides natural flow of runoff into the drainage ditch located both west and south of the project site. The elevation to the north of the project is 740 feet above sea level. To the east and west it is 730 feet. The drainage ditch to the south and west is 720 feet. The topography of the area is such that runoff from the project site will flow into the collection basin southwest of the project.

In order to minimize solids in the runoff into the drainage ditch, silt fencing will be placed just to the west and south of the project site (see Attachment B, Stormwater Control) after obtaining an excavation permit and RCT coverage. It will be placed in a manner that will maximize the filtering effect of runoff going into the drainage ditch. The silt fencing will be monitored during the project and cleaned if necessary. After site restoration, the silt fencing will be monitored after heavy rains and cleaned if necessary. Once the new ground cover has reached its desired final condition, monitoring of the site will discontinued and the silt fencing will be removed.

Any piles of remaining bare soil are to be tarp covered to prevent soil runoff.

Additional run-off controls (silt fencing) will be employed if project runoff is observed that is not being directed into the silt fence discussed above.

The final restoration of the project site will provide a more gradual slope of the site towards the drainage ditch compared to its current slope. This will provide for more natural filtering of runoff from the restored site area.

10.5 Existing Utilities and Utilities Isolation

Drawings of the underground utilities will be available in the Project Trailer before any fieldwork begins. Underground utilities in the area include supply water, domestic water, firewater, electric, storm sewer, sanitary sewer, and communication lines. Any damage to the underground utilities will be repaired after notifying the Plant Utilities group.

Electrician(s) shall review underground utility drawing(s), scan the area, and clearly mark all underground utilities with stakes, flags, or spray paint. Isolation points will be located outside of the footprint of the building and Lockout/Tagout per MD-10444 will be utilized and all utilities entering the building will be blanked-off.

Overhead and underground electrical/communication lines to the building will be Locked out/Tagged out per MD-10444 and disconnected back to its tie-in point by an electrician. Unused electric/communication cable will be removed.

The only above ground utilities in the project site are identified in this section, and the only other above ground utilities in the immediate area are lines strung on telephone poles. These lines are located near the project site to the north and west. A caution about these above ground lines will be issued during the Prejob Brief.

10.6 Structure Demolition

Drawings of Building 67 will be available in the project trailer before demolition work begins.

10.6.1 Work Zone Boundary

Demo Techs will mark off work zone boundary using barricade tape or fencing as directed by the Project Superintendent. This zone is not to be entered by anyone not directly involved with the demolition unless they have contacted the Project Superintendent first.

> ***Note: Confirm the disposition of all waste with Waste Management and the Radiological Point of Contact prior to the disposition.***

10.6.2 Preliminary Work, Superstructure Demolition, Debris Sizing, Loading, Hauling and Disposal

1. Confirm electric/communication has been disconnected to Building 67 and the one telephone pole.
2. Confirm all utilities have been isolated and blanked-off.
3. Remove 2 tritium exit lights and deliver to W Building Maintenance Shop, for disposition/disposal.
4. Remove 1 wall-mounted drinking fountain and deliver to W Building Maintenance Shop, for lead evaluation and disposal.
5. Isolate and excess 2 HVAC Heat Pumps located outside of the building and return to Building 61. All Freon has been previously removed and recycled.
6. Remove fluorescent lamps from light fixtures and dispose of in special container provided by Waste Management.
7. Remove ballast from all fluorescent light fixtures and deliver to Waste Management, at Building 72 for disposal.
8. Remove the fence on east side of project site. Cut fence poles down to grade. Obtain burn permit if torch is to be used.
9. Install stilt fencing per section 10.4.5, Surface Water Control.
10. Excavate soil around and up against the building and stage on site, or remove to spoils area, or haul to the rail spur as directed by Waste Management/Health Physics.
11. Remove any remaining equipment/material and dispose of as directed by Waste Management.
12. Begin demolition of Building 67 at the west end by Heavy-Duty using shear and/or grapple to cut up the roof. Steel trusses and other steel pieces shall be set aside as recyclable material.
13. As the walls become accessible, push/pull the walls towards the center of the building.
14. Continue until the building is completely razed. Note: The progressions of the building demolition will ultimately be determined in the field.
15. Survey concrete/debris as required by the Radiological Point of Contact.
16. Begin process of waste/rubble removal and transfer to the appropriate waste stream per the Job Specific Waste Management Plan. See Section 7

17. Remove all waste including the carpeting on the concrete slab and prepare the area for demolition of the concrete slab, footer, and foundation.

CAUTION: DO NOT INTRUDE INTO URMA AREA IMMEDIATELY NORTH OF THE PROJECT SITE WITHOUT CONTACTING THE RAD ENGINEER.

10.7 Slab & Below Grade Concrete Removal

1. Break apart the building slab using a Hoe-Ram, and perform radiological screening. Based on radiological screening results, transport to Mound's spoils area or rail spur as directed by Waste Management.
2. Break apart the building footer and foundation down to a depth of 3 feet below grade and performs radiological screening. Based on radiological screening results, transport to Mound's spoils area or rail spur as directed by Waste Management.

10.8 Soil Characterization

Core samples will be taken for radiological characterization within the footprint of the building, and in the 15-foot perimeter area around the building per the Rad Engineer's direction.

10.9 Soil Remediation and Verification

If soil remediation and verification is required, this work plan will be modified.

10.9.1 Site Restoration

1. Soil remediation and verification is not applicable unless unexpected results are found per section 10.8 in which case this document would be revised.
2. Backfill/grade the project site as required to provide drainage. Seed and cover with straw per "Specifications for Permanent Seeding" in Appendix A of the *Storm Water Pollution Prevention Plan* or rock the area, similar to the area west of the project site, if it is anticipated that trailers will be staged on this site in the future. Any excess soil will go to the spoil area, or the rail spur per Waste Management's, and Health Physic's direction.
3. Water as necessary, if applicable.
4. Remove all barricades, miscellaneous items, and trash.

10.10 Post Activity Feedback

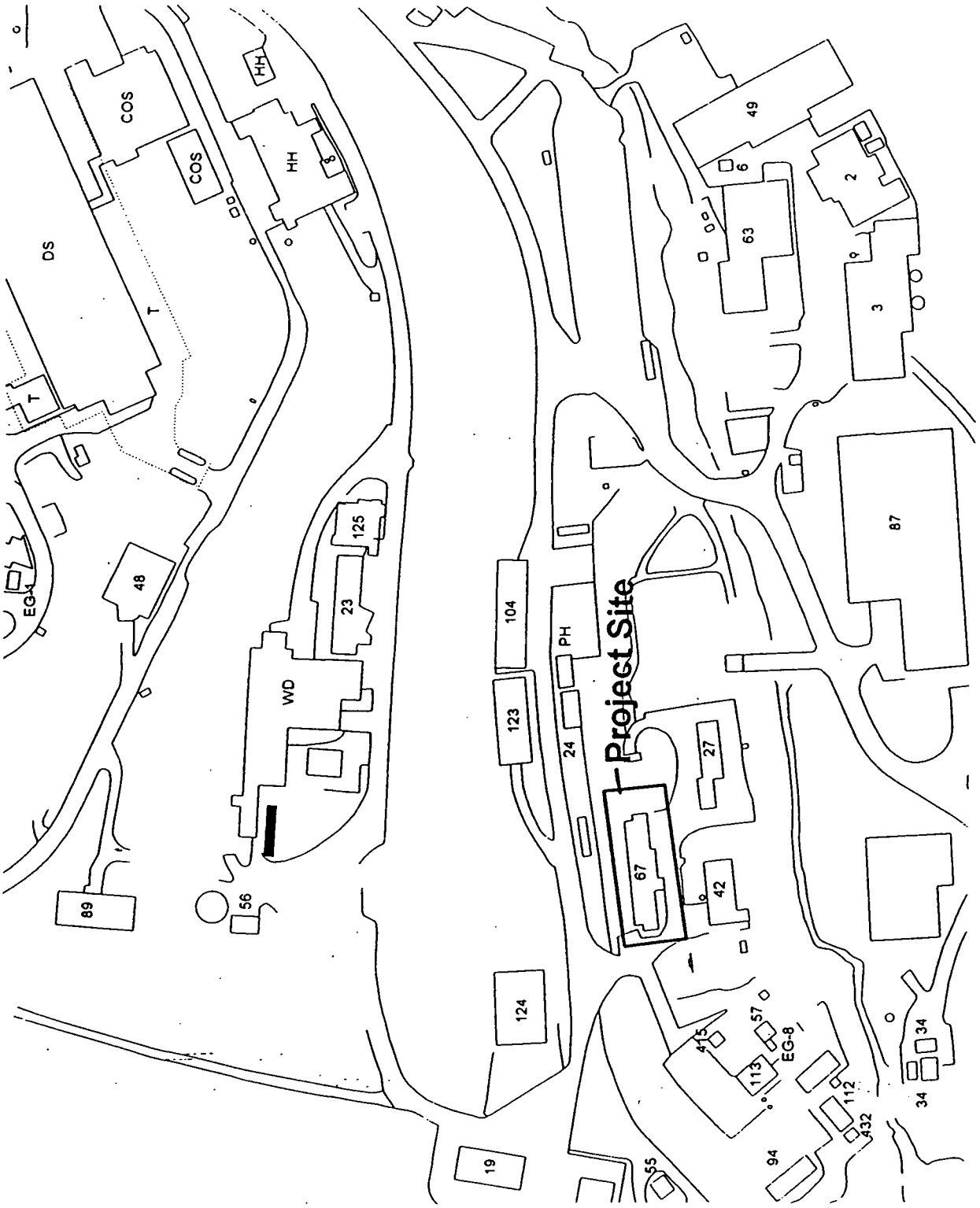
The Project Team, including a representative portion of the workers involved in the project, will have a feedback session to capture any lessons learned per PP-1059-A, Integrated Work Control Procedure. The lesson learned will be captured following the requirements identified in MD-10502, Section 9.10, Post Activity Feedback.

10.11 Final Closeout Report/On-Scene Coordinator Report

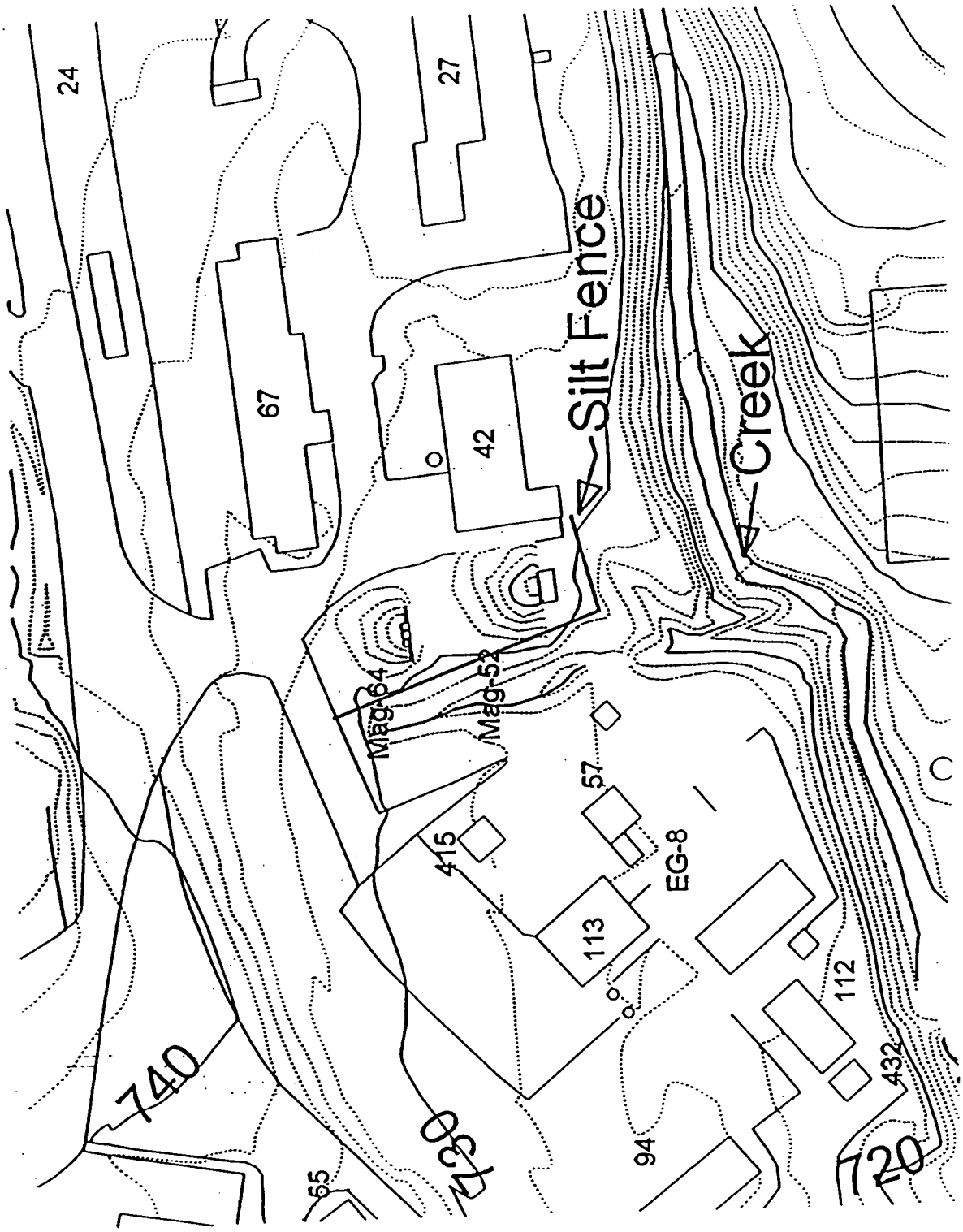
A Final Closeout Report will be prepared and submitted to MEMP for review after the completion of fieldwork. Once the MEMP review is complete, the Final Closeout Report will be submitted to MEMP for transmittal to DOE, the Regulators, and the Public to document the final condition of the area.

11 ATTACHMENTS

- **Attachment A, Site Layout**
- **Attachment B, Stormwater Control**
- **Attachment C, Schedule**
- **JSHA with copy of "Whole-body Vibration" letter**
- **MSDSs**
- **General Work Plan Checklist**



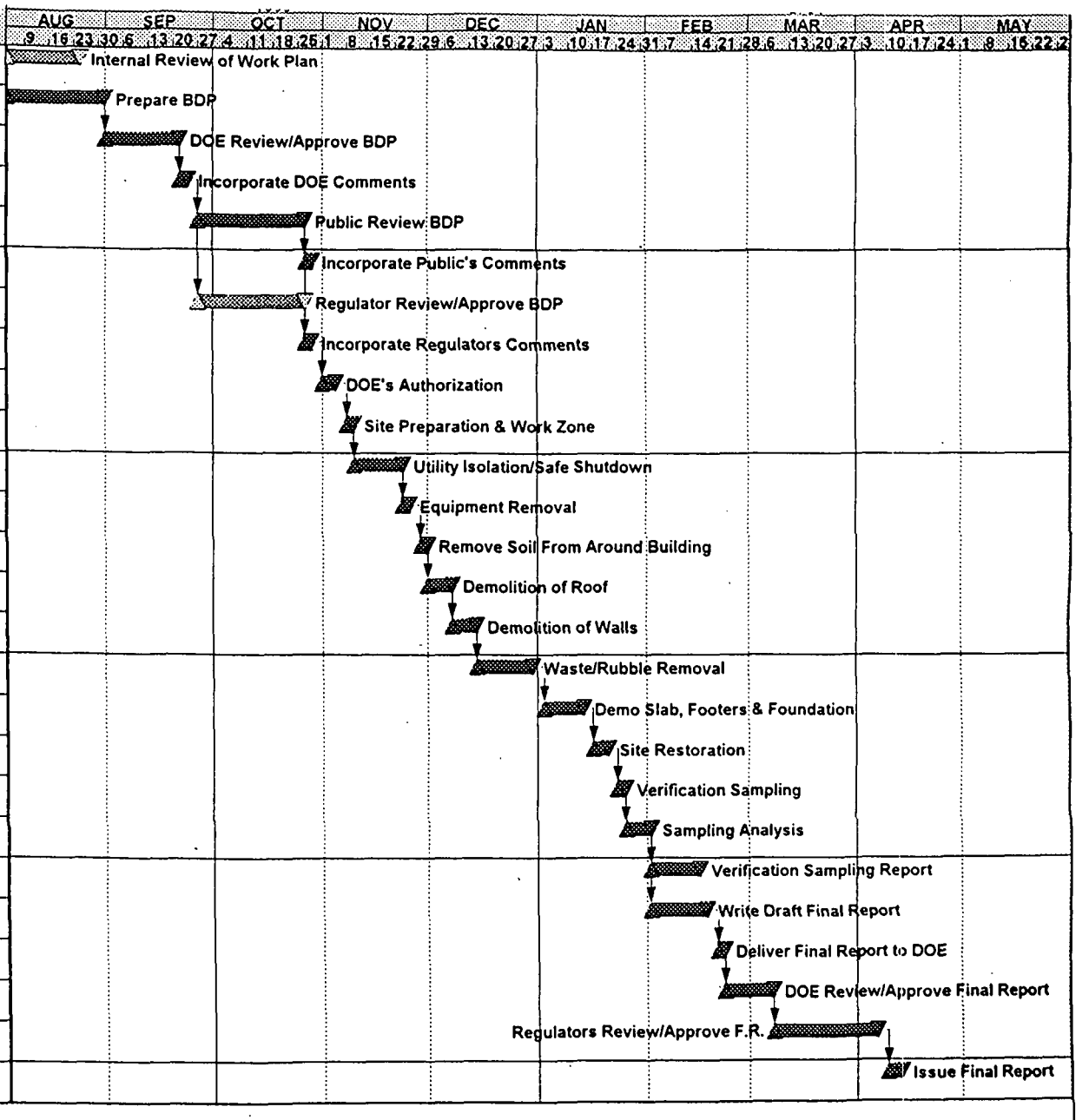
Attachment A, Site Layout



Attachment B, Stormwater Control

Attachment C, Schedule

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
TV067WP003	Internal Review of Work Plan	12	04AUG99	24AUG99
TV067WP006	Prepare BDP	16	04AUG99	31AUG99
TV067WP009	DOE Review/Approve BDP	12	01SEP99	21SEP99
TV067WP012	Incorporate DOE Comments	2	22SEP99	23SEP99
TV067WP015	Public Review BDP	18	27SEP99	26OCT99
TV067WP018	Incorporate Public's Comments	2	27OCT99	28OCT99
TV067WP021	Regulator Review/Approve BDP	18	27SEP99	26OCT99
TV067WP024	Incorporate Regulators Comments	2	27OCT99	28OCT99
TV067WP027	DOE's Authorization	4	01NOV99	04NOV99
TV067WP031	Site Preparation & Work Zone	2	08NOV99	09NOV99
TV067WP034	Utility Isolation/Safe Shutdown	8	10NOV99	23NOV99
TV067WP037	Equipment Removal	2	24NOV99	25NOV99
TV067WP041	Remove Soil From Around Building	2	29NOV99	30NOV99
TV067WP044	Demolition of Roof	4	01DEC99	07DEC99
TV067WP047	Demolition of Walls	4	08DEC99	14DEC99
TV067WP051	Waste/Rubble Removal	10	15DEC99	30DEC99
TV067WP054	Demo Slab, Footers & Foundation	8	03JAN00	13JAN00
TV067WP057	Site Restoration	4	17JAN00	20JAN00
TV067WP061	Verification Sampling	2	24JAN00	25JAN00
TV067WP064	Sampling Analysis	4	26JAN00	01FEB00
TY067WP067	Verification Sampling Report	8	02FEB00	15FEB00
TV067WP071	Write Draft Final Report	10	02FEB00	17FEB00
TV067WP074	Deliver Final Report to DOE	2	21FEB00	22FEB00
TV067WP077	DOE Review/Approve Final Report	8	23FEB00	07MAR00
TV067WP081	Regulators Review/Approve F.R.	18	08MAR00	06APR00
TV067WP084	Issue Final Report	4	10APR00	13APR00



Project Start	04AUG99
Project Finish	13APR00
Data Date	04AUG99
Run Date	26AUG99

Early Bar
Progress Bar
Critical Activity

© Primavera Systems, Inc.

BD67

Sheet 1 of 1

Building 67

Classic Schedule Layout

JSHA with copy of "Whole-Body Vibration" letter

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:

DATE: 08/09/99	Rev:	BUILDING: 67	JOB: Demolition of Building 67
DEPARTMENT: Test Fire Valley			SECTION:
OCCUPATIONS: Heavy Duty, Electricians, Demo Techs			

SIGNATURES

ORIGINATOR: Allan Dinger
REVIEW/REV:
REVIEW/REV:
APPROVED:
APPROVED:

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:	MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:
Hard hats, steel-toed safety shoes, safety glasses	Crystalline Silica (Concrete Dust)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on 1B - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
(1) Pre-job conference to inform all those involved about the hazards.	None	None
(2) Locate underground utilities.	None	See Job Specific Work Plan, Section 10.5
(3) Confirm electric/communication has been disconnected.	None	See Job Specific Work Plan, Section 10.5
(4) Confirm all utilities have been isolated and blanked-off.	None	See Job Specific Work Plan, Section 10.5
(5) Prepare work area: Establish site access control by establishing a construction zone and an evacuation route (see attached sketch). Construct using snow fence and/or caution tape. Note: It is required to sign in at EG&G Optoelectronics before entering a portion of the work area,	Contact with underground utilities.	Obtain Excavation/Soils Disturbance Permit (per MD-10286,05) Scan area
	Heavy lifting - Strain/overexertion.	Use sufficient number of workers
	Hand abrasions - struck by.	Wear leather gloves, as required
(6) Remove 2 tritium exit lights and deliver to W Building.	Potential damage to radiological source. Falls	Handle with care (do not disassemble) Ladder inspected/Proper use (per MD-10286,M14)
(7) Remove 1 wall mounted drinking fountain and deliver to W Building.	Hand abrasions - struck by. Lifting	Wear leather gloves, as required Use sufficient number of workers

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
(8) Isolate and excess 2 HVAC Heat Pumps outside of building and return to Building 61.	Electrical shock.	LOTO per MD-10444 Perform energy field test.
Note: Freon has been previously removed and recycled.	Refrigerant	Superintendent to verify with HVAC maintenance, pump down was completed.
(9) Remove fluorescent lamps from light fixtures.	Electrical shock.	LOTO per MD-10444 Perform energy field test.
	Broken Glass.	Handle with care Wear Gloves, as required
	Fall hazard.	Ladder inspected/Proper use (per MD-10286,M14) Use fall protection as required
(10) Remove ballast from all fluorescent fixtures	Electrical shock.	LOTO per MD-10444 Perform energy field test.
	PCB's	Handle with care Dispose per Waste Management
	Fall hazard.	Ladder inspected/Proper use (per MD-10286,M14) Use fall protection as required
(11) Remove fence and posts on eastside of building	Lifting	Use sufficient number of workers Use heavy-duty equipment for excessive weight
	Hand abrasions - struck by.	Wear leather gloves, as required
	Fire	Burn permit/fire watch per MD-10286, 02
(12) Maintain silt fencing, installed on a previous project, to the west of the project site.	Hand abrasions - struck by.	Wear leather gloves, as required Use caution
(13) Remove any remaining equipment/material from building.	Lifting	Use sufficient number of workers Use heavy-duty equipment for excessive weight
(14) Excavate soil around and up against the building.	Contact with underground utilities.	Obtain Excavation/Soils Disturbance Permit (per Md-10286,05) Scan area
	Personnel struck by heavy-duty equipment.	Barricade project site Limit access to necessary personnel Maintain safe distance for ground personnel Orange vests Vehicle back-up alarms

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
(15) Begin demolition of Building 67 at the west end by Heavy-Duty using shear and/or grapple to cut up roof and remove and size trusses. Note: The progression of the building demolition will ultimately be determined in the field.	Flying and falling debris.	No one within 75 ft. of operating shear
	Noise from heavy duty equipment.	Hearing protection per IS&H monitoring and previous monitoring results
	Personnel struck by moving heavy-duty equipment.	Limit access to necessary personnel Orange vest Shutdown roadway during demolition Coordinate with Optoelectronics roadway shutdown Vehicle back-up alarms
(16) As walls become accessible, push/pull walls towards center of building. Note: If Shear is required to size material, see item (15).	Falling debris.	Limit access to necessary personnel only Maintain safe distance for ground personnel Orange vests Vehicle back-up alarms
(17) Begin process of waste/rubble removal and transfer to the appropriate waste stream. Remove all waste and prepare area for demolition of concrete slab, footer, and foundation.	Trips/Falls	Use good housekeeping practices
	Lifting	Use sufficient number of workers Use heavy duty equipment for excess weight
(18) Break up concrete using heavy duty equipment (hydraulic hammer and shear). Place debris in haulers and transport to Mound's spoils area or send to and off-site landfill.	Flying debris.	Work area access control for 75 foot diameter
	Noise	Hearing protection per IS&H monitoring and previous monitoring results.
	Concrete dust (crystalline silica).	Respiratory protection per IS&H monitoring and previous monitoring results. Water mist as necessary
	Whole body vibration	Admistratively control whole body vibration of the heavy duty worker. (see attached letter).
(19) Backfill/grade the project site as required to provide drainage. Seed and cover with straw, or rock the area similar to the area west of the project site.	Personnel struck by moving heavy duty equipment.	Maintain safe distance for ground personnel Coordinate roadway closure with Optoelectonics Orange vests Vehicle back-up alarms
	Dust	Water mist as necessary
(20) Remove construction zone barricades, clean up area, and demoblize.	Heavy lifting - Strain/overexertion	Ensure sufficient number of personnel Use heavy duty equipment for excess weight
	Hand abrasions - struck by	Wear leather gloves, as required

Date : April 13, 1998

Subject : Whole-Body Vibration using trackhoes, backhoes and end loaders with attachments

To whom it may concern:

The 1997 ACGIH Threshold Limit Values (TLVs) for chemical substances and Physical agents and Biological Exposure Indices (BEIs) addresses whole body vibrations. Per our Industrial Hygiene department, bullet number 10 of the Whole-Body Vibration section pertains to our operation and states as follows:

> "Whole-Body Vibration controls may include the use of "air-ride" suspended seats, suspended cabs, maintenance of vehicle suspension systems, proper tire inflation, and remote control of vibrating processes. Seats with arm rests, lumbar support, an adjustable seat back, and an adjustable seat pan are also useful."

The trackhoes in use have iso-mounted (rubber) cabs with a spring cushioned seat. The backhoes and end loaders in use have a spring cushioned seat. Heavy Duty Mechanics perform preventative maintenance daily noting any deficiencies. The operator will be working two hours or less at a time and not be constantly operating attachments.

In a discussion with the operators, who have used the equipment with attachments, they stated that the vibration in the cab is very moderate except for bucket clean out.

The topic of Whole-Body Vibration will be discussed at the pre-job meeting and this letter will be posted in the work trailer. The following Whole-Body Vibrations symptoms will be discussed at the pre-job meeting:

Difficulty in reading instruments or print	General discomfort
Interference with fine manipulative movements	Irritability

If any of these symptoms develop inform the site supervisor of the project, stop work, and report to medical.

The supervisor will contact the safety representative who in turn will contact Industrial Hygiene for vibration monitoring of the equipment.

Larry Lamsa, Project Engineer

John Schneider, Site Safety & Health Officer

Joe Bartee, Project Manager

MSDS(s)

RICCI BROS SAND -- CRYSTALLINE SILICA
MATERIAL SAFETY DATA SHEET
NSN: 535000N042428
Manufacturer's CAGE: RICCI
Part No. Indicator: A
Part Number/Trade Name: CRYSTALLINE SILICA

General Information

Company's Name: RICCI BROS SAND CO INC
Company's P. O. Box: 644
Company's City: PORT NORRIS
Company's State: NJ
Company's Country: US
Company's Zip Code: 08349
Company's Emerg Ph #: 609-785-0166
Company's Info Ph #: 609-785-0166
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 22JUN89
Safety Data Review Date: 05SEP95
MSDS Serial Number: BSXQV
Hazard Characteristic Code: T7

Ingredients/Identity Information

Proprietary: NO
Ingredient: SILICA, CRYSTALLINE-QUARTZ
Ingredient Sequence Number: 01
NIOSH (RTECS) Number: VV7330000
CAS Number: 14808-60-7
OSHA PEL: 0.1 MG/M3 RDUST
ACGIH TLV: 0.1 MG/M3 RDUST

Physical/Chemical Characteristics

Appearance And Odor: WHITE, GRAY, OR TAN, NO ODOR OR TASTE
Boiling Point: 4046F,2230C
Melting Point: 3050F,1677C
Vapor Pressure (MM Hg/70 F): NONE
Vapor Density (Air=1): NONE
Specific Gravity: 2.65(H2O=1)
Evaporation Rate And Ref: NONE
Solubility In Water: INSOLUBLE

Fire and Explosion Hazard Data

Flash Point: NON FLAMMABLE
Lower Explosive Limit: NONE
Upper Explosive Limit: NONE
Extinguishing Media: NONE REQUIRED; MAY BE USED AS AN EXTINGUISHING MEDIA.
Special Fire Fighting Proc: WEAR NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP N).
Unusual Fire And Expl Hazrds: CRYSTALLINE SILICA IS NEITHER A FIRE NOR AN EXPLOSION HAZARD.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): NONE.
Materials To Avoid: CONT W/POWERFUL OXIDIZING AGENTS SUCH AS FLUORINE, CHLORINE TRIFLUORIDE, MANGANESE TRIOXIDE, OXYGEN (SUPP DATA)
Hazardous Decomp Products: SILICA WILL DISSOLVE IN HYDROFLUORIC ACID AND PRODUCE A CORROSIVE GAS-SILICON TETRAFLUORIDE.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE/CHRONIC:PRLNGD EXPOS TO RESPIRABLE CRYSTALLINE QUARTZ MAY CAUSE DELAYED (CHRONIC) LUNG INJURY (SILICOSIS). ACUTE OR RAPIDLY DEVELOPING SILICOSIS MAY OCCUR IN A SHORT PERIOD OF TIME IN HEAVY EXPOS IN CERTAIN OCCUPATIONS SUCH AS SANDBLASTERS. SILICOSIS IS A FORM OF DISABLING PULM FIBROSIS WHICH (EFTS OF OVEREXP)
Carcinogenicity - NTP: YES
Carcinogenicity - IARC: YES
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: CRYSTALLINE SILICA-QUARTZ: IARC MONOGRAPHS, SUPPLEMENT VOL 7, PG 341, 1987: GRP 2A NTP 6TH ANNUAL REPORT (SUPP DATA)
Signs/Symptoms Of Overexp: HLTH HAZ: CAN BE PROGRESSIVE & MAY LEAD TO DEATH. SIGNS & SYMPS OF EXPOS: SHORTNESS OF BREATH, REDUCED PULMONARY FUNCTION, COUGHING, WHEEZING.
Med Cond Aggravated By Exp: BRONCHITIS, EMPHYSEMA, AND ASTHMA. SMOKING IS KNOWN TO AGGRAVATE THE EFFECTS OF EXPOSURE.
Emergency/First Aid Proc: EYES: IMMED WASH WITH WATER FOR AT LEAST 15 MINUTES. INHAL: REMOVE TO FRESH AIR AND SEEK MEDICAL ATTENTION ACCORDINGLY. INGEST: CALL MD IMMED (FP N). SKIN: FLUSH WITH COPIOUS AMOUNTS OF WATER. CALL MD (FP N).

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: USE DUSTLESS METHOD (VACUUM/WATER) IF NOT CONTAMINATED. IF CONTAMINATED, USE RECOMMENDED METHOD FOR CONTAMINATE.
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: DISPOSE I/A/W FEDERAL, STATE AND LOCAL REGULATIONS.
Precautions-Handling/Storing: USE ADEQUATE VENTILATION AND DUST COLLECTION. PROPERLY USE AND MAINTIAN RESPIRATORS. EMPLOY GOOD HOUSEKEEPING PROCEDURES & AVOID ACCUMULATING DUST.
Other Precautions: NONE SPECIFIED BY MANUFACTURER.

Control Measures

Respiratory Protection: AS REQUIRED, NIOSH/MSHA APPROVED RESPIRATORS.
Ventilation: LOCAL EXHAUST/MECHANICAL/OTHER: AS NEEDED.
Protective Gloves: IMPERVIOUS GLOVES (FP N).
Eye Protection: CHEMICAL WORKERS GOGGLES (FP N).
Other Protective Equipment: NONE.
Work Hygienic Practices: AVOID CREATING AND BREATHING DUST.
Suppl. Safety & Health Data: MATL TO AVOID: DIFLUORIDE, MAY CAUSE FIRES. EXPLAN OF CARCIN: ON CARCINOGENS, ANTICIPATED TO BE A CARCINOGEN.

Transportation Data

Disposal Data

Label Data

Label Required: YES
Technical Review Date: 04MAY93
Label Date: 04MAY93
Label Status: G
Common Name: CRYSTALLINE SILICA
Chronic Hazard: YES
Signal Word: CAUTION!
Acute Health Hazard-Slight: X
Contact Hazard-None: X
Fire Hazard-None: X
Reactivity Hazard-None: X
Special Hazard Precautions: AVOID CREATING AND BREATHING DUST. ACUTE/CHRONIC: PROLONGED EXPOSURE TO RESPIRABLE CRYSTALLINE QUARTZ MAY CAUSE DELAYED (CHRONIC) LUNG INJURY (SILICOSIS). ACUTE OR RAPIDLY DEVELOPING SILICOSIS MAY OCCUR IN A SHORT PERIOD OF TIME IN HEAVY EXPOSURE IN CERTAIN OCCUPATIONS SUCH AS SANDBLASTERS. SILICOSIS IS A FORM OF DISABLING PULMONARY FIBROSIS WHICH CAN BE PROGRESSIVE AND MAY LEAD TO DEATH. SIGNS &

SYMPS OF EXPOS: SHORTNESS OF BREATH, REDUCED PULMONARY FUNCTION, COUGHING, WHEEZING. CANCER HAZARD. CRYSTALLINE SILICA-QUARTZ IS LISTED AS A LUNG CARCINOGEN OF LAB ANIMALS (FP N).
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: RICCI BROS SAND CO INC
Label P.O. Box: 644
Label City: PORT NORRIS
Label State: NJ
Label Zip Code: 08349
Label Country: US
Label Emergency Number: 609-785-0166

General Work Plan Checklist

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
Review Mound Configuration Index #N02008 for a Complete List of Requirements Applicable to Projects Covered by the General Work Plan.		
I. FACILITY AND RELATED EQUIPMENT		
I. 1 Industrial Safety and Hygiene		
1. Is Isolation of any of the systems (i.e. electrical, mechanical, pressure) required per section 9.2.4 or 9.4 of MD-10502, General Work Plan for Building D&D or D&T at the Mound Site? List Systems Below:	YES	
SUPPY WATER		
DOMESTIC WATER		
FIRE WATER		
ELECTRIC & COMMUNICATION		
STORM SEWER		
2. Has the Building Manager or other most qualified person field verified that the isolation will not result in the loww of a vital building/facility system?	YES	
3. What are the required safety systems? **Are all required physical safety systems operational and functioning?**	YES	
List Systems Below:		
PA TRAILER		
4. Have contingencies been addressed for any potential degradation of the above safety system?	YES	
RADIO		
5. Are required utilities identified? **Are they operational?**	YES	
List Below:		
ELECTRIC (PORTABLE GENERATOR)		
WATER (WATER BUFFALO)		
6. Do ventilation requirements exist(i.e. air changes, velocity, HEPA filter in place, leak testing (formerly DOP testing), pressure differential to surrounding area)? **Is it functioning & available?**	NO	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
7. Has the area/facility been adequately characterized to safely perform the work?	YES	
Physical?	YES	
Chemical?	YES	
Radiological?	YES	
Asbestos?	YES	
	YES	
8. Based on above characterization, are there any hazardous materials or waste which require abatement?	NO	
9. Have engineering controls been established for the above identified items?	N/A	
10. Identify unique or special cleaning materials, equipment or waste disposal requirements. List Below:	YES	
EXIT LIGHTS		
DRINKING FOUNTAIN		
HVAC HEAT PUMPS		
FLUORESCENT LAMPS/BALLASTS		
11. **Is appropriate storage available for flammable material?**	YES	
12. Have materials that require MSDSs been identified? **Are the MSDS sheets available at the worksite?** List Below:	YES	
CRYSTALLING SILCA (SAND)		
13. Have lighting and/or emergency lighting requirements been addressed? **Is required lighting available and functioning?**	YES	
14. Has required personal protective clothing been specified in the JSHA, RWP or HASP? **Is it available at the Job Site?**	YES	
15. Will work be impacted by heat/cold stress conditions? (e.g. high temperature and humidity, wearing protective equipment, cold temperatures, etc.) **If so, have work/rest cycles been established and workers briefed.**	YES	
16. Will elevated work surfaces be required? Will fall protection be required? **Training verified?**	YES	
17. Will confined space entry be necessary? **Training verified.**	NO	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
18. Will excavating/trenching be necessary? Will shoring be required?	YES, NO	
19. Is scaffolding required? If so, inspection & tagging per MD-10286 M5 is required. **Has inspection been completed?**	NO	
20. Will air sampling and monitoring capabilities be required due to radioactive or Industrial Hygiene concerns?	YES	
FOR SILICA, PER IH		
1.2 Traffic/Work Site Control		
1. Any temporary facilities required? (i.e., rest rooms, change rooms, etc.) List Below:	YES	
PORTABLE TOILET		
2. Evaluate roadways, gates, doors, hallways, corridors, etc. for maneuverability of oversized equipment, vehicles, heavy-duty equipment, waste packages, construction tools, etc. **Have traffic flow patterns been identified?**	YES	
3. Have security escort requirements been provided?	NO	
4. Has transport routing of hazardous material been established?	NO	
5. **Are personnel access controls established? (i.e., work zones required and posted)** List Below:	YES	
CONSTRUCTION AREA		
6. Has impact to adjacent buildings been considered? (i.e., ventilation, utilities, access, etc.)	YES	
1.3 Emergency Preparedness		
1. Has an Emergency Communications system been established? **Is it available and verified to be functioning?**	YES	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
PLANT MAINTENANCE RADIO CHANNEL		
2. Has the necessary fire equipment been identified? **Is it in place, functional and properly labeled?**	YES	
A. Sprinklers	NO	
B. Pull Boxes	NO	
C. Fire/Smoke Alarms	NO	
D. Extinguishers AT PROJECT TRAILER	YES	
E. Hydrants	YES	
F. Stand Pipes	YES	
G. Unique systems (i.e., Halon, Sand, Foam, etc.)	NO	
3. **Are evacuation routes designated and posted or building exit signs clearly visible?**	YES	
EVACUATION ROUTE IS DESIGNATED		
IN WORK PLAN.		
4. Breathing air required?	NO	
If yes, is it in place?		
5. Warning devices and alarms for safety system malfunction in place, i.e., ventilation.?	NO	
6. Are safety showers, eyewash stations, or decon facilities required? **Are they in place and functional?**	YES	
EYE WASH STATION IS IN PROJECT		
TRAILER.		
7. Does the work affect evacuation routes or assembly areas for adjacent facilities? **Have appropriate notifications been made to affected facilitlies?**	YES	
OPTI ELECTRONICS WILL BE		
NOTIFIED PRIOR TO ANY DEMO WORK.		
1.4 Radioactive Material Handling		
1. Are approved containers available?	N/A	
2. Criticality or other alarms identified? (i.e., air monitoring) **Are the alarms in place and operational?**	N/A	
3. Are approved storage and/or staging areas available for radioactive materials?	N/A	
4. Is there an approved disposal site and waste profile for all waste to be generated?	N/A	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
I.5 Radiation Protection		
1. Are radiation surveys required? **Are they current?**	YES	
A. Characterization/Assessment Results	YES	
B. Core Boring Results	NO	
C. Special Survey Results	NO	
2. Is an ALARA review required? **Have the ALARA review comments been incorporated into the work control process and workers briefed on the ALARA review?**	NO	
3. Will a RWP be required?	NO	
If yes, has it been completed and a copy available at the job site?		
RWP WILL BE REQUIRED IF DRMA IS DISTURBED.		
4. Will bioassay monitoring be required for personnel working under the projects RWP?	NO	
5. Is personnel or environmental monitoring equipment required for radioactive constituents? **Is it available at the jobsite?** List Below:	NO	
OPTIONAL AT RAD OPPS DISCRETION		
6. Have intrusive surveys been conducted in areas where equipment was dismantled in radiological buildings?	N/A	
I.6 Environmental Protection		
1. Are effluent control systems required? **Are they operational, and do they meet appropriate specifications?** List Below:	YES	
SILT FENCE		
2. Have environmental liquid and airborne sampling and monitoring needs been identified? List Below:	N/A	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
3. Are permit modifications/notifications required? **Have modifications/ notifications been completed?** List Below:	NO	
4. OEPA Notification of Demolition & Renovation filed with RAPCA? (10-day or 20-day notification period required)	YES	
WILL BE FILED		
5. Are NESHAPs calculations required to determine potential dose at the fenceline? **Has the calculation been completed?**	YES	
I.7 Equipment/Hardware Material		
1. Are any special tools or equipment required to complete activity? List Below:	NO	
STANDARD "HEAVY DUTY" EQUIPMENT		
WILL BE USED.		
2. Are items requiring calibration identified? **Is the calibration current?** List Below:	NO	
IH & RAD TECH. WHICH ARE		
RESPONSIBLE FOR THIER OWN		
EQUIPMENT.		
3. Are calibration procedures available for the above items?	NO	
SUPPORT GROUP MAINTAIN THEIR		
OWN PROCEDURES.		
4. Has a preventative maintenance program for critical equipment been established? **Is it current and up to date?**	NO	
II. PROCEDURES AND MANAGERIAL CONTROLS		
II. 1 Written Procedures		
1. Have any procedures been identified or written which are not included in the configuration index? **Are they available at the work site?** List Below:	N/A	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
2. Are any permits required? (i.e., RWP, burn, excavation, penetration, etc.) **Are they available at the work site?** List Below:	YES	
EXCAVATION		
HOT WORK		
3. Have the following been developed?		
A. Davis Bacon Determination (contact General Superintendant)	NO	
B. Sub Contractor Evaluation (contact General Superintendant)	NO	
DAVIS BACON NOT REQUIRED FOR		
DEMOLITION PROJECTS.		
4. Hold points identified in procedures where Project Engineer, Project Manager, QA or other person must verify, analyze or witness an activity/data? List Below:	NO	
5. Are permanent records (data sheets, log, etc.) required? List Below:	YES	
PRE-JOB RECORDS		
PERMITS		
CHANGE SHEETS		
6. Has a hazard categorization been performed per DOE STD-1027 to determine whether the project could be considered a nuclear facility?	N/A	
7. Has a USQ screening process been completed for the Work Scope, Procedures, etc. to ensure that proposed activities fall within the approved safety authorization basis for the site's nuclear facilities?	N/A	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
II. 2 Managerial Controls		
1. Are changes to any of the following required? **Have the changes been completed?**	NO	
A. Safety Analysis Report (SAR)		
B. Environmental Assessment (EA)		
C. Technical Safety Requirements (TSR)		
D. Basis for Interim Operation (BIO)		
E. Other site regulatory permits		
2. Are any system outages required? **Has coordination with building or site been completed?** List Below:	YES	
MECHANICAL		
ELECTRICAL		
3. **Have all necessary reviews been completed?**		
A. ES&H		
B. QA		
C. Fire Protection		
D. Lessons Learned		
E. Peer		
F. Constructability		
G. Other		
4. Have staffing requirements been established? **Is appropriate staff available?**	YES	
5. **Have notifications to site personnel of planned work been completed?**		
6. **Has approval from the appropriate building manager been received prior to start of planned work?**		
II. 3 Procurement		
1. Has a procurement plan been established for key items or services to ensure delivery to job site when needed? List Below:	NO	

General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	Pre-Job (Complete/NA/ Open)
III. PERSONNEL READY		
III. 1 Training, Testing & Qualification		
1. Have project specific training requirements been identified? **Is training complete and documented records up to date?** List Below:	NO	
2. **Do any training certifications expire within the schedule of the project? List Below:**		
3. Is an evaluation of personnel response to Emergency Drills at the worksite needed? **Has it been completed?**	NO	
4. Is there a need for a "dry-run" or demonstration to prove out all associated hardware and procedures, check for oversights, adjust for the final arrangement and provide for first "hands-on" participation? **Has it been completed?**	NO	
5. Has worker involvement been incorporated in the work planning process?	YES	
6. **Are personnel aware of the 'person-in-charge' concept, i.e,. who is in charge for all field operations? Has an alternate been identified?**		
7. **Does the pre-job conference adequately consider the net effect of recent changes, new hazards, maintenance, etc.?**		
8. **Are personnel aware of their stop work authority?**		
9. **Has a review of the weekly restriction listing been conducted to assure personnel assigned to the project are not restricted?**		

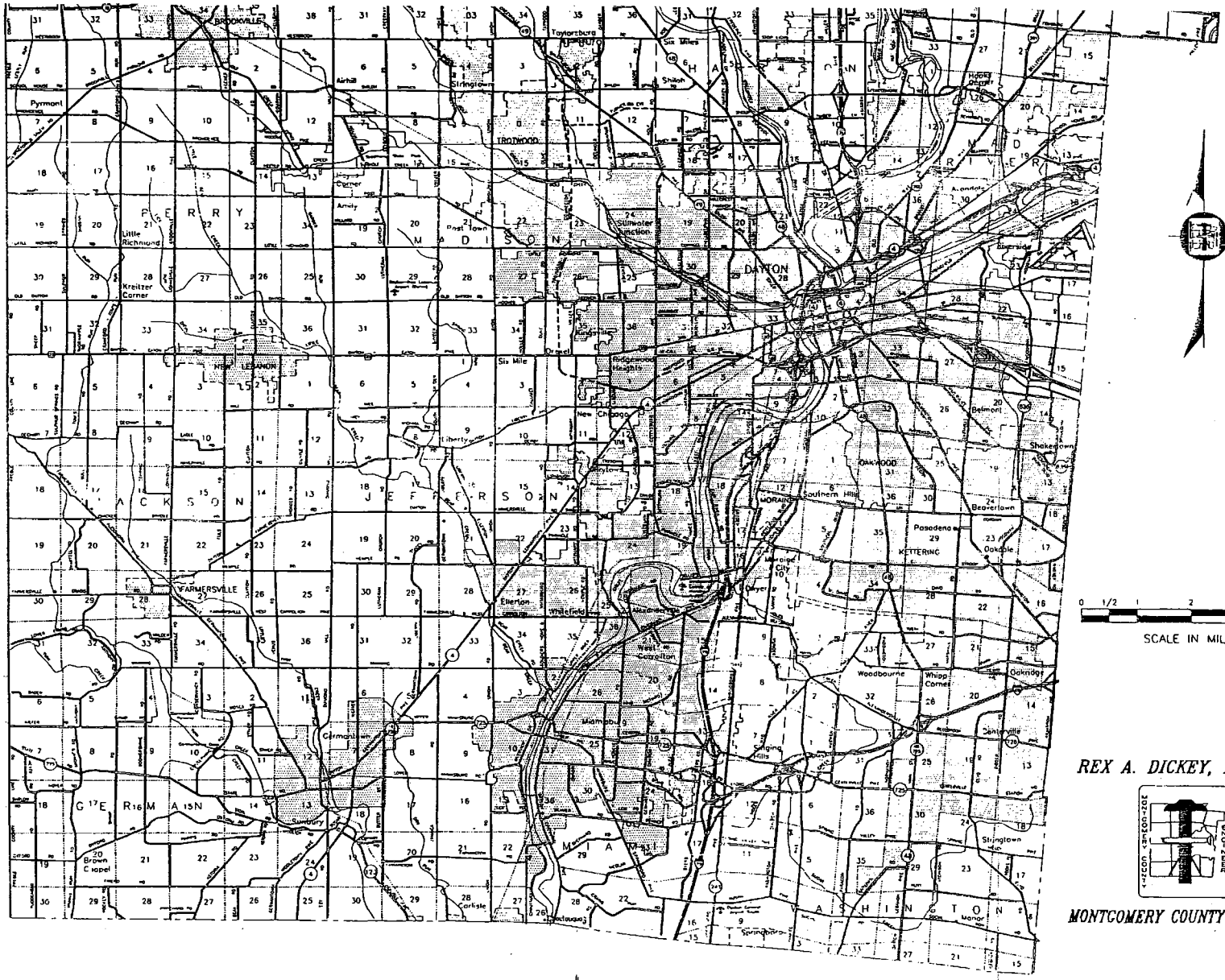
General Work Plan Checklist

Both columns of this checklist may be completed for each row, however, the Work Planning column must be completed for non-bold items and the Pre-Job column must be completed for bold items.

	Status	
	Work Planning (Yes/No-N/A)	**Pre-Job** (Complete/NA/ Open)
III. 2 Contractors		
1. Have methods to be used for control of contractors performing work been addressed?	No	
A. Specifications		
B. Purchase Order		
C. Inspections		
D. Others		

Page Redacted

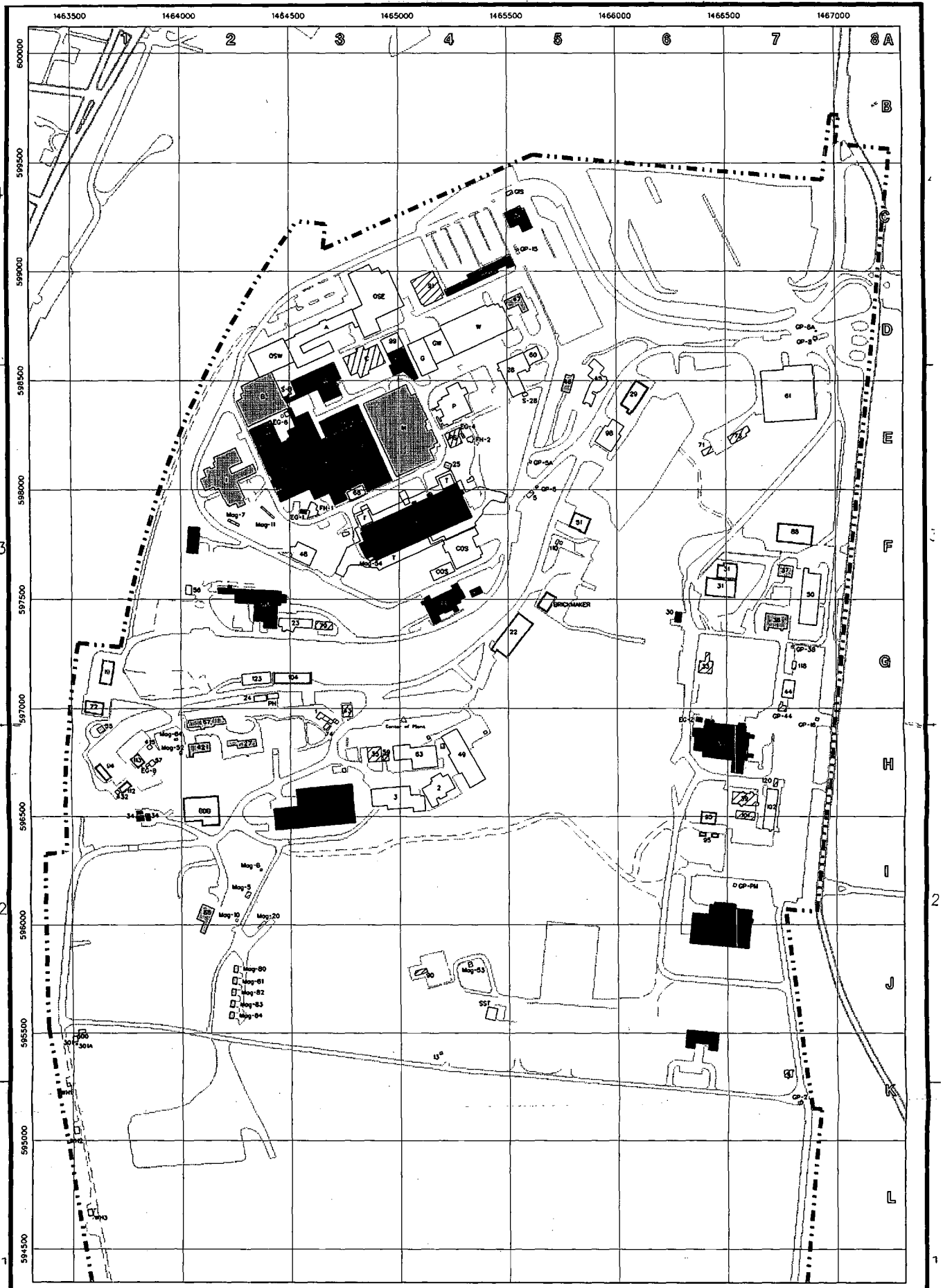
Contains Proprietary Information



REX A. DICKEY, P.E.,P.S.

MONTCOMERY COUNTY ENGINEER

FEBRUARY, 199



Legend

- To Be Demolished (CERCLA)
- To Be Demolished (Construction)
- Personal Property
- Hatch: Removed/Demolished
- Transfer (Waiting Evaluation)
- Transfer (NFA)
- Transfer (FA)
- Transfer (RA)

0 100 200 400 600 800 1000

Scale in Feet

ISS	DATE	REVISION	BY	CHKR	ENG	M
	07/29/99	UPDATE	MR			

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

(U) TITLE CLASSIFICATION

Building Disposition
Core Team
07/29/99

DRAWING CLASSIFICATION: UNCLASSIFIED

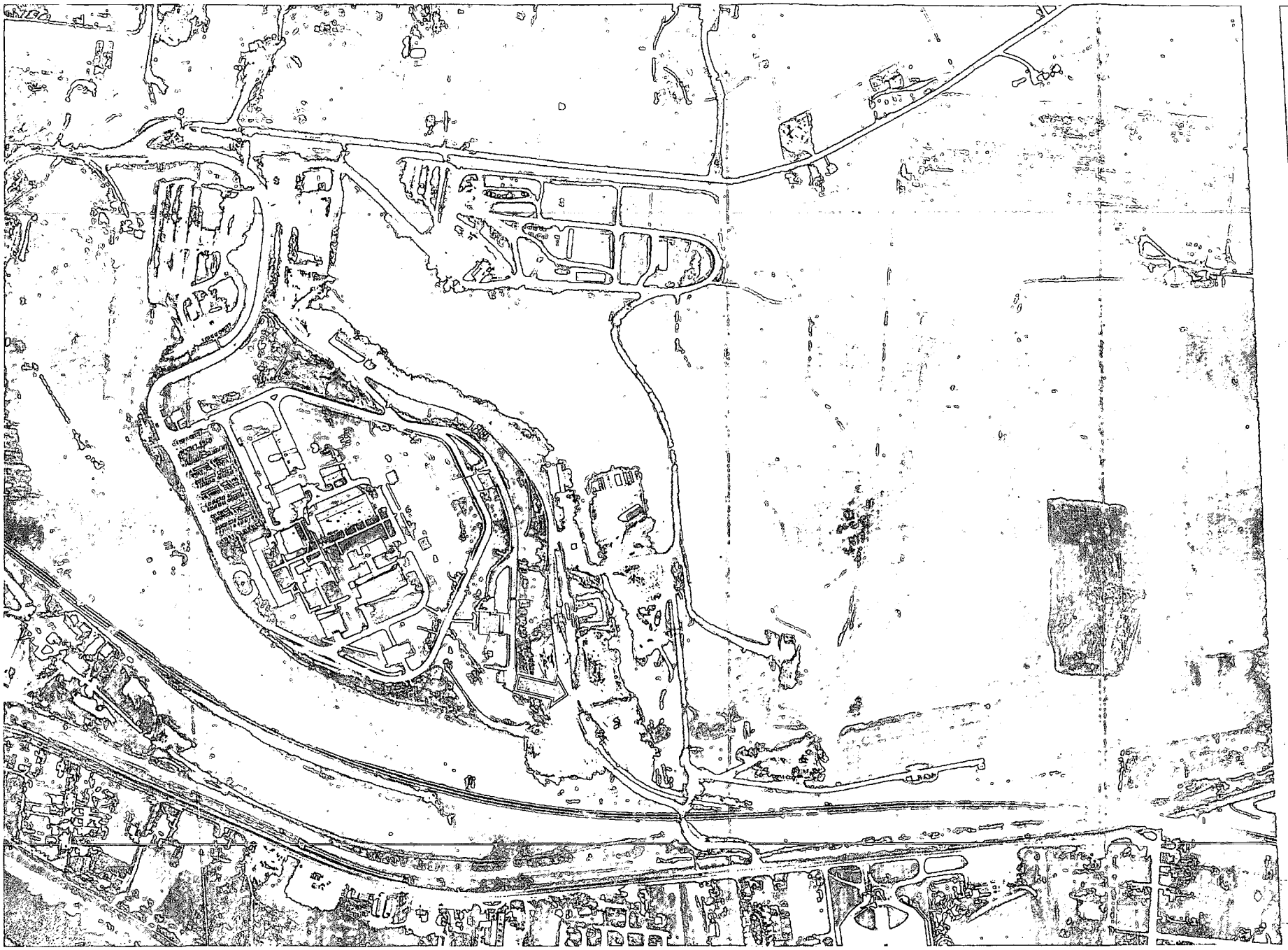
SIZE: D

DRAWING NUMBER: bldg_disp.dgn

JOB NUMBER

DWG TYPE | PRNG | CAGEC | SCALE | SHEET 1 OF

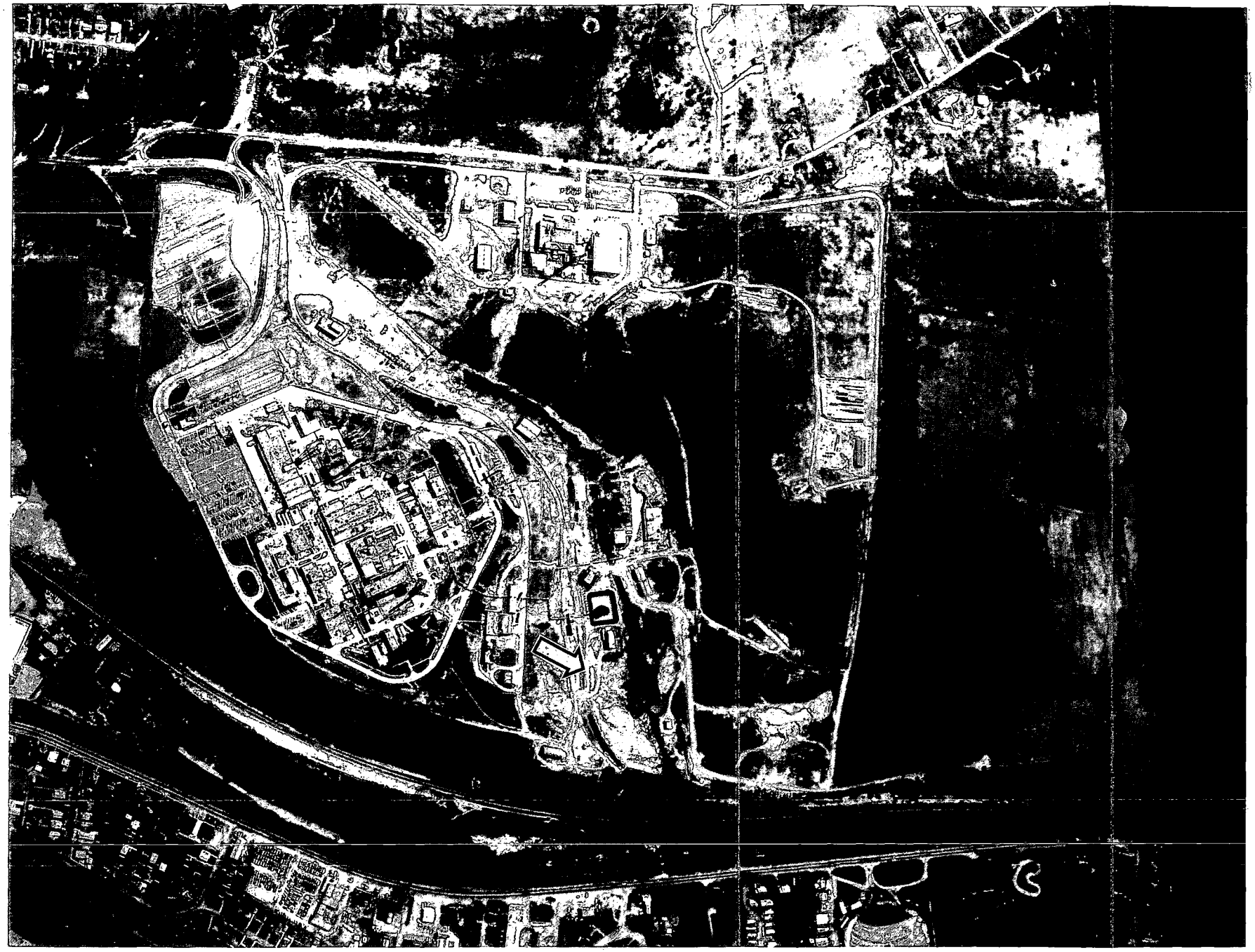
STATUS | ORIGIN: MSTATION 5.0



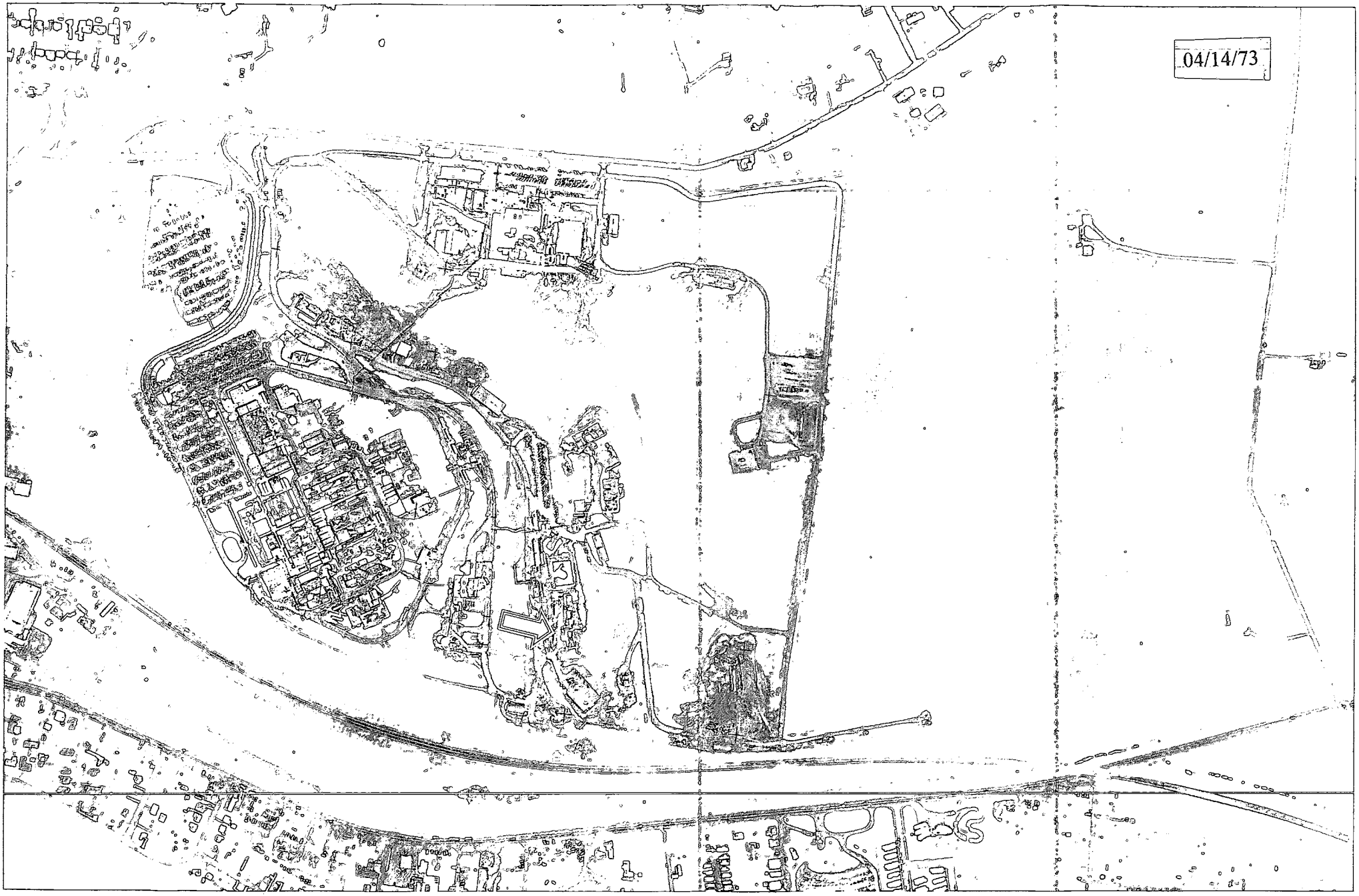
11/08/49

11/19/59

04/07/65



03/30/68


04/14/73

06/83

04/04/94