

PERMIT ATTACHMENT G CLOSURE PLANS

G.1 CLOSURE PLAN FOR THE HAZARDOUS WASTE HANDLING UNIT

TABLE OF CONTENTS

G.1.1. INTRODUCTION	139
G.1.2. CLOSURE PROCESS	139
G.1.3. SAMPLING AND ANALYSIS PLAN	140
G.1.4. AMENDMENT TO This CLOSURE PLAN	141
G.1.5. WASTES GENERATED FROM CLOSURE ACTIVITIES	142
G.1.6. CLOSURE REPORT AND CERTIFICATION	142

LIST OF TABLES

TABLE G.1-1	Sampling Requirements
-------------	-----------------------

LIST OF FIGURES

Figure G.1-1	Indoor and Outdoor Components at the Hazardous Waste Handling Unit
Figure G.1-2	HWHU Building 958 Sampling Locations
Figure G.1-3	HWHU Building 959 Sampling Locations
Figure G.1-4	HWHU Buildings 958B and 958C Sampling Locations

G.1.1 INTRODUCTION

This closure plan details the activities necessary to close the Hazardous Waste Handling Unit south of Technical Area I at Sandia National Laboratories, hereafter referred to as the HWHU. This closure plan incorporates the requirements in 40 CFR §§ 264.110 through 264.116, 264.178, and Permit Part 6.

The HWHU is located south of TA-I, north of the entrance to TA-II, and occupies 1.35 acres enclosed within a fence on Facility property between the two Technical Areas. For purposes of closure the HWHU consists of four structures, an outdoor loading and driving surface, various equipment, a storm water catchment pond, and environmental media. Structures at the HWHU include the Hazardous Waste Packaging Building (Building 959), the Hazardous Waste Storage Building (Building 958), and two modular storage buildings (Buildings 958B and 958C). A covered storage pad, two office trailers, six storage sheds located near the eastern boundary of the HWHU, and associated equipment, furnishings, and tools that do not manage or contact hazardous or mixed wastes are not subject to the closure procedures and performance standards in this closure plan. A complete physical and operational description of the HWHU is in Permit Attachment A, Section A.2. The various HWHU components are shown generally on Figure G.1-1.

The HWHU is permitted to repackage and store hazardous and mixed wastes with the EPA waste codes listed in Permit Attachment B, Section B.2, in containers. The storm water catchment pond is designed to receive storm water and snowmelt run-off from the HWHU. The operating capacity of the four buildings is specified at Permit Attachment J, Table J-1.1.

It is anticipated that the HWHU will be clean closed. The Permittees shall attain clean closure of the HWHU by meeting the closure performance standards specified at Permit Section 6.2.1. Final closure of the HWHU will be complete when the New Mexico Environment Department (Department) approves the Closure Report and certification required under Permit Part 6, Section 6.10 and Section 6.0 of this Closure Plan.

G.1.2 CLOSURE PROCESS

The Permittees shall, in accordance with Permit Part 6, Section 6.3.1, notify the Department in writing that they have initiated closure at the HWHU.

The Permittees shall, in accordance with Permit Part 6, Section 6.3.2 and Table 6.1, complete all HWHU closure activities.

The Permittees shall, in accordance with Permit Section 6.3.4, remove all hazardous and mixed waste from the HWHU no later than 90 days after initiating closure at the Unit, and shall also remove any solid waste that adversely interferes with closure activities.

The Permittees shall, in accordance with Permit Section 6.3.5, conduct a records review and structural assessment of the HWHU and shall submit the review and assessment in the form of a written report in accordance with that Section.

The Permittees shall, in accordance with Permit Section 6.3.6, decontaminate or remove all contaminated structures and equipment at the HWHU.

The Permittees shall, in accordance with Permit Section 6.3.7 and Section 3.0 (below), perform decontamination verification sampling of all structures and equipment at the HWHU that were required to be decontaminated.

The Permittees shall, in accordance with Permit Section 6.3.8 and Section 3.0 (below), sample soils and base materials (*e.g.*, gravel) associated with HWHU to quantify constituents of concern associated with any releases of hazardous or mixed wastes.

The Permittees shall ensure that soils and base materials at the HWHU contaminated with constituents of concern that pose an unacceptable risk to human health (based on the closure criteria in Permit Section 6.2.1) or the environment as specified in Permit Section 6.3.8 are removed from the Permitted Unit in accordance with Permit Section 6.3.9. The complete removal shall be verified by the Permittees in accordance with Permit Section 6.3.9.

If the contaminated soil or other environmental media cannot be removed because it would be impracticable, the soil or other environmental media shall be subject to corrective action under Permit Section 6.8.

G.1.3 SAMPLING AND ANALYSIS PLAN

This sampling and analysis plan identifies: 1) the constituents of concern at the HWHU, 2) the locations where sampling shall occur, 3) the laboratory analytical methods that shall be employed to quantify analyte concentration in samples, and 4) the quality assurance procedures to be utilized during closure.

The constituents of concern at the HWHU shall be determined in accordance with Permit Sections 6.3.5 and 6.5(1). A preliminary list of groups of constituents is presented in Table G.1-1 of this Permit Attachment; the list shall be modified at the time of closure if necessary in accordance with Permit Section 6.3.5.

The Permittees shall collect wet-wipe and soil samples, and perform sample quality assurance procedures in accordance with Permit Sections 6.3.10.1, 6.3.10.2, and 6.3.10.3.

The Permittees shall sample soils and base materials at the applicable locations identified at Permit Section 6.3.8. Soil sampling locations are identified in part on Figure G.1-1. Because of the length of the storm water catchment pond, the Permittees shall also collect two samples at the specified depths at each of three locations within the pond, the east and west ends and in the middle.

The Permittees shall sample structures and equipment at the applicable locations identified in accordance with Permit Section 6.3.7.

The wet-wipe sampling locations to verify decontamination at Buildings 958, 959, and 958B/958C are identified in part on Figures G.1-2, G.1-3, and G.1-4 respectively.

Sampling locations may vary from those shown in the figures due to conditions at closure. Sampling locations may also change as a result of amendments to this closure plan, such as amendments required under Permit Section 6.6.

The Permittees shall handle samples as specified at Permit Part 8, Section 8.10.2.9.

The Permittees shall utilize the laboratory analytical methods, the sample preservation criteria, and the sample holding times as specified in Table G.1-1, as the information in the table may be updated via a closure plan amendment. The Permittees shall abide with the requirements for chemical analyses at laboratories as specified at Permit Part 8, Section 8.10.3.

The Permittees shall document field activities associated with closure as specified at Permit Section 8.10.2.14.i.

Table G.1-1 Sampling Requirements¹			
Parameter	Laboratory Method(s)	Preservation	Holding Time
Metals (Total: Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl)	6010/6020/7470/7471	None	6 months (except Hg 28 days)
VOCs	8260	Headspace free, Cool to 4°C	14 days
SVOCs	8270	Cool to 4°C	14 days
Dioxin/Furan Congeners	8280, 8290	Place in dark and cool to 4°C	30 days
PCBs	8080/8082	Cool to 4°C	14 days
Herbicides	8150/8151	Cool to 4°C	14 days
Cyanide	9010/9012	Cool to 4°C	14 days

¹ Methods are EPA SW-846 Methods, as revised and updated.

G.1.4 AMENDMENT TO THIS CLOSURE PLAN

The Permittees shall submit permit modification requests to amend this Closure Plan, if needed, in accordance with Permit Section 6.6.

G.1.5 WASTES GENERATED FROM CLOSURE ACTIVITIES

The Permittees shall ensure that waste (*e.g.*, demolition debris and contaminated soil) generated from closure of the HWHU is managed in compliance with all applicable state, federal, and local requirements (*see* 40 CFR § 264.114).

G.1.6 CLOSURE REPORT AND CERTIFICATION

No later than 60 days after completing closure of the HWHU, the Permittees shall in accordance with Permit Section 6.10 submit a closure report to the Department for review and approval.

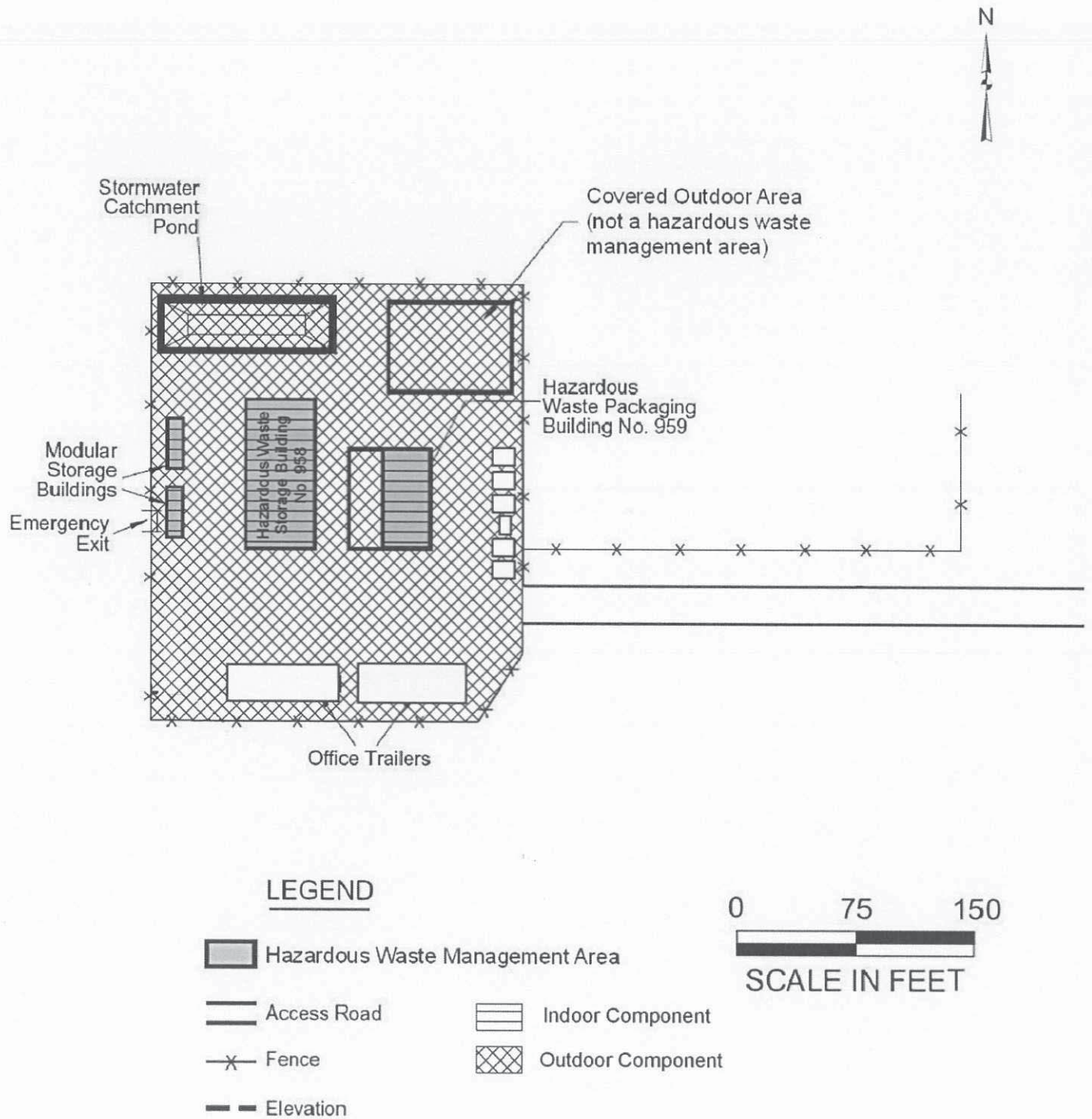
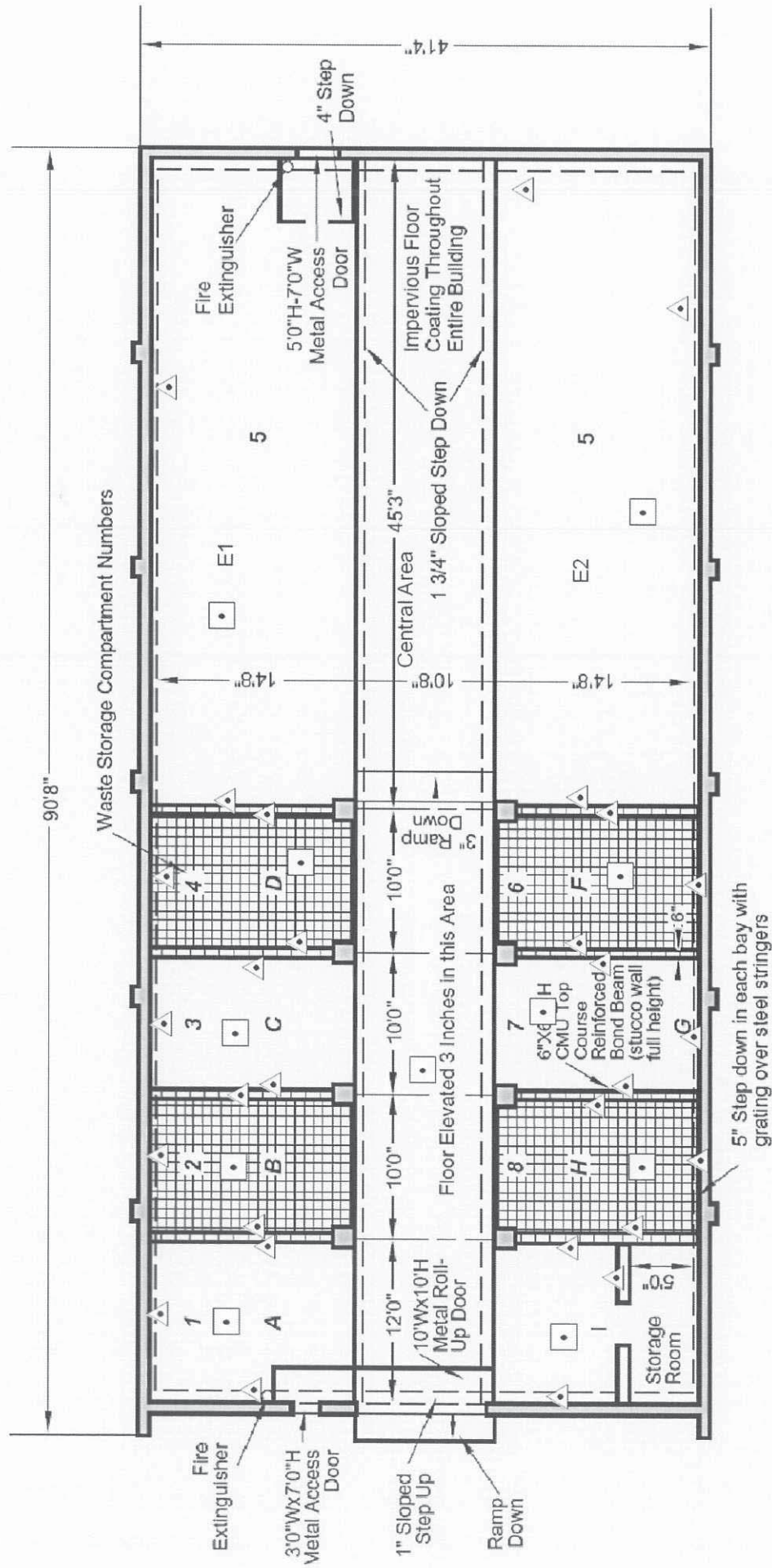


Figure G.1-1
Indoor and Outdoor Components at the Hazardous Waste Management Unit

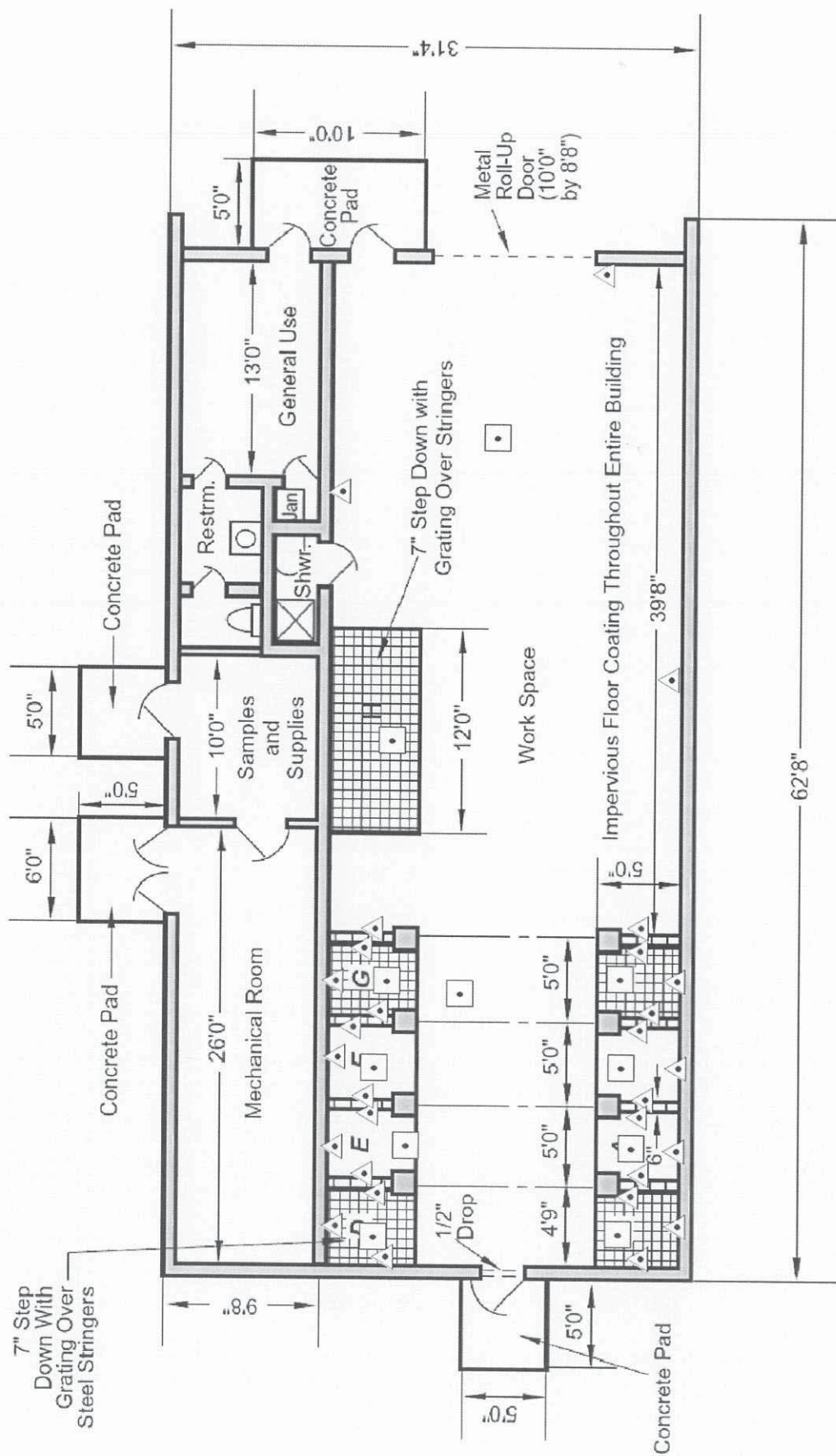


Actual locations may vary from the figure.

Legend

- floor (11)
- △ wall (29)

Figure G.1-2
HWHU Building 958 Sampling Locations



 floor (11)
 wall (29)

**Figure G.1-3
HWHU Building 959 Sampling Locations**

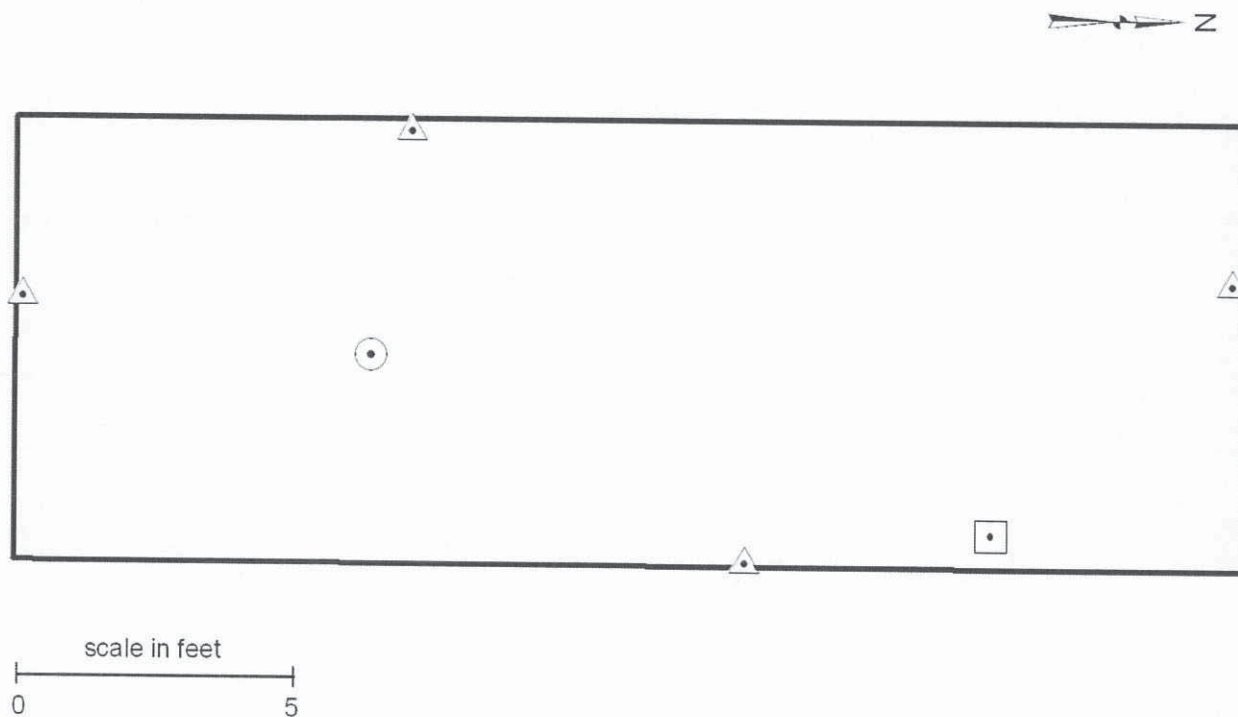


Figure G.1-4
HWHU Buildings 958B and 958C Sampling Locations

G.2 CLOSURE PLAN FOR THE THERMAL TREATMENT UNIT

TABLE OF CONTENTS

G.2.1. INTRODUCTION	148
G.2.2. CLOSURE PROCESS	148
G.2.3. SAMPLING AND ANALYSIS PLAN	149
G.2.4. AMENDMENT TO THIS CLOSURE PLAN	150
G.2.5. WASTES GENERATED FROM CLOSURE ACTIVITIES	150
G.2.6. CLOSURE REPORT AND CERTIFICATION	150

LIST OF TABLES

Table G.2-1	Sampling Requirements
-------------	-----------------------

LIST OF FIGURES

Figure G.2-1	TTU Soil Sampling Locations
Figure G.2-2	TTU Sampling Locations

G.2.1 INTRODUCTION

This closure plan details the activities necessary to close the Thermal Treatment Unit at Technical Area III at Sandia National Laboratories, hereafter referred to as the TTU. This closure plan incorporates the requirements in 40 CFR §§ 264.110 through 264.116, 264.601 through 264.603, and Permit Part 6.

The TTU is a steel burn pan and cage located in a fenced area on a concrete pad south of Building 6715 and is surrounded by an earthen berm. The area potentially impacted by the TTU and therefore subject to closure extends outside the TTU caged area and includes ancillary piping and equipment, a loading area, and soils potentially impacted by particulate deposition and surface water run-off. A complete physical and operational description of the TTU is in Permit Attachment A, Section A.3. The various TTU components are shown generally on Figures G.2-1 and G.2-2.

The TTU treats reactive (*i.e.*, explosive) and ignitable hazardous wastes with the EPA waste codes listed in Permit Attachment B, Section B.1.

It is anticipated that the TTU will be clean closed. The Permittees shall attain clean closure of the TTU by meeting the closure performance standards specified at Permit Section 6.2.1. Final closure of the TTU will be complete when the New Mexico Environment Department (Department) approves the Closure Report and certification required under Permit Part 6, Section 6.10 and Section 7.0 of this Closure Plan.

G.2.2 CLOSURE PROCESS

The Permittees shall, in accordance with Permit Part 6, Section 6.3.1, notify the Department in writing that they have initiated closure at the TTU.

The Permittees shall, in accordance with Permit Part 6, Section 6.3.2 and Table 6.1, complete all TTU closure activities.

The Permittees shall, in accordance with Permit Section 6.3.4, remove all hazardous waste from the TTU no later than 90 days after initiating closure at the Unit, and shall also remove any solid waste that adversely interferes with closure activities.

The Permittees shall, in accordance with Permit Section 6.3.5, conduct a records review and structural assessment of the TTU and shall submit the review and assessment in the form of a written report in accordance with that Section.

The Permittees shall, in accordance with Permit Section 6.3.6, decontaminate or remove all contaminated structures and equipment at the TTU.

The Permittees shall, in accordance with Permit Section 6.3.7 and Section 3.0 (below), perform decontamination verification sampling of all structures and equipment at the TTU that were required to be decontaminated.

The Permittees shall, in accordance with Permit Section 6.3.8 and Section 3.0 (below), sample soils and base materials (*e.g.*, gravel) associated with TTU to quantify constituents of concern associated with any releases of hazardous or mixed wastes.

The Permittees shall ensure that soils and base materials at the TTU contaminated with constituents of concern that pose an unacceptable risk to human health (based on the closure criteria in Permit Section 6.2.1) or the environment as specified in Permit Section 6.3.8 are removed from the Permitted Unit in accordance with Permit Section 6.3.9. The complete removal shall be verified by the Permittees in accordance with Permit Section 6.3.9.

If the contaminated soil or other environmental media cannot be removed because it would be impracticable, the soil or other environmental media shall be subject to corrective action under Permit Section 6.8.

G.2.3 SAMPLING AND ANALYSIS PLAN

This sampling and analysis plan identifies: 1) the constituents of concern at the TTU, 2) the locations where sampling shall occur, 3) the laboratory analytical methods that shall be employed to quantify analyte concentration in samples, and 4) the appropriate quality assurance procedures to be utilized during closure.

The constituents of concern at the TTU shall be determined in accordance with Permit Sections 6.3.5 and 6.5(1). A preliminary list of constituents and groups of constituents is presented in Table G.2-1 of this Permit Attachment; the list shall be modified at the time of closure if necessary in accordance with Permit Section 6.3.5.

The Permittees shall collect wet-wipe and soil samples, and perform sample quality assurance procedures in accordance with Permit Sections 6.3.10.1, 6.3.10.2, and 6.3.10.3.

The Permittees shall sample soils and base materials at the applicable locations identified at Permit Section 6.3.8 and Figures G.2-1 and G.2-2.

The Permittees shall sample structures and equipment at the applicable locations identified in accordance with Permit Section 6.3.7.

Sampling locations may vary from those shown in the figures due to conditions at closure. Sampling locations may also change as a result of amendments to this closure plan, such as amendments required under Permit Section 6.6.

The Permittees shall handle samples as specified at Permit Part 8, Section 8.10.2.9.

The Permittees shall utilize the laboratory analytical methods, the sample preservation criteria, and the sample holding times as specified in Table G.2-1, as the information in the table may be updated via a closure plan amendment. The Permittees shall abide with

the requirements for chemical analyses at laboratories as specified at Permit Part 8, Section 8.10.3.

The Permittees shall document field activities associated with closure as specified at Permit Section 8.10.2.14.i.

Table G.2-1 Sampling Requirements¹			
Parameter	Laboratory Method(s)	Preservation	Holding Time
Total silver	6010/6020	None	6 months
VOCs	8260	Headspace free, Cool to 4°C	14 days
SVOCs	8270	Cool to 4°C	14 days
Dioxin/Furan Congeners	8280, 8290	Cool to 4°C	30 days
High Explosives	8330	Cool to 4°C	14 days

¹ Methods are EPA SW-846 Methods, as revised and updated.

G.2.4 AMENDMENT TO THIS CLOSURE PLAN

The Permittees shall submit permit modification requests to amend this Closure Plan, if needed, in accordance with Permit Section 6.6.

G.2.5 WASTES GENERATED FROM CLOSURE ACTIVITIES

The Permittees shall ensure that waste (*e.g.*, demolition debris and contaminated soil) generated from closure of the TTU is managed in compliance with all applicable state, federal, and local requirements (*see* 40 CFR § 264.114).

G.2.6 CLOSURE REPORT AND CERTIFICATION

No later than 60 days after completing closure of the TTU, the Permittees shall in accordance with Permit Section 6.10 submit a closure report to the Department for review and approval.

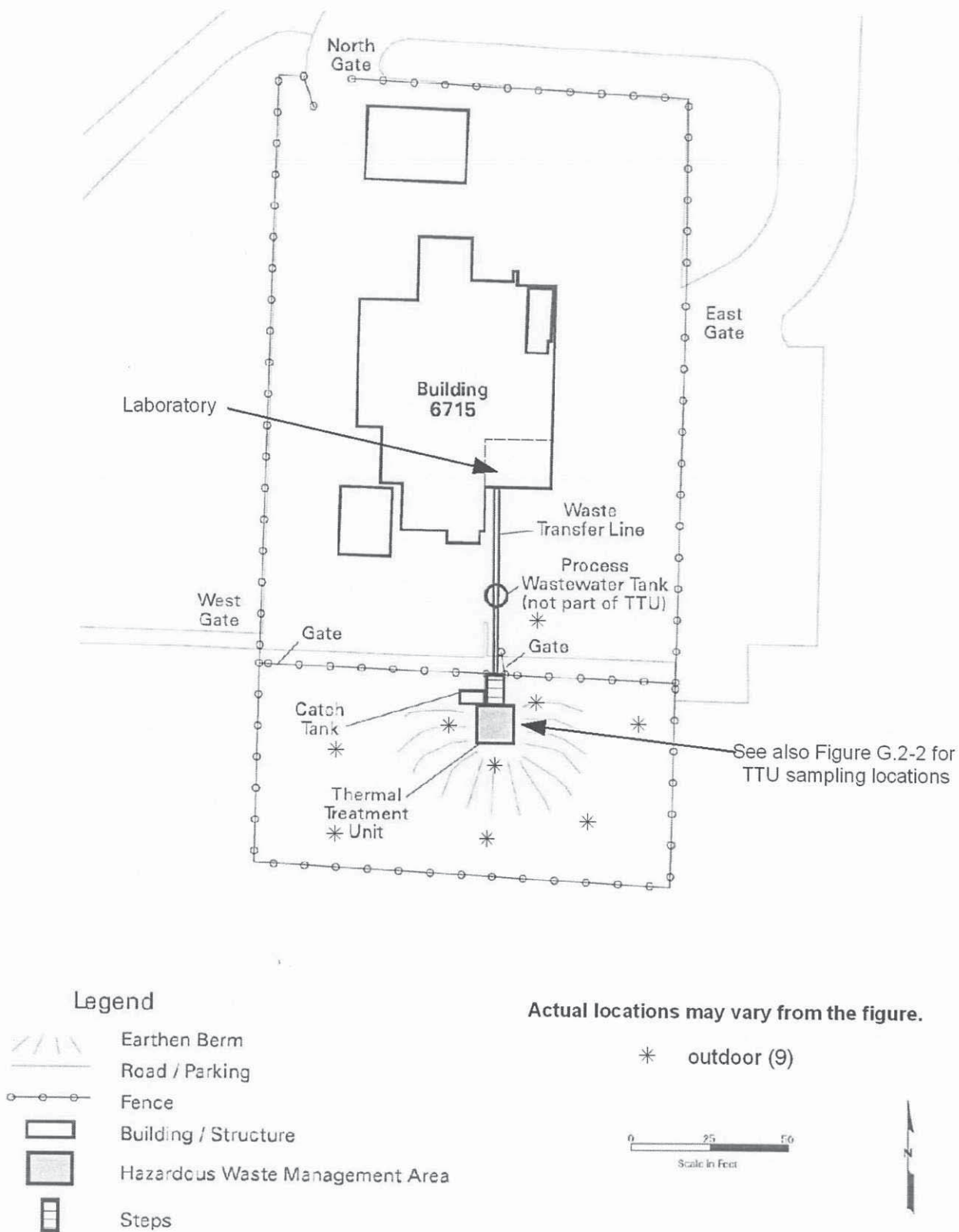
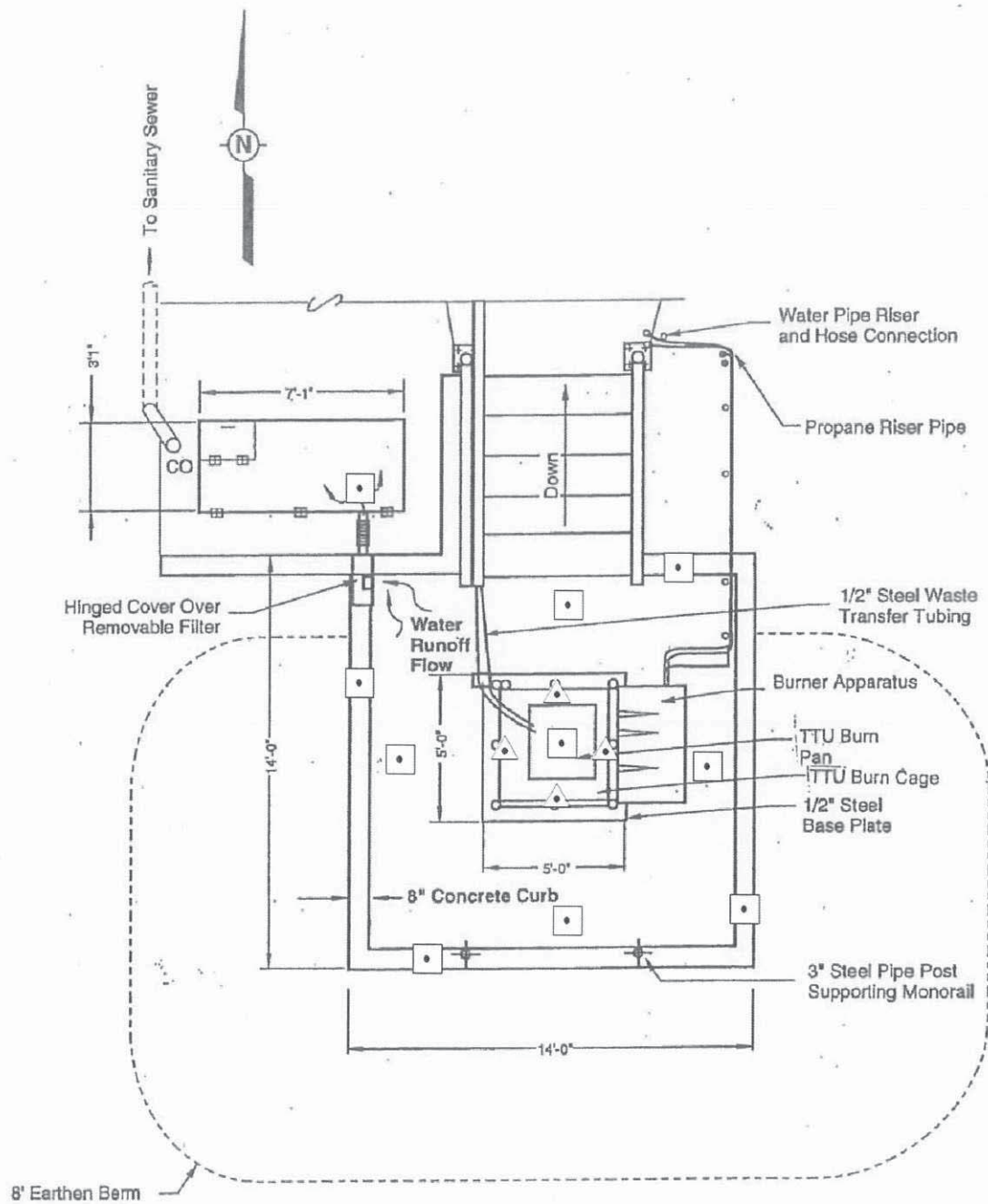


Figure G.2-1
TTU Soil Sampling Locations



Actual locations may vary from the figure.

- floor (10)
- △ wall (4)

Figure G.2-2
TTU Sampling Locations

G.3 CLOSURE PLAN FOR THE RADIOACTIVE AND MIXED WASTE MANAGEMENT UNIT

TABLE OF CONTENTS

G.3.1	INTRODUCTION	154
G.3.2	CLOSURE PROCESS	154
G.3.3	SAMPLING AND ANALYSIS PLAN	155
G.3.4	AMENDMENT TO THIS CLOSURE PLAN	157
G.3.5	WASTES GENERATED FROM CLOSURE ACTIVITIES	157
G.3.6	CLOSURE REPORT AND CERTIFICATION	157

LIST OF TABLES

TABLE G.3-1	Sampling Requirements
-------------	-----------------------

LIST OF FIGURES

Figure G.3-1	RMWMU Sampling Locations
Figure G.3-2	RMWMU Building 6920 Sampling Locations
Figure G.3-3	RMWMU Building 6921 Sampling Locations
Figure G.3-4	RMWMU Buildings 6925 and 6926 Sampling Locations
Figure G.3-5	RMWMU Modular Storage Units – TP-150 and TP-153 Sampling Locations

G.3.1 INTRODUCTION

This closure plan details the activities necessary to close the Radioactive and Mixed Waste Management Unit at Technical Area III at Sandia National Laboratories, hereafter referred to as the RMWMU. This closure plan incorporates the requirements in 40 CFR §§ 264.110 through 264.116, 264.178, and Permit Part 6.

The RMWMU is located in the southeastern portion of Technical Area (TA)-III and occupies approximately 3.1 acres enclosed within a fence. For purposes of closure the RMWMU consists of six structures, equipment, an outdoor storage pad and driving surface, a storm water retention pond, and environmental media. The waste management structures include Buildings 6920, 6921, 6925, and 6926, and two modular storage buildings, TP-150 and TP-153. The outdoor storage pad includes the paved areas within the fence to the north, east, and west of Building 6920 and to the south of Building 6921. Buildings 6920 and 6921 have associated fume hoods and negative-pressure ventilation systems whose exhaust passes through a HEPA filter before being released to the environment through an exhaust stack. The outdoor storage pad and driving surface drain to a storm water retention basin. Numerous rooms within Buildings 6920 and 6921 and associated equipment, furnishings, and tools that do not manage or contact hazardous or mixed wastes are not subject to the closure procedures and performance standards in this closure plan. A complete physical and operational description of the RMWMU is in Permit Attachment A, Section A.4. The various RMWMU components are shown generally on Figure G.3-1.

The RMWMU is permitted to store and treat hazardous and mixed wastes with the EPA waste codes listed in Permit Attachment B, Section B.2. The RMWMU is permitted to treat hazardous and mixed wastes with the set of EPA waste codes indicated in Permit Attachment B, Section B.3. The total square footage and permitted operating capacity of the buildings, the modular storage buildings, and the outdoor storage pad are specified at Permit Attachment J, Table J-1.1.

It is anticipated that the RMWMU will be clean closed. The Permittees shall attain clean closure of the RMWMU by meeting the closure performance standards specified at Permit Section 6.2.1. Final closure of the RMWMU will be complete when the New Mexico Environment Department (Department) approves the Closure Report and certification required under Permit Part 6, Section 6.10 and Section 6.0 of this Closure Plan.

G.3.2 CLOSURE PROCESS

The Permittees shall, in accordance with Permit Part 6, Section 6.3.1, notify the Department in writing that they have initiated closure at the RMWMU.

The Permittees shall, in accordance with Permit Part 6, Section 6.3.2 and Table 6.1, complete all RMWMU closure activities.

The Permittees shall, in accordance with Permit Section 6.3.4, remove all hazardous and mixed waste from the RMWMU no later than 90 days after initiating closure at the Unit, and shall also remove any solid waste that adversely interferes with closure activities.

The Permittees shall, in accordance with Permit Section 6.3.5, conduct a records review and structural assessment of the RMWMU and shall submit the review and assessment in the form of a written report in accordance with that Section.

The Permittees shall, in accordance with Permit Section 6.3.6, decontaminate or remove all contaminated structures and equipment at the RMWMU.

The Permittees shall, in accordance with Permit Section 6.3.7 and Section 3.0 (below), perform decontamination verification sampling of all structures and equipment at the RMWMU that were required to be decontaminated .

The Permittees shall, in accordance with Permit Section 6.3.8 and Section 3.0 (below), sample soils and base materials (*e.g.*, gravel) associated with RMWMU to quantify constituents of concern associated with any releases of hazardous or mixed wastes.

The Permittees shall ensure that soils and base materials at the RMWMU contaminated with constituents of concern that pose an unacceptable risk to human health (based on the closure criteria in Permit Section 6.2.1) or the environment as specified in Permit Section 6.3.8 are removed from the Permitted Unit in accordance with Permit Section 6.3.9. The complete removal shall be verified by the Permittees in accordance with Permit Section 6.3.9.

If the contaminated soil or other environmental media cannot be removed because it would be impracticable, the soil or other environmental media shall be subject to corrective action under Permit Section 6.8.

G.3.3 SAMPLING and analysis plan

This sampling and analysis plan identifies: 1) the constituents of concern at the RMWMU, 2) the locations where sampling shall occur, 3) the laboratory analytical methods that shall be employed to quantify analyte concentration in samples, and 4) the quality assurance procedures to be utilized during closure.

The constituents of concern at the RMWMU shall be determined in accordance with Permit Sections 6.3.5 and 6.5(1). A preliminary list of groups of constituents is presented in Table G.3-1 of this Permit Attachment; the list shall be modified at the time of closure if necessary in accordance with Permit Section 6.3.5.

The Permittees shall collect wet-wipe and soil samples, and perform sample quality assurance procedures in accordance with Permit Sections 6.3.10.1, 6.3.10.2, and 6.3.10.3.

The Permittees shall sample soils and base materials at the applicable locations identified at Permit Section 6.3.8. Soil sampling locations are identified in part on Figure G.3-1. Because of the length of the storm water retention pond at the RMWMU, the Permittees shall collect two samples at the specified depths at each of three locations within the pond, the north and south ends and in the middle.

The Permittees shall sample structures and equipment at the applicable locations identified in accordance with Permit Section 6.3.7. The wet-wipe sampling locations to verify decontamination at Buildings 6920, 6921, 6925 and 6926, and modular storage units TP-150 and TP-153 are identified in part on Figures G.3-2, G.3-3, G.3-4, and G.3-5 respectively.

Sampling locations may vary from those shown in the figures due to conditions at closure. Sampling locations may also change as a result of amendments to this closure plan, such as amendments required under Permit Section 6.6.

The Permittees shall handle samples as specified at Permit Part 8, Section 8.10.2.9.

The Permittees shall utilize the laboratory analytical methods, the sample preservation criteria, and the sample holding times as specified in Table G.3-1, as the information in the table may be updated via a closure plan amendment. The Permittees shall abide with the requirements for chemical analyses at laboratories as specified at Permit Part 8, Section 8.10.3.

The Permittees shall document field activities associated with closure as specified at Permit Section 8.10.2.14.i.

Table G.3-1 Sampling Requirements¹			
Parameter	Laboratory Method(s)	Preservation	Holding Time
Metals (Total: Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl)	6010/6020/ 7470/7471	None	6 months (except Hg 28 days)
VOCs	8260	Headspace free, Cool to 4°C	14 days
SVOCs	8270	Cool to 4°C	14 days
High Explosives	8330	Cool to 4°C	14 days

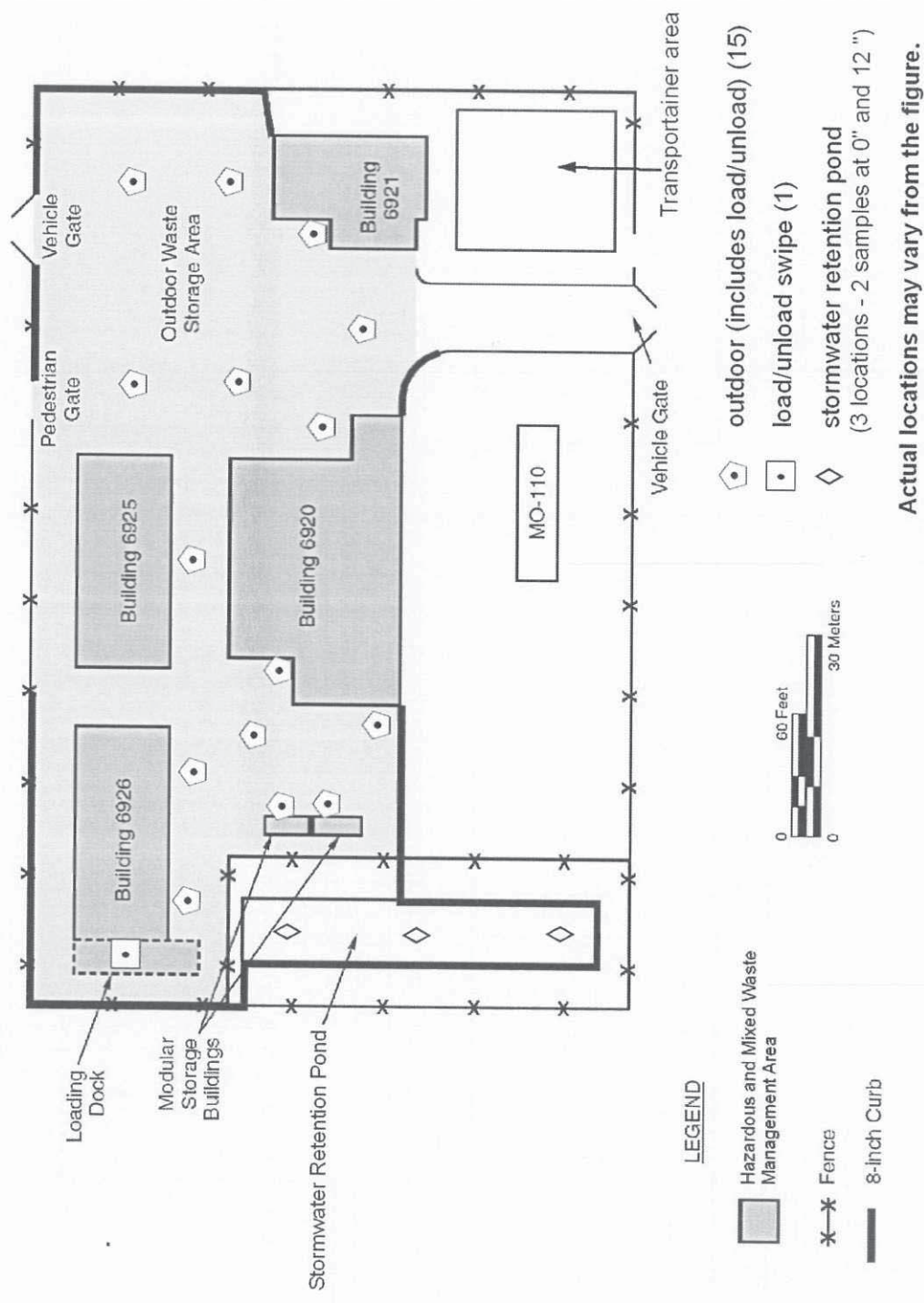


Figure G.3-1
RMWMU Sampling Locations

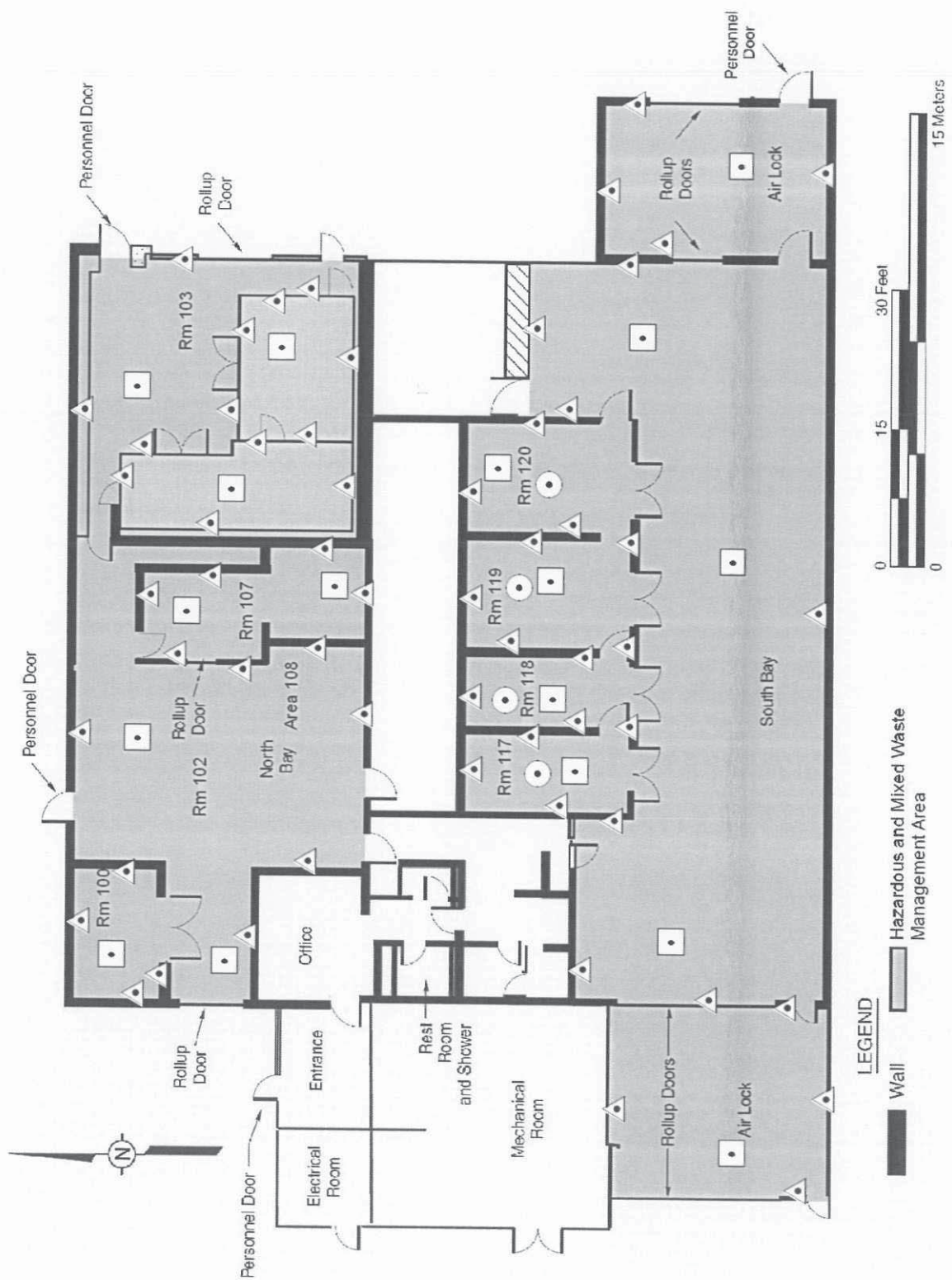


Figure G.3-2
RMWMU Building 6920 Sampling Locations

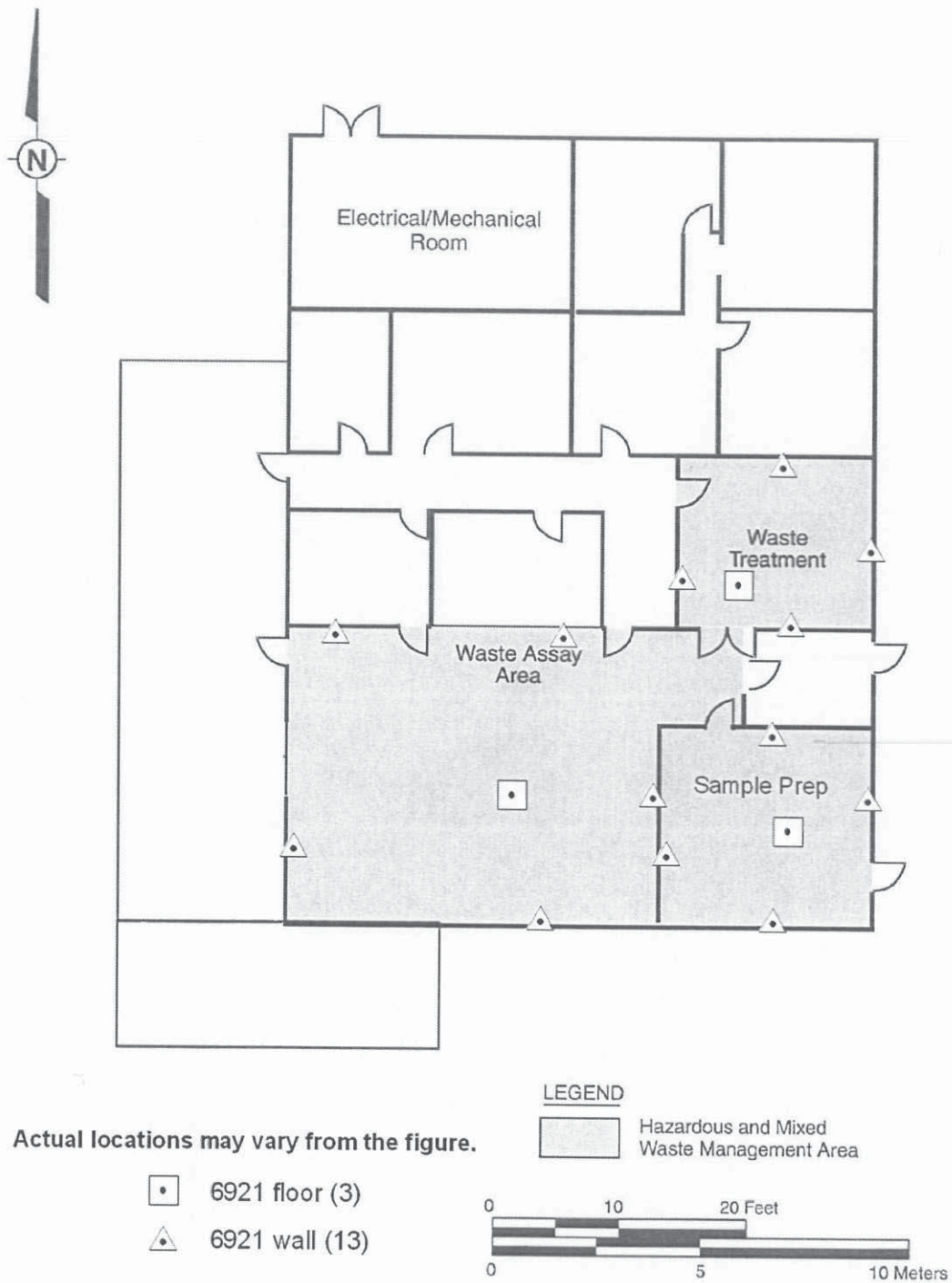
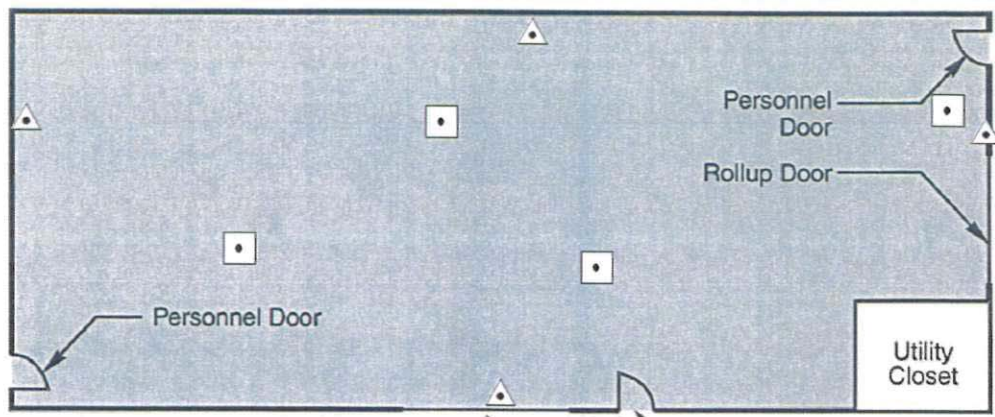
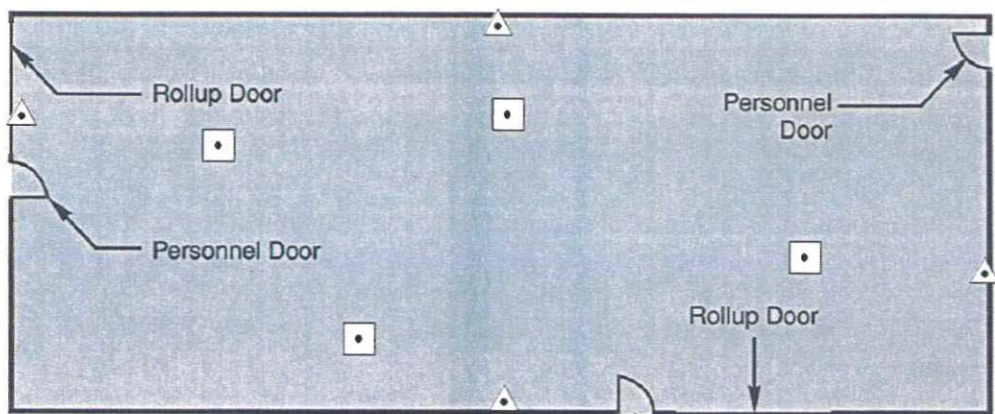


Figure G.3-3
RMWMU Building 6921 Sampling Locations



Building 6925



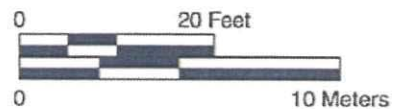
Building 6926



LEGEND



Hazardous and Mixed
Waste Management Area

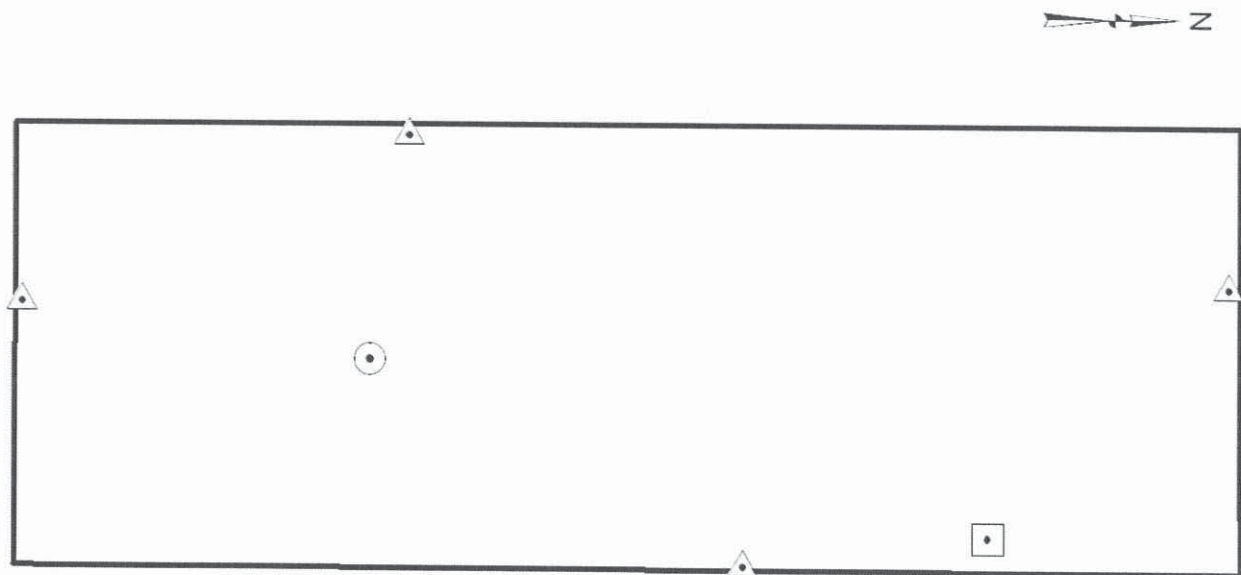


Actual locations may vary from the figure.

□ floor (4 each)

△ wall (4 each)

Figure G.3-4
RMWMU Buildings 6925 and 6926 Sampling Locations



scale in feet
0 5

Actual locations may vary from the figure.

- floor (1)
- △ wall (4)
- ceiling (1)

Note: Same sample plan for both modular buildings.

Figure G.3-5
RMWMU Modular Storage Units - TP-150 and TP-153 Sampling Locations

G.4 CLOSURE PLAN FOR THE AUXILIARY HOT CELL UNIT

TABLE OF CONTENTS

G.4.1. INTRODUCTION	164
G.4.2. CLOSURE PROCESS	164
G.4.3. SAMPLING AND ANALYSIS PLAN	164
G.4.4. AMENDMENT TO THIS CLOSURE PLAN	166
G.4.5. WASTES GENERATED FROM CLOSURE ACTIVITIES	166
G.4.6. CLOSURE REPORT AND CERTIFICATION	166

LIST OF TABLES

Table G.4-1 Sampling Requirements

LIST OF FIGURES

Figure G.4-1 AHCUC Sampling Locations

G.4.1 INTRODUCTION

This closure plan details the activities necessary to close the Auxiliary Hot Cell Unit at Technical Area V at Sandia National Laboratories, hereafter referred to as the AHCU. This closure plan incorporates the requirements in 40 CFR §§ 264.110 through 264.116, 264.178, and Permit Part 6.

The AHCU is located in the high bay of Building 6597 and is comprised of four waste management areas: 1) the auxiliary hot cell, 2) the work area near the hot cell including a fume hood, 3) the storage silos, and 4) the container storage area. The unloading/loading area is indoors. A complete physical and operational description of the AHCU is in Permit Attachment A, Section A.5. The various AHCU components are shown generally on Figure G.4-1.

The AHCU is permitted to treat and store hazardous and mixed wastes with the EPA waste codes listed in Permit Attachment B, Section B.1. The AHCU is permitted to treat hazardous and mixed wastes with the set of EPA waste codes listed in Permit Attachment B, Section B.3. The square footage and operating capacity of the AHCU are identified in Permit Attachment J, Table J-1.1.

It is anticipated that the AHCU will be clean closed. The Permittees shall attain clean closure of the AHCU by meeting the closure performance standards specified at Permit Section 6.2.1. Final closure of the AHCU will be complete when the New Mexico Environment Department (Department) approves the Closure Report and certification required under Permit Part 6, Section 6.10 and Section 7.0 of this Closure Plan.

G.4.2 CLOSURE PROCESS

The Permittees shall, in accordance with Permit Part 6, Section 6.3.1, notify the Department in writing that they have initiated closure at the AHCU.

The Permittees shall, in accordance with Permit Part 6, Section 6.3.2 and Table 6.1, complete all AHCU closure activities.

The Permittees shall, in accordance with Permit Section 6.3.4, remove all hazardous and mixed waste from the AHCU no later than 90 days after initiating closure at the Unit, and shall also remove any solid waste that adversely interferes with closure activities.

The Permittees shall, in accordance with Permit Section 6.3.5, conduct a records review and structural assessment of the AHCU and shall submit the review and assessment in the form of a written report in accordance with that Section.

The Permittees shall, in accordance with Permit Section 6.3.6, decontaminate or remove all contaminated structures and equipment at the AHCU.

The Permittees shall, in accordance with Permit Section 6.3.7 and Section 3.0 (below), perform decontamination verification sampling of all structures and equipment at the AHCU, that were required to be decontaminated.

The Permittees shall, in accordance with Permit Section 6.3.8 and Section 3.0 (below), sample soils and base materials (*e.g.*, gravel) associated with AHCU as needed to quantify constituents of concern associated with any releases of hazardous or mixed wastes.

The Permittees shall ensure that soils and base materials at the AHCU contaminated with constituents of concern that pose an unacceptable risk to human health (based on the closure criteria in Permit Section 6.2.1) or the environment as specified in Permit Section 6.3.8, are removed from the Permitted Unit in accordance with Permit Section 6.3.9. The complete removal shall be verified by the Permittees in accordance with Permit Section 6.3.9.

If the contaminated soil or other environmental media cannot be removed because it would be impracticable, the soil or other environmental media shall be subject to corrective action under Permit Section 6.8.

G.4.3 SAMPLING AND ANALYSIS PLAN

This sampling and analysis plan identifies: 1) the constituents of concern at the AHCU, 2) the locations where sampling shall occur, 3) the laboratory analytical methods that shall be employed to quantify analyte concentration in samples, and 4) the quality assurance procedures to be utilized during closure.

The constituents of concern at the AHCU shall be determined in accordance with Permit Sections 6.3.5 and 6.5(1). A preliminary list of groups of constituents is presented in Table G.4-1 of this Permit Attachment; the list shall be modified at the time of closure if necessary in accordance with Permit Section 6.3.5.

The Permittees shall collect wet-wipe and soil samples, and perform sample quality assurance procedures in accordance with Permit Sections 6.3.10.1, 6.3.10.2, and 6.3.10.3.

The Permittees shall sample soils and base materials at the applicable locations identified at Permit Section 6.3.8. Soil sampling locations are identified in part on Figure G.4-1. The Permittees shall sample structures and equipment at the applicable locations identified in accordance with Permit Section 6.3.7.

Sampling locations may vary from those shown in the figures due to conditions at closure. Sampling locations may also change as a result of amendments to this closure plan, such as amendments required under Permit Section 6.6.

Table G.4-1. Sampling Requirements¹			
Parameter	Laboratory Method(s)	Preservation	Holding Time
Metals (Total: Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl)	6010/6020/ 7470/7471	None	6 months (except Hg 28 days)
VOCs	8260	Headspace free, Cool to 4°C	14 days
SVOCs	8270	Cool to 4°C	14 days
Cyanide	9010/9012	Cool to 4°C	14 days

¹ Methods are EPA SW-846 Methods, as revised and updated.

The Permittees shall handle samples as specified at Permit Part 8, Section 8.10.2.9.

The Permittees shall utilize the laboratory analytical methods, the sample preservation criteria, and the sample holding times as specified in Table G.4-1, as the information in the table may be updated via a closure plan amendment. The Permittees shall abide with the requirements for chemical analyses at laboratories as specified at Permit Part 8, Section 8.10.3.

The Permittees shall document field activities associated with closure as specified at Permit Section 8.10.2.14.i.

G.4.4 AMENDMENT TO THIS CLOSURE PLAN

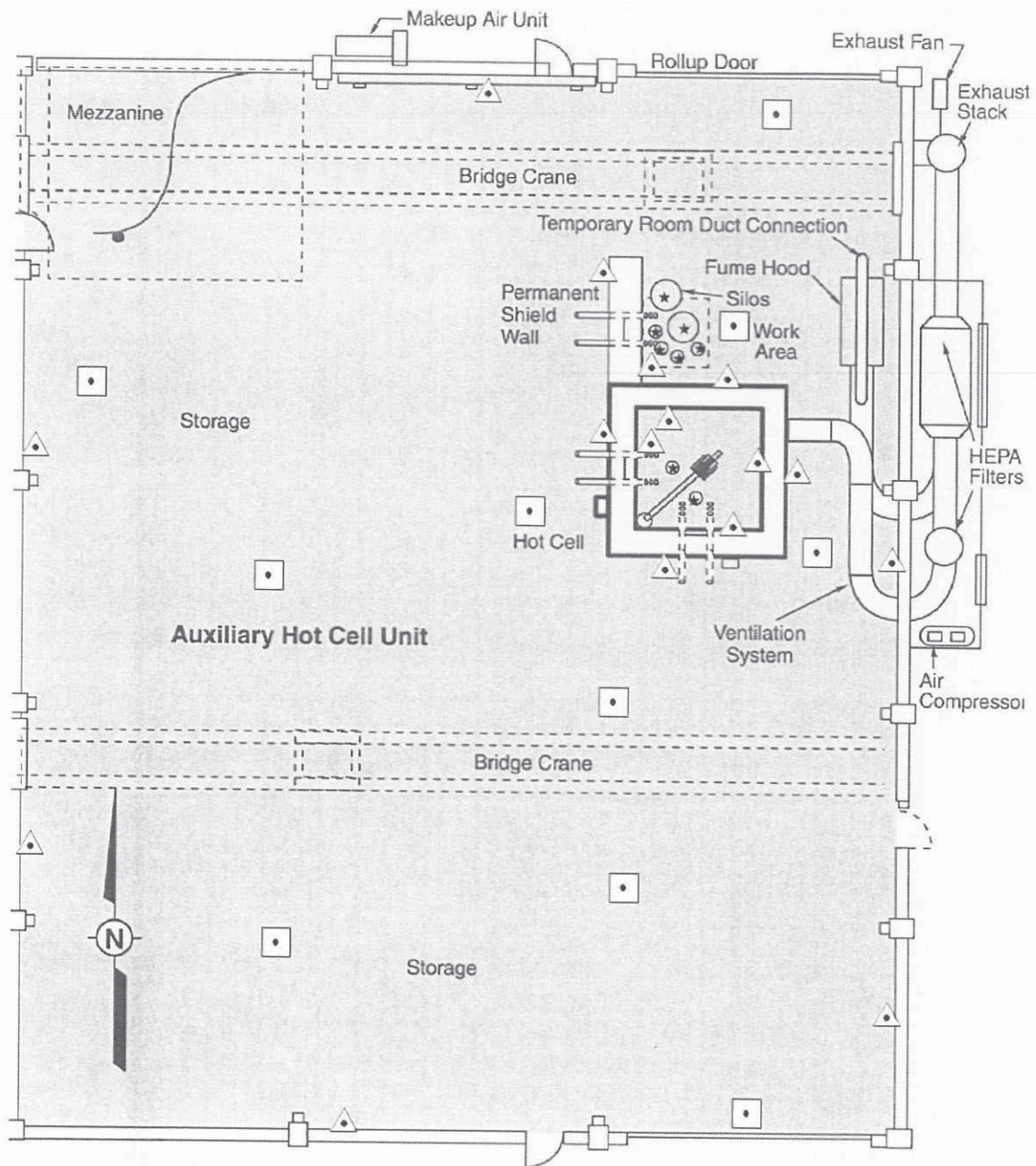
The Permittees shall submit permit modification requests to amend this Closure Plan, if needed, in accordance with Permit Section 6.6.

G.4.5 WASTES GENERATED FROM CLOSURE ACTIVITIES

The Permittees shall ensure that waste (*e.g.*, demolition debris and contaminated soil) generated from closure of the AHCU is managed in compliance with all applicable state, federal, and local requirements (*see* 40 CFR § 264.114).

G.4.6 CLOSURE REPORT AND CERTIFICATION

No later than 60 days after completing closure of the AHCU, the Permittees shall in accordance with Permit Section 6.10 submit a closure report to the Department for review and approval.



LEGEND

 Hazardous and Mixed Waste Management Area

 AHCU floor (10)

 AHCU wall (16)

* AHCU silo (8) Note: Each silo requires 1 sample.

Actual locations may vary from the figure.

0 7.5 15
SCALE IN FEET

Figure G.4-1
AHCU Sampling Locations

G.5 CLOSURE PLAN FOR THE MANZANO STORAGE BUNKERS

TABLE OF CONTENTS

G.5.1.	INTRODUCTION	170
G.5.2.	CLOSURE PROCESS	170
G.5.3.	SAMPLING AND ANALYSIS PLAN	171
G.5.4.	AMANDMENT TO THIS CLOSURE PLAN	173
G.5.5.	WASTES GENERATED FROM CLOSURE ACTIVITIES	173
G.5.6.	CLOSURE REPORT AND CERTIFICATION	173

LIST OF TABLES

Table G.5-1 Sampling Requirements

LIST OF FIGURES

Figure G.5-1 Manzano Bunker 37034 (Type B Bunker Configuration) Sampling
Locations

Figure G.5-2 Manzano Bunker 37118 (Type C Bunker Configuration) Sampling
Locations

Figure G.5-3 Manzano Bunkers 37045, 37055, and 37057 (Type D Bunker
Configuration) Sampling Locations

G.5.1 INTRODUCTION

This closure plan details the activities necessary to close the Manzano Storage Bunkers. The Manzano Storage Bunkers are hereafter referred to as the MSBs. This closure plan incorporates the requirements in 40 CFR §§ 264.110 through 264.116, 264.178, and Permit Part 6.

The MSBs are located within the fenced Manzano Base approximately 1 mile east of the exit road leading to the entrances to Technical Areas (TAs)-III and V and at the end of Pennsylvania Avenue. The location of the MSBs within the Sandia National Laboratories is shown on Figures 2 and 25 in Permit Attachment L (*Figures*).

There are five bunkers collectively referred to as the MSBs. Each of the five bunkers is considered an individual hazardous waste management unit. The five bunkers include Bunkers 37034, 37045, 37055, 37057, and 37118. There are three types of bunkers: Type B (37034); Type C (37118); and Type D (37045, 37055, and 37057). Each of these bunkers is constructed of concrete (walls, roof, and floor), is covered by earthen materials, and the walls and roof of each bunker are rounded. Type B and D bunkers consist of an access tunnel leading to a main chamber that is used for storage of hazardous and mixed wastes. Type C bunkers do not have an access tunnel and consist entirely of a main chamber used for storage of hazardous and mixed wastes. The waste loading/unloading area for each MSB is immediately outside the outer door. A complete physical and operational description of the MSBs is in Permit Attachment A, Section A.6. Type B, C, and D bunker configurations and dimensions are shown generally on Figures G.5-1, G.5-2, and G.5-3 respectively.

Because this Permit Attachment G.5 addresses five hazardous waste management units, and because the units may close at different times or in concert, the requirements of this closure plan may be fulfilled at separate times for individual units or at the same time and with the same documents for all or multiple units.

The MSBs are permitted to store hazardous and mixed wastes with the EPA waste codes listed in Permit Attachment B, Section B.2, in containers. The operating capacities and total square footage of the individual bunkers are identified at Permit Attachment J, Table J-1.1.

It is anticipated that the MSBs will be clean closed. The Permittees shall attain clean closure of the MSBs by meeting the closure performance standards specified at Permit Section 6.2.1. Final closure of the MSBs will be complete when the New Mexico Environment Department (Department) approves the Closure Report and certification required under Permit Part 6, Section 6.10 and Section 6.0 of this Closure Plan.

G.5.2 CLOSURE PROCESS

The Permittees shall, in accordance with Permit Part 6, Section 6.3.1, notify the Department in writing that they have initiated closure at a given MSB.

The Permittees shall, in accordance with Permit Part 6, Section 6.3.2 and Table 6.1, complete all closure activities at the MSB.

The Permittees shall, in accordance with Permit Section 6.3.4, remove all hazardous and mixed waste from the MSB no later than 90 days after initiating closure at the Unit, and shall also remove any solid waste that adversely interferes with closure activities.

The Permittees shall, in accordance with Permit Section 6.3.5, conduct a records review and structural assessment of the MSB and shall submit the review and assessment in the form of a written report in accordance with that Section.

The Permittees shall, in accordance with Permit Section 6.3.6, decontaminate or remove all contaminated structures and equipment at the MSB.

The Permittees shall, in accordance with Permit Section 6.3.7 and Section 3.0 (below), perform decontamination verification sampling of all structures and equipment at the MSB that were required to be decontaminated.

The Permittees shall, in accordance with Permit Section 6.3.8 and Section 3.0 (below), sample soils and base materials (*e.g.*, gravel) associated with the MSB to quantify constituents of concern associated with any releases of hazardous or mixed wastes.

The Permittees shall ensure that soils and base materials at the MSB contaminated with constituents of concern that pose an unacceptable risk to human health (based on the closure criteria in Permit Section 6.2.1 or the environment as specified in Permit Section 6.3.8, are removed from the Permitted Unit in accordance with Permit Section 6.3.9. The complete removal shall be verified by the Permittees in accordance with Permit Section 6.3.9.

If the contaminated soil or other environmental media cannot be removed because it would be impracticable, the soil or other environmental media shall be subject to corrective action under Permit Section 6.8.

G.5.3 SAMPLING AND ANALYSIS PLAN

This sampling and analysis plan identifies: 1) the constituents of concern at the MSB, 2) the locations where sampling shall occur, 3) the laboratory analytical methods that shall be employed to quantify analyte concentration in samples, and 4) the quality assurance procedures to be utilized during closure.

The constituents of concern at the MSB shall be determined in accordance with Permit Sections 6.3.5 and 6.5(1). A preliminary list of groups of constituents is presented in Table G.5-1 of this Permit Attachment; the list shall be modified at the time of closure if necessary in accordance with Permit Section 6.3.5.

The Permittees shall collect wet-wipe and soil samples, and perform sample quality assurance procedures in accordance with Permit Sections 6.3.10.1, 6.3.10.2, and 6.3.10.3.

The Permittees shall sample soils and base materials at the applicable locations identified at Permit Section 6.3.8. Samples shall be collected at the waste loading and unloading area (*i.e.*, area outside the door to the bunker).

Table G.5-1			
Sampling Requirements¹			
Parameter	Laboratory Method(s)	Preservation	Holding Time
Metals (Total: Ag, As, Ba, Be, Cd, Cr, Hg, Ni, Pb, Sb, Se, and Tl)	6010/6020/7470/7471	None	6 months (except Hg 28 days)
VOCs	8260	Headspace free, Cool to 4°C	14 days
SVOCs	8270	Cool to 4°C	14 days
High Explosives	8330	Cool to 4°C	14 days
PCBs	8080/8081	Cool to 4°C	14 days
Cyanide	9010/9012	Cool to 4°C	14 days

¹ Methods are EPA SW-846 Methods, as revised and updated.

The Permittees shall sample structures and equipment at the applicable locations identified in accordance with Permit Section 6.3.7. The sampling locations to demonstrate decontamination verification are identified in part on Figures G.5-1, G.5-2, and G.5-3.

Sampling locations may vary from those shown in the figures due to conditions at closure. Sampling locations may also change as a result of amendments to this closure plan, such as amendments required under Permit Section 6.6.

The Permittees shall handle samples as specified at Permit Part 8, Section 8.10.2.9.

The Permittees shall utilize the laboratory analytical methods, the sample preservation criteria, and the sample holding times as specified in Table G.5-1, as the information in the table may be updated via a closure plan amendment. The Permittees shall abide with the requirements for chemical analyses at laboratories as specified at Permit Part 8, Section 8.10.3.

The Permittees shall document field activities associated with closure as specified at Permit Section 8.10.2.14.i.

G.5.4 AMENDMENT TO THIS CLOSURE PLAN

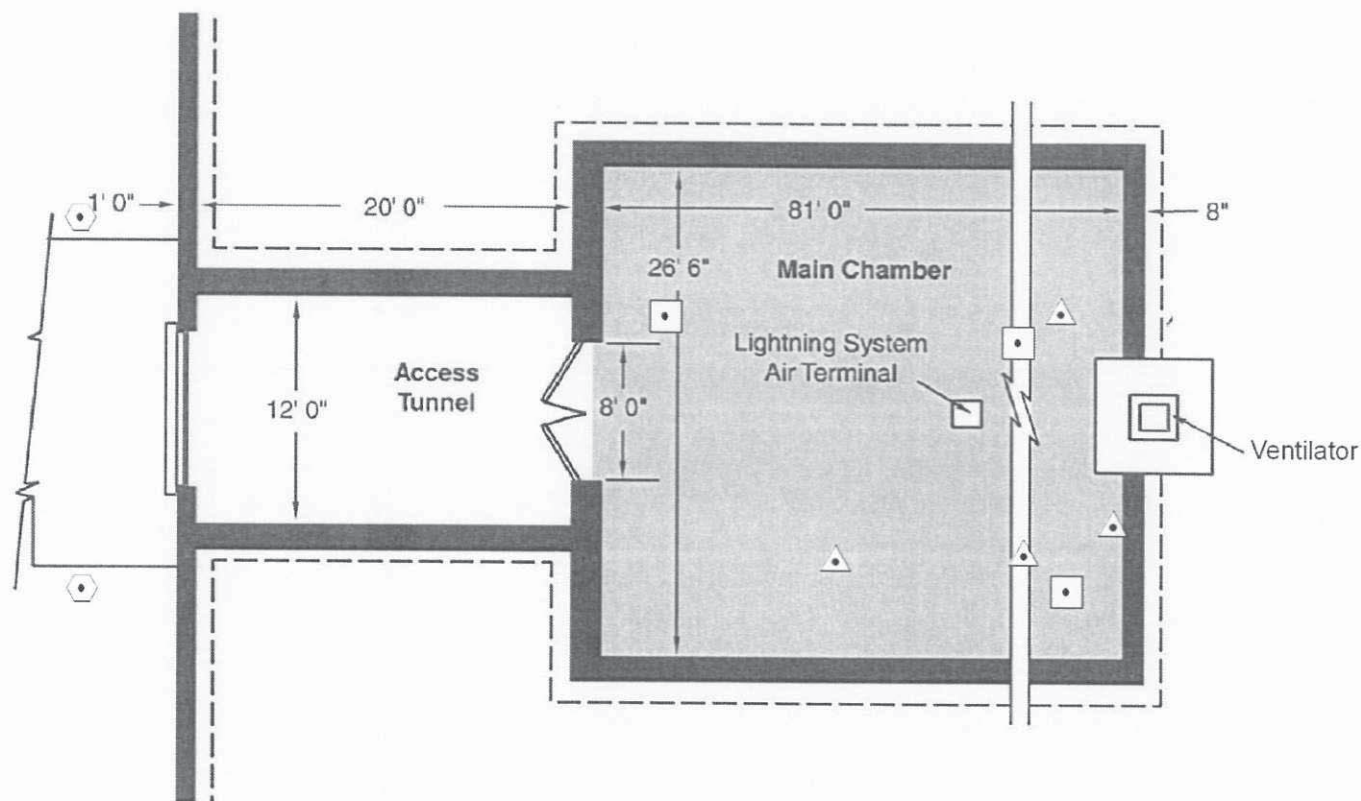
The Permittees shall submit permit modification requests to amend this Closure Plan, if needed, in accordance with Permit Section 6.6.

G.5.5 WASTES GENERATED FROM CLOSURE ACTIVITIES

The Permittees shall ensure that waste (*e.g.*, demolition debris and contaminated soil) generated from closure of each MSB is managed in compliance with all applicable state, federal, and local requirements (*see* 40 CFR § 264.114).

G.5.6 CLOSURE REPORT AND CERTIFICATION

No later than 60 days after completing closure of the MSB, the Permittees shall in accordance with Permit Section 6.10 submit a closure report to the Department for review and approval.



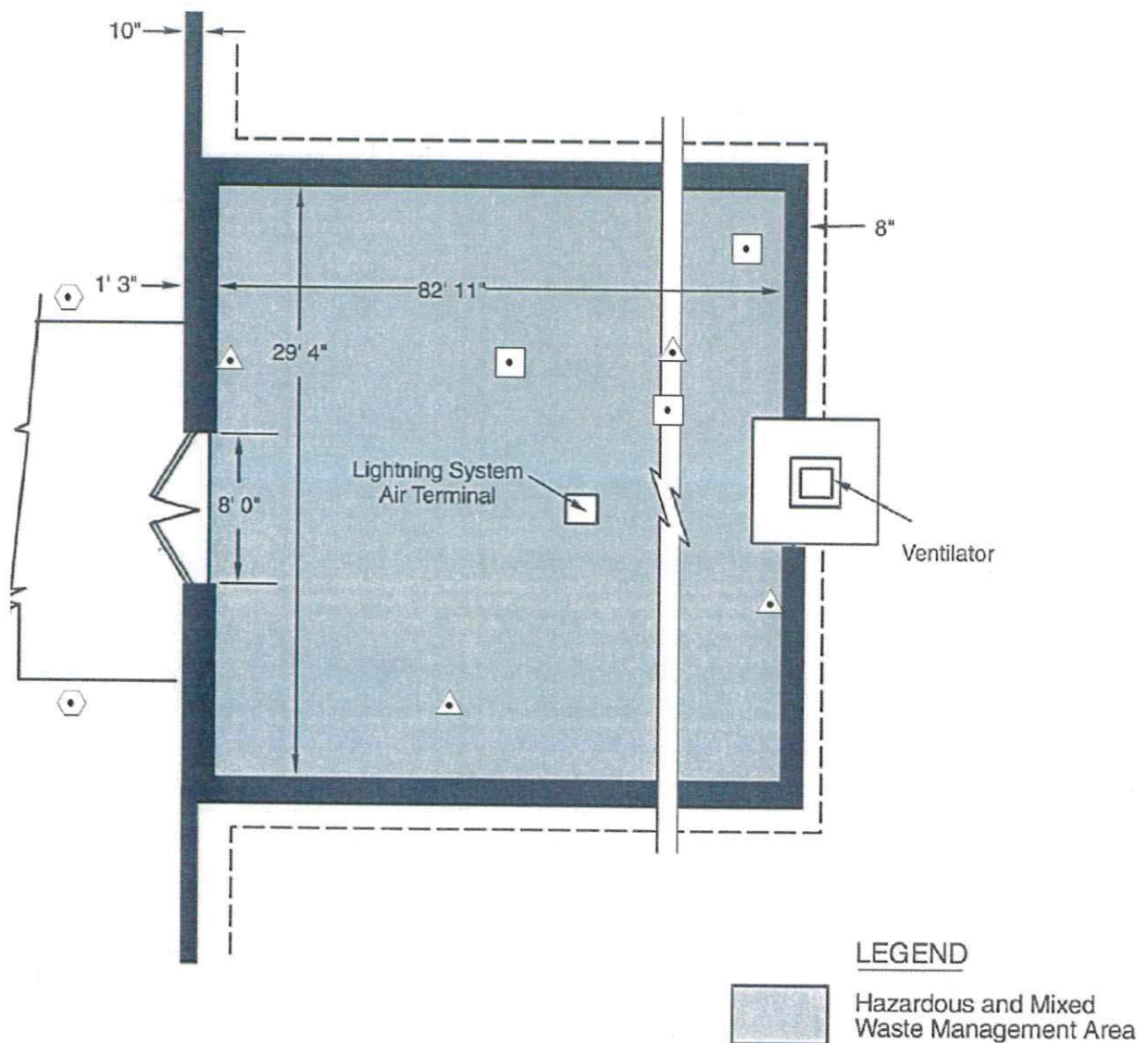
Actual locations may vary from the figure.

- floor (3)
- △ wall/ceiling (4)
- ◊ load/unload/soil (2)

LEGEND

 Hazardous and Mixed Waste Management Area

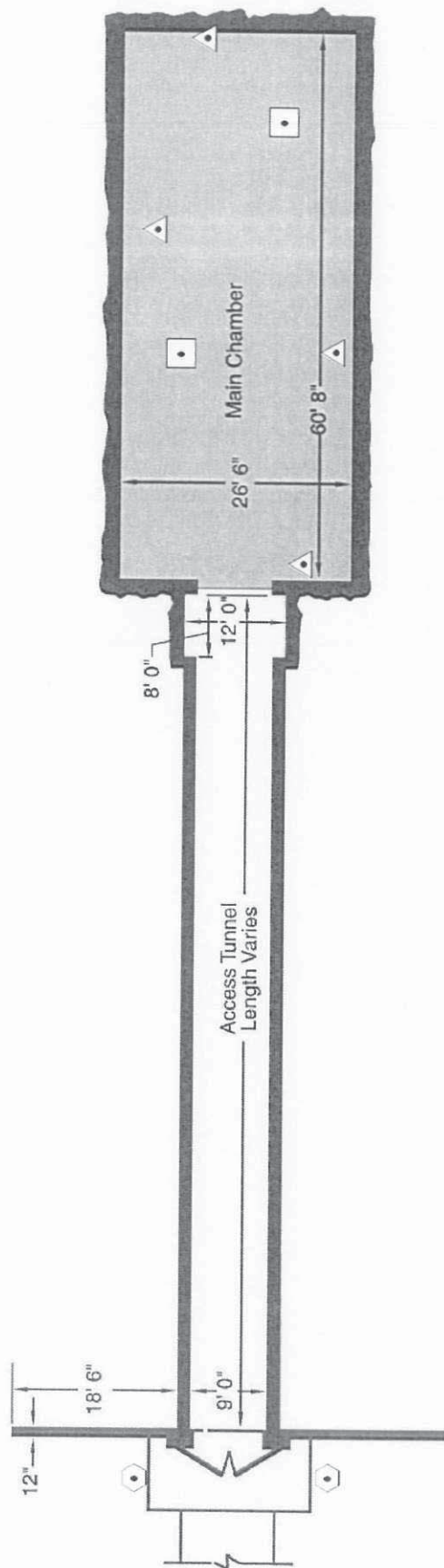
Figure G.5-1
Manzano Bunker 37034 (Type B Bunker Configuration) Sampling Locations



Actual locations may vary from the figure.

- floor (3)
- ▲ wall/ceiling (4)
- ◈ load/unload/soil (2)

Figure G.5-2
Manzano Bunker 37118 (Type C Bunker Configuration) Sampling Locations



LEGEND

floor (2)
 wall/ceiling (4)
 load/unload/soil (2)

Actual locations may vary from the figure.

- floor (2)
- wall/ceiling (4)
- load/unload/soil (2)

Figure G.5-3
Manzano Bunkers 37045, 37055, and 37057 (Type D Bunker Configuration) Sampling Locations